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ABSTRACT

A study examined the relationship between students' vocational and nonvocational experiences while in high school and their decision to drop out. The study was based on data from the sophomore cohort of the High School and Beyond database (a longitudinal, nationally representative sample of approximately 27,000 students who were sophomores in 1980 and seniors in 1982) and information obtained from interviews with representatives of nine dropout prevention programs that were identified as exemplary by their respective state departments of education. It was concluded that dropout prevention programs should have a committed staff, use a variety of integrated strategies, be individualized in a nontraditional environment, share a strong vocational job-related emphasis, and have a strong counseling component. They should also have an early warning and follow through system to be able to identify potential dropouts and ensure that they remain in school. Care must be taken to expend resources on those students who would actually become dropouts if no intervention were to occur. The school environment should be kept as free as possible of absenteeism, robbery, and substance abuse; however, excessive preoccupation with such concerns is commonly associated with high dropout rates. Dropout-prone students need extensive career exploration experiences and should be encouraged to participate in vocational programs in a meaningful way. Parents should be better informed about vocational offerings, and existing rules governing entry into vocational education should be reviewed and evaluated on an individual basis. It is especially important that work study programs have logical or operational ties with students' overall goals. (MN)

Research and Development Series No. 267

STRENGTHENING VOCATIONAL EDUCATION'S ROLE IN DECREASING THE DROPOUT RATE

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CONTENTS

LIST OF TABLES, FIGURES, AND EXHIBITS v

FOREWORD vii

EXECUTIVE SUMMARY ix

INTRODUCTION 1

Basic Issues in the Dropout Problem 1

Purpose of This Study 6

MAJOR QUESTIONS AND RELATED FINDINGS 7

Who Are the Dropouts? 7

What Are the Consequences of Students Dropping Out? 9

What Are the Significant Differences between Actual Dropouts and Completers-High Probable Dropouts? 10

What Characteristics of High School Experiences Are Most Closely Related to the Dropout Rate? 14

What Types of Vocational Experiences Seem Most Closely Related to the Completion of High School? 15

What Alternative Vocational Offerings Are Related to Reducing the Dropout Rate? 19

RECOMMENDATIONS FOR DROPOUT PREVENTION 23

REFERENCES 25

LIST OF TABLES, FIGURES, AND EXHIBITS

Table

1. STATE-BY-STATE DROPOUT RATES 2

2. RELATIONSHIPS OF SELECTED BACKGROUND CHARACTERISTICS TO DROPPING OUT 8

3. SUMMARY OF SUCCESSFUL PROGRAM DESCRIPTIONS AND RECOMMENDATION 21

Figure

1. A chronology of key decision events related to the secondary school dropout problem 5

2. Summary of negative consequences of dropping out on students' basic skills performance. 11

3. A view of potential and actual dropouts within the overall context of the dropout problem 12

Exhibit

1. POSITIVE PROGRAM CHARACTERISTICS COMMONLY NOTED BY VOCATIONAL EDUCATION PROPONENTS 18

2. OVERVIEW OF THE SAMPLE OF EXEMPLARY DROPOUT PREVENTION PROGRAM 20

FOREWORD

A considerable number of students entering public secondary schools today drop out without earning a diploma or its equivalent. At present, it is estimated that approximately 30 percent of the students entering high school will drop out. This translates into 800,000 to 1,000,000 young people per year. Furthermore, it is feared that changing demographics of our school age population and the increased academic requirements currently being implemented will further increase the dropout rate.

To date, research has provided little information on the relationship between students' vocational and nonvocational experiences while in high school and their decision to drop out. The purpose of this study was to extend the research base in order to address this and other concerns related to dropout prevention. This publication is intended to assist educators and administrators in identifying potential dropouts and in structuring a system to help such young people make the career decisions necessary to keep them in school.

The present document is based in part upon the results of an earlier research effort conducted as part of a contract with the Office of Vocational and Adult Education, U.S. Department of Education, which were detailed in that study's final report, "The Role of Vocational Education in Decreasing the Dropout Rate" (ED 264 444). The initial study was conducted in the National Center's Evaluation and Policy Division, administered by N. L. McCaslin.

The author, James Weber, was aided by Lee Blanton, Program Associate, in securing and summarizing the exemplary program comments and by the suggestions of N. L. McCaslin and Paula Kurth, Program Assistant. Editing was provided by Judy Balogh of the National Center's editorial staff.

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EXECUTIVE SUMMARY

The fact that a considerable number of students entering public schools drop out without a diploma is neither a new nor abating concern in our society. An estimated 30 percent of students entering high school today will drop out. It is feared that changing demographics of the school age population and increased academic requirements in response to the "excellence movement" (Bennett 1985) will increase the dropout rate.

To date, research has provided little information on the relationship between students' vocational/nonvocational experiences and their decision to drop out, nor has it identified how those experiences are related to the dropout prevention programs intended to enhance the completion rate of potential dropouts. The purpose of this study is to extend the research base in order to address these concerns.

Two major issues affecting this study are the ambiguity in the definition and data intake procedures used when dealing with dropouts and the lack of follow-through procedures for individual students.

Despite the fact that hundreds of studies have dealt with the dropout issue, little agreement exists on a common definition of dropout. The term has been used to denote students who leave school under a variety of circumstances. For the purposes of this study, a dropout is defined as "any student, previously enrolled in school, who is no longer actively enrolled as indicated by fifteen days of consecutive unexcused absence, who has not satisfied local standards for graduation, and for whom no formal request has been received signifying enrollment in another state—licensed educational institution" (Morrow 1986).

Just as there are a variety of definitions for dropouts, there are also a variety of procedures used to secure and record data on these individuals. Inconsistency is problematic with regard to the time frame, the range of grade levels, and the student accounting procedure used from one district to the next. Two studies (Morrow 1986 and the Urban School Districts' Task Force 1985) recommend that an *annual dropout rate* be calculated each year (e.g., the total number of students in grades K-12 qualifying for dropout status within a calendar year, divided by the average daily attendance for all secondary school students in grades 7-12). In addition, specific parameters that define effective programs for potential and actual dropouts need to be identified, integrated, and used as the basis for addressing the needs of such youth.

Most researchers agree on the general profile of dropouts. Generally, they demonstrate poor basic skills and academic performance, and low scores on intelligence tests. They appear to lack interest in school and school work, have low self-concepts, and exhibit characteristics of social immaturity. Many are older than their classmates, come from broken homes, receive little family encouragement to stay in school, have had at least one child, or are married. Relationships can be drawn between each of these factors and dropping out of school; however, the act of dropping out is rarely the result of a single factor.

Much of the available research and related data suggest that a variety of consequences are linked to the dropout problem.

- Dropouts typically have fewer employment opportunities and advancements.
- Police statistics suggest that dropouts are 6-10 times more likely to be involved in criminal acts than are in-school students.
- High school dropouts are somewhat more prone to suffer from high blood pressure and heart attack.
- The dropout problem tends to self-perpetuate.
- The failure of students to graduate results in lost tax revenues and increased welfare expenditures.

In this study dropouts were compared with completers-high probable dropouts on a number of variables that served to operationally define their vocationally related experiences while in high school. Several findings were as follows:

- Dropouts earned significantly fewer vocational credits than students in the comparison group.
- Dropouts earned significantly fewer total credits than students in the comparison group.
- Dropouts received significantly lower grades than students in the comparison group.
- Dropouts earned credits in fewer vocational service areas than did students in the comparison group.
- Dropouts earned credits in exploratory, or overview, vocational areas to a greater degree than did students in the comparison group.
- Significantly fewer dropouts than comparison students had a vocational specialty.
- Dropouts tended to earn more work-study credits early in their high school careers than comparison students.

The results of the study suggest that programs featuring three types of experiences or activities can play an important role in preventing dropout. When properly structured, programs that identify dropout-prone students, provide guidance and counseling services, and provide opportunities to explore and learn the occupational skills that define specific careers appear to be beneficial in reducing the dropout rate.

It appears that several factors need to be addressed if vocational education is to play a more prominent role and be more effective in helping reduce the numbers of students who drop out of school each year. Not surprisingly, no magic formulas exist. However, the following recommendations would seem to play important roles in dropout prevention:

- Dropout prevention programs should have committed staffs, use a variety of integrated strategies, be individualized, be offered in a nontraditional environment, share a strong vocational job-related emphasis, and have a strong counseling component.

x

- Dropout prevention programs should have an early warning/follow-through system in order to identify potential dropouts, as well as develop ways to ensure that those students stay in school.

- Because of their cost, program resources should be expended on students who would become actual dropouts if no intervention were to occur. Efforts must be strengthened to identify dropouts early in their school careers. Emphasis needs to be placed on the development and utilization of localized, multidimensional, student-centered decision rules that are reliable dropout indicators.

- The school environment should be free from absenteeism, robbery, and substance abuse. However, if carried too far, efforts to "control" the school environment in order to change these factors could have the reverse effect. Preoccupation with matters of control and discipline is commonly correlated with high dropout rates.

- Parents should become better informed about vocational and other curricular offerings available to their children. Presentations featuring employers and vocational graduates from the local area might be beneficial. Parents should also be shown how to provide planning and support to their children in choosing their school programs.

- Extensive career exploration and related career education experiences should be provided for dropout-prone students, particularly prior to and at the transition point into high school in order to enhance their awareness of the full range of vocational alternatives.

- Potential dropouts need to participate in vocational programs in a meaningful way for vocational education to have a positive impact upon the dropout rate. The results of this study indicate that schools with high dropout rates do not emphasize vocational education as a curricular alternative any more than do schools with low dropout rates. These results suggest that if the positive, retention-related benefits from participating in vocational education are to be realized, specific steps need to be taken to increase enrollment and participation patterns of dropout-prone students in those programs.

- The existing rules governing entry into vocational education should be carefully reviewed and evaluated on an individual-student basis, particularly for students deemed to be dropout-prone. This review needs to be undertaken in order to ensure that students are not being kept out of such programs while being allowed to participate in work-study programs that have few, if any, logical or operational ties with the students' overall school plans or goals.

- Work-study experiences, particularly those pursued early in students' high school careers, should be carefully reviewed and evaluated. Such experiences, when not logically or operationally tied to students' overall education programs, are not a panacea for resolving an individual student's school problems.

INTRODUCTION

Many students who enter our public schools leave without achieving what has become the expected minimum level of educational attainment—a high school diploma. This is neither a new nor abating concern in our society. For example, 2 years after the opening of the first publicly supported high school in 1821, 76 of the entering class of 176 had dropped out (Stevens and VanTil 1972). At the turn of the century only 11 percent of all high school-aged youth were actually in school (Thornburg 1974) and about 90 percent of the male students failed to receive high school diplomas (Bachman, Green, and Wirtanen 1971). By 1909 only 13 of every 100 children who enrolled in the first grade were still in school when they reached age 16 (Schneider 1981). It was not until the 1950s that the proportion of students who left high school prior to graduation declined to below 50 percent.

It is estimated that, at the national level, slightly less than 30 percent of the students entering high school leave before receiving a diploma (Sewell, Palmo, and Manni 1981; McDill, Natriello, and Pallas 1985; *U.S. News and World Report* 1985). See table 1. This estimate of early school leavers has remained relatively constant since the 1970s and translates into approximately 800,000–1,000,000 students dropping out of school annually (Grant 1973; Buxton 1984; U.S. Department of Education 1985).

Recent data suggest that the problem is becoming especially acute in large, urban centers where dropout rates of up to 60 percent have been reported (Calitri 1983; Hammack 1986). Furthermore, a number of researchers contend that the overall, national dropout rate may increase in the foreseeable future (e.g., Anderson and Brouillette 1985; Association for Supervision and Curriculum Development 1985; Kaplan 1985; Levin 1985) due in part to the current emphasis on increased academic requirements as well as to the changing demographics of the nation's school-age population.

Basic Issues in the Dropout Problem

Problem of Definition

Despite the fact that hundreds of studies have been conducted that deal with the dropout issue and that most of the over 15,000 school districts across the country monitor in some way the enrollment, graduation rates, and noncompletion rates of their students, relatively little agreement exists on a common definition of a "dropout." For example, the term dropout has been used to denote a variety of early school leavers (Elliott et al. 1966; Buxton 1984; Morrow 1986):

- *Pushouts*—undesirable students (e.g., those removed by suspension from school)
- *Disaffiliated*—students who no longer wish to be associated with schools
- *Educational mortalities*—students who fail to complete a program or specified course of study
- *Capable dropouts*—students whose family socialization did not agree with school demands (e.g., teenage parenting)
- *Stopouts*—students who leave, then return to school, usually within the same school year

State	1982	1984	Rank	State	1982	1984	Rank
AL	36.6	37.9	3	MT	21.3	17.9	44
AK	36.5	25.3	27 T*	NE	18.1	13.7	50
AZ	36.6	35.4	11 T	NV	35.2	33.5	12
AR	26.6	24.8	30 T	NH	23.0	24.8	30 T
CA	39.9	36.8	8	NJ	23.5	22.3	38
CO	29.1	24.6	31	NM	30.6	29.0	17
CT	29.4	20.9	41	NY	36.6	37.8	5 T
DE	25.3	28.9	18	NC	32.9	30.7	15
DC	43.1	44.8	1	ND	16.1	13.7	50 T
FL	39.8	37.8	5 T	OH	22.5	20.0	42
GA	35.0	36.9	7	OK	29.2	26.9	21 T
HI	25.1	26.8	22	OR	27.5	26.1	23
ID	25.6	24.2	32	PA	24.0	22.8	37 T
IL	23.9	25.5	25	RI	27.3	31.3	14
IN	28.3	23.0	35	SC	37.4	35.5	9
IA	15.9	14.0	48	SD	17.3	14.5	47
KS	19.3	18.3	43	TN	32.2	29.5	16
KY	34.1	31.6	13	TX	36.4	35.4	11 T
LA	38.5	43.3	2	UT	25.0	21.3	40
ME	37.9	22.8	37 T	VT	20.4	16.9	45
MD	25.2	22.2	39	VA	26.2	25.3	27 T
MA	23.6	25.7	24	WA	23.9	24.9	28
MI	28.4	27.8	19	WV	33.7	26.9	21 T
MN	11.8	10.7	51	WI	16.9	15.5	46
MS	38.7	37.6	6	WY	27.6	24.0	33
MO	25.8	23.8	34	Average	30.3	29.1	--

SOURCE: Ortlovensky (1986).
* T = a tied ranking

Bachman, Green, and Wirtanen (1971) noted over a decade and a half ago that in the literature "very often dropout simply refers to all those who do not have a high school diploma (assuming they are part of a sample or cohort that is old enough to have completed high school)" (p. 5). Although this definition proved to be fairly workable, it fails to account for the individual who leaves school at some point in time but gets his or her diploma or a general equivalency diploma (GED) at a later point in time via an alternate route (e.g., by attending night school or taking a standard examination). For example, the Census Bureau (General Accounting Office 1986) defines dropouts as people who are not enrolled in school and are not high school graduates, or the equivalent. Under such a definition, being a dropout is a state or condition but is not an irreversible attribute. For example, a person may be a dropout, but cease to be a dropout at a later time by returning to school or completing a GED program.

Frequently the definition of dropout used is dependent upon critical, if not somewhat unique, attributes of the sample or cohort that is being studied. For example, in the study by Bachman et al. (1971), dropouts were defined as "those individuals who interrupt their full-time attendance in high school for more than a few weeks" (p. 5). This definition was close to the standard definition of dropouts developed as part of a National Education Association (1965) project on school dropouts and used by the U.S. Department of Education. It served as a usable definition given the limited time the sample that was studied had been out of high school. In a later, related study involving the same sample, where the available data extended 5 years beyond the point of normal graduation, Bachman et al. (1978) redefined dropouts as "those who interrupted high school rather permanently, i.e., those who still lacked a diploma five or more years after they dropped out" (p. 207).

Based upon a review of the working definitions employed by different school districts as well as the more formal definitions such as those noted above, Morrow (1986) identified three criteria or elements that should be addressed in the definition of a dropout:

(1) Is the student actively enrolled?

(2) If not, has the enrollment been formally transferred to another legitimate institution?

(3) Has the student earned a high school diploma or its equivalent? (p. 344)

Given these criteria, Morrow offers the following definition for a dropout:

> A dropout is any student, previously enrolled in school, who is no longer actively enrolled as indicated by fifteen days of consecutive unexcused absence, who has not satisfied local standards for graduation, and for whom no formal request has been received signifying enrollment in another state-licensed educational institution. (p. 353)

The definition offered by Morrow was the one employed in the current report as well as during the analysis of the 27,000 member sophomore cohort of the High School and Beyond (HS&B) database. More specifically, in relation to that database a dropout is defined as a person who was a high school sophomore in spring 1980 but who was neither enrolled in high school nor a high school graduate or the equivalent in spring 1982. A review of that definition shows that it addresses each of Morrow's three criteria.

Procedural Variations

The complexities related to the dropout problem do not stop with the specification of a definition. If there are as many definitions for dropouts as there are school districts that record data on such students, as noted by Freeland (1986), then there is an equally divergent set of procedures used to secure those data. Consistency of reporting dropout data is problematic both within and across school districts. Hammack (1986) has noted:

> Some districts include special education students in their reports while others do not; some include all students enrolled in any type of program offered by the district, while others include only those enrolled in regular day high schools. The specific dropout codes used vary, so that in some districts, a transfer to a business or trade school is not registered as a dropout, while in others it is, at least if the school does not offer a high school diploma program. Finally, as the structure of educational systems varies both within districts and between them, there is no consistency in the grade levels included. . . . The data reported in

dropout reports sometimes includes only tenth through twelfth grades; others report ninth through twelfth grades, but only those from regular four-year high schools, leaving unreported ninth-grade students dropping out from junior high schools. (pp. 327-328)

School districts (as well as researchers) also vary in the way in which they calculate dropout rates (Urban School Districts' Task Force on Dropouts 1985; Hammack 1986; Morrow 1986). In most cases, three factors influence those calculations:

- the *time frame* during which the number of students who drop out is counted (e.g., a calendar year, a 9-month period, or 4 years)
- the *range of grade levels* from which the pool of dropouts is drawn (e.g., K-12, 9-12, 10-12)
- the *student accounting procedure* used by the district (e.g., average daily attendance or average daily membership), which serves to define the *baseline* population or pool from which dropping out is said to occur

If greater standardization of dropout rates is to occur, Morrow (1986) contends that greater consistency needs to be achieved in each of the following procedural areas: the definition of a dropout, the specification of a time frame during which the number of dropouts is counted, and the specification of the baseline population or pool of students from which dropping out is said to occur.

The Urban School Districts' Task Force on Dropouts (1985) and Morrow (1986) recommend that an *annual dropout rate* be calculated each year (e.g., the total number of students in grades K-12 · qualifying dropout status within a calendar year, divided by the average daily attendance for all secondary school students in grades 7-12). Morrow also recommends that a *cohort dropout rate* be calculated as well (i.e., the total number of students qualifying for the status of dropout, who, at the time of dropping out, were members of a cohort of students in grades 7 through 12, divided by the absolute number of students assigned to the cohort minus those who died or were formally transferred to another state-licensed educational institution). Although the Urban School Districts' Task Force on Dropouts expressed agreement as to the value of such an estimate, they felt the costs associated with its generation did not warrant its being calculated routinely; for example, on an annual basis.

Critical Decision Events

In addition to the issues of definition and data collection for purposes of calculating school and/or district dropout rates, procedures need to be established for tracking students and assisting them where appropriate, through a sequence of decision events such as shown in figure 1. In addition, reliable prediction rules are needed to determine (1) which students will actually leave school and can be differentiated from among the pool of potential dropouts, (2) which actual and potential dropouts are likely to participate in special programs designed to help address their needs, and (3) which actual dropouts are likely to go on to complete high school via a diploma or GED. Also, specific parameters that define effective programs for potential and actual dropouts need to be identified, integrated, and used as the basis for addressing the needs of such youth.

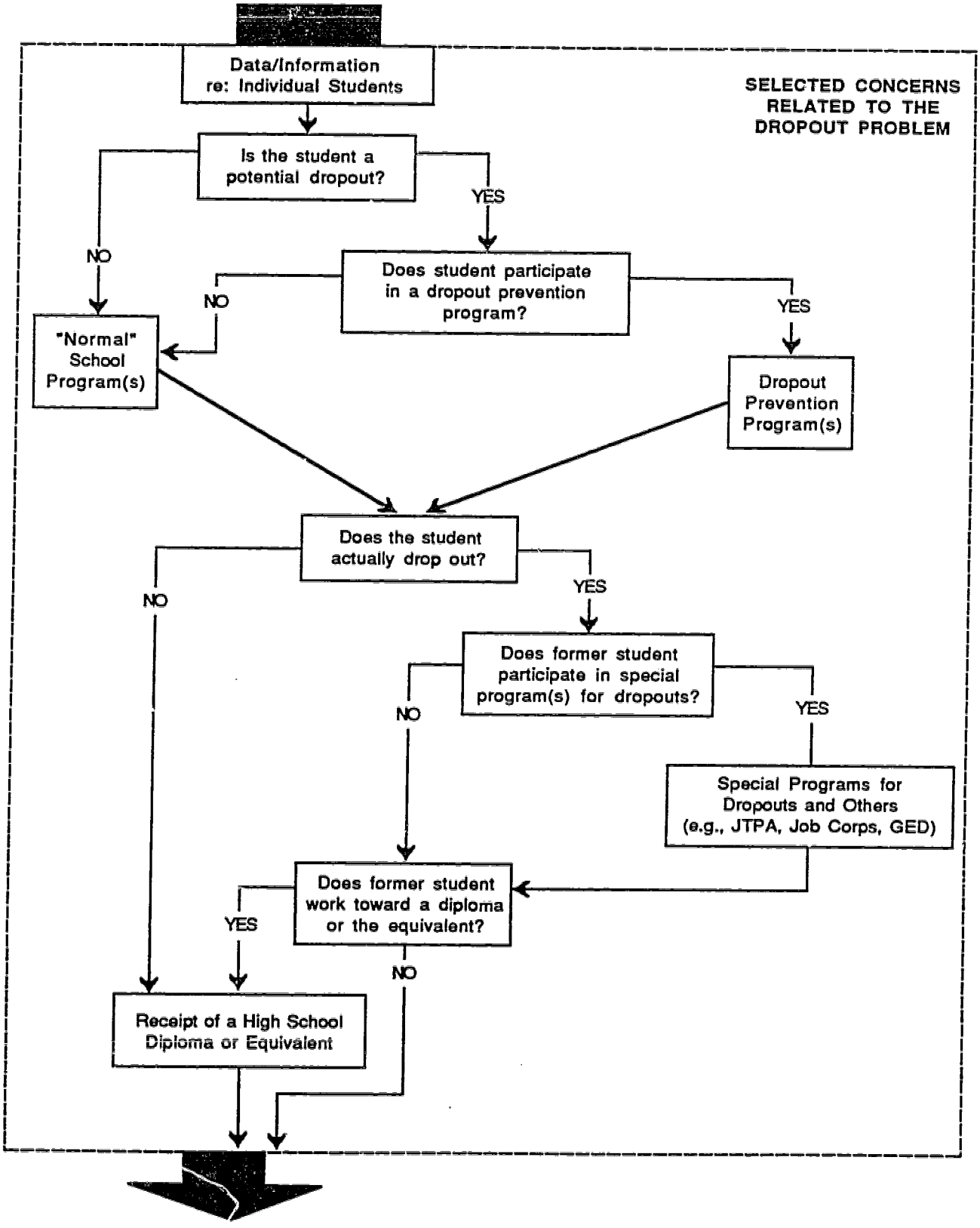

Figure 1. A chronology of key decision events related to the secondary school dropout problem.

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Purpose of This Study

Although the dropout problem is widespread and complex, research indicates that the problem can be addressed and significantly reduced by improved, targeted educational programming. Furthermore, there is a growing segment of that research that suggests that vocational education and work experience have an important role to play in regard to such improved programming. However, the available research has provided relatively little information regarding the following concerns:

- What alternative configurations or types of vocational and related experiences appear to be most closely related to individuals' completion of high school?
- What alternative experiences offered by different high schools are most closely related to reduced dropout rates across those schools?
- What features or characteristics of exemplary dropout prevention programs appear to be related to enhancing the completion rates of the potential dropouts they serve?

The purpose of this report as well as an earlier research study (Weber 1986) is to extend the current research base and to address these types of concerns. To that end, the earlier study focused upon the analysis of the following data sets:

- The sophomore cohort of the HS&B database—a longitudinal, nationally representative sample of approximately 27,000 students who were sophomores in 1980 and seniors in 1982
- Information secured via discussions/interviews from a sample of nine dropout prevention programs, which were designated as exemplary programs by their respective state departments of education

The findings from these analyses were used to develop recommendations for increasing the effectiveness of vocational education as it relates to retaining secondary students in school.

MAJOR QUESTIONS AND RELATED FINDINGS

Who Are the Dropouts?

Although educators, researchers, and policymakers have not agreed on a standard operational definition for dropouts (e.g., see Hammack 1986; Morrow 1986; Mann 1985; Freeland 1986; Urban School Districts' Task Force on Dropouts 1985), most will agree on what the general profile for such students looks like. Syntheses of the literature (Bachman, et al. 1971; Rumberger 1981; Mertens, Seitz, and Cox 1982; Weber and Silvani-Lacey 1983; Wehlage and Rutter 1984; Los Angeles Unified School District Dropout Prevention/Recovery Committee 1985; Ekstrom, et al.1986) suggest that dropouts can often be identified by the following:

- *Cognitive characteristics*—demonstrate poor basic skills (e.g., reading and computation skills) as shown in test scores well below average for their expected grade levels; repeated grade levels; poor academic performance; and low scores on intelligence tests (mean IQ of 90)

- *Affective characteristics*—appear to lack interest in school and school work; feel alienated from the school environment, teachers, and peers; perceive little interest, respect, or acceptance on the part of teachers; have low self-concepts and exhibit characteristics of social immaturity; tend to be either hostile and unruly or passive and apathetic

- *Other characteristics*—are older than their classmates; are frequently absent and tardy; are from low-socioeconomic backgrounds in which one or both parents did not complete high school; are from weak or broken homes; are often members of minority groups and/or handicapped; receive little family encouragement and psychological support to stay in school; have had at least one child and/or are married

Although not all students who exhibit these characteristics actually drop out, most dropouts do exhibit some combination of such features.

Relationships can be drawn between several of the key background characteristics just listed and the dropout problem in high school. See table 2. These relationships reinforce and augment the factors frequently stated by dropouts as their reasons for leaving school (Peng and Takai 1983; Applebaum and Dent 1983; Kumer and Bergstrand 1979; Bachman et al. 1971).

Although the kinds of relationships shown in table 2 are quite informative, research suggests that the act of dropping out, which is generally an individual decision, is rarely the result of a single factor. Rather, it tends to be the result of the interaction among a number of factors that culminate in the decision to leave school. Furthermore, for most youth the decision to drop out of school does not "just happen." By the time such a student enters high school, many predictive signs are already present. For example, if a youth comes from a single-parent family or has a history of poor work and failure in school, then that person has a greater than average chance of becoming a dropout (Bachman et al. 1971).

TABLE 2

RELATIONSHIPS OF SELECTED BACKGROUND CHARACTERISTICS TO DROPPING OUT

Background Characteristics (and Potential Ranges)	Groups		Related Statistics
Have a limiting physical condition or handicap (1=yes, 0=no)	(1) Dropouts - actual		11%
	(2) Completers - high dropout potential		13%
	(3) Completers - low dropout potential		6%
Family socioeconomic status (Overall mean=0)	(1) Dropouts - actual		x = -.4 F = 533.0422
	(2) Completers - high dropout potential		x = -.4 (1=2<3)
	(3) Completers - low dropout potential		x = 1.0
	(4) High SES		5.2% drop out
	(5) Middle SES		9.0% drop out
	(6) Low SES		17.4% drop out
	(7) Unknown		31.6% drop out
Fathers' educatio. less than high school (1=yes, 0=no)	(1) Dropouts		33%
	(2) Completers		22%
Mothers' education less than high school (1=yes, 0=no)	(1) Dropouts		35%
	(2) Completers		19%
Community type	(1) Urban*		19% drop out
	(2) Suburban		12% drop out
	(3) Rural		13% drop out
Race/Ethnicity**	(1) White		15% drop out
	(2) Black		21% drop out
	(3) Hispanic		39% drop out
Limited English proficiency (1=yes, 0=no)	(1) Dropouts		21%
	(2) Completers		8%
Has had first child***	(1) Dropouts	(a) by 10th grade	3.0%
		(b) between 10th and 12th grades	19.0%
	(2) Completers	(a) by 10th grade	.5%
		(b)between 10th and 12th grades	1.4%
Married	(1) Dropouts	(a) by 10th grade	.8%
		(b) between 10th and 12th grades	18.8%
	(2) Completers	(a) by 10th grade	.3%
		(b) between 10th and 12th grades	1.1%

NOTES: Except where indicated the information presented is based upon the sophomore cohort of the High School and Beyond database (a nationally representative sample of approximately 27,000 students).

The observed F-Value is significant at α .0001 level.

* Recent reports set the rate for Miami = 29.5%, New York = 38.4%, and Chicago = 43%.

** Based upon data reported by Boyer (1983).

*** The growing problem of teen pregnancies was recently summarized by Wallis (1985).

What Are the Consequences of Students Dropping Out?

Much of the available research and related data suggest that the dropout problem at the secondary level is related to a variety of individual and social consequences.

Individual Consequences.

Dropping out, along with the attendant lack of a basic education, contributes to the disappointments, frustration, and sense of alienation felt by many of those youth who leave school (Los Angeles Unified School District Dropout Prevention Recovery Committee 1985), as well as to their inability to secure and retain employment (Fine and Rosenberg 1983; General Accounting Office 1986). Also, high school dropouts can expect to earn less during their lifetimes than those who graduate (Freeland 1986; Rumberger 1981). For example, the lifetime income for male dropouts is approximately 70 percent of the income for male graduates who do not attend college (Governor's Study Committee on High School Dropouts 1981). In addition, dropouts typically have fewer employment opportunities and advancement, pay less tax monies, and are more often on welfare.

Legal Consequences

Novak and Dougherty 1979 suggest that a greater amount of criminal activity is correlated, but not necessarily casually related, with dropping out of high school (Bachman, et al. 1971). Police statistics suggest that dropouts are 6-10 times more likely to be involved in criminal acts than are in-school students (Jones 1977). It has also been reported in several studies that over 80 percent of the inmates in state prisons are school dropouts (O'Morrow 1976; Porter and Gilberg-Porter 1984).

Health-Related Consequences

Recent studies reported in the *New England Journal of Medicine* reveal that high school dropouts are "significantly more likely to suffer from high blood pressure and heart attack" (Buxton 1984, p. 6). This correlation is presumed to be due, at least in part, to the high level of stress in their lives. Buxton concludes that even the simplest tasks, such as completing an employment application or getting a driver's license, may be quite threatening when one can't read or write. In another study (Harris 1980), it was found that half the dropouts and dropout-prone students who were involved in the study had seriously considered suicide and that one-third had attempted it.

Educational Consequences

The dropout problem tends to be self-perpetuating. One study conducted in West Virginia reported that 75-80 percent of the students who drop out of school have parents who dropped out (Buxton 1984; Rumberger 1981). Dropping out also appears to be related to discipline problems, truancy, student violence, alcohol and drug abuse, and teenage pregnancy (Weber et al. 1983; Wehlage and Rutter 1984). In a survey of school administrators (Neill 1979), the respondents cited the permanent intellectual and/or vocational damage to students (as well as the overall lowering of school standards and achievement) as a major negative consequence of dropping out of high school.

It is also widely held (U.S. Department of Education 1985; Bernick 1986) that the dropout problem contributes to the problem of functional illiteracy (i.e., the lack of minimal reading and computational skills needed for entry-level jobs and to participate "fully" in our society). For example, in the document released by the U.S. Department of Education (1985) it is noted that about 43 percent of the annual growth in the number of functional illiterates in this country is due to dropouts.

Furthermore, empirical data on several tests of basic skills (Rock et al. 1985) involving the 27,000 members of the sophomore cohort of the HS&B database suggest that not only are the "basic literacy skills" (as defined by the tests noted in figure 2) of those who drop out significantly lower (both statistically and educationally) than those of students who complete high school, but also that their basic literacy skills increase significantly less between the 10th and 12th grades. A summary of those data is presented in figure 2.

Economic Consequences

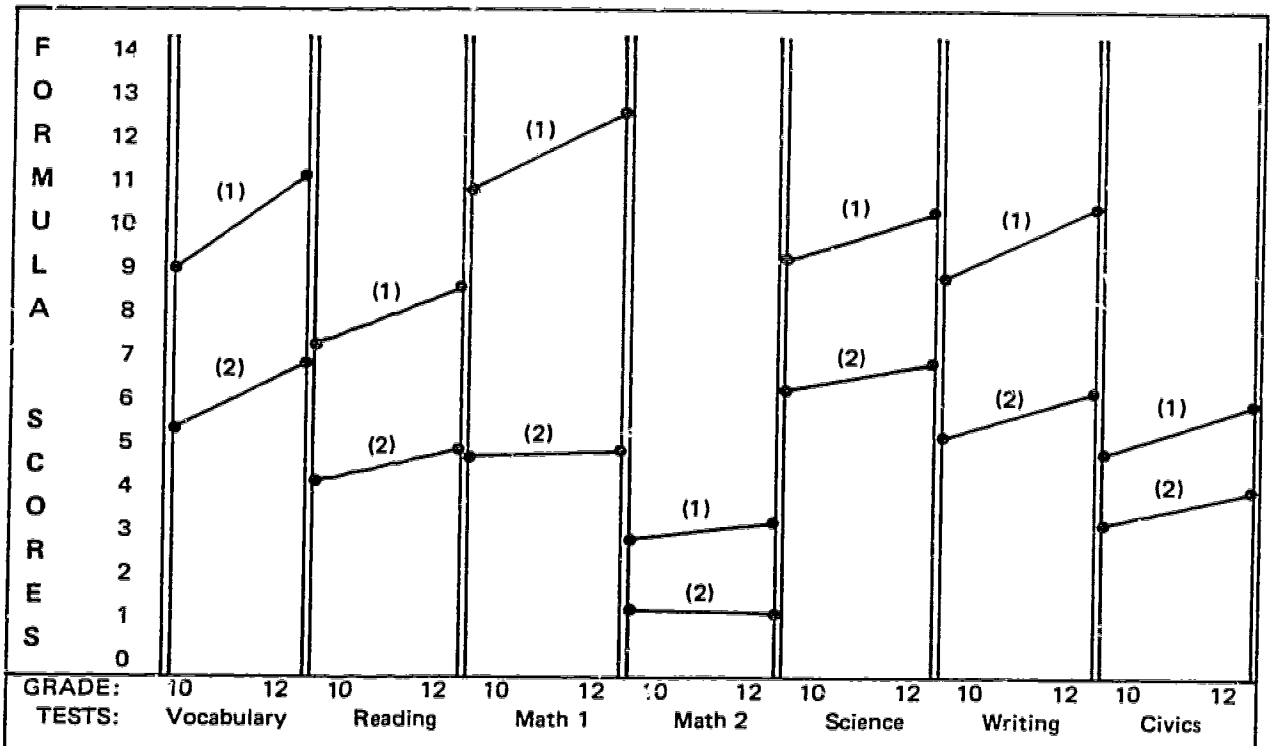
Recent research studies suggest that the failure of many students to complete high school can have far-reaching social and economic implications. For example, McDill, Natriello, and Pallas (1985) note that a "task force of the New York Senate attributed the decline in New York City's economy in part to high dropout rates" (p. 6), which were reported to be approximately 38.4 percent (Rohter 1984). Likewise, Hess and Lauber (1985) estimate the social costs of Chicago's dropout problem per school class cohort to be approximately $451 million. At the same time, they contend that neglect of the dropout problem in Chicago (with a reported dropout rate of 43 percent) will cost the city's taxpayers $12.49 for every $1.00 of additional resources needed to address the problem. The projected costs of the dropout problem at the national level are also quite staggering. Levin (1972) projected $71 billion dollars of lost tax revenue, $3 billion in increased welfare and unemployment costs, and $3 billion in crime-related costs in 1969 that could be associated with 25- to 34-year-old males who had not completed high school. In a more recent study, Catterall (1985) estimates those countrywide costs to be between $26,000 and $200,000 per dropout and $20 billion-$200 billion per school class cohort, depending on the assumptions made regarding future earnings and loss projections.

Although the available research does not document a cause-and-effect relationship between dropping out and the types of individual and social concerns listed, it does serve to document that the dropout problem is widespread and complex, both in its nature and effects.

What Are the Significant Differences between Actual Dropouts and Completers-High Probable Dropouts?

As shown in figure 3, there is a substantial portion of students in our high schools who are apparently similar to the students who drop out, but who for one reason or another choose to remain in school. Why do these students (referred to as Completers-High Probable Dropouts in figure 3) stay in school, whereas many of their peers quit or leave? What alternative kinds of educational experiences, including vocational experiences appear to be most closely related to students' completion of high school?

Data from the HS&B sophomore cohort was used in the study by Weber (1986) to evaluate what vocational experiences are related most to individual students' decisions not to drop out. The strategy involved (1) identifying two groups of students, both with a high propensity toward dropping out (the students in one group actually left school in the 10th, 11th, or 12th grade, whereas the students in the other group completed high school), and (2) comparing the two groups in terms of their experiences in high school, especially their vocationally related experiences. To do this, a discriminant function was estimated, based upon 119 variables identified during the early stages of the study. Then a comprehensive assessment of differences among the two student groups was conducted using the discriminant function. The intent of this assessment was to demonstrate empirically the "similarity" of the two groups, particularly during the 1980 test year. Finally, various comparisons were made between the two student groups in terms of their vocationally related high school experiences.



GROUPS: (1)=Completers (2)=Dropouts

TEST MEANS

Groups*	Grade Level	Vocab.	Read.	Math 1	Math 2	Science	Writing	Civics
(1) Completers (n=18,993)	10	9.0	7.2	10.8	2.7	9.1	8.8	4.7
	12	11.3	8.5	12.4	3.1	10.1	10.5	5.8
(2) Dropouts (n=1,360)	10	5.4	4.2	4.7	1.2	6.3	5.1	3.3
	12	6.8	4.9	4.9	1.2	6.8	6.1	4.0

Note: *These groups are comprised of students from HS&B who had complete sets of scores on the designated tests.

MANOVA SUMMARY

Hypothesis	Wilks Lamda	Hyp. df.	Error df.	Approx. F-value
Interaction—Were the changes in tests scores between 80 and 82 equal for both groups?	.99	7	20345	26.2*
Groups—Were the test scores of the two groups (summed across times) equal?	.94	7	20345	173.8*
Time—Were the changes in test scores across times (summed across groups) equal to 0?	.61	7	20345	1,867.2*

Note: *Significant at α = .001 level

Figure 2. Summary of negative consequences of dropping out on students' basic skills performance

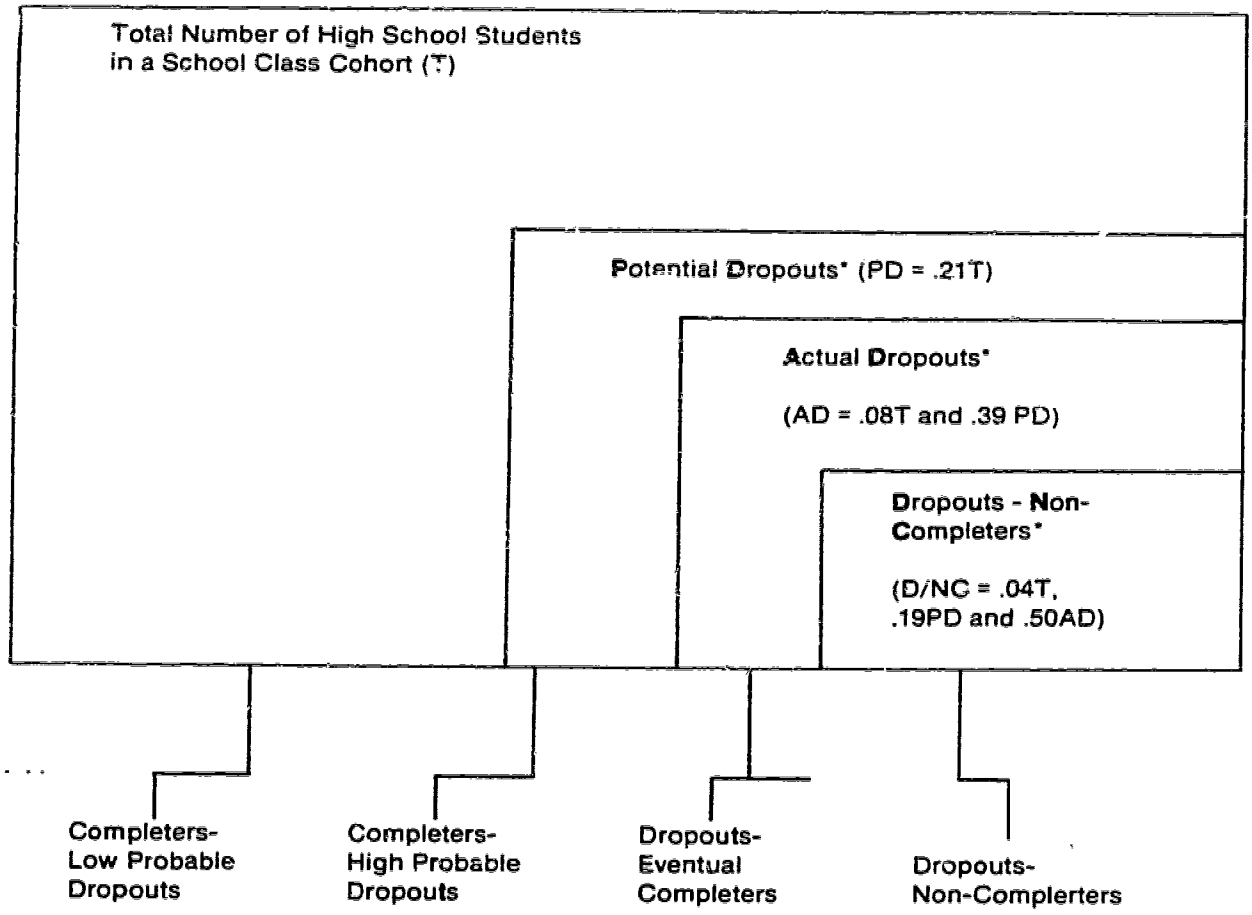


Figure 3. A view of potential and actual dropouts within the overall context of the dropout problem.

The results of the various comparisons conducted in order to assess the similarity between the two groups of students—dropouts and completers with a high propensity toward dropping out—indicated the following:

- Dropouts differed from completers-high probable dropouts on only 4 of the 36 variables that defined the full discriminant function, which suggests that the two groups are quite similar. (On three of the four variables where differences were observed, the comparison group exhibited mean values that were more suggestive of dropping out than the mean values observed for the actual dropouts.)

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* These estimates, which are meant to be illustrative, are based upon the HS&B database and **are subject to the limitations inherent in that sample** (i.e., it does not include students who drop out prior to the middle of tenth grade and after the middle of twelfth grade). Hence, the estimates for potential dropouts, actual dropouts, as well as dropouts-noncompleters are likely to be **underestimates.**

- The two groups, dropouts and completers-high probable dropouts, differed significantly from the group of students who completed high school and had a low propensity toward dropping out, that is, those students noted as Completers-Low Probable Dropouts in figure 3. (Significant differences were noted on all 36 variables included in the full discriminant function.)

The two groups—dropouts and completers-high probable dropouts—were then compared on a number of variables that served to operationally define their vocationally related experiences while in high school. The results of those comparisons suggest the following:

- Dropouts earned significantly fewer vocational credits than did students in the comparison group. (Completers earned 3.5 credits; 12th-grade dropouts, 2.0; 11th-grade dropouts, 1.4; and 10th-grade dropouts, 0.9.)

- Dropouts earned significantly fewer total credits than did students in the comparison group. (Completers earned 19.5 credits; 12th-grade dropouts 12.0; 11th-grade dropouts, 9.7; and 10th-grade dropouts, 7.4.)

- Dropouts enrolled in fewer courses (both vocational and nonvocational) than did students in the comparison group, and they received significantly lower grades in those courses.

- Dropouts earned credits in fewer vocational service areas than did students in the comparison group, which suggests that they did not explore a full range of vocational offerings.

- The ratio of consumer/homemaker, industrial arts, and other "exploratory" vocational credits earned (i.e., in courses designed to provide an overview or general introduction to a vocational area as contrasted with job-specific training [NCES 1984]) to total credits earned was significantly greater for dropouts than for students in the comparison group.

- Significantly fewer dropouts than comparison students had a vocational specialty, that is, a vocational service area in which they earned over 60 percent of their vocational credits.

- Dropouts tended to earn more work-study credits than did the comparison students, especially early in high school, and those credits tended to make up a significantly larger part of dropouts' programs than they did for the programs of students in the comparison group.

- Dropouts generally completed as many career education credits as did the students in the comparison group, although few students in either group appeared to be exposed to such courses to any great extent.

- Significantly fewer dropouts reported being in the vocational curriculum while in high school than did members of the comparison group.

- Significantly fewer 10th-grade dropouts reported talking to their parents or friends/relatives regarding their school plans than did members of the comparison group.

- Significantly more dropouts reported being assigned to their school program (vs. choosing it themselves) than did students in the comparison group.

- Fewer dropouts reported changing curricula during high school than did students in the comparison group.

- Dropouts reported in the 10th grade that they were working significantly more hours per week and earning more per hour than did the students in the comparison group. Also, a significantly larger number of dropouts reported that they were employed by CETA or some other government organization than by private industry.

Other nonvocational-related variables provide an even broader picture of how the dropouts' experiences during high school differed from the experiences of the comparison students. In many respects, these results reinforce/confirm as well as augment the conclusions listed above. For example, they show that dropouts earned fewer credits in basic, academic areas, reported that their grades were lower, and reported being married and participating in special programs for teenage parents.

What Characteristics of High School Experiences Are Most Closely Related to the Dropout Rate?

The study by Weber (1986) also examined various school characteristics to determine their relationship to school-level dropout rates. Linear regression was used in this analysis. The results indicate that high school dropout rates are positively related, over and above the relationships attributable to the dropout decisions of individual students in those schools, to such factors as these:

- The percentage of 12th-grade students involved in trade and industry (T&I) programs
- Teaching auto mechanics in the school
- The availability of a career information center
- Off- and on-campus work experience programs, and credit for work experience
- Participation by the school in sponsored co-op and work-study programs

The results also indicate some negative relationships between several high school characteristics and the dropout rate. The information summarized in the study indicates that high school dropout rates are negatively related to such factors as these:

- The requirement by the school that students pass a minimum competency test to graduate
- The existence of time lags with regard to the recognition of student absences (both excused and unexcused)
- The degree to which such problems as absenteeism and the cutting of class exist
- The lack of parental interest in student progress and the school
- The incidence of robbery, theft, drug/alcohol abuse, rape, brandishing of weapons, and verbal abuse of teachers within the school

Although these school-level analyses yielded results that help to identify some of the variables related to high school-related dropout rates, they provide relatively few insights regarding the ways in which vocational education, per se, could be effective in reducing those rates. In most programmatic dropout prevention strategies, vocational education is only one component of a broader effort, which is the topic addressed in the following section.

What Types of Vocational Experiences Seem Most Closely Related to the Completion of High School?

The results presented in the study by Weber (1986) also suggest that programs featuring three types of experiences or activities can play an important role in preventing dropouts. When properly structured, programs that (1) identify the dropout-prone, (2) provide guidance and counseling services, and (3) provide opportunities to explore careers appear to be beneficial in reducing the dropout rate.

Identification of Dropout-Prone Students

Even the best of programs cannot be successful without the timely identification of potential dropouts. Prior to their entry into high school and subsequent involvement in the vocational program, a more extensive, systematic effort needs to be undertaken to identify potential dropouts. Such an effort should resemble that used to identify learning-disabled, disadvantaged, and other special needs students. Previous research shows that dropout-prone students need to be identified early enough in their school careers so that some form of positive action can be initiated before it is too late (Hess and Lauber 1985; Urban School Districts' Task Force on Dropouts 1985). This argument was clearly noted by Bachman et al. (1971) in *Youth in Transition*. They indicated that among the important elements in the mismatch between potential dropouts and the high school environment are individual limitations in academic ability, past scholastic failure, and patterns of delinquency—problems that are not likely to be resolved in high school. Furthermore, given the requirements of the Perkins Act with regard to the notification of parents of disadvantaged, handicapped, and other special needs students a year prior to the offering of vocational education programs, the press for such efforts should be even greater.

Currently, many school districts are planning or have programs underway that are targeted toward working with potential dropouts at the middle school and even the elementary school levels. However, many of these efforts employ unidimensional decision rules based upon school-related socioeconomic status (SES), academic achievement, or attendance levels, rather than upon individual student characteristics to identify and classify their dropout-prone students. Such rules may be too simplistic and result in inordinately large classification errors. A multidimensional classification rule such as one employing the following five variables—graduation plans, age (over 16 versus 16 and under), times moved since 5th grade, introverted versus extroverted personalities, and plans regarding going to college—might be expected to yield a reasonably high correct classification rate for individual students at the 9th- or 10th-grade levels.

Guidance and Counseling Services for Dropout-Prone Students

It is essential that—in addition to a more systematic identification of potential dropouts prior to high school entry—there be more extensive guidance and counseling services available to them prior to their entry into high school, at the transition point into high school, and during their high school careers. Normally, the needs of potential dropouts in this regard are multidimensional and extensive in scope. A variety of approaches and specific activities can be used to help deliver such services. These approaches can include monitoring by teachers; hiring more counselors, particularly vocational counselors, so as to decrease the student-counselor ratio; providing parent/family workshops; offering health screening programs; and fostering school-to-school linkages through

orientation programs, joint school activities, and transitional guidance services. It appears that the *actual delivery* of these services to potential dropouts is the critical factor at this point, more so than the specific nature of these services.

The results of the study suggest that the guidance needs of most dropouts, particularly in planning their high school programs, are not adequately addressed either at school or at home. For example, significantly fewer 10th-grade dropouts than completers reported discussing their high school plans with their parents or "significant others" in their lives. Also, as a general rule, few dropouts and dropout-prone students reported talking either to a counselor or their teachers about their high school plans. This inadequacy is also reflected in the fact that few dropouts and dropout-prone students reported that they "chose" their high school programs rather than its being simply "assigned" to them.

As a general rule, there are very poor assessments of students' strengths and weaknesses. When such data are available, counselors either cannot or will not follow up and place students in areas where success and self-esteem can be cultivated (Occhipinpi 1985). Such assessments point up the need for individualized counseling services designed to serve both dropout-prone youth as well as actual school leavers (Los Angeles City Schools 1974).

It is also essential that the guidance and counseling services for dropouts and dropout-prone students assign a heightened role to vocational education as a program alternative. Vocational education should be a more prominent part of the comprehensive set of course offerings from which students make educated choices, not a dumping ground for dropouts and dropout-prone students. Retentive effects associated with participation in vocational education can never be realized if dropout-prone students do not participate in those programs.

Role of Career Exploration and Education in Preventing Dropouts

In addition to the need for providing enhanced guidance and counseling services, additional career exploration and related career education experiences need to be offered. The accumulation of less than .04 career education credits in high school by all students (and .05 credits by the dropouts) indicates that such experiences are not routinely provided on a very wide basis, at least at the high school level. The availability of such experiences, particularly prior to or near the transition point into high school, has potential for helping dropout-prone students more explicitly define their personal, school-related, and occupational goals/objectives.

Strengthening Vocational Education's Role in Preventing Dropout

Research results suggest that once dropouts are in high school, they tend not to enter the mainstream of vocational programs offered in their respective schools. The involvement of dropouts in those programs appears to be concentrated in "exploratory" courses, especially consumer/homemaker and industrial arts courses. These students take relatively few, if any, "occupational" courses, which provide specific job training and the other kinds of benefits listed in exhibit 1. Furthermore, they do not appear to explore the full range of vocational offerings, nor do they develop

a vocational specialty. Because too few dropouts appear to follow the "normal" transitional paths through their schools' vocational programs, or take advantage of the job training aspects of those programs, mechanisms for assisting them in these regards need to be implemented. Following are examples of mechanisms that might be used:

- Offer occupational courses earlier in the students' high school careers and do not require a variety of "exploratory" prerequisites to those courses.

- Offer a special series of occupational courses or even minicourses after school, on weekends, or during school hours via flexible course scheduling, so as to afford opportunities for students to acquire job-specific skills.

- Offer the exploratory courses as well as any required remedial courses at an earlier time (e.g., 8th grade) or as special courses (i.e., after school, summer, and so forth) in order to ensure that time during the high school day is devoted to taking occupational courses. For example, encourage community business and industry to work with students to give experiences and course credit on students' own time.

- Implement more extensive planning systems that involve more decision points where counselors and teachers may discuss, modify, and adapt the students' basic program plans. In so doing, the advisability of students' taking more "exploratory" versus "occupational" courses could be monitored and evaluated.

The results also suggest that one aspect of high school vocational programs needing review is the issue of work-study. It appears that dropouts often participate in work-study activities early in their high school careers and to a much greater degree than that of the general student population. Frequently, work-study activities have minimal programmatic association with other, ongoing school efforts. Although important because of the economic benefits they provide the recipients, these activities may directly or indirectly serve as inducements for quitting school. Some activities are not related directly to the ongoing school program, such as those that are part of a larger dropout prevention program, (e.g., an extended school day or alternative high school program or an experience-based career education program). Such activities may not positively contribute to retention and possibly should be deemphasized. Research results also suggest that school-JTPA linkages that involve work-study activities for disadvantaged youth should be reviewed and evaluated on an individual basis.

EXHIBIT 1

POSITIVE PROGRAM CHARACTERISTICS COMMONLY NOTED BY VOCATIONAL EDUCATION PROPONENTS

Vocational Programs	vs.	Other Curricular Offerings
Active role in learning process		Passive learner role
Concrete, hands-on learning experiences		Abstract, generalized learning experiences
Experiences relevant to learner's everyday life "outside the school"		Experiences not directly relevant to learner's life outside of the school"
Rich, real-life learning environment		Sterile, four-walled classroom
Learning that proceeds from concrete to abstract		Learning that proceeds from abstract to abstract, principle to principle
Learning that occurs within an "application" context		Learning that is context free
Small group, even one-on-one instruction		Classroom and other types of "large group" instruction
Content and delivery variations related to areas of specialization		Standard, "lock-step" curriculum with relatively little variation and minimal review/change
Routinely revised/updated using input from authoritative sources (e.g., business persons)		Relatively little input from outside the "educational establishment"
Preparation for labor market entry; does not necessarily limit learner's postsecondary options		Preparation for additional schooling or a "general" education not directed toward either a job or further education

What Alternative Vocational Offerings Are Related to Reducing Dropout Rates?

To determine what vocationally related features of exemplary dropout prevention programs are effective in enhancing student retention, information was secured from nine such programs (see exhibit 2). The programs came from seven different geographic regions and represented urban, suburban, rural, and smaller city school districts. The programs focused on meeting the needs of a variety of special needs/high risk students, involved a number of programmatic strategies and activities, and involved single schools, multiple schools, single states, and multiple states.

The information collected, which is presented in abstract form in table 3, suggests that successful dropout prevention programs possess the following characteristics:

- Programs are holistic and multifaceted in their approach. The most prevalent strategies used were a combination of parental involvement, remedial basic skills instruction, and work experience/job placement with counseling, supportive services, and in-school vocational instruction all coming in as close seconds and used in the majority of cases.

- Programs are typically operationalized in such a manner that about half of the total effort is directed toward addressing and resolving students' education/remediation needs (e.g., basic skills deficiencies), about a quarter of the effort is spent on resolving their personal needs, and the remaining quarter is targeted toward their work-related needs.

- Programs are usually presented in contexts that differ from the "traditional school environment" (even though they may be housed in the same physical plant, for example, a "school-within-a-school" context); involve special motivational strategies such as tying school activities directly to the real world (workplace, daily living, parenting needs, and so forth), building more individualized teacher-student linkages, mentoring, giving special awards, and designing activities to build *esprit de corps* among affected students; and involve some degree of individualized teaching/learning activities.

- Programs are focused upon dropout-prone students who are in the beginning stages of their high school careers (between the ages of 14 and 16), prior to the time when they would "normally" become formally involved in a vocational education program.

- If a work experience component is involved, that component is intimately tied to the other program components, both logically and operationally, and usually results in the establishment of what are frequently unique and closer relationships with business/industry than normally occur in more general, work-study programs.

- The programs require the involvement of special staff/teachers who are committed to the philosophy and goals of the program; are able and willing to establish workable relationships with their students—relationships that are somewhat different and frequently require more commitment than that which is normally required; are flexible in their approach, both to instruction and to dealing with their students; and maintain a continuing awareness of their students' needs.

EXHIBIT 2

OVERVIEW OF THE SAMPLE OF EXEMPLARY DROPOUT PREVENTION PROGRAMS

School	Program
Alternative School 311 North 10th Street Cour D'Alene, ID 83814	Alternative school serving 120 dropouts, single mothers, and others with a weak attachment to school.
CVET Program Westville Area Vocational School Westville, OK 74965	Two-year vocational program to serve 30 9th and 10th graders who are identified as potential dropouts.
Extended School Day Program Washington High School Eighth and Harvey Streets Washington, NC 27889	An alternative school for 200 dropouts and other high-risk students, offering flexible schedule hours from 8:00 a.m. to 8:00 p.m.
GRADS Cincinnati Public Schools Cincinnati, OH 45202	Program to assist 200 adolescent pregnant girls and young parents who are in school. This program is active in four high schools.
New Horizons Program Westover Senior High School 277 Bonanza Drive Fayetteville, NC 28303	Program designed to provide simulated work experience and/or on-the-job training for economically disadvantaged and handicapped students.
Peninsula Academies 480 James Avenue Redwood City, CA 94062	School designed to improve educational and employment opportunities for dropout prone, disadvantaged 10th graders in areas of electronics and computer technology.
Project CLIMB Linden School 70 Highland Street Brockton, MA 02401	Joint school-JTPA effort aimed at habitual truants, potential dropouts, and low achievers in the 14-16 age range.
STEP Public/Private Ventures 399 Market Street Philadelphia, PA 19106	A JTPA-funded summer program for 14- to 15-year-old academically and economically disadvantaged youth. This program involves remedial and life skills instruction coupled with work experience.
Vocational Support Service Team Project Bureau of Improving Schools Chicago Public Schools 1819 West Pershing Road Chicago, IL 60609	Program designed to aid handicapped, LEP, and economically disadvantaged students in city high schools via improved assessment, peer tutoring, and and vocational articulation.

TABLE 3

SUMMARY OF SUCCESSFUL PROGRAM DESCRIPTIONS AND RECOMMENDATIONS

Name of School	Population	Activities	Critical Component	Recommendations
GRADS Cincinnati, OH	200 students	Counseling Supportive services Remedial basic skills instruction	Teachers/staff	Teachers should stay on top of students' needs. Students should be aware of alternatives after high school.
Vocational Support Service Team Bureau for Improving Services Chicago, IL	70 high schools	Counseling Supportive services Parental involvement Remedial/basic skills instruction	Funds go directly to local school student	Inform students and their parents about vocational education opportunities. Use vocational education as a means of teaching academics. Use holistic approach.
Alternative School Coeur D'Alene, ID	120 students	Supportive service Parental involvement Remedial/basic skills Vocational instruction	Staff/relationship between staff and students	Incorporate hands-on training; set attendance standards; and make day care available.
Coordinated Vocational CVET Program Westville, OK	19-36 students 2-year program	Counseling Parental involvement Remedial basic skills instruction	Flexible, fits students' needs	Be flexible; provide alternatives; adjust student activities.
Extended School Day Program Washington, NC	100 students	All of above	Flexible schedules for students; staff flexible in approach to students	Make vocational work relevant to local labor market; make students aware of degree importance.
New Horizons Program Fayetteville, NC	50 students	All of above	Flexible staff Vocational placement Work experience	Program must be vocationally justified; staff is a key.
Peninsula Academias Redwood City, CA	110 students	All of above	Jobs tied to program, close staff/student relationship	Have committed staff and 3 industry-provided mentors; bring students up to industry standards.
Project CLIMB Brockton, MA	23 students	Counseling Support services Parental involvement Work experience Vocational study	Daily contact with students; family called or visited if student absent	Strengthen school-business partnership; include employability training and work skills.
STEP Boston Portland, OR Seattle San Diego Fresno	150 students per site	No counseling	Holistic approach, timing crucial	Get kids early; have holistic approach; include remediation, life skills, work experience.

NOTE: Refer to exhibit 2 for complete address.

RECOMMENDATIONS FOR DROPOUT PREVENTION

Several factors need to be addressed if vocational education is to play a more prominent role and be more effective in helping reduce the numbers of students who drop out of school each year. Not surprisingly, no magic formulas exist. However, the following recommendations could play important roles in dropout prevention:

- Dropout prevention programs should have a committed staff, use a variety of integrated strategies, be individualized in a nontraditional environment, share a strong vocational job-related emphasis, and have a strong counseling component.

- Dropout prevention programs should have an early warning and follow-through system in order to identify potential dropouts as well as develop ways of ensuring that those students stay in school.

- Because of their cost, program resources should be expended on students who would become actual dropouts if no intervention were to occur. Efforts must be strengthened to identify dropouts early in their school careers. Emphasis needs to be placed on the development and utilization of localized, multidimensional, student-centered decision rules that are reliable dropout indicators.

- The school environment should be as free as possible of absenteeism, robbery, and substance abuse. However, if carried too far, efforts to "control" the school environment in order to change these factors could have the reverse effect. Preoccupation with matters of control and discipline is commonly correlated with high dropout rates.

- Parents should become better informed about vocational and other curricular offerings available to their children. Presentations featuring employers and vocational graduates from the local area might be beneficial. Parents should also be shown how to provide planning and support to their children in choosing their school programs.

- Extensive career exploration and related career education experiences should be provided for dropout-prone students, particularly prior to and at the transition point into high school, in order to enhance their awareness of the full range of vocational alternatives.

- Potential dropouts need to participate in vocational programs in a meaningful way if vocational education is to have a positive impact upon the dropout rate. The available research results indicate that schools with high dropout rates do not emphasize vocational education as a curricular alternative any more than do schools with low dropout rates. These results suggest that if positive, retention-related benefits from participating in vocational education are to be realized, specific steps need to be taken to increase enrollment and participation patterns of dropout-prone students in those programs.

- The existing rules governing entry into vocational education should be carefully reviewed and evaluated on an individual student basis, particularly for students deemed to be dropout-prone. This review needs to be undertaken in order to ensure that students are not being kept out of vocational education programs while being allowed to participate in work-study programs that have few, if any, logical or operational ties with the students' overall school plans or goals.

- Work-study experiences should be carefully reviewed and evaluated. Such experiences, when not logically or operationally tied to a student's overall education program, are not a panacea for resolving that student's school problems.

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