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## An investigation and analysis of the baccalaureate degree completion rates of community college transfer students

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*University of Nevada, Las Vegas*

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AN INVESTIGATION AND ANALYSIS OF THE BACCALAUREATE  
DEGREE COMPLETION RATES OF COMMUNITY COLLEGE  
TRANSFER STUDENTS

By

Christian Ifeanyi Egemba

A dissertation submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Education

in

Higher Educational Administration

Department of Educational Leadership  
University of Nevada, Las Vegas  
May 1997

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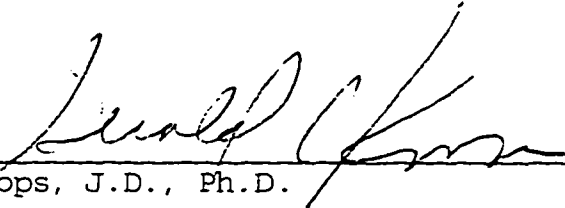
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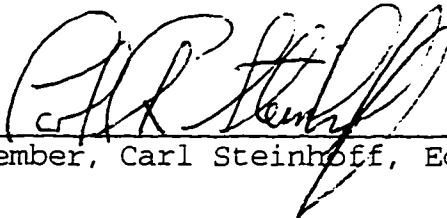
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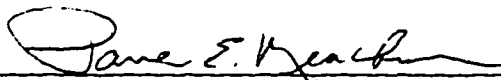
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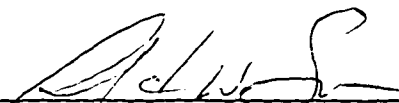
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May 1997

## ABSTRACT

The United States faces increasing competition in the global marketplace. One viable way to strengthen America's competitive position in the global economy is to develop its human capital through a genuine commitment to and aggressive investment in its higher education system, which culminates in baccalaureate-level education. There are several benefits of a baccalaureate-level education, for both individuals and for the country. For individuals, there are self-development and economic benefits. For the country, there are economic development benefits and a more enlightened citizenry.

The transferability of the community college credits to four-year institutions extends the following benefits to the economically disadvantaged students: the opportunity to fulfill portions of four-year college educational requirements at a two-year institution, an opportunity to earn a baccalaureate degree at four-year institutions, and an opportunity for social and economic mobility.

Understandably then, the community college credit transfer function and the subsequent bachelor's degree completion play indispensable roles in the well being of the nation. However, the importance of this community college role is yet to be understood at the national level. Therefore, an invigorated insight into both the transfer function and the subsequent baccalaureate degree completion

is imperative for students, the general public, educators, educational analysts, and educational policy-makers.

This study analyzed data on community college transfer students to investigate their post-transfer success (baccalaureate degree completion) in four-year colleges. The analysis was based on demographic and ability attributes taken from a national sample of high school sophomores ten years after high school. The independent variables were the community college *grade point average (GPA)*, *socioeconomic status (SES)*, *gender (sex)*, and *race (ethnicity)*. The variable *completion* (baccalaureate degree completion) was the dependent variable.

The study replicated studies done on the community college students transfer rates, investigated the baccalaureate degree completion rates of the community college transfer students, as well as, examined the differences between community college transfer students who completed baccalaureate degrees in four-year colleges and those who did not complete their baccalaureate degree work.



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## CHAPTER 1

### INTRODUCTION

American four-year colleges and universities offer a wide range and great variety of programs; however, they have not been able to respond to the crucial issues pertaining to access to postsecondary education for a diverse population. In recent decades, postsecondary education has become more accessible to all segments of the population due to the growth of community colleges. The low-cost, less-rigorous admission requirements, and the transferability of community college credits to four-year institutions have benefitted many students who otherwise may not have received a higher education.

Community colleges provide many American students an alternative path to achieving baccalaureate degrees. This study analyzed data on community college transfer students to investigate their post-transfer success (baccalaureate degree completion) in four-year colleges.

The analysis was based on demographic and ability attributes taken from a national sample of high school sophomores ten years after high school. The independent variables were the community college *grade point average (GPA)*, *socioeconomic status (SES)*, *gender (sex)*, and *race (ethnicity)*. The variable *completion* (baccalaureate degree completion) was the dependent variable.

The study replicated studies done on the community college students transfer rates, investigated the baccalaureate degree completion rates of the community college transfer students, as well as, examined the differences between community college transfer students who completed baccalaureate degrees in four-year colleges and those who did not complete their baccalaureate degree work.

In order to develop a predictive model, GPA, SES, sex, and ethnicity were used as the *independent variables*; completion was used as the *dependent variable*.

### **Problem Statement**

Are there differences in GPA, SES, sex, and ethnicity between the community college transfer students who complete baccalaureate degrees in four-year colleges and community college transfer students who do not complete their baccalaureate degree work?

### Subproblems

The study addressed itself to the following specific subproblems:

1. Are there differences in GPA between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?
2. Are there differences in SES between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?
3. Are there differences in sex between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?
4. Are there differences in ethnicity between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?

### **Definition of Terms**

The following are the meanings of the independent, and dependent variables as applied throughout the study:

- 1) Completion - refers to the attainment of a bachelor's degree within ten years after high school (1982-1992) by the Sophomore COHORT

students who transferred to four-year institutions from community colleges. Most bachelor's degree programs can be completed within four-years; however, there are others that cannot generally be completed within four years. Therefore, the extra six year time span enables the inclusion of students who are in such programs, as well as the students who have worked their way through college.

- 2) Socioeconomic status - refers to the students' family social and economic background, which are measured by the combination of the following attributes: the students' fathers occupation and highest level of education, mother's education, family income, and material possessions of the household; and
- 3) Ability Variable - refers to the transfer students' postsecondary (community college) GPA.

### **Significance of the Study**

A number of issues such as those related to educational policy, social concerns, demographics, academics, and financial troubles face postsecondary education today. Among the most critical are questions regarding access to postsecondary education for diverse populations, the cost of postsecondary education, student



financing of postsecondary education, educational outcome and accountability, and job opportunity for graduates. This study is significant to the community colleges, community college transfer students, the four-year colleges and universities, the general public, educators, educational analysts, and educational policy-makers for the following reasons:

#### Evaluated The Collegiate Work At Community College

Community colleges offer many students an alternative route to achieving baccalaureate degrees. This study analyzed data from these institutions to investigate their effectiveness in helping students transfer to and complete baccalaureate degrees in four-year colleges in order to determine whether there was a strong case for reform.

#### Enlightened The General Public.

The United States faces increasing competition in the global marketplace. One viable way to strengthen America's competitive position in the global economy is to develop its human capital through a genuine commitment to and aggressive investment in its higher education system, which culminates in baccalaureate-level education. There are several benefits of a baccalaureate-level education, for both individuals and the country. For individuals, there are self-development and

economic benefits. For the country, there are economic development benefits and a more enlightened citizenry.

The transferability of the community college credits to four-year institutions extends the following benefits to the economically disadvantaged students: the opportunity to fulfill portions of four-year college educational requirements at a two-year institution, an opportunity to earn a baccalaureate degree at four-year institutions, and an opportunity for social and economic mobility. In addition to monetary benefits, the Postsecondary Education Opportunity (December 1995, p.8) highlights that baccalaureate-level college graduates tend to have lower unemployment, lower disability rates, better health and longer life, children in better health, fewer unwanted children, child-rearing practices that enhance formal school efforts, and higher valuation of art, culture, and ideas. The report concludes that, "the public investment in higher education, therefore, serves many broad purposes." The community college credit transfer function and the subsequent bachelor's degree completion, consequently, play indispensable roles to the well being of the nation. However, the importance of this community college role is yet to be understood at the national level. Therefore, an invigorated insight into both the transfer function and the subsequent baccalaureate degree completion is imperative for

students, the general public, educators, educational analysts, and educational policy-makers.

#### Emphasized the Outcomes of the Transfer Function

Several research studies have examined the community college transfer function; none of these studies, however, have extended the study to include community college transfer students' baccalaureate degree completion rate at senior institutions. This study offered a model and tested it with a nationally representative sample of 2,630 high school sophomores taken from a highly stratified national probability sample of over 1,100 secondary schools.

#### Researched The Community College Critics' and Advocates' Claims.

This research also investigated the claims made by some of the community college critics (Pascarella and Terenzini 1991; Breneman and Nelson 1981; and Austin 1979), who state that community colleges function to limit the social and economic mobility of students. For instance, some critics argue that the community college has demonstrated that it is not an effective educational setting for lower-division collegiate work (Austin 1979) and that community colleges do not have a comparative edge in offering collegiate work (Breneman and Nelson 1981).

In contrast, the community college advocates seek to make transfer the primary purpose of the community college (Pincus and Archer 1989) because it provides both *educational opportunity, and socioeconomic mobility.*

The claims by the community college critics contradict the underlying mission of the community college. Transfer function has always been an important mission of the community colleges (Diener 1986). Surveys of student intent over the years consistently reflect a strong interest in transfer in the student population (Brint and Karabel 1989; Pincus 1980).

The studies done by West (1994), Grubb (1991), Cohen (1991), Lee and Frank (1990), and Adelman (1988), identified an average transfer rate between 23 and 24 percent. This study replicated the community college transfer function using a different COHORT (Sophomore COHORT), investigated the baccalaureate degree completion rate of the community college transfer students at senior institutions, as well as determined the factors that enhance or impede the community college transfer students' bachelors degree completion at senior institutions.

#### **Delimitations of the Study**

The High School and Beyond (HS&B) senior files were disregarded for this research because they were followed for only six-years, while the sophomores were followed for 12-

years. Only those sophomores who began their postsecondary education from a community college and subsequently transferred to four-year colleges in pursuit of bachelors degrees were included in the research COHORT (2,630 students).

Some variables that were available but not selected for the study included the following: *Educational Aspiration or Educational Expectation* (High School or Less, Vocational, Some College, Four-year Degree, and Advanced Degree), *Handicapped Status*, *Marital Status* (Single, Married, Divorced, or Separated), *Enrollment Status* (Full-time/Part-time), *Employment Status* (Full-time, Part Time, Unemployed), *Time between Postsecondary and Bachelors Degree*, and *Living Arrangement* (Live Alone, Live with Spouse, Live with Parents, etc.). They were not considered because the community college transfer students were allowed ample time (10 years) to complete a four year degree.

## CHAPTER II

### LITERATURE REVIEW

Although a considerable amount of literature has been written on the community college transfer functions, little has been written on the community college transfer students' baccalaureate degree completion at senior institutions. This chapter reviewed mostly the relevant literature on the community college transfer function because little has been written on the impacts of community college academic preparation on its students' baccalaureate degree completion rate at senior institutions. This chapter explored the history, the mission, and the roles of the community college as a possible avenue for socioeconomic mobility in America.

#### Definition of Community College

Most educators use the terms "community college" and "junior college" interchangeably. Nevertheless, there are clear differences between the terms. Whereas, generally speaking, both community colleges and junior colleges are two-year collegiate institutions, many junior colleges do

not function as community-serving institutions. Even though both community colleges and junior colleges constitute portions of the same educational movement the modern community college may be thought of as an outgrowth of the junior college movement, which began more than 75 years ago.

The American Association of Collegiate Registrars and Admissions Officers (1962) defines community college in its Handbook of Data and Definitions in Higher Education as follows:

A two-year institution of higher education, generally public, offering instruction adapted in content, level, and schedule to the needs of the community in which it is located. offering usually a *transfer curriculum (credit transferable towards a bachelor's degree)*, occupational (or terminal) curriculums, general education, and adult education.

From the report of the Committee on Standards of the American Association of Junior College, adopted February 21, 1925, the junior college was defined as follows: an institution offering two years of instruction of strictly collegiate grade. The curriculum may include those courses usually offered in the first two years of the four year college; in which case these courses must be identical, in scope and thoroughness, with corresponding courses of the standard four year college.

### Characteristics Of Community College

A community college is an institution accredited to award the Associate in Arts (A.A.) or the Associate in Science (A.S.) as its highest degree. However, other institutions now award an A.A. or an A.S., such as private junior colleges, technical institutes, and proprietary schools. Nevertheless, these institutions do not qualify as community colleges. The following characteristics, when considered together, distinguish community colleges:

1. They are two-year postsecondary institutions.
2. They are integrated into a state master plan.
3. They are locally based.
4. They have flexible admissions (open door) policies.
5. They provide a comprehensive curriculum.
6. They charge relatively low tuition.
8. They have faculties whose primary responsibility is classroom instruction.
7. They provide comprehensive student-support services.

Offering courses that constitute the first two years of a baccalaureate program is only one role, but an important one, of a community college.

For the purpose of this study, the terms "junior college" and "community college" will be used synonymously because this study investigates only the transfer and



subsequent baccalaureate degree completion by students from two-year institutions at four-year institutions.

### Community College Student Characteristics

Students at community colleges come from a variety of backgrounds and have a variety of reasons for attending. However, several generalizations can be made about community college enrollments in the 1990s.

- \* 70% of the students attend part-time
- \* The average age of the students is about 29 years.
- \* The largest age group of students is about 19 years.
- \* 53% are women.
- \* Community college enrollments constitute 43% of all higher education enrollments and 47% of all minority enrollments.

While the academic ability of these students ranges from very high to low, the proportion of lower-ability students is greater in community colleges than in four-year colleges. And while the very rich, as well as the very poor attend community colleges, the socioeconomic status of the student body in community colleges is also a little lower.

The Community College Fact Book (1988), reports that community, junior, and technical colleges enroll a student population that differs on average from the student body at four-year colleges and universities. It highlights that, on the whole, community college students have a lower

*socioeconomic background* than their counterparts at baccalaureate-granting institutions. It further emphasizes that students at community colleges are also less likely than four-year college students to aspire to baccalaureate or higher degrees. It contends that data collected in the "High School and Beyond" study reveal that 59 percent of the high school seniors who plan to earn a bachelor's degree enroll in four-year colleges immediately after graduation, while 16 percent enroll in public community colleges. It further states that community college students begin their postsecondary education with *lower levels of academic achievement*. Only nine percent of the high school seniors with an A average attend community colleges in the first year after graduation; in contrast, 44 percent of these students attend public four-year colleges, and 27 percent attend private four-year colleges. Conversely, community colleges enroll 11 percent of the high school seniors with a D average, while four-year colleges enroll less than one percent.

However, some evidence proving that community and junior college students are not inferior to other college students is provided by the records of those who transfer to four-year colleges as juniors after graduation from a two-year institution. DeRidder, summarizing the statistics compiled by Condon, Eells, Sammartino, and Pendorf, discovered that junior college transfer students actually

demonstrated marked superiority over comparable groups of students who entered four-year colleges and universities as freshmen. Eells found that even the students who had graduated from the so-called "terminal courses" (supposedly nontransferable) in junior colleges did well in later college and university work. Of 1,177 students transferring from terminal courses, Eells reported that 46 percent succeeded in obtaining better than average grades in the university, while only 16 percent received grades below average.

#### Underlying Philosophy

The philosophy of the modern two-year college, while wide variations exist among the specific programs, mainly centers on five ideas:

- (1) the democratization of higher education through the extension of greater opportunity to all youth. The transfer function simply amounts to increasing the number of convenient locations in which freshman and sophomore collegiate courses are made available;
- (2) Vocational training for semiprofessionals;
- (3) Community Service;
- (4) More effective adult; and
- (5) Guidance and rehabilitation.

The community college should be identified as an institution devoted not to scholarly investigation and research (as are the universities) but rather to sound and meaningful teaching directed at the production of well-informed, competent citizens of a democratic nation, Tyrus Hillway (1958,82-84). The community colleges are built on the American values of universal opportunity and access to education (Baker 1994, 111). Cohen and Brawer (1989) say that the community colleges have *provided educational programs and services to people who otherwise would not have enrolled in a college or university because access to community colleges has not been bounded by the norms of admissions examinations or high school grades. Community colleges, they stress, have stood for open admissions, geographic proximity, and relative financial affordability to the potential students of the community and the region served.*

Brint and Karabel 1989; Karabel 1972; Pincus 1980; and Zwerling 1976, write that if one examines the success of students who otherwise would not have attended college, then one may conclude that community colleges track students into certain social strata or advance their station in society.

Brint and Karabel (1989), hold that, "the belief that America was-and should remain-a land where individuals of ambition and talent could rise as far as their capacities would take them has been central to the national identity

(p. 3)." However, the type of opportunity changed over time from the ownership and exploitation of widely available land during America's frontier days to the more recent establishment of education as the vehicle for upward social mobility.

Early in America's history, when the frontiers were open, the opportunity to succeed and improve one's status in life centered on acquisition and profitable use of inexpensive land. Frederick Jackson Turner (1920) explained how waves of people carved out their futures from the frontier. First came the pioneers who, chiefly subsisted on the natural growth of vegetation, crude agriculture, trade with Native Americans, and abundant game. These same pioneers were often also first-time land owners.

The important element to note is the ownership of the land. Not specifically reserved for a privileged class, land was available to individuals of modest means who were willing to put it to use (Campbell, Fleming, Newell, & Bennion, 1987). The frontier was a symbol of opportunity that allowed individuals to raise their status from the landless to the landed. In time, other waves of settlers moved onto the land and extended the boundaries of civilization, the frontier eventually closed. Abundant cheap land, now largely gone as a provider of upward mobility, meant the loss of the traditional American source of opportunity.

The closing of the frontier signaled the end of one type of opportunity and emergence of another - postsecondary education. Poorly organized and without a clear hierarchical structure when the frontier closed, the education system that eventually emerged provided an alternative means to achieve individual economic and social advancement (Brint & Karabel, 1989). As explained by Brint and Karabel (1989), "...the ladders of opportunity created by the new educational system helped the United States retain its national identity as a land of unparalleled opportunities for individual advancement (p. 5)." Therefore, one of education's primary functions in the society in which it exists, is to be a channel for upward socioeconomic advancement.

#### **Brief History of America's Community College**

The American Community College movement is the most exciting development in higher education in the 20th century, and all signs point to its continuing vitality in the 21st century.

Community Colleges were nonexistent in 1900, but they now account for more than half the nation's undergraduate enrollment. The Community College Fact Book (1988), contends that community, technical, and junior colleges, now make up the largest single segment of America's postsecondary education system, enrolling 55 percent of the nation's

freshmen entering college and 43 percent of the total undergraduate population. The Peterson's Guide to Two-Year Colleges (1994,2), reports that nearly 55 percent of all freshmen taking courses for college credit for the first time enroll in community colleges. Consequently, the questions surrounding the operation and impact of community colleges are significant to the understanding of the contemporary American higher education scene.

#### Community College Movements:

Higher education has a long history in America. Nine degree-granting institutions had been founded in the United States before the American Revolution. They were designed to offer the traditional liberal arts of Latin and Greek grammar, rhetoric, mathematics, and philosophy.

It was not until after the Civil War, however, that three environmental conditions began to transform thinking about higher education: (1) the rapid industrialization of the United States and the related mechanization of its agriculture, (2) the democratization of public school education, which led to an increase in the number of high school graduates, and (3) the emergence of American research universities (Deegan and Tillery 1985,3).

The Morrill Act, passed in 1862, along with later amendments, solidified the concept of education "for the people" and established land grant colleges to provide

practical, skill-based higher education in the United States. It was later recognized, however, that geography and cost were major barriers to attendance even at these institutions. So, around the turn of the twentieth century, the first junior college was established. Its purpose was to provide a lower-cost, more conveniently accessible alternative to the first two years of traditional university education (Baker 1994, 113).

#### University Presidents' Contribution:

Although the community college is a 20th century development, some of its roots date back to the 1800s. Throughout the latter half of the 19th century, influential educators advocated the establishment of two-year colleges. *These proponents were mostly university presidents, and their intent was to free the university of the basic general education curriculum so that the "lofty" missions of research and professional training could be pursued without distraction.* The role that university leaders played in fostering the initial junior college movement is perhaps one of the most frequently recounted and overemphasized aspects of community college history (Goodwin 1971; Ratcliff 1986, 1987). During the latter half of the 19th century, American university presidents sought to bring greater organization and uniformity to higher education. Leaders like Harper, president of the University of Chicago; Tappan and Frieze,



presidents of the University of Michigan; Lange of the University of California; Jordan, president of Stanford University; and Folwell, president of the University of Minnesota, sought to differentiate university and collegiate grades of work. Collegiate work was to provide breadth of education in the arts and sciences as well as develop the student's abilities to study and inquire. University education was devoted principally to the advancement of knowledge and development of new knowledge, theory, and understanding. *These nineteenth - and early twentieth - century university presidents were interested in restructuring university education, directing universities to set research as their primary purpose. As a result, they suggested that the first two years of undergraduate studies were best performed as part of precollegiate, a function that could be best performed by junior colleges.*

For instance, William Rainey Harper, president of the University of Chicago, considered the first two years of college more appropriately an extension of the high school because of similarities in curriculum and teaching methods. Harper felt that making junior colleges a capstone to the high school would increase educational opportunity for many. At the same time, he felt this would improve the quality of university education by not having to divert limited resources for functions better performed elsewhere.

Other university presidents, such as Richard Jesse, president of the University of Missouri, felt that the maturity level of 17- and 18-year-old students was such that they would probably be better served by junior colleges that were extensions of local high schools than by universities. Edmund James, president of the University of Illinois, felt that universities should be engaged only in scientific study and that anything else was secondary to this goal. Variations of these themes were espoused by Henry Tappan at the University of Michigan, William Folwell at the University of Minnesota, Alexis Lange at the University of California, David Starr Jordan at Stanford, and William Mitchell at the University of Georgia.

While the University of Chicago, under the leadership of president William Rainey Harper, offered the first associate's degree in 1900, Joliet Junior College in Illinois claims the honor of being "America's oldest public community college," having been established as an experimental college preparatory high school extension program for six students in February, 1901.

The Joliet model - an extension of the high school under the control of the local school board - was a rather typical pattern until the 1930s. By the end of 1901, there were eight junior colleges; but, their total enrollments numbered less than 100. Twenty years later, junior colleges as extended high schools were found in California, Illinois,

Iowa, Kansas, Michigan, Minnesota, Missouri, and Texas. Their programs focused on courses that could be transferred to four-year colleges or universities.

At the same time, specialized vocational high schools were being established in Oklahoma, Mississippi, and New York, and these would provide early models for the occupational programs that are part of the curricula of contemporary community colleges. In 1907, California took the first step in passing legislation permitting the creation of separate junior college districts. By 1922, there were 70 public junior colleges, most of which were located in California. By 1930, nearly half the nation's public junior college students were in California.

The California legislation became a model for many other states. Missouri and Arizona each passed variations of the California legislation in 1927. The 1917 Kansas Enabling Act was something of a milestone. Because it provided a means through which local elections approved creation of independent junior colleges, as well as special taxing districts to support them.

#### Federal Contribution to Community College Movement

During the summer of 1920, the U.S. Commissioner of Education called for a meeting in St. Louis, Missouri, to be attended by 38 national educational leaders. The result was another milestone in the history of two-year colleges, the

founding of the American Association of Junior Colleges (AAJC). The AAJC provided a recognized forum for the movement and a vehicle to voice the concerns of the new junior colleges at the national level. The organization's name was changed in 1972 to the American Association of Community and Junior Colleges (AACJC) and, as of 1985, it had a membership of 918 institutions, 868 of which were public and 50 of which were private (Vaughn, 1985, p. 5).

In 1947, the Commission on Higher Education, established by President Truman, endorsed the concept of college education for the general public, not just for those who could afford the traditional four-year college education. The Truman Commission (The President's Commission on Higher Education for American Democracy), put forth the idea that if America was to remain the world's leading bastion of democracy, she must remove all obstacles to educational opportunity at the postsecondary level. As one method of achieving this goal, the commission sought to establish a nationwide network of junior colleges whose mission would accomplish seven primary objectives (Vaughn, 1985):

1. be a cultural center for their community,
2. offer continuing education to adults,
3. emphasize civic responsibility,
4. offer technical and general education,
5. be locally controlled,

6. coordinate efforts with area high schools, and
7. blend in with state wide systems of higher education.

It was the recommendation of the Truman Commission that public community colleges be a vehicle for making this feasible. The Truman Commission is considered by many to be the watershed event that marked the transition from junior colleges and vocational schools to comprehensive community colleges. As a matter of fact, it was the Truman Commission that recommended "community college" as a more appropriate name than "junior college."

In 1957, a follow-up commission established by President Eisenhower similarly concluded that community colleges were the best way to meet the nation's critical needs for higher education. These sentiments were reiterated in major statements by the National Education Association in 1964, the Carnegie Commission in 1970, and the Commission on the Future of Community Colleges in 1988.

Throughout the 20th Century, the number of public two-year colleges has continued to increase, especially during the Depression era, then again in the 1960s. In 1970, there were about 850 community and junior colleges; by 1980, there were more than 1,000 with a total credit enrollment approaching four million. By 1990, the number of colleges was about the same, but enrollments had risen to more than five million, with another four million in not-for-credit

programs. By 2000, this number of institutions will not change significantly, but enrollments are expected to be at least 20% higher.

#### State Contribution to the Community College Movement

The first enabling legislation authorizing public high schools to offer postgraduate courses was enacted by the California General Assembly in 1907 (Myers, in Fountain and Tollefson 1989, 15; Monroe 1972, 11; Fields 1962, 27).

In the early part of the twentieth century, the state of California enacted educational laws pertinent to two-year institutions. These laws became the model for many other states (Vaughn, 1985). In 1907, California passed legislation that allowed its high schools to provide the first two years of postsecondary public education. The 1907 legislation was the first to authorize local junior colleges, but it was not until 1917 that further legislation provided state and county financial support for the new schools. Still another state law, passed in 1921, provided for independent junior college districts complete with their own governing boards, budgets, and operating procedures. Hence, California contributed to the emerging two-year college movement; and, as would be expected, California today has a very large and well developed community/junior college system.

Other states soon followed California's lead in authorizing the upward extension of high schools and the establishment of separate public junior colleges. Kansas and Michigan, which enacted such legislation in 1917, were followed by Minnesota (1925); Arizona, Iowa, and Missouri (1927); Louisiana and Mississippi (1928); and Texas (1929). In the decade of the 1930s, the following states joined the public junior college movement by enacting enabling legislation: Nebraska and North Dakota (1931); South Carolina (1935); Kentucky (1936); Colorado, Connecticut, and Illinois (1937); and Florida, Idaho, Montana, and Oklahoma (1939). There was a halt during World War II, but in the remainder of the 1940s, New Jersey (1946), Massachusetts (1947), New York (1948) and Oregon (1949) followed suit. Only three more states authorized public junior colleges in the 1950s: Alaska (1953), along with North Carolina and New Mexico (1957). In the 1960s, Rhode Island (1960); Alabama, Maine, Maryland, New Hampshire, and Ohio (1961); Indiana (1962); and Pennsylvania (1963) adopted legislative authorization (Blocker, Plummer, and Richardson 1965, 28-29).

Hawaii authorized community colleges in 1964 (Tsunoda, in Tolleson and Fountain 1992, 54); Delaware adopted such legislation in 1966 (Kotula and Kubala, in Tollefson and Fountain 1992, 42); and Tennessee followed in 1972 (Doran, in Tollefson and Fountain 1992, 205), bringing the total to

forty-nine states that have adopted legislation to authorize the establishment of public community colleges. Only South Dakota, to date, has neither a state legislative authorization nor any public community colleges.

Although, the first community colleges in the U.S. were, in fact, extensions of high schools, the motives of those who actually set up the new junior colleges often did not coincide with those of the proponents from the universities. For them, the decision to establish a junior college more often was prompted by a desire to make higher education more accessible to diverse students who could not qualify academically or financially for the universities. Also, some saw real advantage in keeping the academic program based near home. But to understand the current generation of the community colleges one must explore their history.

#### The Five Generations of Community College:

Deegan and Tillery (1985) outline the community college's five developmental periods, or generations as follows:

Generation 1: Extension of High School (1900-1930)

Generation 2: Junior College (1930-1950)

Generation 3: Community College (1950-1970)

Generation 4: Comprehensive Community College (1970-  
mid 1980s)

Generation 5: (The mid 1980s - mid 1990s)



Generation 1: High School Extension (1900-1930)

The *governance* of the first generation community college was entrusted in the hands of the local school board and state departments of Education who retained their residual authority from high school governance. Additionally, the management was performed by school administrators (Principals).

The *finance* was based on the extension of K-14 funding formula which was based on a students ADE/FTE. Moreover, the funding sources were channelled through the local taxes and state foundation funds.

The *facilities* used were primarily the existing high school facilities and the conversion of some high schools into junior colleges.

The *mission* was primarily the extension of the public high school into the lower division of senior colleges that would provide lower division courses, some vocational counsel, and remediation for matriculation standards.

The *student body* was composed primarily of high school graduates who were not yet ready for university (Low GPA, course deficiency, etc.), working students, and those who were preparing for employment.

The *curriculum* was based on regular high school courses to make up deficiencies, to "parallel" university lower-division courses, and to provide for liberal arts, some limited vocational work, and for remediation.

The *role of the administrators* was simply the regular high school type administration. They had little status in higher education.

The *role of the faculty* had little distinction from high school role. The faculty also had little professional development and organization.

### Generation 2: Junior College (1930-1950)

The *governance* of the second generation community college was marked by the emergence of local junior college trust boards and special state monitoring agencies.

The *finance* was predominately based on the following funding strategy: 40-50% local, 25-30% state foundation, 25-30% federal. Basically, there was either no tuition or low fees.

The *facilities* witnessed a trend toward separate junior college campuses. And the *mission* experienced the beginning of a more comprehensive program that also emphasized strongly the importance of student services.

The *student body* was composed of mostly the first generation of higher education students, and students both young and mature adults who were seeking second chances.

The *Curriculum* accommodated the increasing demand for vocational preparation with development of technical and paraprofessional programs. There was a more organized

approach to remediation, and the curriculum strived to make second chances possible for under-prepared students.

The *role of the administrators* shifted away from school style of administration. The leaders began to seek for both college identity and comprehensive programs. Accordingly, the *role of the faculty* was modelled after the universities.

### Generation 3: Community College (1950-70)

The *governance* of the third generation community college was controlled by either separate local community college boards or local agency control. Community colleges had separate governing boards: in a few states some were part of the university, and others were part of the state systems of higher education.

The *finance* was mostly based on separate community college funding using full-time equivalent (FTE) formulae. There was a rise in tuition and fees.

The *facilities* were embellished with the state-of-art planned facilities, and there was great community college growth in many states.

The *mission* remained open door, but there was new emphasis on extended day, on technical education, on expansion of community services, and on counseling.

The *student body* observed a marked increase in ethnic, part-time students, and a significant increase in transfer rate.

The *curriculum* was built on the following four primary functions of Community College's current national pattern:

- \* Transfer preparation
- \* Vocational/Technical Education
- \* Remediation, and
- \* Guidance

The *role of administrators* became more like the state university leadership and management style, with much attention directed to state legislation for resources and development.

The *role of the faculty* was marked with organized state faculty groups that had political influence (e.g. NFA). The faculty senate was often established under law, and it contributed more toward collective bargaining. The initiatives centered on curriculum and instruction.

#### Generation 4: Comprehensive Community College (1970-mid 1980s)

The *governance* was marked by conflict and increased state authority. Efforts were made to delineate state-local responsibilities.

The *finance* was characterized by tax rebellion and retrenchment. Three different state adapted modes exemplified these efforts:

- a) Mostly state support and 1/3 tuition.
- b) 1/3 tuition, 1/3 local taxes, 1/3 state.
- c) State and local funding with no tuition.

The *facilities* noticed some slow down in terms of growth of new colleges; additionally, they noted the beginning of deferred maintenance and development of outreach facilities.

The *mission* could be described as marked with mission ambiguity because there were ideological conflicts about community college roles. Also, there was a significant tilt toward non-credit programs, community service, and nontraditional instructional delivery: e.g., electronic learning centers via satellites and microwaves.

The *student body* was made up of students of all ages. Basically, there was something for all:

- \* Mature adults
- \* Re-entry Women
- \* Career renewers
- \* Reverse transfer
- \* Joint community college-high school enrolles

Although the *curriculum*, experienced tremendous growth in non-credit and community service programs, the transfer and occupational programs still dominated.

The *role of administrators* emulated that of managers in that both scarce resources and the intense use of strategic planning became critical.

The *role of faculty* was regulated by the collective bargaining agreement and had become more organized and politically sophisticated.

#### The Fifth Generation (the mid 1980s to the mid 1990s)

Financial retrenchment, and aging facilities and equipment have become increasing problems in providing education of high quality. New information and learning technologies are changing why, how, and where people learn. The pace and scope of social and technological change is so rapid and profound that community college leaders are not certain, where, or what people ought to learn.

Community colleges of the fifth generation are expected to be highly productive and publicly accountable. However, these governance tensions are more a manifestation of vitality than instability. Faculty trained in the new technologies of learning and instruction have become essential. However, the open doors policy still makes education convenient for all who want to learn through the open door policy.

Brint and Karabel (1989) summarize the generations of the community college as follows: The Organization a National Education Movement Period: 1900-1945; The Takeoff Period: 1946-1970; and, The Great Transformation Period: 1970-1985.

#### Brief History of Nevada's Community College

The first public community college in Nevada, Nevada Community College (currently known as Great Basin College), was established in 1967 in Elko, Nevada. The founding of the Nevada Community College coincided with Brint and Karabel's "Community College Takeoff Period." The Nevada Community College was established as an experimental venture to probe the feasibility of inducting the community college education throughout the state (Assembly Bill No 22, Section 1). This Assembly Bill delineated the governance of this pilot community college. It appointed the Elko County School District's Board of Trustees Ex Officio to serve as the Board of Trustees for the new community college. Assembly Bill No 22 also outlined the curriculum, faculty recruitment, and funding of this pilot community college.

The Nevada State Legislature commissioned the State Department of Education to study and recommend to the 55th session of the Nevada Legislature a master plan for community college education in Nevada (Assembly Bill No 22, Section 7). An independent consultant, Arthur D. Little, was

hired to conduct the research. In December 1968, the Little Report of the findings of the study, entitled Recommendation For Community College Education in the State of Nevada: A Report to the Superintendent of Public Instruction, was presented.

The Little Report: The report recommended strongly the adoption of the community college education throughout the state of Nevada. It outlined in detail the role of the community college in public higher education, needs for community colleges in the state of Nevada, and the financial requirements for implementing a community college system in the state of Nevada.

As a result of the Little Report, higher education in Nevada was restructured to a University and Community College System. This higher education system would consist of four divisions: University of Nevada at Reno, University of Nevada at Las Vegas, Desert Research Institute, and the community college division. The four divisions would be under the supervision of a Chancellor. The next important piece of legislature for community colleges in Nevada, Assembly Bill 459, was passed in 1971 by the Nevada legislature. This Bill created and passed the higher education capital construction fund and designated priority to the construction of *Clark County Community College* (currently known as the *Community College of Southern*



*Nevada) and Western Nevada Community College. The succeeding important piece of legislature for community colleges in Nevada was the 1981 Assembly Bill 705. This Bill appropriated funds for the construction of a fourth community college in Nevada, Truckee Meadows Community College.*

The history of community college in America is still unfolding. Recently, the AACJC changed its name once again. This time, they simply removed all reference to the old junior colleges and shortened the name to the American Association of Community Colleges (AACC). The effects of the past, however, continue to influence the present and will certainly contribute to the future.

#### **Community College Mission**

Simerly and Associates, in discussing the strategic planning process, define mission as "what the institution will contribute to society, whom it will serve, how it will serve them, and the social benefits that will result" (Apps 1988). Gleazer (1980) believes that the term "mission" is analogous to a process. He states that, frequently, such terms as "role", "function", and "purpose" are used interchangeably with "mission" describing what the community colleges do. The American Association of Junior Colleges in 1922 reported the primary mission of the junior college as

"offering two years of instruction of strictly collegiate grade" (Thornton 1972). This mission was barely established before it was expanded to include "terminal" education - or occupational education as we now know it. Nevertheless, over the next forty years, the two-year college mission continued to focus primarily on the transfer function (Monroe 1972).

Levine (1979) alleges that, the initial statement of the community college's mission evolved from the report of the President's (Truman) Commission on Higher Education in 1947 which states the following:

Whatever form the community college takes, its purpose is educational service to the entire community, and this purpose requires of it a variety of functions and programs. It will provide college education for the youth of the community; so as to **remove geographic and economic barriers to educational opportunity**, and discover and develop individual talents at **low cost and easy access**. But in addition, the community college will serve as an activity center of adult education. It will attempt to meet the total post-high school needs of its community.

Levine contends that this single statement, perhaps more than any other, set the tone for the mission - guiding the development of the community college and transforming it into the institution we see today.

Cohen and Brawer (1989), in "The American Community College," profile the broad missions of community colleges to include five traditional components: *transfer-oriented education, career education, general education, remedial education, and community education.*

They stress that since Joliet Junior College was established in 1901, community colleges have evolved into comprehensive institutions serving a broad spectrum of the population and offering a wide range of programs. Each institution reflects the educational needs of its local community; not surprisingly, community colleges vary significantly - even within the same state.

The mission of community colleges is to provide their constituents with comprehensive postsecondary programs and services that are academically and financially accessible. To this end, community colleges assume leadership in responding to the educational and training needs of their diverse communities and are committed to delivering high quality instructional and support programs to a broad range of students.

The mission of the community college is manifested through a variety of functions which include but is not limited to the following:

- \* Lower division preparation for college/university transfer
- \* Occupational entry preparation

- \* Occupational upgrading and retraining
- \* Educational partnerships with business, industry, government, and other institutions
- \* Education for personal growth
- \* Counseling, guidance, and other supportive student services
- \* Programs for special student groups, e.g., handicapped, limited English speaking, gifted, and talented student groups
- \* Basic Skill development and remediation
- \* Collaborative programs and services with secondary schools, other colleges, and universities
- \* General education
- \* Programs of social/cultural/recreational and community enrichment

Specifically, Dale Parnell, president of the American Association of Community and Junior Colleges, listed five characteristics of community colleges in his 1985 book, The Neglected Majority. These are the common elements of a community college philosophy that make these institutions an important option in postsecondary education:

1. Opportunity with excellence (quality and equality)
2. Cost effectiveness (low tuition and low operating costs)

3. A caring environment (good student-support services)
4. A competent faculty (oriented to teaching)
5. A comprehensive curriculum (something for everyone, including the average students who constitute the "neglected majority")

#### **Student Enrollment:**

In the Forties and Fifties, the number of community college students grew in the face of a decline in the population of available 18 to 24 year olds. This increase was primarily due to an increased demand for college trained workers. The post-war American economy grew, and gross national product soared, producing a "seller's market" for college graduates for nearly all sectors of the market place (Brint & Karabel, 1989, pp. 73-74). During the Fifties, college enrollments rose by twenty percent. In the Sixties, the number of 18 to 24 year olds rose dramatically, and college enrollments increased thirty percent. Other factors that boosted community college student enrollment include: *the state wide systems, open door policies, student aid, Vietnam War, and federal support.*

State Community College System: The rise of state wide community college systems was one of the factors that contributed to the growth period. Because the state

legislatures saw a need for increased access to higher education, studies were commissioned, master plans for state systems were written, legislation was passed, funding allocated, and new community colleges were built. A state wide systems emerged, and community colleges operated solely by a public school district dissipated. Today, the majority of the money allocated for community colleges comes from state resources (Cohen & Brawer, 1989, p. 128). Exclusive local control over the institutions was replaced by a partnership between the community and the state. Along with the state systems, a few states established super boards. Super boards acted to oversee the operation of the state's community colleges. However these states with super boards were the exception rather than the rule and were criticized for being somewhat less responsive to local needs (Deegan & Tillery, 1985).

Open Access to Higher Education: The concept of open access to higher education also played a significant role in the growth years. Although the Truman Commission and the GI Bill helped to topple some barriers to access, in the 1960s, societal attitudes yielded a belief that post-secondary education was a right, not a privilege. Consequently, students from the bottom quartile of their high school graduating class, students from the lower socioeconomic classes, minorities, and women began enrolling in increasing

numbers. The nation's community colleges then began to characterize themselves as open door institutions. In fact, it is the community colleges' service to these new students that has been and remains today one of their most noteworthy contributions to education in America (Brint & Karabel, 1989; Carnegie Commission on Higher Education, 1970).

Student Aid: Even though, open access could not have been achieved without increased student aid, community colleges, were slow to take full advantage of student financial aid (Cohen & Brawer, 1989). One reason for the slow start was the notion that community colleges were already so inexpensive that student financial aid was unnecessary. However without this assistance, those students from the lower socioeconomic classes would have had great difficulty paying for the education that the open door institutions were offering (Deegan & Tillery, 1985). With financial assistance in the form of a grant directly to the students, the open doors widened and the numbers of students increased further. Among the significant federal legislation for student funding during the period were the following acts:

1. The Servicemen's Readjustment Act (GI Bill), passed by the United States Congress in 1944, helped remove the financial barrier to higher education for millions of returning World War II

veterans, and perhaps more importantly, delayed the entry of huge numbers of returning World War II veterans into a peace-time economy (Olson, 1974.) For the first time in American history, higher education was available to the masses, not just to the wealthy (Brint & Karabel, 1989.) With the federal government paying for veterans' college educations through the GI Bill, men flocked to colleges to get a degree (Jones, 1980, p. 179.)

2. Higher Education Act of 1965. This act is considered a breakthrough piece of legislation (Brint & Karabel, 1989). It provided community colleges with 22 percent of authorized developing institution funds. These federal monies were used to develop and introduce new curricula, train faculty, and cultivate cooperative relationships between the colleges and private and public employers.
3. Higher Education Act of 1972. This act provided funds specifically for postsecondary occupational education. The wording of the act left no ambiguity as to the level of higher education which was to receive the monies. Programs that prepared individuals for professional employment or required a baccalaureate or advanced degree



were to be excluded. These funds enabled many students who otherwise would not have had the opportunity to do so to attend community college vocational programs.

4. **Basic Education Opportunity Grants (Pell Grants).** These grants provide funds that are not to be repaid by the students. Qualifications for the grants, which are still available to students, are on a need basis. The federal government guarantees that each participating college will receive enough money to pay the Pell Grants of all of its eligible students.
5. **Supplemental Educational Opportunity Grants (SEOG).** Similar to Pell Grants, these grants are awarded to students with exceptional financial needs. Priority is usually given to Pell Grant recipients. Unlike with Pell Grants, the federal government does not guarantee that every eligible student will be able to receive a Supplemental Educational Opportunity Grant.
6. **College Work Study Program.** These are programs that provide jobs for undergraduate students who need financial assistance for their educational costs. Work study programs pay at least the current federal minimum wage but can pay more depending on the type of work and the skills

required. The number of hours that a student is allowed to work under the program is set by the institution.

7. National Direct Student Loans. These loans are provided to students who qualify financially and who are enrolled at least half-time. The federal government guarantees that the loans will be repaid; however, it is the responsibility of the borrower to repay the loans with interest to the lending institution.

Vietnam War: The Vietnam War had a strong impact on student enrollment. In 1964, the U.S. Congress passed the Tonkin Gulf Resolution which signaled the start of the Vietnam era. That same year the available population of draft age men (18 years of age) was 1.4 million; one year later the number grew by one-third to 1.9 million (Jones, p. 107). America was entering into its longest war in history with its largest ever pool of draftable warriors. Young men could avoid the draft if they were enrolled in higher education. Men who were not eager to fight in a growingly unpopular war sought schools willing to accept them.

One outcome of the deferment system was its class bias. Poor young men who were unable to pay for higher education, who had limited or no understanding of how to attain student funding, and who often were academically under-prepared

found themselves in Vietnam. Middle and upper class individuals were much more likely to afford the costs of higher education; they understood in a more sophisticated manner how to secure necessary student aid, and were products of better schools which prepared them for the rigors of collegiate academics. Community colleges appealed to many thousands of these middle class men whose college attendance was motivated more by draft deferrals than by the lure of a college education. Consequently, college enrollment in the Sixties was inflated by men seeking draft deferments. With an increased population of college aged students, an unpopular war, and deferments tied to college enrollment, it is not surprising that community colleges saw dramatic growth.

Federal Support for Vocational Education: The period immediately following the 1960s ushered in a period of renewed conservatism in education (Shor, 1986). The conservative Nixon administration sought to reverse the liberal trends in American higher education seen in the previous decade (Brint & Karabel, 1989).

One of the tools employed to achieve these aims was to pour federal dollars into vocational education programs. Since most public vocational programs were associated with community colleges, the community college movement benefitted from the infusion of government cash. Two acts,

The Higher Education Act of 1965 and the Higher Education Act of 1972, were responsible for much of the money directed to community colleges for vocational education. These funds enabled community colleges to develop occupational programs, build the necessary facilities to house the programs, seek out and hire vocational faculty, and recruit interested students. The early years of the 1970s saw, what was then, huge sums of money funneled to career education programs. In 1972, \$707 million and in 1974, \$981 million, were appropriated (Brint & Karabel, p. 110).

As we entered the decade of the 1980s, the growth period was ending. However, the legacy of the twenty year span, 1960-1979, had entrenched the idea that community colleges were serving huge numbers of college students in America. Unfortunately, the community college leaders who presided over their institutions during times of expanding enrollments, construction, and funding were soon to face the leveling and eventual decline of all three factors. Administrators trained as expansionists during the baby boom period found themselves ill prepared to change gears and think smaller (Jones, 1980, p. 353).

#### **Transfer Function**

Cohen (1991) defines the transfer population as all students with no prior experience who take at least twelve college credits and, within four years, move on to a senior

institution. This population, he affirms, can be compared to the general student population to determine an institutional transfer rate indicator and to evaluate transfer effectiveness.

The college transfer function has long been the bread and butter for community colleges because transfer students typically take more courses than do career students and therefore generate significantly higher credit hours. At the same time, the liberal arts courses that the transfer students take are less expensive to offer because they often do not require laboratories with expensive equipment, and the college can usually bump up enrollments more easily than a vocational classroom.

Knoel (1982) states that, historically, the mission component present in each phase of community college development was the transfer preparatory function. He avows that transfer has been a primary aim of the community college since the earliest days of its precursor, the junior college, at the beginning of the 20th century. All junior colleges, whether emerging from secondary schools or from the restructuring of four-year institutions or established independently, made a commitment to ensuring that students had course work and programs available to transfer to a senior institution.

Key leaders of the early junior college, including Eells (1931), Koos (1925), and Colvert (1939), as well as university presidents Harper, Tappan, and Jordan, stressed the transfer role (Diener 1986). One of the earliest statements of the American Association of Junior Colleges about junior college mission, in 1922, included collegiate instruction as a major purpose of two-year institutions. College catalogs and surveys of course offerings during the first forty years of the junior college confirm that academic courses leading to transfer made up the majority of junior college work (Campbell 1930; Colvert 1947; McDowell 1919). Surveys of student enrollments - as distinct from course offerings, reflected transfer enrollments of 60 to 70 percent between 1907 and 1940 (Lombardi 1979).

Argument For the Community College Transfer Function:

The social context of the American community college must be understood if one is to fully comprehend the arguments that support the community college transfer function. In particular, the concept of opportunity, its role in American society, and how education, relate to opportunity in the society.

Community colleges exist in an American culture that promotes the opportunity to succeed as one of its fundamental beliefs. One of the most prominent characteristics of community colleges is their ability to

provide open access to higher education to many individuals who cannot qualify financially or academically for admission to universities (Brint & Karabel, 1989; Cohen & Brawer, 1989; Deegan & Tillery, 1985).

Comparing community colleges and universities, community colleges are less expensive to attend, often closer to home, and have less restrictive academic requirements for admission. Students who cannot afford or qualify academically for universities can turn to community colleges to begin their higher education. Community colleges, therefore, attempted to expand access to higher education and the opportunity to be socially mobile by making higher education available to the individuals who need it the most.

Many students choose to attend a community college due to academic deficiencies of one sort or another that prevent them from enrolling in a university. Cross (1971, p. 7) found that more than 50 percent of those students entering community college graduated in the lower half of their high school class and 40 percent had GPAs of C or lower. While the institutions also enroll many well prepared students, community colleges clearly attract students of lower academic ability and many who require basic academic remediation.

Remedial programs, also referred to as developmental programs, provide counseling, testing, and courses designed

to improve basic academic skills such as reading, writing, and mathematics.

With personalized attention to teaching each student individually, the community college and its instructional faculty help ease the often difficult transition from high school to college (Kempner, Belcher, Taylor, & West, 1990). Whether individually or in combination, community college transfer, vocational, and remedial programs deliver educational opportunity to many Americans.

In essence, the community colleges play a key role in our society - they provide opportunity. Conclusively then, the relative emphasis placed on the primary educational programs, transfer and vocational, has not been static over time.

#### Argument Against Transfer Function

Community colleges today are caught up in the nation's call for excellence in education and accountability. Yet the open door policy remains the hallmark of two-year colleges and they continue to accept students unable to qualify for admittance to universities. John Roueche and George Baker (1987, p. 34) stated that, as a result of the open door policy, many students in the 1960s and 1970s were able to enter college with academic deficiencies and subsequently failed. To compound the problem, few faculty members could afford the time for the tremendous amount of



individualized instruction needed to bring the under-prepared students to a satisfactory level. Faculty members were faced with two choices; first, they could teach the courses at the college level and have a very high number of withdrawals and failing grades, or second, they could lower the course standards and requirements. Neither choice was acceptable. The academically proficient students were also at a disadvantage, for when standards are lowered, the prepared students are not receiving the most value for their educational dollar (Roueche and Baker, 1987, p. 35).

The open door is now closing somewhat. Some colleges are instituting more stringent admission requirements for applicants, thereby, screening out some previously weak but acceptable applicants. According to Roueche and Baker, when only academically able students can attend, the college can maintain high expectations and standards. The political arena in America is also helping to close the open doors. As states assume more and more control of community colleges, the local financial support dwindles, and frequently the loss in local funding happens faster than it can be replaced by the state.

In an effort to secure additional funds, many schools are increasing tuition costs (Cohen & Brawer, 1989). The federal government also cut some student aid programs, forcing students to provide an ever increasing share of the cost of education. So, with reduced student aid and

increased tuition, the open door swings shut even more. The tragedy of the situation pivots around the idea that many students from the lower socioeconomic groups are likely to be excluded from their chances at college education.

Community colleges, however, still provide education to a vast number of students. In the 1982-83 academic year, over half of all first-time freshmen in the nation were enrolled in a two-year institution. The Fall of 1983 showed 4.9 million students enrolled in credit courses and an additional 3.5 million enrolled in noncredit courses. Women made up 53 percent and minorities 21 percent of the 1983 student population in the two-year colleges. The same period saw 651,606 full and part-time faculty members and 18,222 administrators (Vaughn, p.26).

### **Transfer Activities**

An overview of the community college liberal arts courses and transfer activity history indicates that transfer rate was at about 70 percent before 1960, but declined in the 1960s and 1970s. Cohen and Brawer (1989) contend that, in the 1960s and twenty years thereafter, vocational education enrollments grew at a faster rate than liberal arts enrollments. By 1975, vocational program enrollments were 35 percent of total enrollments. At the same time, the liberal arts, or the collegiate curriculum, experienced what Cohen and Brawer call an "extreme

narrowing:" Some of the humanities' disciplines were abandoned and second-year courses became increasingly rare. By the 1980s, the American Association of Community and Junior Colleges (AACJC) reported that the majority of students enrolled in community colleges were in vocational programs (AACJC, 1986).

Lombardi (1979) places the decline of the transfer function in the late 1960s when 43 percent of enrollments were in transfer programs as compared to the earlier 60 to 70 percent. By the end of the 1980s, various surveys of transfer activity indicated that perhaps 20 to 29 percent of community college students transferred to a four-year institution (Palmer and Eaton 1991).

Lombardi (1979) alleges that the history of the study of the transfer function includes limited quantitative data and analysis. The record of transfer activity, he asserts, is composed mainly of a series of individual studies from which generalizations about the community college enterprise from a national perspective cannot be validly inferred. He cites Eells' California study in 1929 and his 1941 study of 190 public junior colleges.

Medsker (1960) reported on transfer enrollments in Oregon, Wisconsin, New York, Pennsylvania, Iowa, and California. Additionally, other state studies were available throughout the 1970s. These studies affirmed that transfer activity was greater in the years of the junior college than

declined thereafter. They did not, however, provide a comprehensive national data base about changes in transfer and could not, with any confidence, speak knowledgeably about transfer.

Palmer and Eaton (1991) report that this trend continued in the 1980s. They contend that, at the national level, information about transfer was still extremely limited and relied primarily on the 1972 and 1980 longitudinal studies of students moving from high school to college generated by the United States Department of Education. They attest that, at least six studies of transfer were completed during the 1980s; and these studies, as with earlier efforts, did not constitute a comprehensive picture of the transfer situation because their definitions of the transfer population and the general student population varied. While some considered student intent, others did not; also, some considered only full-time students, whereas others included part-time students.

#### Recent Transfer Studies

Most of the recent studies on community college student transfer indicate that *20 to 25 percent of students from community colleges transfer to four-year colleges*. For instance, Adelman (1988), using the longitudinal study of high school seniors in 1972, claims that 20 percent of the students who enrolled in a community college transferred to

a four-year institution. Lee and Frank (1990), scrutinizing high school seniors in 1980, assert that 24 percent of seniors who entered higher education within two years of high school graduation enrolled in a community college. Grubb (1991) identified transfer rates of 20 percent for 1980 high school seniors and 29 percent for 1972 seniors attending community colleges. The Transfer Assembly - a multiyear study that did not rely on the 1972 or 1980 longitudinal data - studied enrollments in fall 1989, as well as fall 1990 and identified an average transfer rate of 23 to 24 percent among the 115 schools participating (Cohen 1991).

A comprehensive national data base is essential if community colleges are to determine their destiny as effective transfer institutions. Longitudinal studies of student flow must be undertaken on a routine basis to enable institutions to establish transfer goals and confirm whether they are achieving the expected results. These studies are required to establish a national transfer profile and to provide states and institutions with needed data by which to make public policy decisions for future transfer effectiveness.

#### Transfer Maturation Years

The early community colleges combined elements of both the traditional liberal arts (college transfer) degree

oriented education and vocational (career) education. Arthur Cohen and Florence Brawer (1989) articulate that the mix between the two was approximately eighty college transfer and twenty vocational (p. 18).

Brint & Karabel (1989, p. 31) state, "Two out of three of the colleges were secular, and the vast majority (both public and private) were liberal arts institutions that emphasized curricula that could be transferred with credit to senior colleges. Vocational programs were found from the beginning in some junior colleges, but they were seldom important features of the institutions." College transfer programs consisted primarily of foreign languages, social sciences, and natural sciences.

College transfer programs allowed many individuals from the lower socioeconomic classes the opportunity to begin their college education (Brint & Karabel, 1989). Career programs were designed to yield occupational skills of a more complicated nature than the vocational training offered in the high schools and yield employment without spending four years pursuing a college degree. The relative dominance of either the college transfer or vocational function is important to the understanding of the history of the community college in America. However, the emphasis on one function over the other has not remained constant, it shifts.

The early dominance of the college transfer function over the career function can be traced to what Robert Bellah, et. al. (1985) termed "republican individualism blended with another concept of the authors', expressive individualism." Among the characteristics that Bellah and his co-authors attribute to republican individualism is the concern for self improvement and community. Throughout its history the community college has provided and still does provide lower division college transfer programs far less expensively than university attendance and attracts many poorer students seeking to improve themselves (Cohen & Brawer, 1989).

Commitment to serving the needs of the local community has long been a hallmark of junior colleges as the current term, "community colleges," attests. Wherefore, by its very nature, the community college conforms to the two characteristics Bellah, et. al. describe.

The founding fathers of the community college movement wanted to establish schools to serve more than just the students with parents wealthy enough to afford a liberal arts college education. Access to the community colleges was to be open to a wider range of students than could be accommodated by the four year institutions. For instance, the Carnegie Commission (1970, p. 4) reported data from the Scope Project indicating that 50 percent of the students entered the early community colleges with academic abilities

ranking in the bottom two quartiles. Cohen and Brawer (1989) state that by the late 1970s "two-thirds of all ethnic minority students were in the two-year institutions (p. 17)."

Consequently, the two-year schools represented a democratization of higher education by providing access to higher education to segments of American society who previously had limited opportunity to receive such an education. Community colleges "offer more varied programs for a greater variety of students than any other segment of higher education (Carnegie Commission, 1970, p.3)." The opening of higher education to heretofore under served segments of the American population illustrates the civic responsibility expressed by the new community colleges. Community colleges were open to the community at large and not reserved for the elite. Therefore, the civic concern, which characterizes the republican individual, was expressed by the new community colleges and their transfer programs.

However, not everyone who studies community colleges finds favor with the large numbers of poorer students finding their way to two-year schools. Rather than interpreting the greater access to higher education as a force for democratization, Karabel (1986) saw a sinister stagnation of social mobility. He concluded that since so many of the community college's students were from the lower socioeconomic strata the colleges served to reinforce the



existing inequities of social class. He felt that individuals from the lower classes were being funneled into less prestigious institutions with less attractive outcomes than traditional baccalaureate granting institutions.

With more people having access to a liberal arts education, elements of Bellah's (1985) expressive individualism emerges in the community colleges. The liberal arts component of a higher education stresses the contextual nature of understanding, assists people in understanding their society, and helps individuals determine what is right and important (Cohen and Brawer, 1989). The expressive individual seeks "to cultivate and express the self and explore its vast social and cosmic identities (Bellah et al., 1985, p. 35)." Hence, the early emphasis on the liberal arts education of the masses is strikingly similar to the attributes that Bellah ascribes to expressive individualism.

While the dominance of transfer over vocational education in early junior colleges reflect abstract intellectual concepts of individualism, another explanation is needed to illustrate why transfer programs dominated. Shor (1986) argued that the opportunity to advance both economically and socially usually meant liberal arts or transfer education to community college students. Students who were attracted to community colleges wanted a less expensive alternative to the high price of a university

education. But, these students did not want to forego the baccalaureate degree in favor of vocational education which offered less attractive outcomes. To Shor, the explanation was simple, "Students avoided the low-wage tech tracks..., because students know up from down (p. 35)." Similarly, Brint & Karabel (1989) comment, "The desire for mobility continued to push junior college and community college students toward the higher levels of the educational system. Indeed, many AAJC leaders throughout the period [early community college years] attributed the slow growth of the vocational programs to their low status in the eyes of the students (p. 99)."

In the 58 years from the Morrill Act of 1862 to the establishment of a forum for the community college movement in 1920, entitled [the American Association of Junior Colleges (AAJC)], the two-year colleges progressed from a conceptualized people's college to a burgeoning system of public two-year institutions of higher education whose curricular emphasis was on transfer programs. Junior colleges became an important ingredient of America's system of higher education reflecting republican and expressive individualism.

#### Transfer Recession Years

Gleazer and other community college leaders who preceded him long held the belief that the two-year schools

should emphasize vocational education (Brint & Karabel, 1989).

Efforts to achieve a shift in institutional emphasis away from transfer education to vocational education had little success until the 1970s. Between 1970 and 1980, the percentage of students receiving vocational degrees or certifications grew from 43 to 72 percent (Cohen & Brawer, 1989, p. 210). Precisely in one short decade, the community college changed from an institution primarily engaged in providing transfer education to one increasingly devoted to vocational education.

Ira Shor (1986) credits Sidney Marland, United States Commissioner of Education from 1970 through 1973, with much of the surge in federal support for vocational education. In contrast to a relatively liberal faculty, the system of 1,000 community colleges and 2,000 more elite senior colleges also housed an essentially conservative administrative corps, available for a counter offensive against the changes of the 1960s. Moreover, the conservative higher education hierarchy encompassed all fifty states. Marland's success focused upon the political energy of these conservative college and university policy makers around a common program for careerism. Shor argued that

"Marland knew how to orchestrate a national reform, capture press and professional attention, homogenize debate with career issues, promote model programs in career-aggressive districts, and channel federal money to the new regime (p. 32)."

Many factors combined during this period to affect the transformation of community colleges. Factors included a declining labor market for graduates of four-year college and universities accompanied by heightened financial support for vocational education from important institutions outside of education (such as private foundations, the federal government, and business).

The labor market reverses contributed to a sense among many college aspirants that vocational training might lead to a more prosperous future than a baccalaureate degree. The seller's market was replaced with a buyer's market for college trained workers. As stated earlier, the Vietnam draft avoiders increased the number of students in college and subsequently the number of college graduates.

Three important sectors which traditionally employed college graduates, education, government, along with research and development, experienced slower growth and even periods of decline relative to the rest of the economy (Brint & Karabel, 1989). Fewer jobs for college graduates indicated an eroding demand for college trained workers.

At this same time, the supply of new college graduates seeking employment increased. Freeman (1976) reported that the number of new college-graduate workers grew 1.2 percent from the late 1950s through the mid 1960s. During the late 1960s through the mid 1970s, however, the number rose 7.6 percent per year. Hence, a classic supply and demand imbalance resulted as the number of jobs requiring a baccalaureate or higher degree declined while the number of college educated individuals increased.

This imbalance did not go unnoticed or unreported. Media coverage of the changing labor market sensationalized the plight of some college graduates who were forced to work in fields other than those for which they were trained. Many individuals contemplating a college education began to believe that a college education and economic opportunity were not necessarily interwoven. This negative attitude toward the value of a baccalaureate degree contributed to an enrollment surge in vocational programs and reduced transfer enrollments (Brint & Karabel, 1989).

Another factor that may explain the shift from collegiate to career education is what Burton Clark (1960 and 1980) termed the "cooling-out function." According to Clark, the cooling-out function of community colleges downwardly adjusts students' collegiate aspirations toward acceptance of vocational options. This adjustment process begins with pre-entry testing designed to funnel low

academic ability students into remediation or developmental programs. Next, counselors gently advise the remedial students that alternative, less rigorous, yet valuable, training is available. The student, now attracted to a vocational/occupational program, has had his or her baccalaureate aspirations cooled-out. Cross (1971) reported that based on the results of a 1967 four-state survey, one-fifth of the community college students lowered their career aspirations due to counseling received. Critics of the cooling-out function argue that such a system is inhumane while defenders claim that to eliminate it only places the problems of under achieving students on the doorstep of the next institution.

Knoell (1982) states that a variety of pressures arose in the 1970s and 1980s that may, in fact, have contributed to an actual decline in the numbers of community college transfer students. These factors, according to Knoell, include the following:

- 1) Pressure on four-year institutions to improve access for ethnic minorities
- 2) Unemployment and underemployment of baccalaureate degree holders
- 3) Public attitudes questioning the costs and outcomes of a college education

Brint and Karabel (1989) allege that the early community colleges were faced with the need to carve out a market niche in the overall structure of higher education. Furthermore, four-year colleges and universities had a virtual lock on professional education such as engineering, teacher education, and public administration. Leonard Koos, an early advocate of vocational education, worried that junior colleges could not compete with universities if they remained predominately liberal arts institutions. Therefore, Koos developed the notion that community colleges should enter the semiprofessional training market (Brint & Karabel, 1989). Examples of semiprofessional programs include dental hygiene, forestry, insurance, and x-ray technology. By targeting semiprofessional training, an area not generally served by four-year institutions, Koos sought to provide community colleges with a new and relatively undeveloped market niche with growth potential. Such a curricular focus would also avoid head-to-head competition between junior colleges and universities.

#### Consequences of Transfer Recession

This vocationalization of community colleges produces several negative consequences. Given the fact that community colleges have always attracted large numbers of low socio-economic class students, Zwerling (1976) views the

subsequent vocationalization of the institutions as a tool to allow mass access to higher education without changing the existing social structure. He believes that the two-year colleges can occasionally promote isolated individual social mobility, but have never been an effective agent of group social mobility. Pincus (1980) reported that poor minority students are clustered in vocational programs and suffer underemployment after graduation. Similarly, Richardson & Bender (1987) found little social mobility among minority students in community colleges even though more and more minorities attend such colleges. The reason the researchers point to is high numbers of minorities enrolled in low prestige and ultimately low paying vocational programs.

#### Transfer Rebound Year:

Baker (1994, 114) attests that, although the transfer sector of the community college curriculum lost ground over the last few decades, recent reports on student intentions signal a returning interest in transfer programs. He stresses that there is a trend toward establishing formal transfer articulation agreements with senior institutions, and there is a heightened interest in providing bachelor's degree completion programs on two-year college campuses. He concludes that, taken collectively, these factors suggest a



renewed emphasis on the liberal arts and transfer function in the years ahead.

Baker (1994, 32) asserts that three factors, in particular, contributed to the re-emergence of transfer as an important higher education issue:

First, concerns for educational mobility and especially the mobility of racial minority students triggered conversations about transfer. The community colleges, enrolling approximately one-half of all minorities during the 1980s, were urged to place additional emphasis on the transfer function- especially in institutions housing large numbers of minority students. *The AACJC, the Ford Foundation, The United States Department of Energy, the American Council on Education (ACE), and others sponsored various programmatic initiatives focused on strengthening transfer.*

Second, the changing attendance behavior of nontraditional students, especially their increasing tendency to attend more than one educational institution - two-year or four-year - during their undergraduate careers called attention to the ease or difficulty of transfer.

Third, the state and federal emphasis on accountability in the latter 1980s was accompanied by the conviction that *the extent to which students transferred and their success after transfer were important measures of institutional effectiveness.*

State legislators, the National Governors' Association, and the federal officials focused on the expected results of the collegiate. They sought to confirm that students completing a collegiate experience could function at a minimal level of competency and that entry to higher education resulted in degree completion. *They viewed transfer, degree acquisition, and employment as the three major indicators of community college effectiveness.*

Baker concludes that the new demands - equity, availability, and accountability - forced educators to pay additional attention to the transfer function and to begin to reconsider the role of the community college.

Wilson and Cater (1988) emphasize that as civil rights efforts on behalf of racial minorities continued into the 1980s, concern intensified that the opportunity and benefits that accompany baccalaureate education were not extended to racial minorities. They added that, this was in part the result of data indicating that the participation of Blacks

and Hispanics in higher education had diminished since the 1970s.

### **Transfer Outcomes**

Community colleges provide opportunity to many individuals across the nation. Among those seeking opportunity in community colleges are individuals who are under prepared both academically and financially to attempt a baccalaureate degree at a university. These men and women, who represent all races, hope to begin their education at a community college that offers transfer courses at a cost they can afford, assists in their transition from high school to community college to senior college, and provides the necessary lower division education that can serve as the basis for the balance of their baccalaureate education. But as vocational education continues to grow and community college counselors continue to engage in cooling-out students' aspirations, many educational observers fear that the transfer function could be a casualty. And if the transfer function suffers, one avenue to opportunity could also be in jeopardy.

Many questions then arise. How well do community colleges perform this vital transfer function? How well do the community college transfer students perform at senior institutions? Generally, does gender play any role in the performance of the transfer students at the four-year

colleges? Do differences in ethnicity play any role in the performance of the transfer students at the four-year colleges? Do differences in socioeconomic background play any role in the performance of the transfer students at the four-year colleges? How much role does academic ability (GPA) play in the performance of the transfer students at the four-year colleges? Can predictions, based on demographics, be made as to which transfer students will complete and which will have difficulties? Do policy makers at the state and federal levels know enough about the transfer function and the resulting baccalaureate degree completion to make effective policies regarding transfer education?

In response to the first question, we do not yet know. Correspondingly, the answer to the last question must be "probably not" because we do not know the answer to the first question. As for the questions in between, performance, gender, ethnicity, socioeconomic background, academic ability (GPA), and other demographic traits are not as predictable as they should be. The purpose of this study is to shed light on the first several questions which should help the macro decision makers. The next chapter will explain how I intend to conduct this study so answers can be found to these important questions.

### Conclusion

The community colleges serve all sorts of individuals as well as the needs in their service areas as a whole. They are among the frontline institutions in the continuing war against illiteracy and irrationality. They defend the American culture, articulate it, and filter people into it. They stand alongside the public libraries, museums, youth groups, and other community agencies in transmitting values and sharing understanding.

However, they will be responsible for controlling their own destinies and will undoubtedly play a significant role in shaping the future of higher education. They can build on their history and community-based roots, but the future will require them to meet the emerging expectations, attitudes, and conditions of an information-based society. They will be integrated into the graded system of American education - not outside of it.

Furthermore, the professional associations for community college education will exercise influence commensurate with the enrollments community colleges represent in higher education. In this manner, the relationship between community colleges and four-year colleges and universities will probably become more nearly one of equals.

The most significant factor bringing about this change will be the large market share of the "traditional" students

which community colleges currently enjoy, and the relatively low cost in tuition and fees all of these facets will make these colleges even more attractive alternative.

Over the next 10 years, community colleges will be confronted by serious challenges; but, they will remain the most viable sector of American higher education. However, their continuing success will be contingent on their adaptability to the changing needs of the society they serve. This is the principal reason why they already have flourished, and their flexibility will determine their future success or failure.

Perhaps the most redeeming characteristic of the community college is the first word in its name - community. As long as community colleges remain responsive to their local communities and become genuine parts of their communities' ecologies, they will prove to be a positive force to enhance their area's various needs including cultural, vocational, avocational, and college transfer requirements.

Overall, despite the many additional roles adopted by the community colleges, the original function - transfer - will remain the essential component of their mission.

## CHAPTER III

### RESEARCH DESIGN AND METHODOLOGY

This study replicated and reported a quantitative analysis of studies done on the community college transfer rates, investigated the baccalaureate degree completion rates of the community college transfer students at senior institutions, as well as examined the differences between community college transfer students who completed baccalaureate degrees in four-year colleges and those who did not complete their baccalaureate degree work in four-year colleges.

The analysis was based on demographic and ability attributes. The demographic variables were *socioeconomic status (SES)*, *gender (sex)*, and *race (ethnicity)*. The ability variable was the community college *grade point average (GPA)*. The demographic and ability variables were the independent variables while *Completion* was the dependent variable.

## **Selection of Subjects**

### Unit of Analysis

The study was conducted on the 1980 sophomore class using the 1992 High School and Beyond longitudinal dataset. Ten years had passed since these students were scheduled to graduate from high school, and most were either 28 or 29 years old. This 1992 survey is the fourth followup of this cohort since the first data collection in 1980.

The study is longitudinal and capitalizes on the long-term aspects of this group of 1980 high school sophomores as they proceeded through colleges and universities in pursuit of bachelor degrees. The sophomore data span 1980 through 1992 and include parent data, teacher feedback, high school transcripts, financial aid records, and college transcripts.

### Sampling Procedure

The research population was drawn from the High School and Beyond (HS&B) dataset of the 1980 high school sophomores cohort (14,825 students). The 1980 Sophomore Cohort dataset is taken from a highly stratified national sample of this group of students, ten years after high school.

The HS&B data were not only *highly stratified* but also involved over *1,100 secondary schools* who were randomly selected to participate in the survey.



Certain types of schools were over sampled to ensure that adequate numbers of diverse students were represented in the sample. The over sampled types of schools were as follows: public schools with high or low minority student populations, Catholic schools, alternative public schools, and private schools with high achieving students.

### **Research Design**

The HS&B database captured the periodic changes and progress in students' educational and noneducational activities due to its longitudinal nature. Students were classified by gender (sex), race (ethnicity), socioeconomic status (SES), and academic ability (GPA).

Beginning with the first follow-up year, 1982, and through the subsequent follow-ups, those students who started their postsecondary education at a two-year college were identified. Students who did not attend a two-year college were eliminated from the sample. This process reduced the number of students. The number of students were further reduced by eliminating those who started their postsecondary education at 2-year colleges but did not continue their postsecondary education (transfer) at a senior institution. To be considered a transfer student, a student must start his or her postsecondary education from a two-year college and subsequently transfer to a four-year institution.

Of all the independent variables, only gender (sex) is naturally dichotomized. Academic ability (GPA), Socioeconomic status (SES), and race (ethnicity), have many different classes. For instance, ethnicity was comprised of Black, White, Asian, Hispanic, or Native American; SES consisted of Upper, Upper-Middle, Middle, and Lower quartiles; and GPA embraced eight different levels.

**Table 1. Organization of Variables - Sophomore cohort**

| Survey            | Categories                                       |
|-------------------|--|
| <b>SES</b>        | (Lower, Middle, Upper-Middle, & Upper) Quartiles |
| <b>GPA</b>        | (8 Categories that ranged from 0.00 to 4.00)     |
| <b>Sex</b>        | (Male/Female)                                    |
| <b>Ethnicity</b>  | (Asian, Black, Hispanic, Native Ame., & White)   |
| <b>Completion</b> | (Bachelors Attained/Bachelors-Not-Attained)      |

The weights of GPA, SES, Sex, and Ethnicity on Completion were analyzed using the multiple linear regression technique.

#### **Data Collection**

##### Source of Data

All subjects are taken from the longitudinal study of the High School and Beyond (HS&B) dataset. The HS&B

longitudinal data series provided by the National Center for Education Statistics (NCES) at the United States Department of Education studied the transitions of young adults from high school through postsecondary education and into their careers.

The National Education Longitudinal Studies (NELS) program of the National Center for Education Statistics (NCES) was established to study the educational, vocational, and personal development of young people beginning with their elementary or high school years, and following them over time as they begin to take on adult roles and responsibilities.

The HS&B survey included two cohorts: the 1980 senior class, and the 1980 sophomore class. Both cohorts were surveyed every two years through 1986, and the 1980 sophomore class was surveyed again in 1992.

Consequently, a base year and three follow-up surveys were conducted at 2-year intervals for the sophomores and seniors. Base year data were collected in the spring of 1980 from nationally representative samples of over 30,000 sophomores and 28,000 seniors. A subset (14825) of the 30,000 sophomores were surveyed.

The first follow-up data were collected in the spring of 1982 and included 29,737 of the 1980 sophomores and a subset of 11,995 of the 1980 seniors. But only a subset of the sophomores (14,825) were surveyed.

The second follow-up data files include subsets of 14,825 of the 1980 sophomores (92% of whom participated in 1984) and 11,995 of the 1980 seniors (91% of whom participated in 1984).

The third follow-up data files include the same subsets of 14,825 of the 1980 sophomores (91% of whom participated in 1986 and 11,995 of the 1980 seniors (92% of whom participated in 1986).

The fourth follow-up data were collected in 1992 but only on the sophomore COHORT.

**Table 2. HS&B Subjects - Sophomore cohort**

| Survey               | Year | # Parti-<br>cipated | # Non Parti-<br>cipants | % Response |
|----------------------|------|---------------------|-------------------------|------------|
| <b>Base Year</b>     | 1980 | 13749               | 1076                    | 92.7%      |
| <b>1st Follow-Up</b> | 1982 | 14102               | 723                     | 95.1%      |
| <b>2nd Follow-Up</b> | 1984 | 13682               | 1143                    | 92.3%      |
| <b>3rd Follow-Up</b> | 1986 | 13425               | 1400                    | 90.6%      |
| <b>4th Follow-Up</b> | 1992 | 12640               | 2185                    | 85.3%      |

#### Variables

The analysis was based on demographic and ability variables. The independent variables were the community college *grade point average (GPA)*, *socioeconomic status*

(SES), gender (sex), and race (ethnicity). The variable completion (baccalaureate degree completion) was the dependent variable.

## **Statistical Analysis**

### **Method of Analysis**

In order to develop a predictive model, a Stepwise Multiple Linear Regression analysis was conducted using the SPSS PC+ statistical package where completion was the dependent variable; GPA, SES, sex, and ethnicity were the independent variables. The Stepwise model was chosen because it enabled the evaluation of each independent variable's contribution in explaining the dependent variable - Completion. At each step, the weight of each variable was calculated to determine the contribution of each variable to the prediction.

The multiple regression technique requires that the independent and dependent variables be measured on an interval scale. Binary variables satisfy this requirement; consequently, nominal variables such as Sex, Ethnicity, and Completion were coded in binary (dummy) variables.

This study determined the degree of linear dependence of Completion on the four independent variables (GPA, SES, Sex, and Ethnicity).

## CHAPTER 4

### ANALYSIS AND FINDING

The purpose of the study was to examine the differences in GPA, SES, sex, and ethnicity between the community college transfer students who completed baccalaureate degrees in four-year colleges and those who did not complete their baccalaureate degrees in four-year colleges. However, the study also investigated the community college students transfer rates and their baccalaureate degree completion rates. Consequently, this chapter reported a quantitative analysis of the community college students transfer rates, the transfer students baccalaureate degree completion rates, and the differences in GPA, SES, sex, and ethnicity between completers and noncompleters.

The analysis was based on the demographic and ability attributes. The demographic variables were the community college *grade point average (GPA)*, *socioeconomic status (SES)*, *sex*, and *ethnicity*. The variable *completion* (baccalaureate degree completion) was the dependent variable.

The analysis focused on the research questions which ponder whether there were differences in GPA, SES, sex, and ethnicity between the community college transfer students who completed baccalaureate degrees in four-year colleges and community college transfer students who did not complete their degree work. The analysis examined the following specific subproblems using crosstabulations:

1. Differences in sex between the community college transfer students who completed baccalaureate degrees in four-year colleges and noncompleters.
2. Differences in ethnicity between the community college transfer students who completed baccalaureate degrees in four-year colleges and noncompleters.
3. Differences in SES between the community college transfer students who completed baccalaureate degrees in four-year colleges and noncompleters.
4. Differences in GPA between the community college transfer students who completed baccalaureate degrees in four-year colleges and noncompleters.

#### **Analysis Technique**

In order to determine the degree of linear dependence of Completion on the four independent variables (GPA, SES, Sex, and Ethnicity), a Stepwise Multiple Linear Regression analysis was conducted using the SPSS PC+ statistical

package where *completion* was the *dependent* variable; GPA, SES, Sex, and Ethnicity were the *independent* variables. The Stepwise model was chosen because it enabled the evaluation of each independent variable's contribution in explaining the dependent variable - *Completion*. At each step, it was determined which variable added what information to the prediction.

### **Data Analysis Tasks**

The first task in the data analysis was to report the univariate frequency distribution of cases for the key independent variables, Sex, SES, GPA, Ethnicity, and other relevant independent variables. The second chore was to report the bivariate results from the crosstabulation of the dependent variable, Completion with the four independent variable, SES, Sex, GPA, and Ethnicity. And finally, the report on the results of the multivariate analysis was conducted using the multiple regression analysis technique.

### **Univariate Frequency Distribution of Cases**

The study on the sophomore cohort was composed of a base year and four follow-up surveys. Base year data were collected in the spring of 1980 from nationally representative samples of over 30,000 sophomores. But, only a subset (14825) of the 30,000 sophomores were followed at each of the four follow-up studies. However, at each



follow-up study, the deceased and non-respondent students were replaced by students who were randomly selected from the pool of 30,000 students. This study, extracted the 14,825 students who participated in the First Follow-up and tracked them through the Fourth Follow-up for analysis. In other words, the replacement students were not included in the analysis. This was done to preserve the consistency of the independent variables, Sex, GPA, SES, and Ethnicity. The independent variables for the 14,825 study population were distributed as shown below.

The Survey Population Frequency Distribution

**Table #1: SEX: COMPOSITE SEX (FROM 1ST FOLLOW-UP)**

| <u>Value Label</u> | <u>Value</u> | <u>Frequency</u> | <u>Percent</u> | <u>Valid Percent</u> | <u>Cum Percent</u> |
|--------------------|--------------|------------------|----------------|----------------------|--------------------|
| Male               | 1            | 7347             | 49.6           | 49.6                 | 49.6               |
| Female             | 2            | 7478             | 50.4           | 50.4                 | 100.0              |
|                    |              | -----            | -----          | -----                |                    |
|                    | TOTAL        | 14825            | 100.0          | 100.0                |                    |
| -----              |              |                  |                |                      |                    |

The gender composition of the study population was approximately equal. Of the 14,825 sample population, 7478 (50.5%) were females and 7347 (49.6) were males.

**Table #2: RACE COMPOSITE RACE (FROM 1ST FOLLOW-UP)**

| <u>Value Label</u> | <u>Value</u> | <u>Frequency</u> | <u>Percent</u> | <u>Valid Percent</u> | <u>Cum Percent</u> |
|--------------------|--------------|------------------|----------------|----------------------|--------------------|
| HISPANIC/SPANISH   | 1            | 3251             | 21.9           | 21.9                 | 21.9               |
| NATIVE AME         | 2            | 292              | 2.0            | 2.0                  | 23.9               |
| ASIAN, PCFC ISLNR  | 3            | 430              | 2.9            | 2.9                  | 26.8               |
| BLACK              | 4            | 2036             | 13.7           | 13.7                 | 40.5               |
| WHITE              | 5            | 8624             | 58.2           | 58.2                 | 98.7               |
| OTHER              | 6            | 192              | 1.3            | 1.3                  | 100.0              |
|                    |              | -----            | -----          | -----                |                    |
|                    | TOTAL        | 14825            | 100.0          | 100.0                |                    |

The ethnic composition of the 14,825 study population was as follows: 3251 (21.9%) were Hispanic or Spanish Americans, 292 (2%) were Native Americans, 430 (2.9%) were Asian/Pacific Islanders, 2036 (13.75%) were African Americans, 8624 (58.2%) were Caucasian Americans, and 192 (1.3%) were from some other ethnic group not listed above.

**Table #3: HSGRADES H.S. GPA (HIGH SCHOOL GPA)**

|                     |              | <u>GPA</u>   |              |                | <u>Valid Percent</u> | <u>Cum Percent</u> |
|---------------------|--------------|--------------|--------------|----------------|----------------------|--------------------|
| <u>Value Label</u>  | <u>RANGE</u> | <u>Value</u> | <u>Freq.</u> | <u>Percent</u> |                      |                    |
| MOSTLY A 90-100     | > 3.5        | 1            | 595          | 4.0            | 4.0                  | 4.0                |
| HALF A + B 85-89    | 3.5          | 2            | 1811         | 12.2           | 12.2                 | 16.2               |
| MOSTLY B 80-84      | 3.0          | 3            | 3026         | 20.4           | 20.4                 | 36.6               |
| HALF B + C 75-79    | 2.5          | 4            | 3973         | 26.8           | 26.8                 | 63.4               |
| MOSTLY C 70-74      | 2.0          | 5            | 3392         | 22.9           | 22.9                 | 86.3               |
| HALF C + D 65-69    | 1.5          | 6            | 1598         | 10.8           | 10.8                 | 97.1               |
| MOSTLY D 60-64      | < 1.5        | 7            | 305          | 2.1            | 2.1                  | 99.2               |
| {ILLEGITIMATE SKIP} |              | 98           | 125          | .8             | .8                   | 100.0              |
|                     |              | -----        | -----        | -----          |                      |                    |
|                     | TOTAL        |              | 14825        | 100.0          | 100.0                |                    |

The high school GPA of the 14,825 study population revealed that 595 (4%) of the students selected were "A" students, 1811 (12.2%) were "B+" students, 3026 (20.4%) were

"B" students, 3973 (26.8%) were "C+" students, 3392 (22.9%) were "C" students, 1598 (10.8%) were "D+" students, and the rest were "D" or lower students. In other words, 36.6% of the selected students were "A and B" students, 49.7% were "C and C+" students, and the rest (12.9%) were less than "C" students.

**Table #4: FUSESQ 1ST FOLLOW-UP SES QUARTILE**

| Value Label       | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|-------------------|-------|---------------|---------|---------------|-------------|
| LOWEST QUARTILE   | 1     | 3147          | 21.2    | 21.2          | 21.2        |
| SECOND QUARTILE   | 2     | 2744          | 18.5    | 18.5          | 39.7        |
| THIRD QUARTILE    | 3     | 2789          | 18.8    | 18.8          | 58.5        |
| HIGHEST QUARTILE  | 4     | 2986          | 20.1    | 20.1          | 78.7        |
| {MISSING}         | 8     | 2436          | 16.4    | 16.4          | 95.1        |
| {LEGITIMATE SKIP} | 9     | 723           | 4.9     | 4.9           | 100.0       |
| TOTAL             |       | 14825         | 100.0   | 100.0         |             |
| Valid Cases       | 14825 | Missing Cases | 0       |               |             |

The socioeconomic status (SES) of the 14,825 study population reveals a fairly even distribution. The composition was as follows: 3147 (21.2%) were from the "Lowest Quartile," 2744 (18.5%) were from the "Second Quartile," 2789 (18.8%) were from the "Third Quartile," and 2986 (20.1) were from the "Highest Quartile." In other words, the lowest and the highest quartiles were approximately equal, while the middle quartiles (second and third) were also about the same.

**Table #5: SY15: ATTENDED POSTSEC SCH AFTER H.S.**

| Value Label      | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|------------------|-------|---------------|---------|---------------|-------------|
| YES              | 1     | 8332          | 56.2    | 60.9          | 60.9        |
| NO               | 2     | 5286          | 35.7    | 38.6          | 99.5        |
| {MULT. RESPONSE} | 6     | 2             | .0      | .0            | 99.5        |
|                  | 7     | 6             | .0      | .0            | 99.6        |
|                  | 8     | 56            | .4      | .4            | 100.0       |
|                  | .     | 1143          | 7.7     | MISSING       |             |
|                  | TOTAL | 14825         | 100.0   | 100.0         |             |
| Valid Cases      | 13682 | Missing Cases | 1143    |               |             |

The case distribution of the study population's postsecondary experience divulged that 8332 (56.2%) attempted to some kind of postsecondary education after high school.

**Table #6: SY18A KIND OF SCH ATTENDED AFTER H.S.**

| Value Label        | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|--------------------|-------|---------------|---------|---------------|-------------|
| VOC-TRADE-BUS SCHL | 1     | 1172          | 7.9     | 8.6           | 8.6         |
| JUNR-CMTY CLG 2-YR | 2     | 2630          | 17.7    | 19.2          | 27.8        |
| COLLEGE-UNIVERSITY | 3     | 4382          | 29.6    | 32.0          | 59.8        |
| OTHER KIND SCHL    | 4     | 127           | .9      | .9            | 60.7        |
| {MULT. RESPONSE}   | 6     | 5             | .0      | .0            | 60.8        |
| {MISSING}          | 8     | 77            | .5      | .6            | 61.3        |
|                    | 9     | 5289          | 35.7    | 38.7          | 100.0       |
|                    | .     | 1143          | 7.7     | MISSING       |             |
|                    | TOTAL | 14825         | 100.0   | 100.0         |             |
| Valid Cases        | 13682 | Missing Cases | 1143    |               |             |

Of the 14,825 study population identified from the First Follow-up, only 2,630 of them started their postsecondary education from a two-year college

(junior/community college). Those 2,630 students were extracted for further analysis.

The Community College Students' Frequency Distribution

**Table #7: SEX (COMMUNITY COLLEGE STUDENTS)**

| Value Label | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|-------------|-------|---------------|---------|---------------|-------------|
| MALE        | 1     | 1175          | 44.7    | 44.7          | 44.7        |
| FEMALE      | 2     | 1455          | 55.3    | 55.3          | 100.0       |
|             |       | -----         | -----   | -----         |             |
|             | Total | 2630          | 100.0   | 100.0         |             |
| Valid cases | 2630  | Missing cases |         | 0             |             |

The gender composition of the 2,630 community college students in the study was as follows: 1175 (44.7%) males, and 1455 (55.3%) females

**Table #8: RACE (COMMUNITY COLLEGE STUDENTS)**

| Value Label   | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|---------------|-------|---------------|---------|---------------|-------------|
| HISPANIC      | 1     | 649           | 24.7    | 24.7          | 24.7        |
| NATIVE AME    | 2     | 41            | 1.6     | 1.6           | 26.2        |
| ASIA,PCFC ISL | 3     | 117           | 4.4     | 4.4           | 30.7        |
| BLACK         | 4     | 316           | 12.0    | 12.0          | 42.7        |
| WHITE         | 5     | 1497          | 56.9    | 56.9          | 99.6        |
| OTHER         | 6     | 10            | .4      | .4            | 100.0       |
|               |       | -----         | -----   | -----         |             |
|               | Total | 2630          | 100.0   | 100.0         |             |
| Valid cases   | 2630  | Missing cases |         | 0             |             |

The ethnic composition of the 2,630 community college study population was as follows: 649 (24.7%) were Hispanic or Spanish Americans, 41 (1.6%) were Native Americans, 117 (4.4%) were Asian/Pacific Islanders, 316 (12.0%) were

African Americans, 1497 (56.9%) were Caucasian Americans, and 10 (0.4%) were from some other ethnic group not listed above.

**Table #9: FUSESQ (SES -- COMMUNITY COLLEGE STUDENTS)**

| Value Label      | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|------------------|-------|---------------|---------|---------------|-------------|
| LOWEST QUARTILE  | 1     | 694           | 26.4    | 26.4          | 26.4        |
| SECOND QUARTILE  | 2     | 675           | 25.7    | 25.7          | 52.1        |
| THIRD QUARTILE   | 3     | 653           | 24.8    | 24.8          | 76.9        |
| HIGHEST QUARTILE | 4     | 608           | 23.1    | 23.1          | 100.0       |
| Total            |       | 2630          | 100.0   | 100.0         |             |
| Valid cases      | 2630  | Missing cases |         | 0             |             |

The socioeconomic status (SES) of the 2,630 community college study population revealed a fairly even distribution. The composition was as follows: 694 (26.4%) were from the "Lowest Quartile," 675 (25.7%) were from the "Second Quartile," 653 (24.8%) were from the "Third Quartile," and 608 (23.1) were from the "Highest Quartile." Although the percentage of the "Lowest Quartile" was slightly higher than the remaining quartiles, overall the respective quartiles - the lowest through the highest quartiles - were significantly close.

**Table #10: HSGRADES (H.S GPA - Community College Students)**

| Value Label    | GPA  | Value | Freq.         | Percent | Valid Percent | Cum Percent |
|----------------|------|-------|---------------|---------|---------------|-------------|
| MOSTLY A       | >3.5 | 1     | 59            | 2.2     | 2.2           | 2.2         |
| HALF A/HALF B  | 3.5  | 2     | 284           | 10.8    | 10.8          | 13.0        |
| MOSTLY B       | 3.0  | 3     | 650           | 24.7    | 24.7          | 37.8        |
| HALF B/HALF C  | 2.5  | 4     | 887           | 33.7    | 33.7          | 71.5        |
| MOSTLY C       | 2.0  | 5     | 573           | 21.8    | 21.8          | 93.3        |
| HALF C/HALF D  | 1.5  | 6     | 149           | 5.7     | 5.7           | 98.9        |
| MOSTLY D/BELOW | <1.5 | 7     | 28            | 1.1     | 1.1           | 100.0       |
| Total          |      |       | 2630          | 100.0   | 100.0         |             |
| Valid cases    |      | 2630  | Missing cases |         | 0             |             |

The high school GPA of the 2,630 community college study population revealed that 59 (2.2%) of the students selected were "A" students, 284 (10.8%) were "B+" students, 650 (24.7%) were "B" students, 887 (33.7%) were "C+" students, 578 (21.8%) were "C" students, 149 (5.7%) were "D+" students, and the rest were "D" or lower students. In other words, only 2.2% of the high achieving students ("A" students) started their postsecondary education at a community college.

**Table # 11: TRANSFER (COMMUNITY COLLEGE STUDENTS)**

| Value Label  | Value | Frequency | Percent       | Valid Percent | Cum Percent |
|--------------|-------|-----------|---------------|---------------|-------------|
| NON-TRANSFER | F     | 1977      | 75.2          | 75.2          | 75.2        |
| TRANSFER     | T     | 653       | 24.8          | 24.8          | 100.0       |
| Total        |       | 2630      | 100.0         | 100.0         |             |
| Valid cases  |       | 2630      | Missing cases |               | 0           |

Of the 2,630 community college study population identified from the First Follow-up, only 653 (24.8%) of

them transferred to a four-year college to pursue their baccalaureate degree. The transfer rate (24.8%) confirms the previous transfer studies done on the community college by Ademan(1988), Lee and Frank(1990), Cohen(1991), Grubb(1991), and West(1994) that reported a transfer rate of 24 and 25%. The 653 students were then extracted for further analysis.

The Transfer Students' Frequency Distribution

**Table # 12: SEX GENDER**

| Value Label | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|-------------|-------|---------------|---------|---------------|-------------|
| MALE        | 1     | 307           | 47.0    | 47.0          | 47.0        |
| FEMALE      | 2     | 346           | 53.0    | 53.0          | 100.0       |
|             |       | -----         | -----   | -----         |             |
|             | Total | 653           | 100.0   | 100.0         |             |
| Valid cases | 653   | Missing cases |         | 0             |             |
| -----       |       |               |         |               |             |

The gender composition of the 653 community college transfer students in the study were as follows: 307 (47%) males, and 346 (53%) females. In essence, the composition of the male and female students were about the same.

**Table # 13: RACE ETHNICITY**

| Value Label | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|-------------|-------|---------------|---------|---------------|-------------|
| HISP        | 1     | 129           | 19.8    | 19.8          | 19.8        |
| NATV AME    | 2     | 8             | 1.2     | 1.2           | 21.0        |
| ASIAN       | 3     | 39            | 6.0     | 6.0           | 27.0        |
| BLACK       | 4     | 54            | 8.3     | 8.3           | 35.2        |
| WHITE       | 5     | 422           | 64.6    | 64.6          | 99.8        |
| OTHER       | 6     | 1             | .2      | .2            | 100.0       |
|             |       | -----         | -----   | -----         |             |
|             | Total | 653           | 100.0   | 100.0         |             |
| Valid cases | 653   | Missing cases |         | 0             |             |



The ethnic composition of the 653 community college transfer study population was as follow: 129 (19.8%) were Hispanic, 8 (1.2%) were Native Americans, 39 (6%) were Asian, 54 (8.3%) were Black, 422 (64.6%) were White, and 1 (0.2%) was from some other ethnic group not listed above.

**Table # 14: FUSESQ SES**

| Value Label  | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|--------------|-------|---------------|---------|---------------|-------------|
| LOWEST QTRL  | 1     | 80            | 12.3    | 12.3          | 12.3        |
| SECOND QTRL  | 2     | 129           | 19.7    | 19.7          | 32.0        |
| THIRD QTRL   | 3     | 208           | 31.9    | 31.9          | 64.0        |
| HIGHEST QTRL | 4     | 236           | 36.1    | 36.1          | 100.0       |
|              |       | -----         | -----   | -----         |             |
|              | Total | 653           | 100.0   | 100.0         |             |
| Valid cases  | 653   | Missing cases |         | 0             |             |
| -----        |       |               |         |               |             |

The socioeconomic status (SES) of the 653 community college transfer study population revealed the following distribution: 80 (12.3%) were from the "Lowest Quartile," 129 (19.7%) were from the "Second Quartile," 208 (31.9%) were from the "Third Quartile," and 236 (36.1) were from the "Highest Quartile." In other words, the students from the lowest Quartiles (Lowest and Second Qtrl) were approximately three times less likely to transfer than the students from the higher quartiles (Third and Highest Qtrl). However, the students from the "Lowest" and "Second" quartiles accounted for only 32% of the entire transfer population while the students from the "Third and Highest" quartiles accounted for 68% of the transfer population.

**Table #15: SY22 PSE (COMMUNITY COLLEGE) GPA**

| Value Label | Value | Frequency     | Percent | Valid Percent | Cum Percent |
|-------------|-------|---------------|---------|---------------|-------------|
| >3.5        | 1     | 53            | 8.1     | 8.1           | 8.1         |
| 3.1-3.5     | 2     | 134           | 20.5    | 20.5          | 28.6        |
| 3.0         | 3     | 205           | 31.4    | 31.4          | 60.0        |
| 2.5-2.99    | 4     | 179           | 27.4    | 27.4          | 87.4        |
| 2.0         | 5     | 63            | 9.6     | 9.6           | 97.0        |
| 1.5-1.99    | 6     | 16            | 2.5     | 2.5           | 99.5        |
| <1.5        | 7     | 3             | .5      | .5            | 100.0       |
|             |       | -----         | -----   | -----         |             |
|             | Total | 653           | 100.0   | 100.0         |             |
| Valid cases | 653   | Missing cases |         | 0             |             |
| -----       |       |               |         |               |             |

The postsecondary education GPA of the 653 community college transfer study population revealed that 53 (8.1%) of the students were "A" students, 134 (20.5%) were "B+" students, 205 (31.47%) were "B" students, 179 (27.4%) were "C+" students, 63 (9.6%) were "C" students, 16 (2.5%) were "D+" students, and the rest were "D" or lower students. In other words, most of the transfer students (94.9%) were academically able students since 94.9% of the students had a "C" or better postsecondary GPA.

#### **Bivariate Crosstabulation Results**

Subproblem #1: Are there differences in sex between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

**Table #16: COMPLETER by SEX GENDER**

| COMPLETER | Count           | SEX               |                   | Row<br>Total |
|-----------|-----------------|-------------------|-------------------|--------------|
|           |                 | MALE              | FEMALE            |              |
|           |                 | 1                 | 2                 |              |
| NO        | 0               | 110               | 129               | 239<br>36.6  |
| YES       | 1               | 197<br>64% of 307 | 217<br>63% of 346 | 414<br>63.4  |
|           | Column<br>Total | 307<br>47.0       | 346<br>53.0       | 653<br>100.0 |

Number of Missing Observations: 0

The crosstabulation of the transfer students who earned a baccalaureate degree (Completer) by gender (Sex) showed that: 197 of the 307 male students (64%) completed (earned) a baccalaureate degree. Of the 346 female students, 217 (63%) were completers.

In essence, there were no significant differences in sex between completers and noncompleters because there was only a difference of 1% separating the male completer from the female completer.

Subproblem #2: Are there differences in ethnicity between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

**Table #17: COMPLETER by RACE ETHNICITY**

|                 |       | RACE        |               |           |           |             |         |              |
|-----------------|-------|-------------|---------------|-----------|-----------|-------------|---------|--------------|
| COMPLETER       | Count | HISP        | NATV.<br>AME. | ASIAN     | BLACK     | WHITE       | OTHER   | Row<br>Total |
|                 |       | 1           | 2             | 3         | 4         | 5           | 6       |              |
| NO              | 0     | 54          | 4             | 15        | 34        | 131         | 1       | 239<br>36.6  |
| YES             | 1     | 75<br>58%   | 4<br>50%      | 24<br>61% | 20<br>37% | 291<br>69%  | 0%      | 414<br>63.4  |
| Column<br>Total |       | 129<br>19.8 | 8<br>1.2      | 39<br>6.0 | 54<br>8.3 | 422<br>64.6 | 1<br>.2 | 653<br>100.0 |

The crosstabulation of the Completer by Race revealed the following: 75 of the 129 Hispanic Americans (58%) were Completers, 4 of the 8 Native Americans (50%) were Completers, 24 of the 39 Asians (61%) were Completers, 20 of 54 African Americans (37%) were Completers, and 291 of the 422 Caucasian Americans (69%) were Completers.

In general, the Caucasian American, Asian and the Hispanic American transfer students were more likely to complete (attain) a baccalaureate degree at four-year colleges than other ethnic groups.

Consequently, there were differences in ethnicity between the community college students who completed baccalaureate degrees in four-year colleges and those who did not their baccalaureate degreee work in four-year colleges.

Subproblem #3: Are there differences in SES between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

**Table #18: COMPLETER by SES (FUSESQ)**

|              |   | FUSESQ      |             |            |              |           |
|--------------|---|-------------|-------------|------------|--------------|-----------|
| Count        |   | LOWEST QTRL | SECOND QTRL | THIRD QTRL | HIGHEST QTRL | Row Total |
|              |   | 1           | 2           | 3          | 4            |           |
| COMPLETER    | 0 | 33          | 48          | 75         | 83           | 239       |
| NO           |   |             |             |            |              | 36.6      |
| COMPLETER    | 1 | 47          | 81          | 133        | 153          | 414       |
| YES          |   | 59%         | 63%         | 64%        | 65%          | 63.4      |
| Column Total |   | 80          | 129         | 208        | 236          | 653       |
|              |   | 12.3        | 19.7        | 31.9       | 36.1         | 100.0     |

The crosstabulation of the Completer by SES unveiled the following: Of the 80 "Lowest Quartile" students, 47 (59%) were completers. Of the 129 "Second Quartile" students, 81 (63%) were completers. of the 208 "Third Quartile" students, 133 (64%) were completers. Finally, of the 236 "Highest Quartile" students, 153 (65%) were completers.

There was about a 6% difference in the completion rate between the students from the "Lowest" and the "Highest" SES quartiles. But, there was no significant difference (only 1%) in the completion rate between the students from the "Second" and "Third" SES quartiles.

In all, there were slight differences in SES between the community college students who completed baccalaureate degrees in four-year colleges and those who did not.

Subproblem #4: Are there differences in GPA between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

**Table 19a: COMPLETER by GPA (SY22 - PSE GPA)**

| Count     |   | GPA  |              |      |               |     | Row<br>Total |
|-----------|---|------|--------------|------|---------------|-----|--------------|
|           |   | >3.5 | 3.1 -<br>3.5 | 3.0  | 2.5 -<br>2.99 | 2.0 |              |
|           |   | 1    | 2            | 3    | 4             | 5   |              |
| COMPLETER | 0 | 15   | 37           | 69   | 74            | 34  | 239          |
| NO        |   |      |              |      |               |     | 36.6         |
|           | 1 | 38   | 97           | 136  | 105           | 29  | 414          |
| YES       |   | 72%  | 72%          | 66%  | 58%           | 46% | 63.4         |
| Column    |   | 53   | 134          | 205  | 179           | 63  | 653          |
| Total     |   | 8.1  | 20.5         | 31.4 | 27.4          | 9.6 | 100.0        |

| Count                           |   | GPA      |            | Row<br>Total |
|---------------------------------|---|----------|------------|--------------|
|                                 |   | 1.5-1.99 | <1.5       |              |
|                                 |   | 6        | 7          |              |
| COMPLETER                       | 0 | 9        | 1          | 239          |
| NO                              |   |          |            | 36.6         |
|                                 | 1 | 7        | 2          | 414          |
| YES                             |   | 44%      | n is small | 63.4         |
| Column                          |   | 16       | 3          | 3            |
| Total                           |   | 2.5      | .5         | 11           |
| Number of Missing Observations: |   | 0        |            | 653          |
|                                 |   |          |            | 100.0        |

The crosstabulation of the Completer by postsecondary education GPA showed substantial results: 38 of the 53 "A"

transfer students (72%) completed their baccalaureate degree, 97 of the 134 "B+" transfer students (72%) completed their baccalaureate degree, 136 of the 205 "B" transfer students (66%) completed their baccalaureate degree, 105 of the 179 "C+" transfer students (58%) completed their baccalaureate degree, 29 of the 63 "C" transfer students (46%) completed their baccalaureate degree, and finally, 9 of the 19 transfer students (47%) who had less than a "C" GPA completed their baccalaureate degree. Therefore, it was concluded that high academic ability had a positive association with completion and low ability had a negative association with completion.

In essence, there were significant differences in GPA between the community college students who completed baccalaureate degrees in four-year colleges and those who did not because the transfer students with "B" or better postsecondary GPA have a much higher baccalaureate degree completion rate.

#### **Multiple Regression Analysis**

This multiple regression analysis determined the degree of linear dependence of Completion on the four independent variables (GPA, SES, Sex, and Ethnicity). For this purpose, the multiple R and  $R^2$  values yielded the appropriate information. However,  $R^2$  was used because of its straightforward interpretation. For instance, if  $R^2 = .2822$ ,

then one can say that 28 percent of the variation in the dependent variable (in this case Completion) is explained by the independent variable (in this case GPA, SES, Sex, and Ethnicity).

The result of the stepwise multiple regression analysis of the independent variables on the 414 community college transfer students who completed baccalaureate degrees in senior institutions are as followed:

GPA Contribution to students' Completion

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

Equation Number 1      Dependent Variable..      **COMPLETER**

Variable(s) Entered on Step Number

1..      **GPA**

|                   |               |                        |               |
|-------------------|---------------|------------------------|---------------|
| <b>Multiple R</b> | <b>.46190</b> |                        |               |
| R Square          | .21335        | <b>R Square Change</b> | <b>.21335</b> |
| Adjusted R Square | .21094        | F Change               | 26.38123      |
| Standard Error    | 9.38556       | Signif F Change        | .0000         |

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For the independent variable GPA, the  $R^2$  value was .21335. In this case, 21 percent of baccalaureate degree Completion by the community college transfer students at four-year colleges was attributed to the students' grade point average (GPA). In other words, GPA explained 21 percent of the community college transfer students' success (baccalaureate degree completion) at senior institutions.



RACE Contribution to students' Completion

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

Equation Number 1      Dependent Variable..      **COMPLETER**

Variable(s) Entered on Step Number  
2..      **RACE**

|                   |               |                        |               |
|-------------------|---------------|------------------------|---------------|
| <b>Multiple R</b> | <b>.61872</b> |                        |               |
| R Square          | .38281        | <b>R Square Change</b> | <b>.16946</b> |
| Adjusted R Square | .36946        | F Change               | 20.17002      |
| Standard Error    | 8.81738       | Signif F Change        | .0003         |

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For the independent variable RACE, the  $R^2$  value was .16945. In this case, 17 percent of baccalaureate degree Completion by the community college transfer students at four-year college was associated with the students' ethnicity (RACE). In other words, RACE contributed to about 17 percent of the community college transfer students' success (baccalaureate degree completion) at senior institutions.

SES Contribution to students' Completion

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

Equation Number 1      Dependent Variable..      **COMPLETER**

Variable(s) Entered on Step Number  
3..      **SES**

|                   |               |                        |               |
|-------------------|---------------|------------------------|---------------|
| <b>Multiple R</b> | <b>.67153</b> |                        |               |
| R Square          | .45095        | <b>R Square Change</b> | <b>.06814</b> |
| Adjusted R Square | .43876        | F Change               | 9.20870       |
| Standard Error    | 8.48178       | Signif F Change        | .0036         |

---

For the independent variable SES, the  $R^2$  value was .06814. In this case, 7 percent of baccalaureate degree Completion by the community college transfer students at four-year colleges was associated with the students' socioeconomic status (SES). In other words, 7 percent of the community college transfer students' baccalaureate degree completion at senior institutions was attributed to the students' SES.

Sex Contribution to students' Completion

\* \* \* \* M U L T I P L E R E G R E S S I O N \* \* \* \* \*

Equation Number 1      Dependent Variable..      COMPLETE

Variable(s) Entered on Step Number

4..      SEX

|                   |               |                        |               |
|-------------------|---------------|------------------------|---------------|
| <b>Multiple R</b> | <b>.69447</b> |                        |               |
| R Square          | .48229        | <b>R Square Change</b> | <b>.03134</b> |
| Adjusted R Square | .45250        | F Change               | 5.53608       |
| Standard Error    | 8.28934       | Signif F Change        | .0204         |

---

For the independent variable SEX, the  $R^2$  value was .03134. In this case, 3 percent of baccalaureate degree Completion by the community college transfer students at four-year colleges was explained by the students' gender (SEX). In other words, 3 percent of the community college transfer students baccalaureate degree completion at senior institutions was attributed to the students' SEX.

### Summary of Findings

In all, of the 14,825 students in the study population, 2,630 (17.7%) started their postsecondary education in a community or junior college while 4,382 (29.6%) started theirs in a four-year college or university. Of the 2,630 community college students, 653 (24.8%) students transferred to a four-year college in pursuit of baccalaureate degrees. Of the 653 community college transfer students, 414 (63.4%) completed their baccalaureate degree goal.

The result of the multiple regression analysis of the four independent variables - GPA, RACE, SES, and SEX analyzed on the 414 completers revealed that 48% of baccalaureate degree completion by the community college transfer students at four-year colleges can be associated with the four independent variables. The contributions of the four independent variables were as follows: GPA accounted for 21%, RACE accounted for 17%, SES accounted for 7%, and SEX accounted for only 3%. In essence, other variables not considered in the analysis accounted for 52% of baccalaureate degree completion by the community college transfer students at four-year colleges.

However, it should be noted that while the students' academic ability (GPA) had the most impact (21%) on the community college transfer students' baccalaureate degree completion at a four-year college, the students' gender (Sex) had negligible contribution (3%). In other words, Sex

was not a factor in the prediction of the community college transfer students' baccalaureate degree completion at senior institution.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presented a summary of the purpose, the procedures utilized to collect and analyze the data, the findings, and the conclusions derived from the research. Recommendations were submitted for the purpose of shedding some light on possible future studies using the same 1992 High School and Beyond Sophomore dataset.

#### **Summary of Research Purpose**

The purpose of the study was to examine whether there are differences in GPA, SES, sex, and ethnicity between the community college transfer students who complete baccalaureate degrees in four-year colleges and those who do not. The following specific research questions were addressed:

1. Are there differences in GPA between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?
2. Are there differences in SES between the community college transfer students who complete

baccalaureate degrees in four-year colleges and noncompleters?

3. Are there differences in sex between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?
4. Are there differences in ethnicity between the community college transfer students who complete baccalaureate degrees in four-year colleges and noncompleters?

#### **Summary of Sampling Procedure and Analysis**

The research population was drawn from the longitudinal study of the 1980 high school sophomores, taken from a national sample (High School And Beyond dataset) of this group of students ten-years after high school. The sampling procedure was comprised of two-stage, stratified probability sample design with schools as the first-stage units and students within schools as the second-stage units. In the first-stage, a total of 1,122 schools, from a frame of 24,725 schools with grades 10 or 12 (or both) were selected for the sample. The second stage was the selection of the sophomore student participants. Within each school, 36 sophomores were randomly selected. In those schools with fewer than 36 students, all eligible students were drawn in the sample. In all, over 30,000 students, 1,122 high

schools, 7,000 parents, and 5,000 postsecondary institutions participated in the survey.

The analysis was based on demographic and ability attributes. The demographic variables were SES, Sex, and Ethnicity. The ability variable was the postsecondary GPA. The demographic and ability variables were the independent variables while Completion was the dependent variable. The study conducted a quantitative analysis of baccalaureate degree completion of the community college transfer students in four-year institutions.

The design of the study called for the review of the literature for the purpose of establishing a background on community college education. In addition, the historical basis upon which the community college was founded was examined.

### **Summary of Findings**

Of the 14,825 students in the study population, 2,630 (17.7%) started their postsecondary education in a community or junior college; conversely, 4,382 (29.6%) started their educations in a four-year college or university. Of the 2,630 community college students, 653 (24.8%) students transferred to a four-year college in pursuit of baccalaureate degrees. Of the 653 community college transfer students, 414 (63.4%) completed their baccalaureate degree goals.

The study also focused on four specific research questions that were explored. The following provided the findings of the answers to each of the questions:

Subproblem #1: Are there gender (sex) differences between the community college students who completed baccalaureate degrees in four-year colleges and those who did not?

The crosstabulation of the transfer students who earned a baccalaureate degree (Completer) by gender (Sex) showed that 414 of the 653 transfer students (63.4%) completed (earned) a baccalaureate degree. Of the 414 Completers, 197 (47%) were males and 217 (53%) were females. On the other hand, of the 239 noncompleters, 110 (46%) were males and 129 (54%) were females.

In essence, there were no significant gender (sex) differences between completers and noncompleters because there was not only a difference of 1 percent separating the completer and noncompleter males but also a 1 percent difference separating completer and noncompleter females.

The multiple regression analysis of Completion by Sex revealed that, 3% of baccalaureate degree Completion by the community college transfer students at four-year colleges can be explained by the students' gender (sex). In other words, 3% of the community college transfer students'



baccalaureate degree completion at senior institutions can be attributed to the students' gender (sex).

Subproblem #2: Are there differences in ethnicity between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

The crosstabulation of the Completer by Race disclosed the following: 75 of the 129 Hispanic Americans (58%) were Completers, 4 of the 8 Native Americans (50%) were Completers, 24 of the 39 Asians (61%) were Completers, 20 of 54 African Americans (37%) were Completers, and 291 of the 422 Caucasian Americans (69%) were Completers.

In general, the Caucasian American and the Asian transfer students were more likely to complete (attain) a baccalaureate degree at four-year colleges than any other ethnic group.

Consequently, there were differences in ethnicity between the community college students who completed baccalaureate degrees in four-year colleges and those who did not complete their baccalaureate degrees work.

The multiple regression analysis of Completion by Ethnicity revealed that, 17% of baccalaureate degree completion by the community college transfer students at four-year college can be associated with the students' ethnicity (RACE). In other words, RACE contributed to about

17% of the community college transfer students' success (baccalaureate degree completion) at a senior institution.

Subproblem #3: Are there differences in SES between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

The crosstabulation of the Completer by Socioeconomic Status (SES) disclosed the following: Of the 80 "Lowest Quartile" students, 47 (59%) were completers; of the 129 "Second Quartile" students, 81 (63%) were completers; of the 208 "Third Quartile" students, 133 (64%) were completers; and finally, of the 236 "Highest Quartile" students, 153 (65%) were completers. Therefore, there was about a 6% difference in the completion rate between the students from the "Lowest" and the "Highest" SES quartiles. But there was no significant difference (only 1%) in the completion rate between the students from the "Second" and "Third" SES quartiles.

In all, there were slight differences in SES between the community college students who completed baccalaureate degrees in four-year colleges and those who did not.

The multiple regression analysis of Completion by SES revealed that 7% of baccalaureate degree Completion by the community college transfer students at four-year colleges can be associated with the individual student's

socioeconomic status (SES). In other words, 7% of the community college transfer students' baccalaureate degree completion at senior institutions can be attributed to the students' SES.

Subproblem #4: Are there differences in GPA between the community college students who complete baccalaureate degrees in four-year colleges and those who do not?

The crosstabulation of the Completer by postsecondary education GPA showed that 38 of the 53 "A" Transfer students (72%) completed their baccalaureate degree, 97 of the 134 "B+" Transfer students (72%) completed their baccalaureate degree, 136 of the 205 "B" Transfer students (66%) completed their baccalaureate degrees, 105 of the 179 "C+" Transfer students (58%) completed their baccalaureate degree, 29 of the 63 "C" Transfer students (46%) completed their baccalaureate degrees, and 9 of the 19 Transfer students (47%) who had less the "C" GPA completed their baccalaureate degree. Therefore, high academic ability had positive association with completion while low ability corresponded to negative association with completion.

In essence, there were significant differences in GPA between the community college students who completed baccalaureate degrees in four-year colleges and those who did not because the Transfer students with "B" or better

postsecondary GPA had a much higher baccalaureate degree completion rate.

The multiple regression analysis of Completion by GPA revealed that, 21% of baccalaureate degree Completion by the community college transfer students at four-year college can be attributed to the students grade point average (GPA). In other words, GPA explained 21% of the community college transfer students baccalaureate degree completion at senior institutions.

Other Findings: Effectiveness of Community Colleges in Providing Collegiate Work:

The transfer rate of the 1980 Sophomore COHORT was 24.8%. The students' SES had the most impact on this transfer rate because only 40% of the high academic ability students (392 of the 993 students with 3.0 or above GPA) were able to transfer to a senior institution. Clearly then, the community colleges were not responsible for the 60% (601 of the 993 academically able students) who did not transfer because of their SES.

The completion rate of those who transferred to a senior institution was 63.4%. Conclusively then, the community colleges are effective in providing its students an alternative path to achieving baccalaureate degrees.

### Conclusions

As a result of the quantitative analysis and findings generated by this study, the following conclusions were drawn regarding the factors that contribute to community college transfer students' baccalaureate degree completion in four-year colleges:

1. Academic Ability (GPA) had the strongest influence on community college transfer students' baccalaureate degree completion in four-year colleges. The weight of GPA in explaining this completion rate was 21%.
2. The students' ethnicity had the second largest influence on the community college transfer students' baccalaureate degree completion in a four-year college. Its contribution to the explanation of the community college transfer students' baccalaureate degree completion rate in four-year colleges was 17%.
3. The students SES and sex had the least contribution in explaining transfer students' completion at senior institutions. Their contributions were 7% and 3% respectively.
4. The overall contributions of the independent variables GPA (21%), Ethnicity (17%), SES (7%), and Sex (3%) in explaining the community college transfer students' baccalaureate degree completion

rate at four-year colleges was 48%. In other words, 48% of community college transfer students' completion can be attributed to academic ability (GPA), Ethnicity, SES, and Sex. Consequently, 52% of baccalaureate degree completion by the community college transfer students in four-year colleges can be attributed to other independent variables that were not considered in this study.

5. The transfer rate of community college students to baccalaureate degree granting institutions was 24.8% since 653 of the 2630 community college students studied transferred to a four-year college.
6. The completion rate of the community college transfer students in four-year college was found to be 63.4% because 414 of the 653 transfer students completed their baccalaureate degrees at four-year colleges.
7. The weight of GPA in explaining transfer students' completion rates at senior institutions is 21%. However, it is vital to note that 60% (601 of the 993) of the community college students with high GPA (3.0 or above) were unable to transfer to senior institutions due to low SES. Understandably then, there is a pool of human capital whose formal education potential is

unrealized (the 60% community college students who did not transfer due to low SES).

8. The results of the study also suggest a new direction for educational policy. Namely, establishing scholarship and other financial aid monies for high achieving economically disadvantaged community college students would more fully utilize the community college talent pool.
9. The results of the study indicate that community colleges are comparable to senior institutions in offering lower-division collegiate work because the completion rate of community college transfer students at senior institution is 63.4%.

#### **Recommendations for Further Research**

As a result of the analysis, findings, and conclusions generated by this study, the following recommendations are suggested:

1. Since the independent variables considered in this study (GPA, Ethnicity, SES, and Race) contributed only 48% in explaining baccalaureate degree completion by the community college students similar studies could be done to identify the other independent variables that contributed the additional 52%.

2. This study identified the completion rate of community college transfer students in four-year colleges to be 68%. A comparable study can be done with the native students (students who started their postsecondary educations in four-year colleges) to investigate their completion rates.
3. This study identified that, of the 14,825 students in the study population, 2630 students started their postsecondary educations in community colleges, and 4382 students started their postsecondary educations in four-year colleges or universities (native students). Since this study was conducted with the 2630 community college students, a similar study can be replicated with the 4382 native students in order to investigate the contributions of GPA, SES, sex, and ethnicity in explaining their baccalaureate degree completion rate.
4. Although this study was a national study, a similar study can be conducted at the regional or state level using the same independent and dependent variables.
5. A research study can be done on the job status of both the community college transfer student completers and the native student completers in order to ascertain whether or not the attainment



of baccalaureate degrees leads to socioeconomic mobility.

6. A similar study on job status can be conducted using the community college transfer student completer and the community college non-transfer student data to investigate any differences in their social economic status (SES). In other words, Does the community college education provide an opportunity for social and economic mobility?
7. Since there was little historical documentation of Nevada's community college movement, a study could be conducted to compile materials on the history of the Nevada higher education system for future references.

**APPENDIX**  
**HS&B EXECUTIVE SUMMARY**

## HS&B EXECUTIVE SUMMARY

This section summarizes the activities that produced the High School and Beyond (HS&B) data.

### HS&B Longitudinal Study

The HS&B was conducted by the National Center for Education Statistics (NCES). NCES worked with the following U.S. Education Department offices that supplied supplementary funding: the Office of Bilingual and Minority Language Affairs, the Office for Vocational Education, the Office for Civil Rights, and the Office for Postsecondary Education. With funds from the Department of Defense, the National Science Foundation, and the Department of Health and Human Services, HS&B was further enhanced.

### NCES's Educational Longitudinal Studies Program

The role the National Center for Education Statistics (NCES) includes the responsibility to "collect and disseminate statistics and other data related to education in the United States" and to "conduct and publish reports on specific analyses of the meaning and significance of such statistics" (Education Amendments of 1974, Public Law 92-380, Title V, Section 501, amending Part A of the General Education Provisions Act). Consistent with this mandate, NCES instituted the National Education Longitudinal Studies

(NELS) program, whose general aim is to study longitudinally the educational, vocational, and personal development of young people, beginning with their elementary or high school years, and the personal, familial, social, institutional, and cultural factors that may affect that development.

The overall NELS program utilizes longitudinal, time-series data in two ways: a cohort is surveyed at regular intervals over a span of years, and comparable data are obtained from successive cohorts that permit studies of trends relevant to educational and career development and societal roles. Thus far, the NELS program consists of three major studies: the National Longitudinal Study of the High School Class of 1972 (NLS-72), High School and Beyond (HS&B) and the National Education Longitudinal Study of 1988 (NELS:88).

The first major study, NLS-72, began by collecting comprehensive base year survey data from approximately 19,000 high school seniors in the spring of 1972. The NLS-72 first follow-up survey added nearly 4,500 individuals in the original sample who did not participate in the base year survey. Three more follow-up surveys were conducted with the full sample in 1974, 1976, and 1979, using a combination of mail surveys and personal and telephone interviews. The fifth follow-up survey, with a subsample of about 15,000 individuals, took place during the spring of 1986.

The second major survey, HS&B, began in the spring of 1980 with the collection of base year questionnaire and test data on over 58,000 high school seniors and sophomores. The first follow-up survey was conducted in the spring of 1982, the second follow-up in the spring of 1984, the third follow-up in the spring of 1986, and the fourth follow-up in the spring of 1992.

The third major survey, NELS:88, began with a survey of eighth graders in 1988 and recently completed its second follow-up survey in 1992. The third follow-up survey is underway and is expected to continue through 1994.

#### **HS&B and NLS-72**

HS&B was the successor to the National Longitudinal Study of the High School Class of 1972 (NLS-72). NLS-72 data spanned the period 1972 through 1986. HS&B now spans the period 1980-1992.

High School and Beyond was designed to build on NLS-72 in three ways. First, the base year survey of HS&B included a 1980 cohort of high school seniors that was directly comparable to the 1972 cohort. Replication of selected 1972 student questionnaire items and test items made it possible to analyze changes subsequent to 1972 and their relationship to recent federal education policies and programs. Second, the introduction of the sophomore cohort provided data on the many critical educational and vocational choices made

between the sophomore and senior years in high school, thus permitting a fuller understanding of the secondary school experience and how it affects students. Finally, HS&B expanded the NLS-72 focus by collecting data on a range of life cycle factors, such as family formation, labor force behavior, intellectual development, and social participation.

Over the years, HS&B matured. Paper and pencil collection techniques were replaced with computer assisted telephone interviews; hardcopy manuals were replaced with electronic codebooks; and mainframe computer tapes were replaced with personal computer compact disks. The HS&B data are more accurate, more user-friendly, and less-resource dependent as a result of these changes.

### **History of High School and Beyond**

#### **1) The Base Year Survey**

The base year survey was conducted in the spring of 1980, and called for a highly stratified national probability sample of over 1,100 secondary schools as the first stage units of selection. At the second stage, 36 seniors and 36 sophomores were selected in each school (in schools with fewer than 36 students in either of these groups, all eligible students were included). Special efforts were made to identify sampled students who were twins or triplets so that

their co-twins or co-triplets could be invited to participate in the study. (Data from nonsampled twins and triplets are not included in the student data files, but are available in a separate Twin Data File, which links questionnaire data from the base year and first follow-ups for sampled and nonsampled twins for special analyses.) Over 30,000 sophomores and 28,000 seniors enrolled in 1,015 public and private high schools across the country participated in the base year survey. (Detailed information about the samples can be found in the HS&B sample design report for the base year: Martin R. Frankel, Luane Kohnke, David Bunanno, and Roger Tourangeau, Sample Design Report, National Center for Education Statistics, 1981).

Certain types of schools were oversampled to make the study more useful for policy analyses. These included:

- \* Public schools with high percentages of Hispanic students to ensure sufficient numbers of Cuban, Puerto Rican, and Mexican students for separate analyses;
- \* Catholic schools with high percentages of minority students
- \* Alternative public schools; and
- \* Private schools with high-achieving students.

The Hispanic supplement to the sample was funded jointly by the Office of Bilingual Education and Minority Language Affairs (OBEMLA) and the Office for Civil Rights (OCR) within the Department of Education.

Survey instruments in the base year of HS&B included:

- \* A sophomore questionnaire
- \* A senior questionnaire
- \* Student identification pages
- \* A series of cognitive tests for each cohort
- \* A school questionnaire
- \* A teacher comment checklist
- \* A parent questionnaire (mailed to a sample of parents from both cohorts)

The student questionnaires focused on individual and family background, high school experiences, work experiences, and plans for the future. The student identification pages included information that would be useful in locating the students for future follow-up surveys, as well as a series of items on the students' use of, proficiency in, and educational experiences with languages other than English. The cognitive tests measured verbal and quantitative abilities in both cohorts. In addition, the sophomore test battery



included achievement measures in science, writing, and civics, while seniors were asked to respond to tests measuring abstract and nonverbal abilities. Of the 194 test items administered to the HS&B senior cohort in the base year, 86 percent were identical to items that had been given to the NLS-72 base year respondents.

School questionnaires, which were filled out by an official in each participating school, provided information about enrollment, staff, educational programs, facilities and services, dropout rates, and special programs for handicapped and disadvantaged students. The teacher comment checklist provided teacher observations on students participating in the survey. The parent questionnaire elicited information about the effects of family attitudes and financial planning on postsecondary educational goals.

## 2) The First Follow-Up Survey

The first follow-up sample consisted of about 30,000 1980 sophomores and 12,000 1980 seniors. It retained the multi-stage, stratified, and clustered design of the base year sample, and all students who had been selected for inclusion in the base year survey, whether or not they actually participated, had a chance of being included in the first follow-up

survey. (Unequal probabilities were compensated by weighting.) NCES attempted to survey all 1980 sophomores (including base year nonrespondents) who were still enrolled in their original base year schools. Certain categories of 1980 sophomores (early graduates, dropouts and transfers) no longer enrolled in their original schools were subsampled and certain categories were sampled with certainty. The data collected for sophomores included information on school, family, work experiences, educational and occupational aspirations, personal values, and test scores of sample participants. Students are also classified by high school status as of 1982 (i.e., dropout, same school, transfer, or early graduate). For the senior cohort, information concerning high school and postsecondary experiences and their experiences comprise the main focus.

The first follow-up survey also included all nonsampled co-twins and triplets who had been identified and surveyed during the base year, provided that the sampled twin or triplet was retained for the follow-up. However, nonsampled twins and triplets were not included in the probability sample and were not given weights; their data appear only on a separate Twin Data File. As in the base year survey, there was a Hispanic supplement in the first follow-up survey,

again supported by OBEMLA and OCR. During the first follow-up information was again gathered from parents and school administrators.

A first follow-up school questionnaire was requested from all schools selected in the base year (including those schools that refused to participate), except schools that had no 1980 sophomores, schools that had closed, and schools that had merged with other schools in the sample. Schools not in the base year sample that had received en masse transfers of students from base year schools were contacted to complete a first follow-up school questionnaire and to arrange student survey activities. These schools were not considered to be part of the probability sample of secondary schools and were not given weights. However, survey data from these schools are included in the first follow-up School Data File, and are available for merging with first follow-up student data. For the senior cohort, a self-administered mail-back questionnaire was the basic method of data collection. Approximately 12,000 packets containing survey questionnaires, instruction sheets, and incentive payment checks were sent to sample members during the first week of February 1982. Postcards with dual messages seeking a quick reply from nonrespondents and thanking early respondents for their cooperation were

mailed during the third week following the initial mailout. Approximately 75 percent of the targeted senior cohort members completed and returned first follow-up questionnaires by mail. Two weeks later, those who still had not responded were called by trained telephone interviewers. An additional 19 percent completed the questionnaires through either in-person or telephone interviews. Respondents who completed the questionnaire by telephone were required to have a copy of the questionnaire in front of them while doing so in order to keep the survey experience as similar as possible to that of the mail questionnaires. Follow-up interviewing was halted in mid-July 1982 after a response rate of 94 percent had been obtained.

For the sophomore cohort, first follow-up data were collected through group administrations of questionnaires and tests. The sophomore group administrations were conducted in either the sampled students' high school or an appropriate location off-campus; the location depended on the survey member's school enrollment status during the data collection period (February through May 1982). Group administrations were scheduled off-campus for sample members who were no longer attending the sampled schools. These individuals (e.g., transfer students,

dropouts, early graduates) were contacted by NORC Survey Representatives and brought together in small groups of two to six participants. The same survey administration procedures were followed for both types of group administration. Subsequent to the first follow-up survey, high school transcripts were sought for a probability subsample of nearly 18,500 members of the 1980 sophomore cohort. The subsampling plan for the Transcript Study emphasized retaining members of subgroups who are especially relevant to education policy analysis. Compared to the base year and first follow-up surveys, the Transcript Study sample design further increased the overrepresentation of racial and ethnic minorities (especially for those with above average HS&B achievement test scores), students who attended private high schools, school dropouts, transfers, early graduates, and students whose parent participated in the base year Parents' Survey on financing postsecondary education.

### 3) The Second Follow-Up Survey

Conducted during the spring and summer of 1984, the second follow-up survey retained probability samples of about 15,000 1980 sophomores and 12,000 1980 seniors. The sample for the senior cohort was unchanged from that used for the first follow-up

survey, while the sample for the sophomore cohort was selected from among the 18,500 cases selected in 1982 for the High School Transcripts study. The sample design for the sophomore cohort was modelled after that used for the first and subsequent follow-ups of the senior cohort, in that subgroups of special relevance to education policy formation (high school dropouts from the sophomore cohort, members of racial and ethnic minorities, those with data from the base year Parents Survey, those enrolled in postsecondary educational institutions, and so forth) were retained in the second follow-up with substantially higher probabilities than others. However, all individuals selected for the base year survey had a nonzero chance of retention in the second follow-up, regardless of whether they participated in the base year or first follow-up surveys.

As in prior survey rounds, the Office of Bilingual Education and Minority Language Affairs provided additional support for the Hispanic supplement to HS&B in order to increase the size of the Hispanic sample for special analyses.

For both seniors and sophomores, the data collected covered work experience, postsecondary schooling, earnings, periods of unemployment, and so forth. For both cohorts, data were collected through

a self-administered mail-back questionnaire. Packets containing survey questionnaires, instruction sheets, and incentive payment checks were sent to sample members during the first week of February 1984. Two weeks later, postcards thanking respondents for their cooperation and requesting the cooperation of nonrespondents were mailed to all sample members. Two weeks after the cards were sent, trained telephone interviewers called those who had still not responded and urged them to do so. If this failed, interviews were conducted by telephone or in person. Survey design required both respondents interviewed over the telephone and those interviewed in person to have a copy of the questionnaire in front of them, in order to minimize bias due to the method of administration.

4) The Third Follow-Up Survey

The senior and sophomore cohort samples for the third follow-up survey were the same as those used for the second follow-up. Again, survey activities were initiated for all sample members-- except for 38 persons who were known to be deceased. (The nonsampled twins and triplets, however, were not surveyed during this wave.)

The questionnaires used during the 1986 third follow-up were the same for both the sophomore and

senior cohorts. To maintain comparability with prior waves, many questions from previous follow-up surveys were repeated. Respondents were asked to update background information and to provide information about their work experience, unemployment history, education and other training, family information (including marriage patterns), income, and other experiences and opinions. As in the second follow-up survey, data were collected through mail-back questionnaires; approximately 27,000 packets of survey materials were mailed to the last known addresses of the sample members. Contact procedures for nonrespondents remained unchanged from the previous rounds. Three weeks after the initial mail-out, respondents who had not returned their questionnaires were sent a postcard reminder. Two weeks after the cards were sent, trained telephone interviewers called to urge those who had still not responded. If this failed, interviews were conducted by telephone or in person. Approximately 66 percent of both samples mailed back their completed questionnaires; 5 percent of the seniors and 6 percent of the sophomores were interviewed in person; and about 16 percent of the seniors and 19 percent of the sophomores were interviewed by telephone. The survey design again required respondents interviewed by telephone or in person to use a copy of the



questionnaire during the interview to minimize the bias due to method of administration. Follow-up interviewing resulted in a completion rate of 88 percent for the seniors and 91 percent for the sophomores.

A transcript study was conducted of third follow-up sophomore cohort respondents who reported attending postsecondary institutions. By 1987, when the study was conducted, these sample members had been out of high school for 5 years - long enough for many to attain vocational certificates, associate's degrees, and/or baccalaureate degrees.

##### 5) The Fourth Follow-Up Survey

The High School and Beyond (HS&B) Fourth Follow-up Survey is the fifth wave of the longitudinal study of the high school sophomore class of 1980. This round differed from previous follow-ups in that it focused exclusively on the sophomore class. During the spring and summer of 1992, young persons who had participated in the 1980 base year survey were administered a Computer Assisted Telephone Interview (CATI) and asked to detail their activities since the last round of data collection in 1986. In 1992, education and employment information from 1982-1986 was verified and corrected as needed, and transcripts were obtained for

respondents who had attended postsecondary institutions.

The fourth follow-up survey sought to obtain valuable information on issues of access to and choice of undergraduate and graduate educational institutions, persistence in obtaining educational goals, progress through the curriculum, rates of degree attainment and other assessments of educational outcomes, and rates of return to the individual and society. The fourth follow-up student interview emphasized these five issue areas pertinent to 1980 high school sophomores now in their middle twenties. And this study was particularly well suited to examine each of these themes because:

- (1) many items in prior rounds were related to these themes, thus providing a temporal context, and
- (2) the respondents' age placed them at a time when new information concerning these themes would provide invaluable insights into the effects of secondary and postsecondary education.

The fourth follow-up sample of the sophomore cohort contained the same 15,000 members as the second and third follow-up surveys, and attempts were made to contact all but 56 deceased sample members. By the end of the fourth follow-up, NORC identified an additional

99 deceased sample members, which brought the overall total of deceased sample members of the sophomore cohort to 155. For the first time, a Computer Assisted Telephone Interview (CATI) was used to collect data. On February 5, 1992, a letter was sent to sample members describing the study and informing them that telephone interviewers would contact them to complete a telephone interview. The following week, telephone interviewing began.

Locating efforts occurred in both the phone center and in the field. Field interviewers were sent to locate respondents and encourage them to contact the telephone center in order to complete an interview. About 4,000 cases, or 28 percent, were located through the combined effort of the phone center and the field. Although 66.3 percent of the interviews were complete by September 19, locating and interviewing continued until the last week of January, 1993 when the study had reached a completion rate of 85.3 percent.

### **Transcripts Study**

In 1993, another postsecondary transcript study was conducted to gather accurate and reliable data on the students' academic histories since leaving high school. Six years had passed between the third and fourth follow-up, allowing some sophomore cohort

members to persist in obtaining their baccalaureate degrees and others to pursue graduate, doctoral, and first professional degrees (e.g., M.D., J.D.).

Because the fourth follow-up CATI instrument allowed interviewers to verify postsecondary attendance and to collect any new attendance information, those who completed their postsecondary schooling by 1987 were identified. If their transcripts were obtained during the 1987 transcript study, no request for transcripts was made in 1993. Instead, their transcript data were abstracted from the 1987 transcript files, recoded, and integrated with data from transcripts collected in 1993. In February 1993, requests for transcripts were mailed to vocational and academic institutions for those sophomore cohort members who reported postsecondary attendance not covered by the 1987 transcript study. Prompting efforts began in the second week of April, when the completion rate was 47 percent. Including the 1987 transcript data, about 14,000 transcripts were processed from 15,000 institutions.

#### **Related Studies and Data Files**

In addition to the core surveys described above, records studies have been undertaken including the collection of the high school transcripts of the

sophomore cohort and postsecondary education transcripts and financial aid data for the seniors. Data files for these studies and other HS&B data, such as parent surveys, school surveys, etc., are described below. These auxiliary data files greatly expand the core data sets potential and usefulness, and researchers are encouraged to become familiar with them.

### **Base Year Files**

The Language File contains information on each student who during the base year reported some non-English language experience either during childhood or at the time of the survey. This file contains about 11,000 records (sophomores and seniors combined), with 42 variables for each student.

The Parent File contains questionnaire responses from the parents of about 3,600 sophomores and 3,600 seniors who are on the Student File. Each record on the Parent File contains a total of 307 variables, including parents' aspirations and plans for their children's postsecondary education.

The Twin and Sibling File contains base year responses from sampled twins and triplets, data on non-sampled twins and triplets of sample members, and data from siblings in the sample. This file (about

3,000 records) includes all of the variables that are on the HS&B student file, plus two additional variables (family ID and SETTYPE--type of twin or sibling).

The Sophomore Teacher Comment File contains responses from about 14,000 teachers on 18,000 students from 600 schools. The Senior Teacher Comment File contains responses from 14,000 teachers on 17,000 students from 600 schools. At each grade level, teachers had the opportunity to answer questions about HS&B sampled students who had been in their classes. The typical student in the sample was rated by an average of four different teachers. These files contain approximately 76,000 teacher observations of sophomores and about 67,000 teacher observations of seniors. The Friends File contains identification numbers of students in the HS&B sample who were named as friends of other HS&B-sampled students. Each record contains the ID of sampled students and IDs of up to three friends, which can be used to trace friendship networks and to investigate the sociometry of friendship structures, including reciprocity of choices among students in the sample.

#### **Other HS&B Files**

The High School Transcript File describes the course-taking behavior of 16,000 sophomores of 1980

throughout their four years of high school. Data include a six-digit course number <1> for each course taken along with course credit, course grade, and year taken. Other items of information such as grade point average, days absent, and standardized test scores are also contained on the file.

The Offering and Enrollments File contains school information, course offerings, and enrollment data for about 1,000 schools. Each course offered by a school is identified by a six-digit course number. Other information such as credit offered by the school is also contained on each record.

The Updated School File contains base year data and first follow-up data from the 1,015 participating schools in the HS&B sample. First follow-up data were requested only from those schools that still existed in the spring of 1982 and had members of the 1980 sophomore cohort currently enrolled. Each high school is represented by a single record that includes 230 data elements from the base year school questionnaire, if available, along with other information from sampling files (e.g., stratum codes, case weights).

The Postsecondary Education Transcript File for the HS&B Seniors contains transcript data on dates of attendance, fields of study, degrees earned, and the titles, grades, and credits of every course attempted

at each institution, coded into hierarchical files with the student as the highest level of aggregation. Although no survey forms were used, detailed procedures were developed to extract and process information from the postsecondary institution transcripts for all members of the 1980 senior cohort who reported attending any form of postsecondary schooling in the first or second follow-up surveys. (Over 7,000 individuals reported over 11,000 instances of postsecondary institution attendance.)

The Senior Financial Aid File contains financial aid records from respondents who reported attending postsecondary institution and federal records of the Guaranteed Student Loan Program and the Pell Grant program.

The Sophomore Financial Aid File contains information from federal records from the Guaranteed Student Loan program and from the Pell Grant program for all students who reported postsecondary education and who had participated in either of these two programs.

The HS&B HEGIS and PSVD File contains the postsecondary institution codes for schools HS&B respondents reported attending in the first and second follow-ups. In addition, the file provides data on institutional characteristics such as type of



institution, highest degree offered, enrollment, admissions requirements, tuition, and so forth. This file permits analysts to link HS&B questionnaire data with institutional data for postsecondary institutions attended by respondents.

### **Survey Instruments**

Information on the 1980 sophomore cohort has come primarily from questionnaires filled out by students, school administrators, teachers, and parents of students. These data have been supplemented by information on courses taught at sampled schools, the number of students enrolled in those courses, and by information from students' high school transcripts. The survey instruments given to school officials, teachers, and parents, as well as the protocols and procedures governing the transmittal of information on course offerings and student transcripts, are described in the user's manuals for each of these data files created before the fourth follow-up. The base year senior and sophomore questionnaires were similar, with approximately three-fourths of the items in each version common to both. Features of the sophomore questionnaires used in the base year and subsequent follow-ups of High School and Beyond are described below.

### Base Year Survey

Most of the questions in the sophomore questionnaire focused on students' behavior and experiences in the secondary school setting. Also included were questions about employment outside the school, postsecondary educational and occupational aspirations, and personal and family background. A small number of questions dealt with personal attitudes and beliefs. In addition, to facilitate the recontacting of students in later follow-up surveys, students were asked to provide complete addresses and telephone numbers for themselves and for some other person who would always know their whereabouts. Sophomores also completed a battery of cognitive tests which are described briefly below:

- \* Vocabulary (21 items, 7 minutes): Used a synonym format.
- \* Reading (20 items, 15 minutes): Consisted of short passages (100-200 words) followed by comprehension questions and a few analysis and interpretation items.
- \* Mathematics (38 items, 21 minutes): Students were asked to determine which of two quantities was greater, whether they were equal, or whether there was insufficient data to answer the question.

- \* Science (20 items, 10 minutes): Based on science knowledge and scientific reasoning ability.
- \* Writing (17 items, 10 minutes): Based on writing ability and knowledge of basic grammar.
- \* Civics Education (16 questions, 5 minutes): Based on various principles of law, government, and social behavior.

### **First Follow-up Survey**

#### **First Follow-up Sophomore Questionnaire**

The first follow-up sophomore questionnaire documented secondary school experiences, especially shifts in attitudes and values since the base year, as well as work experiences and plans for postsecondary education. Almost all of the first follow-up questions had been asked in the base year; most were from the sophomore document, but many had appeared in the senior questionnaire only. Content areas in the sophomore questionnaire included education (high school program, courses taken, grades, standardized tests taken, attendance and disciplinary behavior, parental involvement, extracurricular and leisure activities, assessment of quality of school and teachers), postsecondary education (goals, expectations, plans, and financing), work/labor force participation (occupational goals, attitudes toward military service), demographics (parents' education, father's occupation, family composition, school age

siblings, family income, marital status, race, ethnicity, sex, birthdate, physical handicaps), and values (attitudes toward life goals, feelings about self, and so forth).

Approximately 30 items in the sophomore questionnaire were identified as "critical" or "key" questions, and special efforts were taken to ensure that respondents did not omit these items.

#### 1980 Sophomore Cohort (Not Currently In High School)

##### Questionnaire

The questionnaire designed for persons who had dropped out of high school focused on the reasons for dropping out and its impact on their educational and career development. About a dozen of the items were developed especially for students who left school before completion; the remainder of the questionnaire was made up of items used either in the regular 1980 sophomore cohort questionnaire or the 1980 senior cohort instrument. Content areas included circumstances of leaving school (reasons for leaving, evaluation of decision, plans for obtaining high school diploma or equivalent), participation in training programs and other postsecondary education, work (labor force participation, detailed job history, aspirations, Armed Forces service), financial status (dependency, income), marital status (spouse's education, occupation, dependents), demographics (parents' education, father's occupation, race,

sex, ethnicity, date of birth), and other personal characteristics (physical handicaps, values, feelings about self). Thirty items were designated as critical.

#### Transfer Supplement

The Transfer Supplement was completed by members of the sophomore cohort who had transferred out of the base year sample high school to another high school. The supplement was completed in addition to the regular First Follow-up Sophomore Questionnaire. Most of the items in the Transfer Supplement were new items (except a few that were taken from the school questionnaire). Content areas included reasons for transferring and for selecting a particular school, identification of school, school location, grade respondent was in when he or she transferred, entrance requirements, length of interruption in schooling (if any) and reason, type of school (general, specialized), size of student body, and grades. The supplement was brief, taking about 10 minutes to complete. There were four critical items.

#### Early Graduate Supplement

The Early Graduate Supplement was developed for members of the sophomore cohort who graduated from high school ahead of schedule. They completed this questionnaire in addition to the regular First Follow-up Sophomore Questionnaire. The Early Graduate Supplement documented reasons for and

circumstances of early graduation, the adjustments required to finish early, and respondents' activities compared with those of other out-of-school survey members (i.e., dropouts, 1980 seniors.) Content areas included reasons for graduating early, when decision was made (what grade), persons involved in the decision, course adjustments required, school requirements, and postsecondary education and work experience (the questions for the last area were identical to those in the senior cohort instrument). This supplement took about 10 to 15 minutes to complete. Nine items were designated as critical.

#### First Follow-up Tests

The sophomore cohort completed the same tests as in the base year. For the early graduates, transfer students, and dropouts, group administration sessions were held so that they could complete questionnaires and tests as well. Where this was not possible, NORC mailed only the questionnaire to respondents.

#### **Second Follow-up Survey**

The Second Follow-up Sophomore Questionnaire included 71 questions clustered around nine major sections: background information, education, other training, military experience, work experience, periods unemployed, family information, income, and experiences and opinions. As could

be expected, the information gathered differs substantially from that collected for the first follow-up. By this time the majority of respondents were out of high school and enrolled in postsecondary school, working, or looking for work.

The questionnaire asked for detailed information on schools attended after high school (up to three schools). Respondents indicated the kind of institution attended; hours per week spent in class; the degree, certificate, or diploma being sought; and requirements completed. Financial information included questions on tuition and fees and scholarships. Data were also gathered on financial aid from both parents to the respondent and any siblings.

The survey also obtained a work history, including occupation, industry, gross starting salary, gross income, hours worked per week, length of time without a job, length of time looking for work, job training and job satisfaction. Family information covered the spouse's occupation and education, date of marriage(s), number of children, and income and benefits received by both the respondent and spouse.

There were 36 questionnaire items designated as critical, and any respondents who omitted these items or who provided inconsistent data were telephoned to obtain the missing data or to resolve the inconsistencies.

### **Third Follow-up Survey**

The Sophomore Cohort Third Follow-up Questionnaire was the same as that for the senior cohort. To maintain comparability with prior waves, many questions from previous follow-up surveys were repeated. Respondents were asked to update background information and to provide information about their work experience, unemployment history, education and other training, family information, income, and other experiences and opinions. Event history formats were used to obtain responses about jobs held, institutions attended, periods of unemployment, and marriage patterns. A few new items were added covering graduate degree programs and on alcohol consumption habits.

There were 37 items in the third follow-up survey that were designated as critical. Respondents were telephoned in order to obtain missing data or to resolve inconsistencies.

### **Fourth Follow-up Survey**

Emphasis in the fourth follow-up instrument was placed on gathering current and verifying/correcting historical data on the education backgrounds and work experiences of the sophomore cohort. In the education section, the four areas of interest were: (1) undergraduate and graduate access and choice; (2) persistence; (3) progress through curriculum; and (4) attainment and outcome assessment. Data gathered on work experience focused primarily on the



individual and societal advantages gained through the attainment of additional education. The work experience data, when added to information about work experiences collected during prior rounds of HS&B, gives a continuous record of the respondents' work and educational experience since the inception of the HS&B study.

Related to work experience were questions on income and assets that explored differences in short-term and long-term earnings between individuals who entered and completed their postsecondary education and those who did not finish high school, or did finish high school but did not attend a postsecondary institution. Other issue areas for which data were gathered include factors affecting participation in the political process and community affairs, and family formation patterns and its relevance to continuance in postsecondary education.

Previous rounds of HS&B relied extensively on self-completion questionnaires. During the fourth follow-up a Computer Assisted Telephone Interview (CATI) was used to collect data.

The CATI program used by NORC for the High School and Beyond fourth follow-up was AutoQuest. The CATI instrument provided the following features to the data collection effort:

- \* Display of interviewer instructions, survey questions, and response categories, and on-line help screens
- \* Display of multiple questions per screen
- \* Question displays including text modified to reflect answers to prior questions or data from previous rounds
- \* Response validity checking based on range, type, and comparison to previous answers
- \* Entry of open-ended or verbatim text
- \* Branching or skipping based on previous answers and/or on preloaded data
- \* Capacity to suspend an interview and restart it at another time
- \* Capacity to review and change a previous response
- \* A system for scheduling respondents for interviews.

The instrument for HS&B fourth follow-up made innovative use of several of these features. For example, in order to present a more conversational style of interview, wherever possible related groups of questions were presented together on one screen. The effect was a more streamlined application. Also, response categories were frequently presented as point-and-shoot style menus rather than as lists of text with codes. Over 100 data

items were preloaded from previous rounds and confirmed or corrected by respondents in the course of the interview.

The interview was implemented as two AutoQuest instruments. The small first instrument was used to locate and verify the identity of the respondent and collect contacting outcome codes, while the second instrument contained all survey questions. The two instruments were linked so that with a few key strokes an interviewer could move easily between them. The primary advantage of this arrangement was one of performance.

The most frequently used instrument was the locating instrument, which could quickly display case information. The larger instrument was not accessed until the interviewer had actually contacted the respondent and had obtained the respondent's consent to proceed with the interview.

### **Sample Design And Methodology**

#### **Base Year Survey Sample Design**

In the base year, students were selected using a two-stage, stratified probability sample design with schools as the first-stage units and students within schools as the second-stage units. Sampling rates for each stratum were set so as to select in each stratum the number of schools needed to satisfy study design criteria regarding minimum sample sizes for certain types of schools. As a result, some schools had a high probability of inclusion in the

sample (in some cases, equal to 1.0), while others had a low probability of inclusion. The total number of schools selected for the sample was 1,122, from a frame of 24,725 schools with grades 10 or 12 or both.<2> Sampling strata and the number of schools selected in each are shown in Tables 1.1 and 1.2. Within each stratum schools were selected with probabilities proportional to the estimated enrollment in their tenth and twelfth grades. Within each school, 36 seniors and 36 sophomores were randomly selected. In those schools with fewer than 36 seniors or 36 sophomores, all eligible students were drawn in the sample.

Substitution was carried out for schools that refused to participate in the survey, but there was no substitution for students who refused, whose parents refused, or who were absent on Survey Day and make-up days.<3> Substitution for refusal schools occurred only within strata. In certain cases no substitution was possible because a school was the sole member of its stratum.

**Table 1.1--High school and beyond base year school sample selections special strata (oversampled)**

|   | Number     |
|---|------------|
| Alternative public  | 50         |
| Cuban public  | 20*        |
| Cuban Catholic  | 10*        |
| Other Hispanic public   | 106*       |
| High performance private  | 12         |
| Other non-Catholic private<br>(stratified by four census regions) | 38         |
| Black Catholic  | 30*        |
| <b>Total (oversampled)</b>  | <b>266</b> |

\*These schools were defined as those having 30 percent or more of enrollment from the indicated ethnic subgroup.

**Table 1.2--High school and beyond base year school sample selections regular strata (not oversampled)**

|  | Number |
|--|--------|
| Regular Catholic (stratified by four census regions)   | 48     |
| Regular public (stratified by nine census divisions; racial composition enrollment; central-city, suburban, rural) | 808    |
| Total (not oversampled)  | 856    |

The realization of the sample by stratum is shown in Tables 1.3 and 1.4. Although the sample design specified that students in all but the special strata would be selected with approximately equal probabilities, the probabilities are only roughly equal. In addition, the students in special strata were selected with higher probabilities, in some strata with extremely high probabilities. Moreover, the sample as realized did not equal the sample as drawn, creating further deviations from a self-weighting sample. Consequently, each school (and student) was assigned a weight equal to the number of schools (or students) in the universes they represented. Since each student's overall selection probability (hence weight) was further influenced by the sample design for the follow-up surveys, the derivation of student case weights is discussed below. Calculation of school weights is described

in the High School and Beyond First Follow-up (1982) School Questionnaire Data File User's Manual.

**Table 1.3-- High school and beyond base year sample realization, stage 1: sampling of schools**

| Stratum                    | Drawn in sample | Original schools* | Substituted schools | Total realized |
|----------------------------|-----------------|-------------------|---------------------|----------------|
| Regular public             | 808             | 585               | 150                 | 735            |
| Alternative public         | 50              | 41                | 4                   | 45             |
| Cuban public               | 20              | 11                | --                  | 11             |
| Other Hispanic public      | 106             | 72                | 30                  | 102            |
| Regular Catholic           | 48              | 40                | 5                   | 45             |
| Black Catholic             | 30              | 23                | 7                   | 30             |
| Cuban Catholic             | 10              | 7                 | 2                   | 9              |
| High performance private   | 12              | 9                 | 2                   | 11             |
| Other non-Catholic private | 38              | 23                | 4                   | 27             |
| <b>Total</b>               | <b>1,122</b>    | <b>811</b>        | <b>204</b>          | <b>1015</b>    |

\*Includes additional selections made when schools were found to be out-of scope.

**Table 1.4-- HS&B base year sample realization, stage 2: sampling of students**

|         | Total drawn in sample | Absent, both survey and make-up days | Student refused | Parent refused | Parental materials missing* | Total realized |
|---------|-----------------------|--------------------------------------|-----------------|----------------|-----------------------------|----------------|
| Number  | 70,704                | 8,278                                | 1,759           | 223            | 2174                        | 58,270         |
| Percent | 100.0                 | 11.7                                 | 2.5             | 0.3            | 3.1                         | 82.4           |

\*Unusable because of critical survey materials missing.

Use of weights should lead to correct estimates (within sampling error) of the population of 10th and 12th grade students in United States schools in spring 1980, and correct estimates of subgroups within it. Several analyses conducted since the base year survey have shown consistently that the weights give estimates reasonably close to those from other data sources.

### First Follow-Up Survey Sample Design

The first follow-up sophomore and senior cohort samples were based on the High school and Beyond base year samples, retaining the essential features of a stratified multi-stage design; (for further details see Tourangeau, et al., 1983).<4> The important features of the first follow-up design were as follows.

For the sophomore cohort, all schools selected for the base year sample were contacted for participation in the first follow-up school survey except those that had no 1980 sophomores, had closed, or had merged with other schools in the sample. Schools that received two or more students from base year schools were included in survey activities, and school-level data from these institutions were eventually added to students' records as contextual information; however, these schools were not added to the existing probability sample of schools. Of the 1,015 schools that participated in the base year survey, a total of 40 were dropped from the first follow-up sample: 11 because they had no sophomores in the base year; 5 because they had merged with other schools already in the sample; 17 because they were junior high schools or schools that were closed, sending all their 1980 students to a single "target school;" and 7 because they had closed and sent their 1980 students to a large number of geographically dispersed schools. The 17 "target schools" that had received pools of base year

students were included in survey activities but not added to the sample. Thus, 975 schools from the base year sample plus the additional 17 "target schools" were contacted for the first follow-up survey.

The sophomores still enrolled in their original base year schools were retained with certainty, since the base year clustered design made it relatively inexpensive to resurvey and retest them.

Sophomore cohort students no longer attending their original base year schools (e.g., dropouts, early graduates, and those who had transferred as individuals to a new school) were subsampled. Certain groups were retained with higher probabilities in order to support statistical research on such policy issues as excellence of education throughout the society, access to postsecondary education, and transition from school to the labor force.

Students who transferred as a class to a different school were considered to be still enrolled if their original school had been a junior high school, had closed, or had merged with another school. Students who had graduated early or had transferred as individuals to other schools were treated as school leavers for the purposes of sampling.

The 1980 sophomore cohort school leavers were selected with certainty or according to predesignated rates designed to produce approximately the number of completed cases



needed for each of several different sample categories. School leavers who did not participate in the base year were given a selection probability of 0.1. Table 1.5 shows the number of currently enrolled students and school leavers in each major school stratum.

For the 1980 senior cohort, students selected for the base year sample had a known, non-zero chance of being selected for the first and all subsequent follow-up surveys. The first follow-up sample consisted of 11,995 selections from the base year probability sample. This total includes 11,500 selections from among the 28,240 base year participants and 495 selections from among the 6,741 base year nonparticipants. In addition, 204 non-sampled co-twins or triplets (not part of the probability sample) were included in the first follow-up sample, resulting in a total of 12,199 selections.

**Table 1.5--Sample allocation for first follow-up of 1980 sophomore cohort**

| Original base year<br>school stratum | Student status         |              |              |                   | Total         |
|--------------------------------------|------------------------|--------------|--------------|-------------------|---------------|
|                                      | Currently<br>enrolled* | Drop-out     | Transfer     | Early<br>graduate |               |
| Regular public                       | 18,684                 | 1,932        | 796          | 493               | 21,905        |
| Alternative public                   | 672                    | 184          | 58           | 39                | 953           |
| Cuban public                         | 220                    | 52           | 17           | 30                | 319           |
| Other Hispanic public                | 2,375                  | 336          | 121          | 86                | 2,918         |
| Regular Catholic                     | 1,372                  | 19           | 57           | 10                | 1,458         |
| Black Catholic                       | 780                    | 32           | 128          | 11                | 951           |
| Cuban Catholic                       | 252                    | 15           | 25           | 8                 | 300           |
| High performance private             | 336                    | 0            | 15           | 4                 | 355           |
| Other non-Catholic<br>private        | 459                    | 31           | 73           | 15                | 578           |
| <b>Total</b>                         | <b>25,150</b>          | <b>2,601</b> | <b>1,290</b> | <b>696</b>        | <b>29,737</b> |

\*Currently enrolled in base year (or other related) school.

High School Transcripts Sample Design (1980 Sophomore Cohort)

Subsequent to the first follow-up survey, high school transcripts were sought for a probability subsample of nearly 18,500 members of the 1980 sophomore cohort. The subsampling plan for the Transcript Study emphasized the retention of members of subgroups of special relevance for education policy analysis. Compared to the base year and first follow-up surveys, the Transcript Study sample design further increases the overrepresentation of racial and ethnic minorities (especially those with above average HS&B achievement test scores), students who attend private high schools, school dropouts, transfers and early graduates, and students whose parents participated in the base year Parent's Survey on financing postsecondary education.

Transcripts were collected and processed for nearly 16,000 members of the sophomore cohort. Transcript data can be merged with student questionnaire data files using the case identification numbers common between the two files. The Data File Users's Manual for the HS&B High School Transcripts Study contains a full description of the sample design and other features of the transcript study.

Second and Third Follow-Up Survey Sample Design

The sample for the second follow-up survey of the 1980 sophomore cohort was based upon the transcripts study

design. A total of 14,825 cases were selected from among the 18,500 retained for the transcript study. As was the case for the senior cohort, the sophomore cohort second follow-up sample included disproportionate numbers of sample members from policy-relevant subpopulations (e.g., racial and ethnic minorities, students from private high schools, high school dropouts, students who planned to pursue some type of postsecondary schooling, and so on). Sample weights have been provided to compensate for differential selection probabilities and participation rates across all survey waves. Tables 1.6 through 1.9 present several alternative tabulations of the second follow-up sample of the sophomore cohort.<5> The members of the senior cohort selected into the second follow-up sample consisted exactly of those selected into the first follow-up sample. The third follow-up was the last one conducted for the senior cohort.

**Table 1.6--1980 Sophomore cohort second and third follow-up sample distribution by race/ethnicity typology**

| Category               | Population size |            | Second follow-up |            |
|------------------------|-----------------|------------|------------------|------------|
|                        | N               | % of total | n                | % of total |
| <b>Hispanic</b>        |                 |            |                  |            |
| Cuban/Puerto Rican     | 89,674          | 2.4%       | 990              | 6.7%       |
| High achievement       | 85,762          | 2.3%       | 886              | 6.0%       |
| Other Hispanic         | 299,802         | 7.9%       | 1,375            | 9.3%       |
| <b>Asian Pacific</b>   |                 |            |                  |            |
| Islander               | 46,835          | 1.2%       | 430              | 2.9%       |
| <b>Native American</b> |                 |            |                  |            |
|                        | 48,418          | 1.3%       | 292              | 2.0%       |
| <b>Black</b>           |                 |            |                  |            |
| High achievement       | 84,500          | 2.2%       | 741              | 5.0%       |
| Other                  | 375,185         | 9.9%       | 1,295            | 8.7%       |

|                                     |           |        |        |        |
|-------------------------------------|-----------|--------|--------|--------|
| High achievement/<br>low-SES Whites | 69,759    | 1.8%   | 388    | 2.6%   |
| All others                          | 2,679,309 | 70.9%  | 8,428  | 56.8%  |
| Total                               | 3,779,288 | 100.0% | 14,825 | 100.0% |

NOTE: For this typology, sample members were assigned to ethnic or racial categories on a sequential or hierarchical basis. That is, individuals who reported Cuban or Puerto Rican origin or descent in either the base year or first follow-up were so classified in this typology. High achievement Hispanics were then classified among the remaining non-Cuban/non-Puerto Rican cases. (Since some Cubans and Puerto Ricans were also "high achievement," the total number of high-achievement Hispanics is larger than shown in this table. "Other Hispanics" were then classified from among all remaining cases not assigned to the two previous categories. This procedure was repeated sequentially for each remaining category in the table. The result is a distribution of mutually exclusive categories whose contents sum to the population or sample size. The distributions presented mask considerable overlap among groups within the sample (e.g., Blacks who are also Hispanic).

Table 1.7--1980 Sophomore cohort second, third, and fourth follow-up sample distribution by first follow-up student status indicator

| Student status<br>category   | Population size |               | Second follow-up |               |
|------------------------------|-----------------|---------------|------------------|---------------|
|                              | N               | % of<br>total | n                | % of<br>total |
| Currently (1982)<br>enrolled | 2,755,522       | 72.9          | 11,012           | 74.3          |
| Dropout                      | 512,439         | 13.6          | 2,584            | 17.4          |
| Transfer                     | 330,393         | 8.7           | 753              | 5.1           |
| Early graduate               | 180,934         | 4.8           | 476              | 3.2           |
| Total                        | 3,779,288       | 100.0         | 14,825           | 100.0         |

Note: categories presented above result from screening of cases for the first follow-up survey. Dropouts who returned to complete diplomas have been flagged in the composite variable HSDIPLOM in the public release data files.

Table 1.8--1980 Sophomore cohort second, third, and fourth follow-up sample distribution by base year school type

| Base year<br>school type | Population size |               | Second follow-up |               |
|--------------------------|-----------------|---------------|------------------|---------------|
|                          | N               | % of<br>total | n                | % of<br>total |
| Public                   | 3,425,292       | 90.6          | 11,724           | 79.1          |
| Catholic                 | 229,106         | 6.1           | 2,704            | 18.2          |
| Other private            | 124,890         | 3.3           | 397              | 2.7           |
| Total                    | 3,779,288       | 100.0         | 14,825           | 100.0         |

**Table 1.9--1980 Sophomore cohort second, third, and fourth follow-up sample distribution by data availability**

| Student characteristic                        | Population size |            | Second follow-up |            |
|---|-----------------|------------|------------------|------------|
|   | N               | % of total | n                | % of total |
| Parent data available                         | 364,011         | 9.6%       | 2,534            | 17.1%      |
| Parent data and PSE plans or high achievement | 175,791         | 4.7%       | 2,049            | 13.8%      |
| High school transcript data                   | 3,344,251       | 88.5%      | 13,024           | 87.9%      |
| Twin data*                                    | 39,984          | 1.1%       | 163              | 1.1%       |

NOTE: Row categories in this table are not mutually exclusive. \*Sampled twins only. An additional 275 non-sampled, co-twins were included in the HS&B Transcripts Study. Approximately 140 non-sampled co-twins were retained in the second follow-up, yielding about 150 twin pairs.

#### Fourth Follow-Up Survey Sample and Transcript Study Design

The fourth follow-up is composed solely of members from the sophomore cohort. The members of the sophomore cohort selected into the fourth follow-up sample consisted exactly of those selected into the second and third follow-up sample. For any student who ever enrolled in postsecondary education, complete transcript information was requested from the institutions indicated by the student.

#### **Methodology**

The High School & Beyond Fourth Follow-Up had two components: the respondent survey and the transcript study. The respondent survey was the fifth round of survey using computer assisted telephone interview (CATI) to survey a sample of 14,825 members of the 1980

sophomore cohort. The transcript study was based on the 9,064 sophomore cohort members who reported postsecondary attendance.

The issues addressed by the survey included:

- \* access to and choice of undergraduate and graduate educational institutions;
- \* persistence in attaining educational goals;
- \* progress through the curriculum;
- \* rates of degree attainment and other assessments of educational outcomes;
- \* barriers to persistence and attainment;
- \* rates of return to the individual and society; and
- \* relationship between course-taking patterns, academic achievement, and subsequent occupational choices and success

The field periods for data collection were as follows:

- \* CATI survey: February, 1992 to January, 1993
- \* Transcript study: December, 1992 to October, 1993

The CATI survey response rate was 85.3 percent and the average administration time was 30.6 minutes. The transcript study response rates varied by institution type from 50.4 percent at private, for-profit

institutions to 95.1 percent at public, 4-year institutions. The response rate by students reporting postsecondary attendance was 93.2 percent (with at least one transcript). The transcript level response rate was 90.1 percent. Nonresponse was slightly higher for the fourth follow-up than previous rounds.

For both the CATI and the transcript study the estimated design effect (DEFF) was 2.0. This design effect is very similar to that for prior rounds.

Technical innovations used in this round included:

- \* verification and correction of previously collected data through the CATI instrument
- \* online coding applications that were used during interview and for coding transcripts
- \* statistical quality control

#### **Data Collection**

To date, HS&B has compiled data from six primary sources: school administrators, teachers, students, parents of selected students, high school administrative records (transcripts), and postsecondary administrative records (transcripts and financial aid). In the 1980 base year survey, 1,015 secondary schools served as the primary sampling units for the study. The principal or headmaster of each school was asked to complete a school questionnaire

and to provide materials essential for the sampling of students in the 10th and 12th grades.

In-school samples of approximately 36 students in each grade were asked to fill out a Student Identification Pages booklet (which included several items on the use of non-English languages as well as confidential identifying information) and a student questionnaire, and to take a timed cognitive (achievement) test. Teachers of selected students were asked to fill out brief Teacher Comment Forms containing 10 items on student traits and behavior.

During the fall following the base year survey, data were collected from over 7,100 parents of student respondents (about half of these were from each student cohort). These data focused primarily on parents' ability to finance postsecondary education for their children.

The first follow-up survey in the spring of 1982 added a second wave of data from 1980 seniors and sophomores. School administrators were again asked to complete a school questionnaire and to provide information on the secondary level course offerings and enrollments for their institutions. In the fall of 1982, high school transcripts were requested for a probability sample of approximately 18,500 members of the 1980 sophomore cohort. Both sophomore and senior cohort members were contacted for the second follow-up in 1984 and the third follow-up in 1986. In 1992, the fourth follow-up was conducted only with sophomore



cohort members. Data and materials collected for all waves of HS&B are described below.

### Data and Materials Collected from Schools and Teachers

School personnel supplied three broad types of information for HS&B: school questionnaires, course offerings and enrollments, and Teacher Comment Forms. School personnel were also asked to provide materials such as student rosters and class schedules, but these are not part of the public use data base and are not discussed here.

#### 1. School Questionnaires

In both the base year and the first follow-up, principals and headmasters (or their designates) were requested to complete questionnaires asking for basic information on institutional characteristics such as type of control, ownership, total enrollment, proportions of students and faculty belonging to policy-relevant groups, participation in Federal programs, and per-pupil expenditures. This information is stored primarily in a separate data file that can be easily merged with student data files or the high school course offerings file described below. In addition, approximately 19 of the most basic school characteristics have been stored on the student data files in order to facilitate the classification of students according to their school environment.

School questionnaires were sought from all 1,015 participating schools during the base year survey. In the first follow-up survey, school data were requested from those schools still in existence as independent institutions (i.e., that had not closed or merged with other schools), and that still had members of the 1980 sophomore cohort enrolled. In a few instances, when students from a base year school were transferred en masse to a different school, or when two schools within a district merged, school questionnaires were sought from the schools then attended by the sampled students. In such cases, data from the new schools were stored on separate school records in the HS&B School Questionnaire data file, and were not physically merged with data for the original school. A link variable ("connecting school ID") is stored both in the record for each base year sample school that sent its students to a first follow-up "target school," and in the record for each "target school" indicating the ID of the base year school where the students were originally sampled and surveyed. Data from the new "target schools" can be merged easily with data records for the students who transferred in groups. No new school data were sought for students who transferred as individuals.

## 2. Teacher Comment Forms

Teacher Comment Forms were requested from all faculty members who had taught any HS&B sampled students during the 1979-80 academic year, but these data were collected only during the base year survey. Teacher Comment Forms asked for perceptions about whether each selected student would probably go to college, was working up to potential, seemed popular with others, had talked with the teacher about school work or plans, seemed to dislike school, had enough self-discipline to hold a job, or had a physical or emotional handicap that affected school work. Data from these forms have been compiled into separate files with over 19,000 forms for each of the two student cohorts.

## 3. Course Offerings and Enrollments: Academic Year 1981-82

During the first follow-up, school administrators were asked to provide materials that would allow the construction of a complete listing of all secondary level courses offered including enrollment figures for the 1981-82 academic year. This information was not requested in any prescribed format, and thus was received in a variety of forms. In many instances, schools were able to provide computer-generated printouts of Master Teaching Schedules. In others, it was necessary to merge information from several sources such as annotated course listings, catalogs, and enrollment records.

Procedures were established to maximize the completeness and accuracy of these materials.

In the data file constructed from these documents, each school is represented by a block of records that indicate for each course offered a six-digit course identification number, the duration and timing of the course (e.g., year-long, first semester, third quarter), the credits earned for successful completion, and the total number of students enrolled in the course during the entire 1981-82 academic year. This data set can be merged easily with the School Questionnaire file, the Sophomore Data files, or the High School Transcripts (Sophomores) file. In both the Course Offerings and Enrollments and the High School Transcripts files, individual courses were coded using the Classification of Secondary School Courses (CSSC).

#### 4. Data Collection Procedure: Schools and Teachers

In both the base year and first follow-up surveys, it was first necessary to secure a commitment to participate in the study from the administrator of each sampled school. In the case of public schools, the process was begun by contacting the chief state school officer (usually the state superintendent of schools) to explain both the objectives of the study and the data collection procedures (especially those for protecting individual and institutional confidentiality), and to identify the specific districts and

schools selected for the survey. Once approval was gained at the state level, contact was made with District Superintendents and after district approval was granted, contact was then made with school principals. Wherever selected private schools were organized into an administrative hierarchy (e.g., Catholic school dioceses), approval was obtained at the superior level before approaching the school principal or headmaster.

Within each cooperating school, principals were asked to designate a School Coordinator who would serve as a liaison between the NORC HS&B staff and the school administrator and selected students. The School Coordinator (most often a senior guidance counselor) handled all requests for data and materials, as well as all logistical arrangements for student-level data collection on the school premises.

In the base year, the School Coordinator assisted in assembling the materials for student sample selection. In the first follow-up, the Coordinator reviewed the school sample and assisted in determining students' current enrollment status. Once the enrollment status was updated, the Coordinator assisted in locating current addresses for selected sophomore cohort school leavers (i.e., transfers, dropouts, and students who graduated ahead of schedule) and senior cohort base year survey nonrespondents.

School questionnaires were sent to coordinators in the fall of 1979 for the base year survey and in the fall of 1981 for the first follow-up survey of the sophomore cohort. Student survey sessions were conducted between February and June of 1980 for both the seniors and sophomores, and between February and June of 1982 for just the sophomores. In most cases, school questionnaires were completed and returned to NORC before the spring survey sessions. Most of the remainder were collected by NORC Survey Representatives who visited participating schools to conduct student survey activities. About one hundred additional school questionnaires were obtained in the fall of 1982, when schools were recontacted to supply student transcripts for a sample of 1980 sophomores. This additional contact with the schools also offered an opportunity to retrieve missing data from critical items in the school questionnaires.

In the base year, coordinators were asked to distribute some 67,000 Teacher Comment Forms to faculty members who might have taught HS&B sampled students during the 1979-80 academic year. Completed forms were returned by the teachers themselves in addressed, prepaid envelopes.

During the first follow-up survey of the sophomore cohort, coordinators were asked to assemble course offerings and enrollments data to be given to Survey Representatives at the time of the student survey sessions. Although nearly 90 percent of the schools provided course offerings

information during the spring of 1982, the majority were not able to provide enrollment figures until the fall of that year, when the schools were recontacted for the sophomores' transcripts. Substantial numbers of schools could not provide enrollment data at all (see Table 2.0).

Finally, School Coordinators were notified during the first follow-up data collection period that they would be recontacted the following fall for their assistance in conducting the Student Transcript Survey for the sophomore cohort. Several months later, each coordinator was sent a packet of materials including a list of selected students and a reimbursement voucher to cover the costs of reproducing up to 36 (or 72 in the case of merged schools) high school transcripts for 1980 sophomores. (If selected students had transferred individually to schools not in the HS&B sample, transcript requests were sent directly to the principal of the last school the student was known to have attended.) Initial transcript requests were followed several weeks later by a combination of letters and telephone calls offering further assistance to each nonresponding school. Follow-up activities continued through January of 1983.

Table 2.0 displays the completion rates for school questionnaires (both waves), course offerings and enrollments data, and student transcript collection efforts. (Completion rates cannot be calculated for Teacher Comment

Forms due to the absence of information on the total number of faculty members who had taught HS&B sampled students during the base year.)

Table 2.0--Response rates for school level data collection

|                      | School<br>questionnaires |                    |                         |                    |                 |                     |
|----------------------|--------------------------|--------------------|-------------------------|--------------------|-----------------|---------------------|
|                      | Base<br>year             | First<br>follow-up | Course offering<br>data | Enrollment<br>data | HS&B<br>schools | Transfer<br>schools |
| Number<br>selected   | 1,015                    | 992 (a)            | 992                     | 992                | 992             | 890 (b)             |
| Number<br>responding | 997                      | 970                | 955                     | 729                | 949 (c)         | 771 (d)             |
| Response<br>rate     | 98.2%                    | 97.9%              | 96.3%                   | 73.5%              | 95.7%           | 86.6%               |

- a) Of the 992 schools from which full participation was sought in the first follow-up, 975 were among the initial 1,015 that participated in the base year, and 17 were included because they received en bloc transfers of all students from base year HS&B schools. Of the 975 base year schools eligible for the first follow-up, school questionnaires were obtained from 956 or 98 percent.
- b) Transfer schools are defined as those to which 1,065 students had transferred as individuals.
- c) Of the 949 schools that responded, 4 were unable to furnish transcripts because the sampled students had received a GED only and had not graduated.



- d) Of the 771 schools that responded, 115 were unable to furnish transcripts because sampled students had never registered, transferred again, dropped out before earning credits, etc.

### Student Data Collection

In the base year survey, a single data collection methodology - on-campus administration of questionnaires and tests to the entire sample of students from each selected school--was employed for both student cohorts. In the first follow-up, members of the younger cohort, nearly all of whom were then in the 12th grade, were resurveyed using methods similar to those of the base year survey. Members of the 1980 senior cohort were surveyed primarily by mail. Attempts were made to interview nonrespondents to the mail survey (approximately 25 percent) either in person or by telephone.

#### 1. Base Year Data Collection

Base year student data were collected from students in 1,015 high schools between February 1 and May 15, 1980. Sophomores and seniors within each school were gathered in separate groups on scheduled survey days to complete the questionnaires and tests in one session. NORC Survey Representatives (often assisted by the School Coordinator)

were present with each group to explain survey procedures and to answer questions.

An Orientation Day was held in each school, usually one to two weeks prior to Survey Day, in order to explain to sampled students the objectives of the study and to brief them on the voluntary nature of the study, the tasks involved in participation, and the procedures for protecting the confidentiality of their responses. Efforts were made during orientation sessions to identify all twins and triplets selected into the HS&B sample and to recruit the nonsampled twins and triplets into the study. Finally, a check was made during the orientation to see that parental permission forms had been obtained for all selected students in each school or district that required parental approval.

The first step for students in each survey session was to complete a Student Identification Pages (SIP) booklet, which requested information about how to locate the student if selected for future follow-up. To preserve student confidentiality, these documents were handled, shipped, and stored separately from all other student instruments. A section of the SIP booklet also contained several questions designed to identify students who had been exposed to languages other than English outside of formal school courses. Students having such exposure answered a special series of questions in the SIP about their use of and proficiency in the non-English language, as well as their

bilingual education experiences. These data were processed into a separate file containing responses from over 11,300 students.

Students were then given one hour to complete the questionnaires. During this time, Survey Representatives scanned the completed SIP booklets for missing or incomplete responses. At the end of the allotted time, questionnaires were collected. Students were given a ten-minute break during which Survey Representatives reviewed the questionnaires for completeness. Further attempts were made to obtain any data missing from either the SIP booklets or the student questionnaires before students left the survey session.

The cognitive tests were administered following the completion of the questionnaires. Tests consisted of six timed segments. The Senior Test Booklet also included a series of items on student perceptions about the six subtests and how the student was feeling while taking the test.

After the testing, students with incomplete SIP booklets or questionnaires were asked to remain so that missing data could be captured. For certain questionnaire items considered crucial to the analytical objectives of the study, students were given the option of marking a special oval in the question field indicating that they did not wish to answer.

Following the survey session, NORC Survey Representatives made arrangements with School Coordinators to conduct make-up sessions for students who were unable to attend the first Survey Day. Survey Representatives then packaged all completed student questionnaires and test booklets for shipment to NORC's optical scanning subcontractor to convert student responses to machine-readable form. Student Identification Pages, parental permission forms (if necessary), and administrative documents were returned to NORC's central offices for processing and storage. Table 2.1 displays separately for each student cohort the numbers and percentages of students who completed base year questionnaires and tests.

**Table 2.1--Base year data collection results by student cohort**

|                 | Number of<br>selections | Completed<br>questionnaire |        | Completed<br>test |        |
|-----------------|-------------------------|----------------------------|--------|-------------------|--------|
|                 |                         | N                          | (%)    | N                 | (%)    |
| 1980 Sophomores | 35,723                  | 30,030                     | (84.6) | 27,569            | (77.2) |
| 1980 Seniors    | 34,981                  | 28,240                     | (80.7) | 25,069            | (71.7) |
| Total           | 70,704                  | 58,270                     |        | 52,638            | (74.4) |

## 2. First Follow-up Data Collection: 1980 Sophomore Cohort

During the fall of 1981, School Coordinators reviewed printed rosters of HS&B sophomore cohort members originally selected at their schools and indicated which of the students were still enrolled at the same schools and which had transferred to another school, graduated early, or left school without graduating. School Coordinators were also

asked to supply current name and address information for all individuals in the latter three categories, and then return the rosters to NORC. Students listed on the rosters had been previously annotated with a sampling flag or marker reflecting predetermined selection probabilities for several student strata. Individuals who were both flagged and identified by School Coordinators as dropouts, transfers, or early graduates were then confirmed as selections into the school leaver sample. School leavers who were not predesignated by sampling procedures were classified as ineligible for the first follow-up.

It is important to note that the first follow-up sample design specifications defines the eligibility of students for follow-up by their enrollment status as of the scheduled Survey Day at their base year schools. Thus, School Coordinators had to repeat the review of the original student rosters on Survey Day, and any changes in student status from the original roster review (e.g., students transferring or leaving school, dropouts returning to full-time school enrollment) were immediately implemented by Survey Representatives in accordance with sample design specifications. By the completion of the data collection period, 25,150 students had been classified as currently enrolled in base year schools (or designated receiving schools--see below), and 4,587 had been selected into the

school leaver sample (1,290 transfers; 696 early graduates; 2,601 dropouts).

On-campus data collection arrangements were sought for all sophomore cohort members who were still enrolled in the schools they attended during the base year, or who had transferred as part of a class to another school in the same district. (This latter group included students who attended a junior high school during the base year, as well as those whose base year schools closed or merged with other schools not in the HS&B sample.) Survey Days were successfully arranged in 952 school buildings. However, a total of 40 schools declined to hold survey activities on-campus during regular school hours, but in most of these instances, administrators of noncooperating schools assisted the survey effort by reviewing student rosters, identifying school leavers, and updating address information for sophomore cohort members. Many officials assisted NORC Survey Representatives in securing alternative sites for survey sessions and in encouraging sampled students to participate in off-campus administrations.

Survey Days were conducted between February 15 and June 1, 1982, and activities generally paralleled those used in the base year. On the first scheduled survey day, teams of NORC Survey Representatives, assisted by School Coordinators, administered student questionnaires and tests to groups averaging 20 students in size. Make-up sessions

were scheduled for all schools in which the student-level response rate was less than 95 percent. NORC Survey Representatives conducted about 60 percent of the make-up sessions while school coordinators conducted 40 percent. By the end of the data collection period, 96 percent of the students eligible for on-campus survey administration had been resurveyed.

Two alternative data collection strategies were implemented for students enrolled in the 40 schools that declined to allow on-campus sessions. Students enrolled in the 27 noncooperating schools located within 100 miles of at least one NORC Survey Representative were contacted by telephone, screened for current enrollment status, and, if not classified as a school leaver, invited to participate in a group survey session at a local public facility. The screening process also allowed Survey Representatives to confirm the status of school leavers who had been predesignated for follow-up and to invite them to survey sessions as well. Over 95 percent of the 719 students currently enrolled at these 27 refusing schools were resurveyed in this manner.

There was a final group of 13 nonparticipating schools located over 100 miles from NORC Survey Representatives, but administering the survey at these schools using similar methods would have required unjustifiably large expenditures. As appropriate, students in these schools

were screened by telephone for their current enrollment status and recruited to participate. In these instances, however, eligible students were sent packets containing questionnaires, supplements, and other materials through the mail. A total of 340 students were found to be currently enrolled in these 13 schools, and about 89 percent returned completed questionnaires to NORC offices. Cognitive test data were not collected from these sophomore cohort members.

Off-campus survey sessions were held for 1980 sophomore cohort school leavers between February 20 and June 25, 1982. Because it was necessary to reconfirm the enrollment status of each student as of the first scheduled Survey Day at students' base year schools, off-campus group administrations were always scheduled after Survey Day at the schools where selected transfers, early graduates, and dropouts had formerly been enrolled. Once the respondents' enrollment and selection status was established, Survey Representatives contacted school leavers by telephone and invited them to take part in group sessions to be resurveyed and retested. All school leavers were offered monetary incentives for participation (\$5 for filling out the follow-up questionnaire and \$10 for taking the test), and were reimbursed (up to \$10) for travel expenses to and from the survey sites. Off-campus survey administrations were conducted using procedures as similar as possible to those for on-campus sessions. Survey Representatives scan-edited



completed questionnaires during the testing period and attempted to obtain missing or incomplete data before participants left the sites. Because the off-campus sessions typically involved only two to five school leavers, these administrations were handled by a single Survey Representative.

Although 85 percent of the participating school leavers were resurveyed in group administrations, a substantial minority could not attend scheduled sessions. Survey Representatives were able to personally interview and retest 465 of these individuals whose home addresses were close to areas where other survey activities were underway. In addition, 92 interviews were conducted over the telephone, and 60 completed questionnaires were returned by mail by school leavers whose residences were more than 50 miles from the closest Survey Representative. No first follow-up test data were obtained for the latter two groups. Table 2.2 displays data collection results separately for dropouts, transfers, and early graduates.

**Table 2.2--First follow-up data collection results for sophomore cohort school leavers by student type**

|                 | Number of<br>selections | Completed<br>questionnaires |        | Completed<br>tests |        |
|-----------------|-------------------------|-----------------------------|--------|--------------------|--------|
|                 |                         | N                           | (%)    | N                  | (%)    |
| Dropouts        | 2,601                   | 2,289                       | (88.0) | 2,034              | (78.2) |
| Transfers       | 1,290                   | 1,170                       | (90.7) | 1,073              | (83.2) |
| Early graduates | 696                     | 643                         | (92.4) | 595                | (85.4) |
| Total           | 4,587                   | 4,102                       | (89.4) | 3,702              | (80.7) |

### Collection of Student Transcripts

During the fall of 1982, high school transcripts were collected for a sample of 1980 sophomores. Approximately 18,500 students were selected using a disproportionate allocation that balanced the need to maximize the numbers of selections from policy-relevant subgroups (e.g., dropouts, racial and ethnic minorities, twins) against the need for statistical efficiency in the computation of nationwide estimates from the data. In the last week of September 1982, survey materials were sent to approximately 1,900 schools (including HS&B sample schools and schools to which 1980 sophomores had transferred). On November 4, 1982 follow-up calls to School Coordinators and principals were initiated and continued as necessary through January 1983.

Transcripts were received and processed for approximately 16,200 students (88 percent of the sample). The response rate for HS&B sample schools (92 percent) was significantly higher than that obtained for schools to which HS&B students had transferred (83 percent). Most often, transcripts were not obtained because of the absence of a signed form from a student authorizing school officials to release the transcript (affecting about 3 percent of the students), and district or school policy against releasing student transcripts for research purposes (affecting about 2 percent of students).

Student Transcript Data Files contain records for each student listing, for each secondary level course taken, a six-digit course identification number, the school year and term that the course was taken, the credits earned, and the final grade. Courses that are part of special curricula or programs (e.g., bilingual education, special education, programs for gifted students) are identified as such.

In addition, each student's record contains information on the student's rank in class, overall grade point average, numbers of days absent for each school year, number of suspensions, the date and reason the student left the school, and identifying codes and scores for any standardized tests taken by the student (SAT, PSAT, ACT, or Advanced Placement tests). This data file is not part of the student questionnaire and test score data file, but it can easily be merged with the latter by means of the common student identification number.

#### Second Follow-Up Data Collection: 1980 Sophomore Cohort

By the time of the second follow-up, the sophomore cohort was out of school and data were collected through a mailed questionnaire. To obtain correct addresses, an address update letter was mailed to members of both HS&B cohorts in November, 1983. The address update packet included a cover letter, address update form, return envelope, and newsletter. In December, trained telephone

interviewers at NORC's central office began locating activities for the cases whose letters were returned as undeliverable. By the time the questionnaires were mailed, addresses had been found for all but about 300 members of both cohorts. These 300 cases were then sent to field interviewers for further locating attempts.

Second follow-up survey questionnaires were mailed to 14,825 members of the sophomore cohort in February, 1984. Along with the questionnaire, respondents received a cover letter, an instruction sheet, a place marker, a pencil, a response incentive check for \$5, and an addressed, prepaid envelope for returning the questionnaire to NORC.

By the end of the third week after the mailing, 37.8 percent of the sophomores had returned their questionnaires. In order to obtain useful information on the effectiveness of thank-you and reminder postcards in boosting response rates, two different postcard mailings were scheduled. At the end of the third week, half the sample was sent a postcard, thanking them for sending in the questionnaire or encouraging them to do so. At the end of the seventh week, those respondents who had not yet mailed in their questionnaires received a telephone reminder followed by a postcard. Completion rates were compared at the end of week ten. Among the respondents who had been sent the reminder at the end of the third week, 56.9 percent had returned their questionnaires, while only 53.3 percent of the second group

had returned their questionnaires. Hence, mailing the postcard at the end of the third week appeared to boost the response rate by about 4 percentage points.

By the beginning of the sixth week, 44.9 percent of the sophomore cohort had returned completed questionnaires. Compared to the first follow-up, many more sample members were declared temporarily unlocatable at this stage of data collection. They had either moved after the fall locating letter was sent out or had failed to report any change of address. Therefore, in order to trace nonrespondents, Survey Representatives had to spend considerable time obtaining additional locating information.

During week nine, telephone and personal interviews began. At this time, 9,043, or 60.6 percent, of the questionnaires had been received. Telephone and personal interviews continued into August 1984, at which time the field period was closed. The final number of completed questionnaires for the sophomore cohort was 13,682, or 92 percent of the sample of 14,825. About 79 percent of the respondents completed and sent in questionnaires without assistance (self-administered); 15.6 percent were interviewed by telephone; and 5.3 percent were interviewed in person. Tables 2.3 and 2.4 display second follow-up data collection results by student type and sampling strata.

**Table 2.3--Second follow-up data collection results  
type, sophomore cohort**

| Student<br>response type | Initial<br>selections | Completed<br>cases | Refusals | Other* | Resp.<br>rate |
|--------------------------|-----------------------|--------------------|----------|--------|---------------|
| Stayed in HS             | 11,013                | 10,341             | 181      | 491    | 93.9%         |
| Dropouts                 | 2,584                 | 2,219              | 60       | 305    | 85.9%         |
| Transfers                | 752                   | 679                | 15       | 58     | 90.3%         |
| Early graduates          | 476                   | 443                | 7        | 26     | 93.1%         |
| Total                    | 14,825                | 13,682             | 263      | 880    | 92.3%         |

\*Included under "other" are cases that were not available, not located, deceased, or genuine other.

**Table 2.4--Second follow-up data collection results by sampling strata,  
sophomore cohort**

| Sampling<br>stratum                                   | Initial<br>selections | Completed<br>cases | Refusals | Other* | Response<br>rate |
|---|-----------------------|--------------------|----------|--------|------------------|
| Cuban/Puerto Rican<br>Hispanics -<br>high achievement | 990                   | 890                | 18       | 82     | 89.9%            |
| Hispanics - other                                     | 886                   | 844                | 13       | 29     | 95.3%            |
| Blacks -<br>high achievement                          | 1,375                 | 1,247              | 28       | 100    | 90.7%            |
| Blacks - other  | 741                   | 688                | 10       | 43     | 92.8%            |
| Asian/Pacific<br>Islander                             | 1,295                 | 1,176              | 16       | 103    | 90.8%            |
| American Indian/<br>Alaskan                           | 430                   | 394                | 6        | 30     | 91.6%            |
| White - low SES/<br>high achievement                  | 292                   | 260                | 2        | 30     | 89.0%            |
| White - other   | 388                   | 362                | 8        | 18     | 93.3%            |
| Total   | 8,428                 | 7,821              | 162      | 445    | 92.8%            |
| Total   | 14,825                | 13,682             | 263      | 880    | 92.3%            |

\*Included under "other" are cases that were not available, not located, deceased, or genuine other.

### Third Follow-Up Data Collection: 1986

In October 1985, NORC mailed a locating packet to members of the HS&B sample, excluding the deceased, the mentally incapacitated, and participants who had refused participation or could not be located during the second follow-up survey. The packet included a report about

previous surveys, a letter of introduction, and an address form with space to update address information. NORC received a total of 10,346 (40 percent) responses to the mailing, with 6,593 updated addresses and 3,753 address verifications, and these were used to make corrections on the name and address file.

Locating packets that were returned as undeliverable were routed to an in-house telephone locating shop. Of 1,925 undeliverables, telephone interviewers were able to find addresses for 1,454, or 70 percent. The remainder were eventually sent to the field staff for more intensive locating.

Cases that had been declared unlocatable (1,017) during the second follow-up were sent directly to the field staff for locating. Of the 1,488 cases assigned to the field staff (these 1,017 plus the 471 for whom addresses could not be obtained by telephone), updated addresses were obtained for 418 (28 percent) respondents. These addresses, as well as forwarding addresses from the post office, were also entered on the name and address file.

Data collection began in the last week of February 1986 and continued through mid-September. For the first time, sophomores and seniors received the same questionnaire and for administrative purposes could be treated identically. Questionnaire packages were mailed to 26,820 respondents whose addresses had been updated during the prefield

locating period. Packages contained questionnaires, a cover letter, a \$5 respondent check fee, a pencil, and a return envelope. Survey materials were mailed first class with "Address Correction Requested" specified on envelopes.

By the end of the third week, 37 percent of the total sample had completed and returned their questionnaires. Those respondents who had not returned their questionnaires by the third week were sent follow-up postcards to thank those who had completed and returned their questionnaires and to encourage the others to send them in promptly. Because of the good effects evidenced during the second follow-up experiment, this card was sent to all respondents.

Telephone prompting of those who had not sent in questionnaires began in early April, approximately two weeks after postcards were mailed. NORC field interviewers contacted respondents to urge them to complete and return questionnaires. Offers to remail survey materials were made to those who reported they had not received questionnaires or had misplaced them.

While the field staff continued to contact respondents and encourage the self-administration of questionnaires, administration by telephone and in person began in June, during week 14 of the field period. At this time, 16,270, or 60.7 percent, of the questionnaires had been received. The number of cases completed with interviewer assistance began to increase in July and soon became the dominant



method of administration. This continued through mid-September.

After 27 weeks, data collection ended with a final completion rate of 89.5 percent, or 23,993 completed questionnaires. The final completion rate for sophomores was 90.6 percent, or 13,429 completed questionnaires. The final completion rate for seniors was 88 percent, or 10,564 completed questionnaires. Table 2.5 displays the final completion rates for the sophomore sample by sampling strata.

**Table 2.5--Data collection for the sophomore cohort by sampling, strata, third follow-up**

|                                | Initial selections | Completed cases | Refusals | Other | Response rate (%) |
|--------------------------------|--------------------|-----------------|----------|-------|-------------------|
| Cuban/Puerto Rican             | 990                | 829             | 20       | 141   | 83.7              |
| Hispanic-high achievement      | 886                | 843             | 11       | 32    | 95.1              |
| Hispanic-other                 | 1,375              | 1,223           | 33       | 119   | 88.9              |
| Black-high achievement         | 741                | 660             | 20       | 61    | 89.1              |
| Black-others                   | 1,295              | 1,123           | 25       | 147   | 86.7              |
| Asian/Pacific Islander         | 430                | 385             | 6        | 39    | 89.5              |
| American Indian/Alaskan        | 292                | 252             | 7        | 33    | 86.3              |
| White-low SES/high achievement | 388                | 360             | 6        | 22    | 92.8              |
| White-others                   | 8,428              | 7,750           | 185      | 493   | 92.0              |
| Total                          | 14,825             | 13,425          | 313      | 1,087 | 90.6              |

\* Included under "other" are cases that were not available, not located, or deceased.

#### Fourth Follow-Up Data Collection: 1980 Sophomore Cohort

The fifth round of data collection for HS&B marked a change in data collection procedures. For the first time, a Computer Assisted Telephone Interview (CATI) was used in

collecting data on the 1980 Sophomore Cohort. The CATI program used contained two instruments: the first instrument was used to locate and verify the identity of the respondent, while the second instrument contained all of the survey questions. The two instruments were linked so that with a few key strokes, an interviewer could move easily between them. This arrangement maximized system performance by not requiring the interviewer to access the large survey instrument until the respondent was on the telephone and had agreed to proceed with the interview.

Final testing of the CATI instrument with pretest respondents was completed by January 26, 1992. Because minor problems were detected by the interviewers; final programming only entailed transforming the introductory module into conversational interviewing. On February 5, letters were sent to all respondents with known telephone numbers to inform them that in the coming weeks they would be contacted to complete an interview for the HS&B fourth follow-up. Another set of letters were sent to respondents without telephone numbers requesting that they contact NORC on its toll free number. By February 14, data collection had begun.

The average administration time for an interview was 30.6 minutes. Some adjustments were made to the instrument in the interest of clarity and efficiency in interviewing. No further modifications were made to the CATI screens

beyond May. By April, it was apparent that there were complications in locating sample members for interviews. Only 40 percent of the interviews had been completed, which did not meet the anticipated 50 percent targeted to be completed after 10 weeks. These difficulties had implications for both the schedule and the costs for the data collection task. They limited operations and necessitated extensive locating procedures, including a field staff to work cases that could not be completed in the telephone center.

In order to estimate the extent of the locating problems. A random subsample of cases was selected for tracking. The information obtained from this test was used to refine locating procedures and methods used by the telephone center and in the field.

Specialized training of interviewing staff in locating procedures was also undertaken. On April 29th, the initial locator training was conducted with five interviewers. Interviewers were introduced to four electronic resources: CBI, TRW, Compuserve and Trans Union. The interviewers were also given detailed information about the other resources used to locate respondents. The staff of locators grew to 43 persons by August.

Intensive field intervention was another method employed to locate respondents. At the time the field was brought on, the completion rate was 70.5 percent. The field

staff used its resources to locate respondents and urged them to contact the central office to complete an interview. Overall, the field effort resulted in the location of 2140 sample members. The combined phone center and field locating efforts resulted in an overall completion rate of 85.3 percent.

**Table 2.6--Data collection for the sophomore cohort by sampling strata, fourth follow-up**

|                                | Initial selections | Completed cases | Refusals   | Other        | Response rate |
|--------------------------------|--------------------|-----------------|------------|--------------|---------------|
| Cuban/Puerto Rican             | 990                | 764             | 32         | 194          | 77.2          |
| Hispanic-high achievement      | 886                | 806             | 23         | 57           | 91.0          |
| Hispanic-other                 | 1,375              | 1,111           | 37         | 227          | 80.8          |
| Black-high achievement         | 741                | 612             | 10         | 119          | 82.6          |
| Black-others                   | 1,295              | 982             | 23         | 290          | 75.8          |
| Asian/Pacific Islander         | 430                | 356             | 9          | 65           | 82.8          |
| American Indian/Alaskan        | 292                | 239             | 4          | 49           | 81.8          |
| White-low SES/high achievement | 388                | 356             | 9          | 23           | 91.8          |
| White-others                   | 8,428              | 7,414           | 235        | 779          | 88.0          |
| <b>Total</b>                   | <b>14,825</b>      | <b>12,640</b>   | <b>382</b> | <b>1,803</b> | <b>85.3</b>   |

\* Included under "other" are cases that were not available, not located, or deceased.

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