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A COMPARATIVE ANALYSIS OF COLLEGE ACADEMIC ACHIEVEMENT
BETWEEN GRADUATES OF PUBLIC AND PRIVATE HIGH SCHOOLS:
A STUDY OF THE FRESHMAN GPA

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Warren J. Blackstone, A.B., M.A., M.Ed.

Denton, Texas

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This study reviewed the literature on the struggle for equal educational opportunity of the 1960s and 1970s, the reform movement of the 1990s, the public/private school debate of the 1980s and 1990s, the issue of school choice in the 1990s, and a brief history of private schools. The literature revealed that since the Supreme Court's ruling, in 1954, on the unconstitutionality of separate-but-equal public schools and decisions on the separation of church and state, during the 1960s and 1970s, the number of and enrollment in private and parochial schools have grown steadily.

This study was conducted on a sample of 14,242 students attending 17 colleges (15 private colleges and 2 public universities) to determine if there was a difference in their academic performance (GPA) at the end of their freshman year. The independent variables of the study were the size of the student's secondary school graduating class, the religious affiliation of the secondary school, the gender enrollment pattern of the secondary school, and the residential pattern of the secondary school. In addition,

using the student's SAT score, an analysis was conducted to determine whether or not the student's first-year college GPA exceeded his or her GPA predicted by the SAT.

The results of the study revealed that there was no significant difference in first-year college GPA between graduates of private or public high schools. Among students attending private colleges, however, public high school graduates achieved first-year GPAs significantly higher than did graduates of private high schools. Finally, only public high school graduates attending private colleges achieved statistically significantly higher GPAs than were predicted by their SAT scores.

The findings of the study did not support the assumption that private high schools do a better job of preparing their graduates for success in college than do public high schools.

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CHAPTER I

INTRODUCTION

Since the end of World War II there has been a major change in the attitudes of Americans toward private schools. Although private secondary schools enroll approximately 10% of American high school students, in 1991 Education Secretary Lamar Alexander announced America 2000: An Education Strategy (U.S. Department of Education, 1991) containing a program of school choice that included "all schools that serve the public . . . regardless of who runs them" (Miller, 1991, p. 26). The Secretary of Education made clear that "all" included private schools.

Before the 1960s, very few students attended private schools. Unlike public high schools, private schools existed for two types of students: "the rich and the incorrigible" (Ravitch, 1991, p. 409). There were day schools and boarding schools for the rich. There were, however, a few military academies and boarding schools that served the problem or incorrigible student. With the exception of those private schools for the rich, private schools existed for the students who "could not make it" in the public school (Cookson, 1992).

Although today the population of many private schools, including boarding schools, is middle class, several boarding schools continue to serve the incorrigible student. One particular residential school in northern California specializes in the "underachiever," a term it described as being more clinical and less pejorative than incorrigible. The school cautioned in its promotional literature, however, that "students with histories of arson, violent or criminal behavior or uncontrolled sexual acting-out and those who are in need of psychiatric treatment are not appropriate candidates for admission" (Peterson's, 1990, p. 629). For those who were appropriate candidates for admission, the cost of tuition and fees for 1990-91 was \$30,000 per year.

One category of private school, the Catholic parochial school, has always been an exception to the image of being a school for the rich, the underachiever, or the troubled student. Students generally attended these schools for religious reasons. In reporting the makeup of their entering freshman class, some colleges continue to distinguish between private and parochial school students. According to its supporters, the Catholic parochial school provides neither a better nor a worse general education than does the public school. It differs from the public school in that many Catholic parents have been willing to pay for a Catholic-centered education. At the same time, however, the Catholic school was widely known for its focus on student

discipline. Although enrollment has continued to decline since 1964, Catholic schools still enroll 54% of all non-public school students (van Geel & Crampton, 1991). Since the 1960s, however, the public perception of private schools has changed, until today, "private education . . . is clearly viewed uncritically in larger perspective as a solution or even as a replacement for failing public schools" (Kaplan, 1991, p. 27). Part of the growth in support of private education can be traced to the Supreme Court's ruling in Brown v. Board of Education (1954) that separate-but-equal facilities are inherently unequal. In spite of the unanimous decision of the Court against de jure segregation of schools, the process of school desegregation moved slowly. Case after case on school segregation came before the Court during the 1960s, when the courts took a definitive stand against attempts by state legislatures and school districts to circumvent the mandate to eliminate racial discrimination in schools "root and branch." In Griffin v. County School Board of Prince Edward County (1964), the Court held the closing of public schools and contributing to the support of private schools to be unconstitutional. In Green v. County School Board of New Kent County, Virginia (1968), the Court ruled that desegregation applied not only to students but also to faculty assignments, extracurricular activities, and transportation and that the state must institute affirmative

action where Freedom of Choice failed to create a unitary system. In Alexander v. Holmes (1970), the Court declared that dual school systems were to be terminated at once and unitary systems were to be begun immediately. During the 1970s, the Supreme Court on several occasions approved busing of school children to remedy past de jure segregation, for example, Swann v. Charlotte-Mecklenburg Bd. of Ed. (1971). In Keyes v. School District No. 1 (1973), the Court held that school board actions, such as the manipulation of school attendance zones, may have the effect of creating unconstitutional de jure segregation (Celis, May 1994).

Although many boarding schools were founded in the 18th century and many day schools date back to the end of the 19th century, a considerable number of private schools emerged from the involvement of the Supreme Court with school desegregation and Court-approved busing. Whereas 672,000 students were enrolled in private secondary schools in 1949-50, the number had grown to 1,035,000 by 1959-60. During the same period, the number of children enrolled in private elementary schools rose from 2,708,000 in 1949-50 to 4,640,000 in 1959-60 (Kraushaar, 1972).

A second impetus for the growth of support for private education also stems from decisions of the United States Supreme Court on the matter of the separation of church and state (Lines, 1986). The Court ruled in Cochran v.

Louisiana State Board of Education (1930) that a state plan to provide textbooks to parochial school students did not violate the Fourteenth Amendment. In Everson v. Board of Education (1947), the Court found that the Establishment Clause of the First Amendment did not prohibit the use of tax funds for bus fares for parochial school students, and, in Board of Education of Central School District No. 1 v. Allen (1968), the Court held that the loan of textbooks to parochial school students did not violate the Establishment Clause of the First Amendment. Beginning in the 1970s, the direction of Supreme Court decisions on the issue of state participation in parochial education began to change. In Lemon v. Kurzman (1971) the Court held that state aid to parochial schools through salary supplement and purchase of services constituted impermissible entanglement between church and state. Again, in Committee for Public Education and Religious Liberty v. Nyquist (1973) the Court declared that state grants to parochial schools for maintenance and repairs as well as income tax credits for parents of parochial school children violated the First Amendment. Finally in Meek v. Pettinger (1975), the Court held that state financing of auxiliary services and direct loans for instructional materials and equipments for parochial school are unconstitutional.

Other separation of church and state issues struck closer to the values of many middle-class Americans who had

hitherto been proponents of public education (Lines, 1986). In Engel v. Vitale (1962) the Supreme Court held a New York Regent's prayer unconstitutional and, in School District of Abington Township v. Schempp and Murray v. Curlett (1963), the Court also held that state-enforced or encouraged Bible reading as well as prayer in the public schools was in violation of both the principle of separation between church and state and of the right to freedom of religion guaranteed under the First Amendment, made applicable to the states by the Fourteenth Amendment. The decisions in these two cases offended Evangelical Protestants, who objected to the exclusion of God from the educational program of the public schools (Lines, 1986).

While enrollment in Catholic schools dropped after 1965, the enrollment in Christian Schools grew by 202% between 1965 and 1975. The American Association of Christian Schools, founded in 1972, had a membership of 1,080 schools by 1982. This association of schools enrolled 175,000 students. Christians Schools International, Evangelical Lutheran Church in America, Lutheran Church-Missouri Synod, and the Seventh-Day Adventist Board of Education have 3,617 schools and enroll 341,746 students. The National Catholic Educational Association presently has 9,017 schools and enrolls 2,688,971 students (Market Data Retrieval, Inc., 1988).

The increasing secularization of public education after 1961 also sparked enrollment growth in the schools of other religious denominations. The Jewish population had been an active supporter of public education (Zeldin, 1986). During the 1960s and 1970s, however, many Hebrew Day Schools were established. In 1988, 373 Hebrew Day Schools and 60 member schools of the Solomon Schechter Day School Association were enrolling over 119,329 students (Market Data Retrieval, Inc., 1988).

The influence of the law on the existence of both public and private education resides in the role of the Supreme Court in assuring the continued existence of the private schools. It did this in Pierce v. Society of Sisters (1925), which declared that an Oregon law requiring all children to attend public schools violated the Due Process Clause of the Fourteenth Amendment.

An equally significant influence on the existence of public and private schools came from another direction. Many people for many years, at least since the later 19th century, have blamed the elementary and secondary schools for the inability of their students to read, write, and cipher (Finklestein, 1989). These complaints, however, seemed to fall on deaf ears until 1957, when the Soviet Union put a man in space. American students were encouraged to study more mathematics and science in order to compete successfully with Russian students. According to Cremin

(1988), during the 1960s, American students tested comparatively well in literature and civics; however, they were behind students from other countries in science, mathematics, and language test scores. During the 1970s and early 1980s, a second study, the National Assessment of Educational Progress, found a significant decline in the performance of American 17-year-olds in most subjects.

In 1983, the National Commission on Excellence in Education's publication of A Nation At Risk shocked the educational establishment and "jolted people--educators, teachers, parents, students--into taking a hard look at their local schools" (Cetron, 1991, p. 5). Since 1983 one professional educational association after another has bemoaned the lack of knowledge of American high school students in whatever academic discipline the association represents and suggested improved curricula to address the problem. In March 1994 the National Science Teachers' Association received a \$3.95 million federal grant to revitalize and expand a science-reform initiative (West, 1994).

In response to these criticisms, most state legislatures enacted educational reform bills. Graduation requirements were increased, curriculum standards were raised, and attendance requirements tightened. Many states began assessment programs of their own. Many teachers' associations and parents groups became increasingly vocal in

the demands for educational reform. Teachers demanded smaller classes, more administrative support, and parental involvement. Cetron & Gayle (1991) stated that California was one of the first states to establish "an accountability system that set definite targets for the state, and gave each school and district information about how it was doing in reaching those targets" (p. 163).

Perhaps the most significant effect to come from the publication of A Nation At Risk was that it focused attention on the many problems faced by schools, students, and the society; among these problems are high illiteracy, low test scores, poor reading and writing skills, school drop-out rates. As dropout statistics made local headlines and falling SAT scores made national headlines, the private school alternative became more and more appealing to those parents who had applauded integration and accepted secularization. To these parents, private schools meant smaller classes; a small teacher-student ratio meant more attention to individual students.

In the minds of many Americans, the private school succeeded where the public school was failing. Many parents believed that private school graduates were better educated than those in the public high schools. Parents already sending their children to a private school believed this, and any parents of public school children also began to suspect that it might be the truth. These convictions

became the assumptions of an increasingly larger percentage of parents and educational officials who had lost faith in the virtues of public education (Johnson, 1993).

This study examines the assumptions of the relative effectiveness of public and private secondary education by reviewing the academic performance of high school graduates at the end of their first year as college students.

Statement of the Problem

The problem of this study was to determine whether a difference exists between the academic achievement (the grade point averages) of private and public high school graduates who have completed their first year of college studies in a private or public college.

Variables of the Study

The independent variables of the study are defined operationally as follows:

1. Type of High School Graduate
 - a. Public school: students who graduated from free, tax-supported school.
 - b. Private school: students who graduated from a school that is established, conducted, and primarily supported by a nongovernmental agency.
2. Size of High School Graduating Class
 - a. 100-or fewer students

- b. 101-249 students
 - c. 250-499 students
 - d. 500-or more students
3. Affiliation of the High School
- a. Secular: a school that is nondenominational or independent; one that does not have a religious affiliation.
 - b. Sectarian: a school that is denominational; one that has a religious affiliation.
 - 1. Catholic
 - 2. Other Religions
4. Gender Enrollment Pattern of the High School
- a. Coeducational: one that enrolls both male and female students.
 - b. Boys' school: one that enrolls only male students.
 - c. Girls' school: one that enrolls only female students.
5. Residential Pattern of the High School
- a. Nonresidential school: a school that does not house students overnight in its facilities.
 - 1. Public Day School
 - 2. Private Day School
 - b. Residential school: for this study, the only schools considered residential schools are private boarding schools.

The dependent variable of the study was the students' academic achievement as determined by their first year college grade-point average (GPA) at a public or private college.

The students' SAT scores (verbal and math combined) served as the covariant variable to minimize the effect of differencing inherent academic ability among the subjects of this study.

Research Questions and Hypotheses of the Study

Answers to two basic research questions were explored in this study testing the freshman GPA through six hypotheses, using a set of predetermined variables.

The basic research questions investigated in this study were as follows:

1. Is there a significant difference at the end of the freshman year between the academic achievement (GPA) of students who are attending public and private colleges? Are there characteristics about the high school (i.e., size of graduating class, affiliation of the school, gender enrollment pattern, and residential pattern) from which students graduated that have an effect on their academic achievement in public or private colleges at the end of their freshman year?

2. Do graduates of either public or private high schools achieve first-year college GPAs significantly higher than those predicted by their SAT scores?

The following hypotheses were tested at the .05 level of significance:

(H₁) At the end of their freshman year in public or private colleges, there will be no significant difference between the GPA (grade point average) scores of public and private high school graduates .

(H₂) At the end of their freshman year in public or private colleges, there will be no significant difference between the GPA scores of public and private high school graduates, who graduated from classes of different sizes.

(H₃) At the end of their freshman year in public or private colleges, there will be no significant difference between the GPA scores of public high school graduates and private high school graduates who attended schools of different religious affiliations (secular or sectarian).

(H₄) At the end of their freshman year in public or private colleges, there will be no significant difference between the GPA scores of public high school graduates and private high school graduates who attended schools with different gender enrollment patterns.

(H₅) At the end of their freshman year in public and private colleges, there will be no significant difference between the GPA scores of graduates of public high schools

and graduates of private high schools with different residential patterns.

(H₆) At the end of their freshman year in either a private or public college, students who graduated from either public or private high schools will achieve academically better than they were predicted, based on the SAT score, to achieve in college.

Limitations of the Study

The limitation of this study is that the results can be generalized only to the population and sample defined as students who attended 17 (15 private and 2 public) of the colleges that participated in this study and are included in Barron's Guide to the Best, Most Popular and Most Exciting Colleges (1988). In addition, academic achievement has been defined in terms of student performance as shown by the students' GPAs at the end of their freshman year. Finally, this study was limited to an investigation of characteristics about the high schools from which the participating students graduated and the effects on their academic achievement at the end of their first year in a private or public college. It was focused neither on the quality or effectiveness of the colleges that participated in the study nor on the individual high schools from which the students graduated.

Basic Assumptions

The problem and procedures of this study were based on the following assumptions:

1. A student's GPA in the college is defined as his or her academic achievement and is a credible assessment of the educational outcomes attained by the student.

2. The colleges participating in the study may or may not be representative of the population of the best, most popular, and exciting American liberal arts and science colleges and universities as described by Barron's (1988).

3. The students used in this study represent the population of students who attend the colleges used in this study.

4. A high school student's SAT score is a valid predictor of a student's potential academic achievement (GPA) in college degree-program work.

Significance of the Study

For many years there have been considerable discussion and debate over the effectiveness of American high schools in preparing students for college work, and particularly, over the issue of the public versus the private school in the search for quality education. Continuing debate and the interest indicated by college admissions officers approached for assistance in this research have demonstrated the need for a new look at an old problem.

The students' GPAs at the end of the freshman year in the college or university, used as a measure of their academic performance, may be attributable to factors associated with the high school they attended. The findings of this study will be significant in that they can possibly: (a) contribute to the inquiry into the relative educational effectiveness of both public and nonpublic high schools; and (b) provide information useful to educators who counsel both students and their parents who are enrolled in either public or private high schools and/or private or public colleges.

CHAPTER II

REVIEW OF RELEVANT STUDIES AND RELATED LITERATURE

The debate concerning the educational effectiveness of private and public schools and whether the option of attending a private school should be included in any state-sponsored "school choice" plan is only one element in the impetus for improvement of American education that began during the early 1980s. The ensuing debates, however, may have been influenced by court rulings on school integration and the space race with the Soviet Union.

The Struggle for Equal Educational Opportunity

Title IV, Section 402 of the Civil Rights Act of 1964 directed the commissioner of education to conduct a survey on the lack of availability of equal educational opportunity for individuals by reason of race, color, religion, or national origin in the public educational institutions in the United States, its territories and possessions, and the District of Columbia, and to report the results of that survey to Congress and the president by July 2, 1966. The U. S. Office of Education commissioned James S. Coleman, of

Johns Hopkins University, to carry out the survey and to prepare the required report which appeared as The Equality of Educational Opportunity (Coleman et al., 1966), commonly known as The Coleman Report. This report, based on a survey of 4,000 schools, presented information about inequalities of input (e.g., per-pupil expenditure, school plants, and segregation), inequalities of results, (e.g., low academic achievement), and the relation of inputs to results.

Coleman (1968) stated the following:

The Report brought into the open what had been underlying all the concepts of equality of educational opportunity but had remained largely hidden: that the concept implied effective equality of opportunity, that is, equality in those elements that are effective for learning. (p. 18)

Having reviewed the findings of the 1966 report,

Coleman (1968) declared that

Given the existing [non-school] divergent influences, equality of opportunity can only be approached and never fully reached. The concept becomes one of degree of proximity to equality of opportunity. This proximity is determined, then, not merely by the equality of educational inputs, but by the intensity of the school's influences relative to external divergent influences. . . . by the power of these resources in bringing about achievement. (p. 22)

Moynihan (1968) noted that educational reformers understood Coleman's (1966) conclusion (that the educational background of a student's family and fellow students was most effective and that school facilities and curriculum were least effective on educational achievement) to mean that "professional practice in a major social institution

was not nearly so efficacious as had been thought" (p. 25). Interpreting the findings to mean that "schools didn't matter," parties with a vested interest, such as school administrators, teachers, and educational specialists, attempted to counter the report. Some disputed the data; others played down the importance of the study, claiming that it merely replicated and confirmed previous studies. Coleman's findings were attacked in the press as near racist. Moynihan, however, maintained that the report, with its emphasis on social class had been correctly interpreted (by the new liberal reform establishment, associated with Black Power militancy), as "the most powerful social science case for school integration that has ever been made" (p. 28).

Dyer (1968) stated that "possibly the major contribution [of the Coleman Report] is its major challenge to the simplistic notion that counting education dollars, or the things dollars buy, is a sufficient measure of the equality of educational opportunity" (p. 39).

Bowles (1968), noting that student achievement is related to the level of resources invested in the school, wrote that Coleman et al. (1966) has "made it painfully clear to us that, left to the benevolence of those who presently count, our system of education does not achieve educational opportunity" (p. 98). Bowles also urged educators "to attempt to increase the degree of

participation in educational decision-making and to transfer power to groups presently excluded from influence" (p. 99).

Clark (1968) also suggested that the then-present educational monopoly would have only minimal results in all attempts to eliminate segregation and to improve the quality of education. He further recommended the development of alternative schools, suggesting regional, state, and federal schools; college and university-related open schools; industrial demonstration schools; labor-union-sponsored schools; and army schools. These would be "public schools, organized and operated on a quasi-private level, and with quality control and professional accountability maintained and determined by federal and state educational standards and supervision" (p. 113).

Kohl (1968) responded to a proposal made by Jencks (1966) that public schools should be replaced by private schools in a competitive market and suggested "the abolition of all private schools" (p. 159). As long as the critics of public education continued to place their own children in private schools, Kohl held, they would never have more than a professional stake in the improvement of public education.

Fantini (1968) reviewed the crisis in public education that had called for the Coleman survey. After examining the premises and nature of the crisis, he turned to a discussion of alternative forms of intervention, speaking of "parallel systems" of schools, that is, private schools. Noting the

success of some "street academies" in sending more than 75% of their students to college, and the success of Catholic schools with low-income and "disruptive" students, Fantini stated that "nonpublic schools have advantages; they do not have to deal with distant and entrenched bureaucracies, with school boards unfamiliar with their particular needs, or with teachers' unions" (p. 168).

Nordstrom, Friendenberg, and Gold (1967) studied ressentiment, that is, the surrender of the student's own developing value-system to that of an impersonal authority, a study that developed from an earlier inquiry "into the reasons college students shifted from science majors into other fields" (p. 10) One college student interviewed had remarked that "science and mathematics had been the only subjects that held his interest. 'All the others, he added, 'kept you well under wraps. You're pushed down to a level of mediocrity, and there's no chance to do anything more'" (p. 10). This student's remark led Nordstrom and his team to ask "whether there might be an unrecognized process by which schools actually do something to students, and in the doing, seriously interfere with the development of what used to be called a strong and forceful character" (p. 10).

Using a true-false index, Q Sorts and open-ended questions, Nordstrom et al. (1967) examined ressentiment in seven public and two private high schools. One of the private schools was a coeducational boarding school, the

other a Catholic day school for boys. The authors began their study to prove that "the presses [students] experience in school are to some degree infected with resentment and that the net result of this infection is to stultify them" (p. 109). Contrary to expectations, the researchers found "in the subjects themselves evidence of the qualities much like the resentment we had looked for in the schools" (p. 119). In explanation, they confessed, "Our original error lay in attributing power too exclusively to those elements of the polymorphic structure that possess formal authority" (p. 109). The importance of informal authority, particularly that held by peer groups, was reinforced by several investigations conducted and communicated during the 1980s.

The Reform Movements of the 1980s

With the onset of this movement, private schools came to be considered as an alternative to public schools, with the school itself, rather than the student population, as the major concern.

Toward the end of the 1970s, several educators, including Boyer (1983), Lightfoot (1983), Goodlad (1984), Sizer (1984) and Powell, Farrar, and Cohen (1985) investigated educational settings and programs in many types of schools through classroom visits and observations. The variables of these studies looked at the values and goals of

all parents and school personnel and also examined school programs and curricula.

Boyer (1983) directed a team of 25 educators in the investigation of 15 selected public high schools. Team members spent an average of 20 school days at each institution, observing the school and interviewing the personnel. He wrote, "We were not seeking 'good' schools or 'bad' schools. Our purpose was to examine a cross-section of American public higher education" (p. xiii). The result of the investigation was an "agenda for action," covering all areas of the educational process, from goal clarification and a core curriculum for all students, through a renewed respect for the teaching profession, to a call for public commitment for education. In the foreword to his publication, Boyer identified "two key decisions" that determined the choice of schools for the study. One of the two, while eliminating private schools from investigation, identifies their existence as an important alternative. "First, while acknowledging the importance of nonpublic education we agreed to limit our investigation to public high schools, where 91 percent of the nation's secondary school students . . . study every day" (p. xi).

Goodlad (1984) presented research for the improvement of education based on a survey of teachers and students from 38 schools. Although there were only 12 senior high schools in this group, over one half of the parents and

classes and almost one half of the teachers and students surveyed came from these high schools. Goodlad's recommendations centered on the high school, observing in a discussion of school size and grade structure that "secondary school students were not relating strongly to their teachers, even on academic matters. Most were preoccupied with peer group interests" (p. 311). This conclusion will perhaps have great importance for an understanding of private boarding schools, where students are educated away from the adult influence provided in the homelife of a public school student.

Since peer group relations and popularity play such important roles in middle school years, during which time most boys and girls experience the onset of puberty, Goodlad (1984) questioned, "Would segregation into all-girl or all-boy middle schools change the ambience of schooling at this level?" (p. 254).

Between 1981 and 1985 Sizer (1984) directed a study of American high schools, sponsored by the National Association of High School Principals (NASSP) and the Commission on Educational Issues of the National Association of Independent Schools (NAIS). In 1981 and 1982 Sizer and his team visited about 100 American high schools. Extensive field work was carried out in 15 of these schools. The list included 11 public and 4 private schools, both nonsectarian and Catholic, in 5 states. Sizer's (1984) Horace's

Compromise was the first report of the study in which he enunciated what would become a credo of the Essential Schools movement of the 1980s and after:

If a school awarded the diploma whenever a student reached the agreed-on level of mastery at the completion of a student's study rather than after four years of attendance and the collection of credits, the effect on student behavior would be dramatic. (p. 63)

In the second report of the study of high schools, The Shopping Mall High School: A Study of Winners and Losers in the Educational Marketplace, Powell et al. (1985), devoted a chapter to "the unspecial students in the middle who are ignored and poorly served" by the modern high school (p. 173). In response to the dilemma of the unspecial student, Powell asked the following:

What were these [private] schools attempting to do that lured parents who could pay tuition from the shopping mall high school? Three themes run through the answers given to such questions. . . .

Instead of a neutrality shaped by conflicting values among school participants, private schools seek agreement about institutional purpose. Ideally families and schools are fused in a single community of values. Instead of accommodating different preferences by offering deep variety and wide choice, the private schools typically restrict variety and choice and substitute for them active adult push. And instead of promoting individualization by the presence of boundless opportunities and the absence of restraints, private schools attempt to promote it by giving personal attention . . . [italics added] (p. 197)

Powell et al. (1985) noted that during the 1970s many private schools had changed sufficiently that there was no longer a consensus about purpose, push, and personalization. The authors observed that many private schools either had

become more like shopping mall high schools or had begun to limit enrollments exclusively to academically promising children. The unspecial child had become lost in the private as well as in the public school.

Lightfoot (1983), in response to "three persistent temptations: the tendency toward theoretical abstraction, toward autobiography, and toward negativism" (p. 11) reported on six high schools, chosen for "goodness--exemplary schools that might tell us something about the myriad definitions of educational success" (p. 11) and visited to produce a written portrait of the school as "cultural organizations" (p. 12). Two of the schools chosen were urban, two were suburban and two were independent schools. Lightfoot found that good high schools, each with imperfections of its own, are to be found in both the public and private sector.

Grant (1981) looked at the "character of education and education of character," and noted:

We are paying great costs because we increasingly operate our public schools as though they were factories of learning in which the only value is increased cognitive output. [One response to this situation is] to withdraw children from public schools and place them in private schools, which are communities chosen by those who share a provisional morality. (p. 147) (cf. Powell et al., 1985).

Oates (1981) provided demographic information about private schools, based on governmental and private

foundation statistical reports for 1978-79. Based on this information, Oates suggested as follows:

It may be well at this time to distinguish between the several terms that are used to designate schools that are not public, though there is no universal agreement on the meaning or correct utilization of each. "Non-public," probably the broadest in meaning, can be said to refer to schools that are not controlled by public bodies and that receive their financial support from sources other than public funds. "Private" has a similar technical meaning, though its use when applied to education rings of exclusion, for dark and unexplained, probably non-democratic, perhaps even sinister reasons. Those wishing to emphasize the positive aspects of diversity and competition therefore tend to shun "private," and speak instead of "independent" education. (p. 4)

Jackson (1981), looking at the curriculum of St. Paul's School, one of the most selective schools in the United States, "a high school for the privileged few," held that "it is much more demanding and much more traditional than most public high schools" (p. 124). In explanation of this characteristic, Jackson asked this question:

Why does it seem natural that students at schools like St. Paul's would study math and science and history rather than, say, distributive education or home-making or applied marketing skills? Obviously, because they need such studies to get into college. St. Paul's School and others like it are prep schools; their chief function is to prepare students for college. (p. 124)

The Public/Private School Debate of the 1980s and 1990s

seniors) in 1,016 high schools (894 public, 84 Catholic and 27 Other-private). In April, 1981 Dennis C. Carroll, Chief of the Longitudinal Studies Branch of NCES, stated the following the foreword to High School and Beyond: a national longitudinal study for the 1980's (Peng, Feters, & Kolstad, 1981):

This general report, the first HS&B publication, is a summary of descriptive information about the students' high school experiences, activities outside of school, attitudes, and plans for after school. Many details are not included in this report because its purpose is to highlight the breadth of the HS&B data. Basic student data files are available to researchers who wish to pursue these or other topics in depth (p. 5).

In 1981 Coleman, Hoffer and Kilgore presented a draft report of an analysis of High School and Beyond data to NCES, which appeared in book form as High School Achievement: Public, Catholic and Private Schools Compared (1982). Coleman et al. (1982) concluded that "private schools do produce better cognitive outcomes than public schools. . . . This was true for both Catholic and other types of private schools" (p. 180).

The authors acknowledged, however, that "despite extensive statistical controls on parental background, there may well be unmeasured factors in the self-selection into the private sector that are associated with higher achievement" (Coleman et al, 1982, p. 180). They also noted that a comparison of public and private schools was not the main purpose of the design of the NCES survey, but

insisted that "nevertheless, the survey provided the most complete information available to date for the comparison of public and private schools" (p. xxix).

Throughout the 1980s and into the 1990s, researchers studied and restudied the High School and Beyond data and wrote in response to the data and to Coleman et al. (1982), which researchers soon referred to simply as CHK.

Following the publication of the draft report of Coleman et al. (1981) concerning their High School Achievement: Public, Catholic, and Private Schools Compared (1982), the Harvard Educational Review devoted the November 1981 issue to the report in which a number of educational researchers presented critical appraisals of the report, including Braddock (1981), Bryk (1981), Finn (1981), Guthrie and Zusman (1981), Heyns (1981), Murnane (1981) and Coleman et al. (1981).

Murnane (1981) stated that private schools offer a college preparatory program to "children they select and whose parents select them," whereas public schools must offer both college prep and vocational programs "to all children who come to the door" (p. 486). Denying the possibility of controlling for the effects of self-selection in multiple regression, even by the inclusion of many family background characteristics, Murnane concluded that the usefulness of CHK (Coleman et al., 1982) is impaired since

it is "comparing schools facing different tasks and using different tools" (p. 486).

Heyns (1981) noted that it was "ironic that so much attention [was] being paid to the issue of nonpublic schools, since such schools represent a relatively minor component of the sample" (p. 520). Heyns suggested, "A more appropriate comparison would be of public school students in the same academic track as their private school counterparts. Yet this comparison was not made by Coleman and his colleagues" (p. 523).

Bryk (1981) also questioned the unrepresentativeness of subgroups in the High School and Beyond sample. The non-Catholic private schools group included only 1,832 students, of whom 1,622 were white and only 76 were black and 70 were Hispanic. "Further, over half of the Hispanic students come from only one school" (p. 508). Bryk stated that much of the controversy surrounding the draft report was "policy argument" rather than "disciplined inquiry," but concluded this:

It would be a misfortune if disciplined inquiry turned away from such questions as "What is the relative effectiveness of public versus private schools?" To claim that such questions are invalid or unworthy of study defies common sense. Yet we must recognize that the results of such inquiry will frequently lead us away from simple policy answers to an understanding of the complexities inherent in an apparently simple question (p. 508).

Braddock (1981) concluded the following:

Research on school productivity may be divided into two broad categories according to whether the outcomes are either consequences of adulthood, such as career attainments and participation in political or social roles, or measures of immediate student characteristics, such as achievement, aspirations, or personality development. (p. 490)

Braddock (1981) also discussed possible effects on policy decisions based on the draft report. "Will [tuition tax credits and vouchers] cause a 'brain drain' for public schools, exacerbating inequities between public schools and private schools?" (p. 495). He noted that "not since the publication of Equality of Educational Opportunity (1966) has debate on the issue of school productivity reached such a high level as it has with Public and Private Schools" (p. 495).

Finn (1981) denied the validity of the argument that private schools benefit unfairly because of the selectivity of admissions, noting that "in practice most private schools accept everyone with the price of admission" (p. 513).

Finn, nonetheless, credited the draft report with demonstrating, not that private schools are inherently superior to public schools, but for showing clearly that school does, indeed, make a difference.

Hannaway and Abramowitz (1985) expressed the view that, with the publication of Coleman et al. (1982), "Debate over privatization intensified. . . . Caveats in the professional

literature abound[ed] about the . . . results as initially reported" (p. 31).

McPartland and McDill (1982) noted that, rather than high school policy, a major consideration of Coleman et al. (1982) was that "the demographic concentration of students in different schools accounts for differences in school climates and school effectiveness" (p. 87).

Heyns and Hilton (1982) stated:

No evidence has been presented that these short tests represent an adequate sample of the domain of items reflecting high school achievement. . . . The major flaw in the analysis of CHK [Coleman et al., 1982] seems to be pre-maturity, at least so far as the adequacy of tests (p. 101).

Bodenhause (1989) also questioned the validity of the tests, maintaining the following:

Three of the seven 'High School and Beyond' tests were designed solely as measures of basic skills in general math, reading and vocabulary . . . specified to be at the 8th grade level. . . . The other four tests specified to be curriculum-specific in more advanced math, science, writing and civics comprised 10, 20, 17, and 10 items, respectively. As a mathematics teacher, the researcher is amazed that a test with only 10 questions could be considered to cover "advanced" high school mathematics; she suspects that teachers in other disciplines might feel similarly. (p. 18, note 1)

Goldberger and Cain (1982) concluded that Coleman et al. (1982) were biased in favor of the private sector. They held that the claimed private school advantage, that is, higher achievement test scores, disappears if academic track is controlled rather than family background characteristics. Further, they maintained, if a conventional rate of growth

formula is used in assessing sophomore-to-senior change, the private school advantage again disappears. They contended that, in the draft report, "school policies get credit for outcomes that are due to student backgrounds" (p. 121).

Noell (1982) stated that the sample of non-Catholic private schools in *High School and Beyond* was too small for meaningful analysis. "In our judgment, the sample of non-Catholic private schools is too small (27 schools compared to 84 Catholic and 893 public school). . . . The fact that only 23 of the originally drawn 38 non-Catholic schools agreed to participate suggest[s] substantial self-selection in the sample" (p. 123).

Tauber and James (1982) also questioned the validity of the student and school sample in the '*High School and Beyond*' data used by Coleman et al. (1982). "The public sector analyzed by CHK consists of a few schools in New York City, a few schools in Los Angeles, a few schools from the non-metropolitan Midwest, and so on" (p. 143). They, thus, addressed the limitation of both the *High School and Beyond* and Coleman et al. (1982) for policy determination and concluded the following:

A final caveat is needed. The '*High School and Beyond*' data are for high school students. Twice as many public school students and three times as many private school students are enrolled in grades K-8 as in grades 9-12. An analysis of a high school data set, even if free from flaws, would be an insufficient basis for generalization about private schooling and the public interest. (p. 143)

With the renewed interest in private schools, as both an alternative to and example for public education, the Institute for Research on Educational Finance and Governance (IFG) in the School of Education at Stanford University, in October 1984, sponsored a conference "to delve more deeply into the question of what public and private schools can learn from each other" (Haertel, James & Levin, 1987, p. 1). The 14 papers presented at the IFG conference were collected and subsequently published under the title Comparing Public and Private Schools. The first volume was subtitled Institutions and Organizations (James & Levin, 1988). The second volume, which was published first, was subtitled High School Achievement (Haertel et al., 1987).

By 1984 various researchers had re-analyzed the High School and Beyond data, based on a second wave of data from a 1982 follow-up testing of the sophomores and seniors in the 1980 survey. Alexander (1987), concluded the following, after examining the draft report and "twenty years of research on school effects and effectiveness":

Although it is surely arguable whether we have learned a great deal from this material about how to build better schools or to improve education, its many false starts and dead ends at least have taught us where not to look for important breakthroughs and that is mean differences between gross organizational entities.
(p. 59)

Hoffer, Greeley, and Coleman (1987) based on the re-analysis of the High School and Beyond data concluded the following:

It is difficult to believe that the Catholic School impact on achievement growth of students from their sophomore to senior year is no greater than that of the average public school. . . . Our analyses show that those public schools which make the same demands as found in the average Catholic School produce comparable achievement. (p. 86)

Alexander and Pallas (1987) also analyzed the High School and Beyond data, making "several within-sector regression analyses" (p. 94). The sample sizes used in this analysis range from 13,587 to 14,333 in the public school equations and from 2,074 to 2,114 in the Catholic school equations. Alexander and Pallas used the following variables in the regression analyses: School sector (PUBPRIV); Region (NEAST, NC, SOUTH); SES (A composite of family background characteristics); Race/Ethnicity (BLACK HISPANIC); and Sex (MALE FEMALE). They concluded that the assertion of the draft report that Catholic schools promote a year's cognitive growth beyond that realized in public schools "overstates the Catholic advantage by about one third on average" (p. 107). Beyond this, they questioned, "What if the total change over this period doesn't amount to much? This, in fact, seems to be what we are seeing in the High School and Beyond data" (p. 107).

Willms (1987) analyzed the curriculum-specific tests in High School and Beyond concluding that there is no substantial private school effect. "The most plausible explanation for these counter-intuitive findings is that the curriculum-specific tests are not sensitive to the effects

of schooling during the intervention period" (p. 121). Willms further extended this indictment to cover all the High School and Beyond tests (cf. Bodenhausen, 1989).

Shanahan and Walberg (1985) analyzed the 'High School and Beyond' data on two occasions. In a 1983 study of the 12th-grade students in the sample, the researchers rejected the private school hypothesis, advancing in its place hypotheses about "the influence of quantity and quality of academic classes, amount of parent-child discussion of education, television viewing and homework completion" (p. 358). They also retested the findings using 10th-grade student data. Shanahan and Walberg (1985) divided the variables used in the analysis into those beyond the power of educators to alter directly, except by selection, and those that seem alterable by educators. Contrary to the findings of the authors of the draft report, Shanahan and Walberg found that, excluding variables beyond the power of educators, "private schools do not appear to produce superior academic achievement " (p. 361).

Falsey and Heyns (1984), using the 1980 High School and Beyond data, limited their investigation to considerations of college enrollment, noting the following:

While we cannot yet address the questions of ultimate educational attainment for the class of 1980, we can pose three important questions:

1. Does high school sector affect the likelihood that a student will enroll in college following the senior year?

2. Among students entering college, does high school sector affect whether a student will enroll in a two-year or a four-year college?

3. To what extent are enrollment decisions shaped by high school context? To what extent do public and private schools differ in the manner in which they shape and implement aspirations? (p. 112)

Falsey and Heyns (1984) used a subset of the High School and Beyond data, consisting of senior students from 266 public schools (2,833 students), 25 Catholic schools (261), and 11 other-private schools (103). The researchers found that "private-school students were more likely to attend four-year institutions, irrespective of aspirations or track placement. . . . Catholic students were next, with public-school students most likely to choose two-year institutions" (p. 114).

One substantial difference that Falsey and Heyns (1984) noted was the number of counselors per senior. They estimated that there are 1.6 counselors for every 10 seniors in a non-Catholic private school; 1.3 for every 100 seniors in the public schools; and 1.4 for every 100 in the Catholic schools. Additionally and significantly, Falsey and Heyns (1984) noted that "private-school counselors appear to serve a different function than counselors in public schools, perhaps due to the emphasis placed on college admissions. . . the number of counselors has an insignificant but negative effect on college attendance in public schools" (p. 119).

Jones and Krelis (1984) compared the 1983-84 basic skills test scores of college-preparatory students in a large comprehensive public high school to their counterparts in both a private school and a parochial school in Ohio County, West Virginia. Using t -tests for independent samples, the researchers found statistically insignificant differences in scores on the basic skills tests. Jones and Kellis concluded that "the parents of college-bound private and parochial school students are paying for a style of education, not higher quality" (p. 12).

Sassenrath, Croce, and Penaloza (1984) looked at a group of 98 high school seniors:

The students consisted of two groups of 49 each, who were participating in a much larger study dealing with the validation of the System of Multicultural Pluralistic Assessment (SOMPA). The original SOMPA study was initiated in 1972. . . . Recently, when these children were retested . . . it was discovered that 49 of the students had switched from public to private schools. These 49 students were enrolled in 47 different private high schools, most of them Catholic. As a result, some students had spent as many as 10 years and some as few as 2 years in private schools, with the remaining years spent in public schools. . . . [The] 49 students who had remained in public schools . . . were enrolled in 47 different public high schools. The two matched groups each consisted of 24 females and 25 males, with 30 Anglos, 10 Hispanics, and 9 blacks in each group. (p. 559)

Using the scores on reading and mathematics achievement tests taken from the Stanford Test of Academic Skills, the results of the WISC-R administered by a school psychologist, and a 1961 SES measurement scale, developed by Duncan Reis,

Sassenrath et al. (1984) and Jones and Krelis (1984) found statistically insignificant differences in both SES and academic achievement between public and private schools. Taking the hypotheses of Shanahan and Walberg (1985), Sassenrath et al. reasoned:

Because homework and discipline relate to the amount of time on academic tasks, and time on task relates to achievement, we certainly could expect that students in the private sector would do better in achievement than students in the public sector. Because they did not, it seems that the public schools are doing something right. (p. 561)

Coleman and Hoffer (1987) presented a follow-up analysis of the High School and Beyond. They examined, among other questions, "what becomes of students once they finish high school," concluding as follows:

Looked at another way, a student's high school achievements and experiences are merely means to the ends of performing well in postsecondary educational and economic institutions. The question of how public and private students fare once they leave school is in this sense the critical test of the claim that private schools are more effective than public schools [italics added]. (p. xxvi)

Coleman and Hoffer (1987) defined private schools, however, as either other private (26 schools) or high performance private (10 schools). In their analysis of college success, which they defined as survival, Coleman and Hoffer listed only the number of cases rather than numbers of schools. Of those students, enrolled in a 4-year college by the fall of 1980, 54.3% of those who had graduated from public high schools remained in college in the spring of

1984. Of Catholic school students, 60.2% remained in college. Between the two private school subgroups, the percentages differed greatly: 55.6% of the other private and 81.4% of the High performance private remained (p. 183).

Chubb and Moe (1990) participated in the development of a survey to augment the High School and Beyond database. "The result was the Administrative and Teacher Survey (ATS), which went back to about half of the original HSB [High School and Beyond] schools and administered questionnaires to the principals, a sample of 30 teachers and selected staff members in each" (p. 22). The Chubb and Moe analysis was based on "random samples of roughly 400 schools and 9,000 students" (p. 72). The measure of student achievement used in the analyses as the indicator of school performance is an index of gain scores based on five of the six tests administered in the 'High School and Beyond' survey in 1980 and again in 1982.

Chubb and Moe (1990) did not distinguish between public and private schools. They divided the 400 schools in the study into high- and low-performance schools. The former fell into the top quartile of the school level distribution of achievement gain scores. The low- performance schools fell into the bottom quartile. The authors made several observations about private schools in defense of their thesis that bureaucratic control is the villain in the failure of American education; all distinctions were between

high- and low-performance schools, with no indication of the relative percentage of public or private schools in each category. In an appendix to the text, they concluded that the effects of the other variables, including those representing bureaucracy and the private sector, are always lessened by the inclusion of a variable for the percentage of students in an academic track. The sole conclusion, they stated, that could thus properly be made is "that public schools play much less assertive a role than private schools in assigning students to academic programs" (p. 267).

The Issue of School Choice in the 1990s

Day after day, newspapers, monographs, and periodicals have called for school improvement. Almost always the issue of choice has entered the presentation. Segal et al. (1992) described the choice issue in terms of a "siege" of the common school.

At one extreme are those who would dismantle the system. . . . in effect, place all schools--public, private, and parochial--on an equal footing to compete for student "customers." At the other end are those who would preserve the public school concept, albeit in changed form. . . . [to] grant more autonomy to individual schools. (p. 70)

Lieberman (1989) articulated his view at the beginning of a comprehensive study of the effects of choice on education:

Contrary to conventional reform proposals, the only ways to improve American education are (1) to foster private schools that compete with public schools and

among themselves and/or (2) foster for-profit competition among service providers within the public school. (p. 4)

Lieberman (1989) focused on the role of vouchers in educational improvement and the objections that have arisen concerning the introduction of a voucher system. He dismissed the contention that vouchers will benefit private schools to the detriment of public education. He stated that "the ability of private schools to increase enrollments with their existing facilities is highly problematic. What are the prospects for the construction of new private schools? At best, they are not very promising" (p. 239). Lieberman also rejected "choice solely within public schools," arguing that "public schools that can keep their market share regardless of parent preferences are not likely to change very much" (p. 239).

Grant (1981) stated that, at the start of the 1980s, vouchers were much in vogue. He concluded, however, that "vouchers are no panacea. . . . Good schools are good communities and these are not instantaneous creations that can be thrown up like a chain of '7-11' stores" (p. 147).

Levin (1989) analyzed educational choice and voucher systems under several categories, including the "private interests of citizens and the public interest of the commonwealth" in education (p. 10). Turning to school achievement, he presented "two types of evidence [that] have been used in the recent past to provide support for the

claim that private schools are more efficient than public schools" (p. 44). He observed that:

First, it has been asserted that private schools show a lower cost per student than public schools. . . .
Second, it has been asserted that they produce higher levels of academic achievement, at least at the high school level. (p. 45)

Levin (1989) also stated that "the cost comparisons are biased in that they understate the costs of private schools relative to public ones" (p. 45). He further noted that previous criticisms of Coleman et al. (1982), "were overstatements of private school effects because of the treatment of tracking, inadequate controls for self-selection . . . and other flaws in the statistical design" (p. 47). In response to these assertions, Levin concluded the following:

(1) There is no systematic evidence of differences in costs for similar students and services and a given level of educational outcome; (2) There is some systematic - though contested - evidence that private schools produce superior results in student achievement for otherwise similar students. However, the differences in results are very small on the average with little practical significance, and almost half of private school students have achievement scores below the average for public schools. (pp. 48-49)

Chira (1991) described "two faces of choice, suddenly the hottest new idea in education" (p. A1). One is New York City's East Harlem school district, which allows students to choose among 24 junior high schools; the other is Milwaukee's voucher plan, which allows the use of tax dollars to pay private school tuition. The lack of

"research to prove whether the freedom to choose schools improves them leaves many questions unanswered" (p. A1).

Chira identified these questions as follows:

Will children of troubled or poor families lose in an educational free market and end up stuck in the worst schools? Or will choice help those children the most because competition will force the terrible schools they now attend to improve?

Will allowing public money to follow children to private schools force public schools to shape up? Or will it strip public schools of the best students and a great deal of money, leaving behind the hardest-to-educate students in a nearly bankrupt school system? (p. A1)

She stated that the East Harlem example was one of choice limited to junior high public schools, and that "it had been a success, but the success was not that of a market-based choice" but it was owing to the creation of alternative schools that "East Harlem began in the mid-1970's, . . . requir[ing] children to choose among them" (p. B9). In addition, at the same time, East Harlem "spent money to make its schools better" (p. B9).

In 1991 the Milwaukee system was "the only example in the country of the kind of competition between public and private schools" (p. B9). Although it was only a year old, Chira (1991) maintained that "it provides a vivid example of both the promise and the pitfalls of choice between public and private schools" (p. B9). The promise lay in the fact that for some students both grades and behavior improved during the year. Parents and students involved in the

program said that they were satisfied. "Of 341 students, 259 finished the school year" in the private school they had entered at the beginning of the year (p. B9). The pitfalls were apparent in the "15 students [who] were dropped either because of disciplinary problems at the schools or because they had learning disabilities that private schools were not equipped to handle" (p. B9). In addition, one private school "abruptly shut down in the middle of [a] year plagued by money troubles and personal feuds" (p. B9).

Chira (1992) pointed out that, in Great Britain where the national government pays for 80% of all education cost, school choice was already the law. She stated that "with far from sufficient data to produce definitive results . . . there is no proof that choice actually improves bad schools" (p. A1). With the allotment of state money to schools "based on how many students they attracted. . . . good schools fill[ed] up quickly and bad schools [were] wither[ing] slowly" (p A9). The problem, according to the director of education and other scholars, was that "choice [was] not explicitly linked to measures that would improve failing schools" (p. A9). As for the good schools, "there [was] also some evidence that competition ha[d] increased pressure on schools to screen potentially troublesome students, raising questions of equal opportunity " (p. A9).

Kraushaar (1972) was one of the early advocates of voucher-support for private schools, stating that public

funds were needed to ensure the survival of private schools.

He concluded the following:

Unless state and federal aid are forthcoming in significant amounts, the private school sector will be seriously weakened either by accelerated school closings or by progressive deterioration in the quality of education the surviving schools are capable of offering. . . . No truly statesmanlike solutions of the problem of equality of opportunity in schooling can be found short of having legislators take into account, state by state, not only the equitable financing of public schools, but also the financial health of the alternative private schools. (pp. 299, 312)

Almost 20 years later, Smith (1991) examined the financial health of private schools in view of changes in the national tax laws of 1981 and 1986. He noted that private support earmarked for current operations increased sufficiently to keep pace with operational expenditures of independent schools during the 1980s, and he concluded that "it would be difficult to claim that changes in the tax law alone have endangered the short-run viability of the nonpublic schools" (p. 30). At the same time, Smith observed that contributions for capital purposes of independent schools declined "by appreciable amounts in the years following the tax changes," and that changes in the tax law very probably did affect "the long-run trend of private financial support for capital purposes" (p. 30).

Kemerer (1991) discussed "the dimensions and implications of school choice" (p. 1) and identified both advantages and disadvantages of school choice. Among the former were the notions that "choice" is, in itself, an

expression of democratic principles and in operation, will force "poor schools to become better or close down" (p. 2). Disadvantages included the likelihood that, even if transportation and information are provided, there was little evidence that school choice will solve the basic problems "plaguing education . . . [e.g., poverty, family instability, substance abuse and racial discrimination]" (p. 2). Kemerer (1991) also maintained that the inclusion of private schools in a public-funded program will necessarily "threaten the independence of the private sector" (p. 3) with regulations that will follow the insistence of accountability and the application of constitutional requirements to private as well as public schools.

Several educators responded to Kemerer (1992) with a letter to the editor of Education Week. Bowes (1992) stated that without public money it would be "increasingly difficult for private and parochial education to exist" (p. 26). Buxton (1992) also wrote that choice would mean intrusion of public officials and patterns into the private school and held that "the single greatest threat to our national system of public education continues to be meddling by politicians and the courts" (p. 26). Shuford (1992) also focused on Kemerer's (1992) assertion of public intrusion, attributing much of the problem of public education to bureaucratic "certification requirements, curricular

specifications, textbook-approval criteria and procedural regulations" (p. 26).

Cookson (1992) stated that "the true believers [in school choice] are essentially not school reformers at all; they simply have faith in the virtues of the free market and apply those beliefs to educational governance" (p. 85). He also qualified any claim in favor of private schools, noting, "To this date, however, it is still unclear whether private schools are more academically effective than public schools, once the family backgrounds of students are taken into account" (p. 85).

Wells and Crain (1992) questioned whether the search for academic quality governed school choice and concluded the following:

Unfortunately, in American society, "school quality" is often a misnomer for "student quality," which is measured by heavily biased principles. In fact, the true delineation between desirable and undesirable schools is frequently drawn along racial and class lines. (p. 67)

Ravitch (1991) concluded that, given the public and legislative characterization of the private school as "un-American" during much of the first half of the 20th century, "the most interesting part of the entire [present] discussion of public versus private was that the millenarian, patriotic rhetoric once associated with public education had virtually disappeared from the debate" (p. 411).

Richardson (1993) compared two recent polls on school choice. The first, taken by the Gallup organization for the National Catholic Education Association in 1992, reported that 70% of those surveyed were in favor of a question posed thus: "In some nations, the government allots a certain amount of money for . . . parents [to send their] child to any public, parochial, or private school they choose. Would you like to see such an idea adopted in this country?" (p. 12). In response to a similar question asked in the 1993 Phi Delta Kappa/Gallup Poll of the Public's Attitudes Toward the Public Schools, 74% were opposed to "allowing students and parents to choose a private school to attend at public expense" (p. 12). Also, in the Business Week/Harris Poll for 26-31 August, 1992, 69% of the respondents agreed that "children should be able to attend any school they qualify for, including public, parochial or private schools, with government money going to poor or middle-income children attending private or parochial schools" (p. 85).

Celis (March, 1994) detailed a Massachusetts alternative to vouchers in the description of a planned program for charter schools, described as "the nation's widest experiment in letting for-profit private groups run alternative public schools" (p. A8). Celis quoted the president of the Horace Mann Foundation in Boston, who maintained that "charter schools are a compromise between vouchers and doing nothing. People are much more accepting

of the charter schools. They see this as the way to go" (p. A8). The effects on academic achievement of these charter schools are unknown. The first of 15 such schools, which will enroll about 2,000 Massachusetts students, about 1% of the state's school population, will not open until the fall of 1994. Several others will open in 1995.

Some writers, theorists, researchers, and parents continue to recommend school choice as the answer to their perceived problems of American education. Others, equally concerned with education, remain unconvinced that this is the solution to the problem of American education.

A Brief History of Private Schools

The Handbook of Private Schools (1988) contains information about 1,862 private schools. Of these, 1,345 (72%) are identified as day schools. The remaining 517 (28%) are listed as either boarding/day or boarding schools. Most boarding schools have, when possible, enrolled day students.

Eight hundred and sixty-two schools are categorized as "leading private schools" (cf. Baird, 1977; Baltzell, 1958; Cookson, 1985). Day schools (569) compose 66% of this category. Over half (53.5%) of the schools in this category are located in either the New England or the Middle Atlantic states. Most of these schools (556, 64.4%) were founded after the Civil War and before 1954, the date of Brown v.

Board of Education. Since 1954, 185 (21.5%) of these leading private schools have been founded. One hundred and twenty-two schools (14.2%) were founded before the Civil War.

McLachlan (1970) noted that these early private schools were not boarding schools in the literal sense of the word. He stated that "students enrolled at these Academies did not live in dormitories or on the schools grounds proper. Nor were they under the general supervision of the school's faculty, who saw their students only during class time" (p. 225). Phillips Exeter Academy lists 1781 as its founding date. It was not, however, until 1885 that Phillips Exeter built its first dormitory, which accommodated only 42 boys. "Of the 255 boys in the session of 1884-85, for example, only 82 lived in the school's dormitories" (p. 225). The earliest true boarding school was the Round Hill School, founded by George Cogswell and George Bancroft in 1823. Cogswell wrote the following in 1819:

A great defect in the system is the practice of leaving boys too much to themselves. They live separate from their masters, who know nothing of the use which they make of their time, except when collected in the schools rooms: and being but about seven hours of the day, the residue of it is, of course, spent in idleness (cited in McLachlan, 1970, pp. 47-48).

Nordstrom et al. (1967) offered the following opinion of Ipswich (a fictional name) boarding school:

Ipswich is both parent and teacher to the young people who attend there--in loco parentis, as it is commonly said. . . . These are the kinds of things parents are

usually concerned with. . . . How well does it do it? It is, it must be reported, nervous, anxious and not to effective in its parental role. (p. 76)

Almost 170 years after the closure of the Round Hill School, Anson (1987) reported his conversation with the principal of Phillips Exeter Academy who had just learned that some students had been engaged in drug-dealing.

When I finished, Kurtz's eyes were glistening. He had the appearance of a man whose child has just been struck. "You know these things can happen," he said finally. "In your head, you know they can happen everywhere. But still, you tell yourself, It can't happen here. We're better than that. We're Exeter. We're different. And now it has happened here." He shook his head again. "Oh, God," he repeated. "Oh, God." (pp. 208-209)

Crosier (1991) analyzed students' reactions to their boarding school experiences and recommended that boarding schools should change their priorities "so that parental duties take precedence over academic responsibilities." He stated:

Prep school students are at greater risk than necessary. They differ from students who go to public high schools or private day schools because they don't see their parents each night and they don't leave their peers. (p. 147)

In 1798 the Massachusetts legislature provided grants to Phillips Exeter Academy, Governor Dummer Academy, the Groton School, and five other academies. By 1820, 10 other academies in Massachusetts and 25 in Maine had received government aid. During this period aid was regularly extended to Catholic, Methodist, Quaker, or Episcopal charity schools. As the 19th century continued, the legal

line between private and public education became increasingly sharpened. "One sign of this distinction was an increasing tendency in state constitutions (after the Civil War) to forbid public funds to sectarian schools" (Carper, 1991, p. 16).

By 1900 almost 90% of elementary and secondary students were enrolled in public schools. Carper (1991) stated that "of the remaining 10 percent, approximately 65 percent (or about 854,000 students in 1900) were in Roman Catholic Schools, whose growth was being spurred by the forces of ethnicity, alienation from American culture and education, a cheap labor force" (p. 21).

By the early 1900s, several state legislatures had viewed the religious private schools and their immigrant constituencies as un-American and had passed laws requiring compulsory attendance at a local public school and a state-mandated curriculum for private schools. In the landmark Pierce v. Society of Sisters (1925) decision the Supreme Court struck down the 1922 Oregon Compulsory Education Act that required children between the ages of 8 and 16 to attend public schools. In Farrington v Tokushige (1926), the Court declared as unconstitutional an Hawaii statute that sought to promote "Americanism" in foreign language schools by prescribing a school's course of study and entrance and attendance qualifications, which effectively

limited the number of pupils who could attend such schools (Carper, 1991).

Market Data Retrieval (1988) provided data, for the Council for American Private Education, on over 15,000 private schools, indexed by associational membership. Of the secondary schools listed, 2,606 were affiliated as follows:

American Montessori Society	10
Assoc. of Military Colleges and Schools of the U.S.	35
Christian Schools International	82
Evangelical Lutheran Church in America	7
Friends Council on Education	28
Lutheran Church-Missouri Synod	58
Nat'l Assoc. of Episcopal Schools	83
Nat'l Assoc. of Independent Schools	655
Nat'l Assoc. of Private Schools for Exceptional Children	10
Nat'l Catholic Educational Assoc.	1,445
Nat'l Society for Hebrew Day Schools	159
Seventh-Day Adventist Board of Educ.	895
Solomon Schechter Day School Assoc.	7

(p. xiv)

By 1991 many Catholic dioceses had closed local parochial high schools. In the fall of 1960, 2,392 Catholic secondary schools enrolled over 880,000 students. By 1990-91 the number of Catholic high schools had fallen to 1,296, and the number of students enrolled had fallen below 600,000 (U. S. Department of Education, 1992, p. 71). Nonetheless, high schools affiliated with the National Catholic Educational Association compose 55% of the schools in the above list.

That such a large percentage of private schools is affiliated with a religious organization is a reminder of the fact that the earliest school mandate is the 1647 Old Deluder law of the colonial Massachusetts legislature, designed to keep children from the ways of Satan.

Two hundred years later, Per Adam Siljeström (1853) stated:

In the greater number of popular schools, at least in New England, the custom of reading the Bible is maintained; in many places, however, it has been discontinued, and justly so, in accordance with the established principles, as there is one Christian sect, the Roman Catholics who object to it (cited in Finklestein, 1989, p. 285).

Bible reading and prayer, however, remained the custom in public schools of several states through the 1950s. In Engel v. Vitale (1962), however, the Supreme Court found a nondenominational New York Regents prayer to be unconstitutional. This decision was followed by School District of Abington Township v. Schempp and Murray v. Curlett (1963). In these cases the Court held as unconstitutional the holding of Bible-reading and prayer in the public schools. These decisions have by no means settled the dispute over the teaching of religious values and prayer in the public schools. One response to these decisions, however, was the establishment of many private Christian schools (Heyns, 1981; Lines, 1986).

For many years after the Civil War, very few students were enrolled in institutions of secondary education. Whereas more than half the population aged 5-17 years (12,055,000) was enrolled in school in 1869, only 1.2% (80,000) of that enrollment was in grades 9-12. As late as 1900 only 3.3% of the school-age population attended high school (National Center for Education Statistics, 1992, p. 49).

Sadker and Sadker (1994) discussed the history of co-education, noting that, in the 1700s and throughout most of the 1800s, primary and secondary school students were separated by gender and that, long after the primary schools had become coeducational, high schools remained single-sex. Whereas the first American high school for boys was established in 1632, the first high school for girls was not established until the 1820s. Although the 20th century has seen the battle for racial integration of the schools, much of the debate on the composition of schools during the 19th century focused on the integration of boys and girls. While most public high school schools have been coeducational since the end of the First World War, many private schools remained single-sex until well after the Second World War (Sadker & Sadker, 1994; cf. Riordan, 1991, 1994; Lawton, 1994).

In 1988, 75% of the leading private schools were coeducational, while 14% were for boys and 11% were schools

for girls (Handbook of private schools, 1988). Many of these coeducational schools became coeducational in the 1970s. Some were originally boys' schools that decided to admit girls. In some cases, a girls' school agreed to admit boys. In others, two originally single-sex schools merged to form a new coeducational institution. In still other cases, a boarding school for one sex agreed to admit members of the other sex as day students (Powell et al., 1985).

In 1987 the board of trustees of a private boarding school in Massachusetts, established in 1797 as a school for boys, "charged the headmaster to undertake a full and thorough study of coeducation" (Cary, 1991, p. 445) Cary, the headmaster, did not indicate a particular reason for the charge save for the faculty view, that "while the academy did many things well, important dimensions of education were missing in a single-sex environment" (p. 445). Following the headmaster's study and a host of other preparations for so major a change, the board of trustees voted in favor of the admission of girls in February 1988. "The academy commenced the 1989-1990 school year with 123 girls. . . . More than half of the 212 new students, including day students, were girls" (p. 449).

In 1991 a Pennsylvania private day school (K-12) for girls, established in 1887, enrolled five boys in the 10th grade. The decision to admit boys had been taken the previous year after the admissions director of the school

informed the headmaster that "only five of the 23 current eighth-grade girls plan to return for ninth grade. . . and there will be at most 12 new students joining the ninth grade in September 1990" (Chamberlain, 1992, p. 11).

Coeducation was not the first response of the school's board of trustees. Only after they had rejected both a proposal to eliminate the high school and one to seek a merger with another school, did the board agree to coeducation as a possible solution to falling enrollment.

Sadker and Sadker (1994) stated the following concerning the unfairness of American education to girls:

Today, single-sex schools are an endangered species; they are illegal in the public system and rapidly vanishing from the private sector. In the 1960s approximately 62 percent of the nonreligious independent schools were single-sex. That figure is now 19 percent; 11 percent are schools for girls, and 8 percent are for boys. Originally 100 percent of Catholic schools were single-sex, but now almost 60 percent are coeducational. (pp. 232-233)

The justification for single-sex girls' schools is often an appeal to academic success (Bauch, 1989). One girls' school claims that "Girls at single-sex schools are more serious about academics than their coed counterparts and significantly outperform them" ("Emma Willard School", 1992, p. A15).

The justification is generally less often an academic one for boys' schools. Hawley (1991), the head of a private

boys' day school, observed the following about his first encounter with single-sex education:

"In each class, at each baseball practice, at the luncheon table . . . I was aware of something altogether new to me. There was an unaffected directness, an authenticity I had not experienced before in a school. . . . There was a special edge to boy's life, a positive edge. (pp. 443-44)

Lee and Bryk (1986), noted that there is a relative lack of research on the effects of single-sex schooling at the secondary level compared to that on the postsecondary level. They suggested that "research should be conducted on the question of single-sex schooling at the secondary level, particularly as it relates to the question of academic performance" (p. 381). Using a random sample of 1,807 students in 75 Catholic schools, 45 of which were single-sex institutions drawn from High School and Beyond, Lee and Bryk (1986) concluded the following:

There were no achievement areas in which coeducational-school students surpassed their single-sex counterparts at either the sophomore or senior year. The pattern of effects, however, was different for male and female students.

The boys' schools did not display any statistically significant sophomore-to-senior gains. For girls' schools, however, the estimated effects increased in size from sophomore to senior year, and the gains in reading and science achievement were statistically significant (p. 392).

Ellis and Niemtow (1994) stated that "facts show that [single-sex schools and program for boys] tend to support

the male bonding and 'male only' team mentality that have limited women's full participation in American life" (p. 6).

The importance of non-academic matters in secondary education showed itself in the classic novel of the British public school, Tom Brown's Schooldays, by Thomas Hughes (1857). He described Squire Brown's meditations as he sent his son off to Rugby:

To condense the squire's meditation, it was somewhat as follows: "I won't tell him to read his Bible and love and serve God. . . . Shall I tell him to mind his work, and say he's sent to school to make himself a good scholar? Well, but he isn't sent to school for that at any rate, not for that mainly, I don't care a straw for Greek particles, or the digamma; no more does his mother. What is he sent to school for? Well, partly because he wanted so to go. If he'll only turn out a brave, helpful, truth-telling Englishman, and a gentleman, and a Christian, that's all I want," thought the squire. (p. 63).

Gathorne-Hardy (1977) noted that it was dating from the headmastership of Tom Brown's hero, Dr. Thomas Arnold in the 1820s and 1830s, that "school as a place to train character--a totally new concept so far--was what came to distinguish the English public school from all other Western schools" (p. 74).

Mangan (1981) traced the development of attitudes toward boys' athletics in the British public school from the last half of the 19th century:

Before 1845 . . . in all the schools, sponsored, systematized and compulsory [team] games were as yet unknown. . . . By the end of the nineteenth century athleticism was to marshal a coherent set of educational arguments for its existence and become the hallmark of an acceptable public school" (pp. 21-22).

The importance of athletics in American public schools was noted by Coleman (1961), who found that, in the 1950s, high school boys, in almost every case, wanted overwhelmingly to be remembered by peers as "top athletic stars" (p. 135; cf. Kelly, 1979).

Bissinger (1990) demonstrated the unparalleled importance of athletics, particularly football, in a late-20th-century Texas town.

Sadker and Sadker (1994) attributed the rise in importance of organized team sports in America to the early 1900s when women constituted "more than 85 percent of the nation's teachers, more than half of the school principals, and in the Midwest, 60 percent of school superintendents, numbers that far exceed today's statistics" (p. 214). In 1987-88 only 25% of public school principals were women. At the same time, women accounted for 52% of the principals of private schools (National Center for Education Statistics, 1992, p. 93).

Summary

The literature of the public-versus-private school debate is a subtopic in the literature of school reform and academic achievement. Studies have been sparked by some major events over the last 40 years; such as, court decisions, beginning with Brown v. Board of Education in 1954, which mandated the end of separate but equal schools for whites and blacks, and the National Commission of

Excellence in Education's 1983 publication of A Nation At Risk. Throughout much of the 1960s and 1970s, educators responded to the Equality of Educational Opportunity study by Coleman et al. (1966). Beginning in 1981, educators responded both to the High School and Beyond data and studies based upon them, particularly Coleman et al. (1982), Coleman & Hoffer (1978), and Chubb and Moe (1990).

CHAPTER III

RESEARCH DESIGN

This study investigates whether various independent characteristics of the high school attended by a student has an effect on their first-year performance (GPA) in college. The nature of this investigation required the use of a nonexperimental research design. Kerlinger (1986) pointed out the following:

nonexperimental research is systematic, empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables (p. 348).

There was, however, controlled inquiry into the problem of the study through the formulation of predetermined hypotheses derived from analyses of previous research and literature. Population of the Study

The population of the study consisted of all freshman students attending 200 of the 415 colleges described in Barron's Guide to the Best, Most Popular & Most Exciting Colleges (1988), selected on the following criteria:

1. Colleges were selected for inclusion in the population from those having a student body of at least 95% full-time students to ensure a freshman GPA based on approximately 30 credit hours.

2. Colleges were selected where at least 12% of the freshman class had graduated from private schools to ensure a large population of private high school graduates.

The Sample

The sample of the study consisted of 14,242 freshman students who had completed their freshman year at one of the 17 colleges and universities whose directors of admissions or registrars agreed to participate in this study. The colleges that agreed to participate in this study are located in 13 states: Ten are located in the East; 4 in the Midwest; 2 in the Southwest; and 1 in the Northwest. Two of the colleges are public (state universities) and 15 are private colleges or universities.

The directors of admissions and/or registrars of the participating schools provided data for their students at the end of the spring semester of 1991. They provided the following information, either in printed form or on a computer disk, for coding and analysis on each of their students:

1. CEEB (College Entrance Examination Board) code

number and name of the high school.

2. SAT scores (verbal and math)

3. Freshman GPA

4. The student's high school class rank

5. Graduating class size. Data from the colleges for some students in the study sample did not contain information about graduating class size. In such cases, information from state education agencies and independent school manuals made up for this lack except for 86 students (primarily public school graduates) for whom graduating class size was unavailable.

Instrumentation

Students' SAT Score

The analysis of academic ability used the student's SAT Score (verbal and math combined) as a covariate to indicate academic aptitude.

Student's GPA in College

The student's GPA at the end of his or her first year in the college has been used as the measure of the student's academic achievement.

Boyer (1987) maintained, "All educational levels are related, and there is, we believe, an urgent need to bring colleges and universities more directly into the national debate about the purposes and goals of American education"

(p. xi). There remains little doubt about the importance of the college experience on one's later beliefs and attitudes (Astin, 1978, 1985).

Allmendinger (1975) presented a history of the GPA and of grades in general and explained that college grades were introduced in the early 19th century, not so much to encourage academic standards, but to communicate with parents or sponsors to indicate the use to which their financial investment had been put. Becker, Geer, and Hughes (1968), however, noted the importance to which students' GPAs had grown and identified the GPA as a significant component in a college student's self-identity.

Milton, Pollio, and Eison (1986) while recommending the elimination of the GPA, which they termed the "meaningless mean," quoted a business recruiter who remarked "'When I first look at the data sheet, I look at the overall grade point'" (p. 218) They also quoted a college junior who complained "'My first semester will hinder me until my days' end'" (p. 220).

Kanoy, Wester and Latta (1989) reinforced Milton et al.'s college junior's complaint maintaining that, for their study, "the freshman year GPA was used [in predicting college success] because the first year is critical to establishing the academic tone for the entire college experience" (p. 66).

Hand and Prather (1990) hypothesized that the college GPAs of a high school's graduates possibly could be used to identify "unusually effective high schools" (p. 5).

Data Analysis

For Hypotheses 1 through 5, an analysis of covariance was performed on the freshman sample for each of the independent variables (type of high school from which the student graduated, type of college the students are attending, size of high school graduating class, affiliation of high school, gender enrollment pattern of high school, and residential pattern of high school), using the student's GPA as the dependent variable and the SAT verbal and math scores as the covariates to determine whether there were significant differences in his or her academic achievement. Follow-up studies for simple effects were conducted, either on significant main effects differences and/or significant interactive effects.

The use of the analysis of covariance was designed to control statistically any innate ability (high school GPA) of the participating students which might have been present when they entered college and might confound or exaggerate differences between various groups of students in the sample.

The investigation to test Hypothesis 6 to determine whether graduates of different types of high schools

attending one of the 17 of the participating colleges achieved academically better than they were expected to perform was analyzed using a modification of the technique introduced by Klitgaard and Hall (1975) and further developed by Klitgaard (1978). Reporting on Klitgaard and Hall, Hand and Prather (1990) noted the following:

The authors used multiple regression techniques to predict standard achievement performance while controlling for various background influences. Residuals from the regression lines were assumed to be a function of school characteristics and were conceptualized as a measure of school effectiveness. . . . The authors conclude[d] that the methodology developed in their report should be useful in future attempts to investigate school effectiveness. (p. 5)

In 1989, Hand and Prather used a similar methodology to investigate the possibility of using college GPAs as an indicator of unusually effective schools. Hand and Prather (1990), in a paper delivered at the Annual Meeting of the American Educational Research Association, reported the method undertaken in a further analysis of the 1989 data, using 144,848 first-time freshmen in a large state university system:

The independent variables were SAT verbal and mathematics scores, the proportions of free and reduced lunches at each high school, and college experience as measured by credit hours attempted and earned.

Steps in the analysis [were] as follows:

1. Multiple regression equations for each system institution were developed by gender and minority status. The level of analysis is the individual students.

2. The dependent variable in the regression equations is the college GPA. The independent variables are SAT verbal and mathematics scores, and credit hours accumulated as a control for college experience. A control measure of socioeconomic status of the high school--the proportion of students who receive free and reduced-price lunches--is also included in multiple regression equations.

3. Using the appropriate regression equation for the institution attended, the residual (the difference between actual and predicted GPA) is calculated for each student.

4. The average residual for graduates of each school system is determined. School systems are ranked based on their mean residuals, and high residual and low-residual systems are examined more closely for similarities and differences within the groups. (p. 8)

The mean residuals in the Hand and Prather (1990) study showed a clear tendency that rural schools are more likely to graduate students who achieve higher GPAs in college than their SAT scores or the socioeconomic status of their high school would indicate. Conversely, school systems in urban areas tended to produce students whose performance in college generally fell below predicted levels.

In the present study, a linear regression equation was developed for students attending public and private colleges, using the GPA as the dependent variable and their SAT verbal and mathematics scores as independent variables. The residual (the difference between the actual and predicted GPA) was calculated for each student. The average residual for graduates of each high school type was calculated based on their mean residuals to determine whether graduates from different types of high school

backgrounds earned GPAs higher or lower than predicted by the student's SAT scores. Finally, a one-directional t -test was conducted to determine whether the difference between the earned and predicted GPA was significantly greater than zero for both graduates of public or private high schools.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

There were two major purposes for conducting this study. The first purpose was to determine whether the type of high school from which students had graduated had an effect on their first college academic performance. Data relevant to this purpose were computed and analyzed across all independent variables using a series of analysis of covariance statistical techniques. Additional follow-up analyses for simple effects were conducted when there were significant main effects differences. An alpha of $p < .05$ was set as the criterion for a significant result. The second purpose was to determine whether students' actual academic performance (GPA) exceeded their predicted academic performance (GPA).

From a population of approximately 400 of the "best and most popular colleges" located in the Barron's list, 17 colleges participated in this study (15 private colleges and 2 state universities). The admissions office or registrar of the participating colleges provided data on 14,242 students who had completed their freshman at the end

of the 1991 academic year. The data they provided on each student included the following: (a) the CEEB (College Entrance Examination Board) number of the high school from which each student graduated; (b) each student's SAT and/or ACT scores; (c) each student's GPA at the end of the freshman year; and (d) each student's rank in the high school graduating class, if available.

Using these data, each student was classified according to each of the following independent variables of the study: (a) type of high school (public or private) graduate; (b) the size of the high school class [these data were supplied either by the participating college or by the department of education in the state from which the student graduated]; (c) type of affiliation (secular or sectarian); (d) gender enrollment (male, female, or coeducational); (e) residential or nonresidential; and (e) college attended. The dependent variable of the study was the student's GPA at the completion of his or her freshman year in the respective college. The student's SAT Scores (verbal and math scores) were used as the covariate.

The following sections of this chapter present the data and the statistical analyses for each of the six hypotheses of the study.

GPA and Type of College

The first analysis dealt with a comparison of students' first-year GPAs by the type of college attended and by the type of high schools from which they graduated. Hypothesis 1 held that there will be no significant difference between the GPAs of public and private high school graduates at the end of their freshman year in private or public colleges.

For an analysis of the influence of the type of college (private or public) and the type of high school from which the students graduated had on their on GPA at the end of their freshman year in college, the present study used a 2 X 2 analysis-of-covariance design. The type of high school (public or private) and type of college (private or public) were independent variables, and the students' GPA at the conclusion of the freshman year was the dependent variable. The students' SAT scores were used as the covariant to control statistically any differences in the innate ability of the students which might have existed between the two groups.

Table 1 contains the students' adjusted mean GPA at the end of their freshman year in college. Table 2 contains the analysis of covariance table, which shows significant main effects differences as well as significant interaction between the two main effects. Due to the significant interaction between main effects, Hypothesis 1 was not

rejected; however, additional analyses for simple effects were conducted to determine the specific nature of the differences. The results of these analyses were as follows:

Table 1. The Adjusted Mean First-Year College GPA by High School [H/S] Attended and College Attended

H/S attended	College attended					
	Private		Public		Total	
	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Private	2967	2.703	1052	2.374	4019	2.538
Public	5443	2.820	4780	2.416	10223	2.618
Total	8410	2.761	5832	2.395	14242	2.578

Table 2. Analysis of Covariance: Type of High School Attended by Type of College Attended and Student's First-Year College GPA

Source of variation	<u>df</u>	<u>MS</u>	<u>F</u>
Regression	1	621.29	1321.33**
Constant	1	331.65	705.34**
Type of high school (A)	1	15.10	32.12**
Type of college (B)	1	308.30	655.68**
(A) X (B)	1	3.37	7.18*
Error	14237	.47	
Total	14242		

* $p < .01$. ** $p < .001$.

1. There was a significant difference [$F(1, 14237) = 177.99, p < .001$] between private high school graduates attending private colleges ($M = 2.703$) and private high school graduates attending public colleges ($M = 2.374$). Private high school graduates attending private colleges achieved significantly higher GPAs than private high school graduates attending public colleges.

2. There was a significant difference [$F(1, 14237) = 834.91, p < .001$] between public high school graduates attending private colleges ($M = 2.821$) and public high school graduates attending public colleges ($M = 2.416$). Public high school graduates attending private colleges achieved significantly higher GPAs than public high school graduates attending public colleges.

3. There was a significant difference [$F(1, 14327) = 55.90, p < .001$] between private high school graduates attending private colleges ($M = 2.703$) and public high school graduates attending private colleges ($M = 2.821$). Public high school graduates attending private colleges achieved significantly higher GPAs than private high school graduates attending private colleges.

4. There was a nonsignificant difference [$F(1, 14237) = 3.26, p > .05$] between private high school graduates attending public colleges ($M = 2.374$) and public high school graduates attending public colleges ($M = 2.416$).

GPA and Size of High School Graduating Class

The second analysis dealt with a comparison of students' GPAs with the size of the graduating class of their high school, the type of high school they attended, and the type of college they attended. Hypothesis 2 held that there would be no significant difference between private and public high school graduates and their GPAs at the end of their freshman year in a private or public college.

Table 3 presents the adjusted mean GPAs of the sample student population by the type of high school from which they graduated, size of graduating class, and type of college attended. Table 4 presents the results of the 4 X 2 X 2 analysis of covariance that analyzed the effects of graduating class sizes (less than 100; 101-249; 250-499; and more than 500) by type of high school from which students had graduated and type of college they attended.

The analysis of covariance revealed significant main effects differences, two significant second-order interactions, and a significant third-order interaction.

Table 3. The Adjusted Mean First-Year College GPA by Type of High School, Graduating Class Size, and Type of College Attended

Graduating class size								
Private colleges								
	Below 100		100 - 249		250-499		500+	
H/S attended	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Private	1358	2.632	1244	2.737	320	2.781	43	2.850
Public	420	2.781	1885	2.821	2400	2.813	661	2.803
Total	1778	2.706	3129	2.779	2720	2.797	704	2.826

Public colleges								
H/S attended	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Private	259	2.392	506	2.315	276	2.410	11	2.938
Public	299	2.293	2019	2.401	2198	2.430	257	2.402
Total	588	2.342	2525	2.358	2474	2.420	268	2.679

Table 4. Analysis of Covariance: Type of High School Attended, Graduating Class Size, Type of College Attended and Student's First-Year GPA

Source of variation	<u>df</u>	<u>MS</u>	<u>F</u>
Type of high school (A)	1	5.29	11.26**
Graduating class size (B)	3	1.95	4.15**
Type of college (C)	1	83.38	177.61**
(A) X (B)	3	1.91	4.08**
(A) X (C)	1	3.95	8.41**
(B) X (C)	3	1.04	2.22
(A) X (B) X (C)	3	1.36	2.90*
Error	14139		
Total	14156		

* $p < .01$. ** $p < .001$.

Because of these significant and conflicting results, especially the significant two-way and three-way interactions, Hypothesis 2 was not rejected; however, additional analyses were conducted to determine the nature of simple effects. The results of the analysis of the three-way interaction for simple effects were as follows:

1. There was a significant difference [$F(1, 14139) = 5.21, p < .01$] between the GPAs of graduates of private high schools with graduating classes below 100 students attending

private colleges ($\underline{M} = 2.632$) and the GPAs of graduates of public high schools with graduating classes below 100 students attending private colleges ($\underline{M} = 2.781$). Graduates of public high schools with graduating classes below 100 students attending private colleges achieved significantly higher GPAs than graduates of private high school with graduating classes below 100 students attending private colleges.

2. There was a significant difference [$F(1, 14139) = 11.22$ $p < .01$] between the GPAs of graduates of private high schools with graduating classes between 100 and 249 students attending private colleges ($\underline{M} = 2.737$) and the GPAs of graduates of public high schools with graduating classes between 100 and 249 students attending private colleges ($\underline{M} = 2.820$). Graduates of public high schools with graduating classes between 100 and 249 students attending private colleges achieved significantly higher GPAs than graduates of private high school with graduating classes between 100 and 249 students attending private colleges.

3. There was a nonsignificant difference [$F(1, 14139) = .60$, $p > .05$] between the GPAs of graduates of private high schools with graduating classes between 250 and 499 students attending private colleges ($\underline{M} = 2.781$) and the GPAs of graduates of public high schools with graduating

classes between 250 and 499 students attending private colleges ($\bar{M} = 2.813$).

4. There was a nonsignificant difference [$F(1, 14139) = .19, p > .05$] between the GPAs of graduates of private high schools with graduating classes with more than 500 students attending private colleges ($\bar{M} = 2.850$) and the GPAs of graduates of public high schools with graduating classes with more than 500 students attending private colleges ($\bar{M} = 2.813$).

5. There was a nonsignificant difference [$F(1, 14139) = 2.93, p > .05$] between the GPAs of graduates of private high schools with graduating classes below 100 students attending public colleges ($\bar{M} = 2.392$) and the GPAs of graduates of public high schools with graduating classes below 100 students attending public colleges ($\bar{M} = 2.293$).

6. There was a significant difference [$F(1, 14139) = 6.42, p < .01$] between the GPAs of graduates of private high schools with graduating classes between 100 and 249 students attending public colleges ($\bar{M} = 2.315$) and the GPAs of graduates of public high schools with graduating classes between 100 and 249 students attending public colleges ($\bar{M} = 2.401$). Graduates of public high schools with graduating class sizes between 100 and 249 achieved a significantly higher GPA than graduates of private high school with

graduating class sizes between 100 and 249 students attending public colleges.

7. There was a nonsignificant difference [$F(1, 14139) = .21, p > .05$] between the GPAs of graduates of private high schools with graduating classes between 250 and 499 students attending public colleges ($M = 2.410$) and the GPAs of graduates of public high schools with graduating classes between 250 and 499 students attending public colleges ($M = 2.430$).

8. There was a significant difference [$F(1, 14139) = 6.45, p < .01$] between the GPAs of graduates of private high schools with graduating classes with more than 500 students attending public colleges ($M = 2.938$) and the GPAs of graduates of public high schools with graduating classes with more than 500 students attending public colleges ($M = 2.402$). Graduates of private high schools with graduating classes with more than 500 students attending public colleges achieved significantly higher GPAs than graduates of public high schools with graduating classes with more than 500 students attending public colleges.

Given the small sample size ($n = 11$) and the relative infrequency of large high private schools, the generalization value of this category is questionable. The private school graduates in this category represent only two schools.

Affiliation of High School Attended

The third analysis dealt with a comparison of students' GPA in terms of the religious affiliation of the high school from which they graduated. Hypothesis 3 held that there would be no significant difference between a student's grade point average (GPA) at the end of his or her freshman year who attended a private or public college and who graduated from either a private (sectarian or nonsectarian) or public high school.

For an analysis of the influence of the affiliation (sectarian or nonsectarian) of the high school on the student's GPA, the present study used a 4 X 2 analysis of covariance design to analyze the data. The independent variables of this analysis were (a) public (secular) high schools, (b) private (nonsectarian) high schools, (c) Catholic high schools, and (d) high schools affiliated with other religions.

Table 5 presents the adjusted mean GPAs of the sample student population by affiliation of high school from which they graduated and the present college they are attending. Table 6 presents the results of the analysis of covariance, which tested for the effects of affiliation of high school and college category on the GPA at the end of their freshman year in college.

There were significant main effect differences between the type of college the students attended ($F = 101.11, p < .001$) and the affiliation of the high school from which the students graduated ($F = 12.58, p < .001$). In addition, there was significant interaction between the main effects [$F(3, 14233) = 6.29, p < .001$]; therefore, Hypothesis 3 could not be rejected. However, additional analyses of these data for simple effects were conducted. The results of the analysis for simple effects of the two-way interaction were as follows:

Table 5. The Adjusted Mean First-Year College GPA by Affiliation of High School Attended and Type of College Attended

H/S attended	College attended					
	Private		Public		Total	
	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Public	5443	2.820	4780	2.416	10223	2.618
Private (nonsectarian)	1236	2.664	122	2.177	1358	2.420
Catholic	1423	2.847	870	2.337	2293	2.592
Other religions	308	2.571	60	2.488	368	2.529
Total	8410	2.840	5832	2.360	14242	2.600

Table 6. Analysis of Covariance: Affiliation of High School Attended by College Attended and Student's First-Year College GPA

Source of variation	df	MS	F
Regression	1	635.23	1358.97**
Constant	1	270.53	578.74**
Affiliation(A)	3	5.88	12.58**
College (B)	1	47.46	101.11**
(A) X (B)	3	2.94	6.29**
Error	14233	.47	
Total	14242		

* $p < .01$. ** $p < .001$.

1. There was a significant difference [$F(1, 14233) = 832.51, p < .001$] between public high school graduates attending private colleges ($M = 2.820$) and public high school graduates attending public colleges ($M = 2.416$). Public high school graduates attending private colleges achieved significantly higher GPAs than public high school graduates attending public colleges.

2. There was a nonsignificant difference [$F(1, 14233) = 2.82, p > .05$] between private nonsectarian high school graduates attending private colleges ($M = 2.664$) and private

nonsectarian high school graduates attending public colleges ($\underline{M} = 2.177$).

3. There was a significant difference between Catholic high school graduates attending private colleges ($\underline{M} = 2.847$) and Catholic high school graduates attending public colleges ($\underline{M} = 2.337$): $F(1, 14233) = 210.22, p < .001$. Catholic high school graduates attending private colleges achieved significantly higher GPAs than Catholic high school graduates attending public colleges.

4. There was a nonsignificant difference [$F(1, 14233) = 3.43, p > .05$] between graduates of private schools of other religions attending private colleges ($\underline{M} = 2.571$) and graduates of private schools of other religions attending public colleges ($\underline{M} = 2.488$).

Analyses of covariance as well as multiple comparison tests for the high school graduates attending either private or public colleges also were conducted. The results of the analyses for students attending private colleges are presented in Tables 7 and 8 and are as follows:

1. Public high school graduates ($\underline{M} = 2.820$) achieved a significantly ($F = 115.34, p < .001$) higher GPA than private high school graduates ($\underline{M} = 2.664$).

Table 7. Analysis of Covariance: Affiliation of High School Attended and Student's First-Year GPA for Private Colleges

Source of variation	df	MS	F
Regression	1	315.97	902.87*
Constant	1	276.01	788.67*
Affiliation	3	20.27	57.91*
Error	8405	.35	
Total	8410		

* $p < .001$.

Table 8. Multiple Comparison (F) Tests for Graduates of High School of Different Affiliations Attending Private Colleges

	(A) Public school graduates	(B) Private school graduates	(C) Catholic school graduates	(D) Other religious graduates
Adjusted means	2.820	2.664	2.847	2.571
(A) 2.820	-	115.34**	00.87	71.31**
(B) 2.664	-	-	63.44**	6.04*
(C) 2.847	-	-	-	55.22**

* $p = < .05$. ** $p = < .001$.

2. Public high school graduates ($\underline{M} = 2.820$) achieved a significantly ($\underline{F} = 71.31, p < .001$) higher GPA than other religious high school graduates ($\underline{M} = 2.571$).

3. Private high school graduates ($\underline{M} = 2.664$) achieved a significantly ($\underline{F} = 63.44, p < .001$) lower GPA than Catholic high school graduates ($\underline{M} = 2.847$).

4. Private high school graduates ($\underline{M} = 2.664$) achieved a significantly ($\underline{F} = 6.04, p < .05$) higher GPA than other religious high school graduates ($\underline{M} = 2.571$).

5. Catholic high school graduates ($\underline{M} = 2.847$) achieved a significantly ($\underline{F} = 55.22, p < .001$) higher GPA than other religious high school graduates ($\underline{M} = 2.571$).

The results of the analysis of covariance and multiple comparison tests for public colleges are presented in Tables 9 and 10. Table 9 shows that there was a significant difference between the mean GPAs of students attending public colleges ($F = 3.03, p < .05$). Follow-up multiple comparison tests as shown in Table 10 reveal the following significant differences between high school students attending public colleges:

The results of the analyses for students attending public colleges are presented in Tables 9 and 10.

Table 9. Analysis of covariance: Affiliation of Type of High School Attended and Student's First-Year GPA at Public Colleges

Source of variation	df	MS	F
Regression	1	324.08	509.46**
Constant	1	48.23	75.82**
Affiliation	3	1.92	3.03*
Error	5827	.64	
Total	5832		

* $p < .05$. ** $p < .001$.

Table 10. Multiple Comparison (F) Tests for High School Graduates of Different Affiliation Attending Public Colleges

	(A) Public school graduates	(B) Private school school	(C) Catholic school graduates	(D) Other religions graduates
Adjusted means	2.416	2.177	2.337	2.488
(A) 2.416	-	6.76*	1.05	1.37
(B) 2.177	-	-	4.31*	6.12*
(C) 2.337	-	-	-	2.02

* $p = < .05$.

1. Public high school graduates ($\bar{M} = 2.416$) achieved a significantly ($F = 6.76, p < .05$) higher GPA than private high school graduates ($\bar{M} = 2.177$).

2. Private high school graduates ($\bar{M} = 2.177$) achieved a significantly ($F = 4.31, p < .05$) lower GPA than Catholic high school graduates ($\bar{M} = 2.337$).

3. Private high school graduates ($\bar{M} = 2.177$) achieved a significantly ($F = 6.12, p < .05$) lower GPA than other religious high school graduates ($\bar{M} = 2.488$).

Gender Enrollment Pattern of High School Attended

The fourth analysis dealt with a comparison of a first-year college student's GPA with the gender enrollment pattern of the high school from which the student graduated. Hypothesis 4 held that there will be no significant difference between the GPA of public high school graduates and private high school graduates who attended schools with different gender enrollment patterns at the end of their freshman years in private and public colleges.

The data were analyzed using a 4 X 2 analysis of covariance design. Because all but one of the public high schools in the sample are secular institutions, the first independent variable, gender enrollment pattern, consisted of (a) coeducational public schools, (b) coeducational

private schools, (c) private boys' schools, and (4) private girls' schools. Ten female students, all attending state universities, graduated from a public school listed as a girls' school. In the present study, these females were included in the category of private girls' school.

Table 11 presents the adjusted mean first-year GPAs of the sample student population by the gender enrollment pattern of the high school attended and the type of college the students attended. Table 12 presents the analysis of covariance for gender enrollment pattern of high school attended.

The analysis of covariance in Table 12 revealed that there were significant main effects differences as well as significant two-way interaction between the main effects; therefore, Hypothesis 4 could not be rejected. However, additional analyses of these data for simple effects were conducted. The results of the analysis of covariance for simple effects revealed the following significant outcomes:

1. There was a significant difference [$F(1, 14233) = 832.75, p < .001$] between public coeducational high school graduates attending private colleges ($M = 2.664$) and public coeducational high school graduates attending public colleges ($M = 2.407$). Public coeducational high school graduates attending private colleges achieved significantly

higher GPAs than public coeducational high school graduates attending public colleges.

Table 11. The Adjusted Mean First-Year College GPA by Gender Enrollment Pattern of High School Attended by Type of College Attended

H/S attended	College attended					
	Private		Public		Total	
	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Public (coeducational)	5443	2.820	4770	2.407	10213	2.609
Private (coeducational)	1867	2.664	681	2.312	2548	2.500
Private (boys' school)	627	2.633	214	2.150	841	2.391
Private (girls' school)*	473	2.796	167	2.536	640	2.666
Total	8410	2.733	5832	2.372	14242	2.552

*Includes 10 students enrolled in one "public" girls' school.

2. There was a significant difference [$F(1, 14233) = 70.27, p < .001$] between private coeducational high school graduates attending private colleges ($M = 2.664$) and public coeducational high school graduates attending public

colleges ($\underline{M} = 2.312$). Private coeducational high school graduates attending private colleges achieved significantly higher GPAs than private coeducational high school graduates attending public colleges.

3. There was a significant difference [$F(1, 14233) = 30.76, p < .001$] between graduates of private boys' schools attending private colleges ($\underline{M} = 2.633$) and graduates of private boys' schools attending public colleges ($\underline{M} = 2.150$). Graduates of private boys' schools attending private colleges achieved significantly higher GPAs than graduates of private boys' schools attending public colleges.

4. There was a significant difference [$F(1, 14233) = 32.34, p < .001$] between graduates of private girls' schools attending private colleges ($\underline{M} = 2.796$) and graduates of private girls' schools attending public colleges ($\underline{M} = 2.536$). Graduates of private girls' schools attending private colleges achieved significantly higher GPAs than graduates of private girls' schools attending public colleges.

Table 12 presents the results of analysis of covariance, which tested for the effects of gender enrollment pattern of high school and college category.

Multiple comparison tests for the high school graduates attending both private and public colleges also were

conducted. The results of those analyses are presented in the following tables of this section.

Table 12. Analysis of Covariance: Gender Enrollment Pattern of High School Attended by Student's First-Year College GPA and Type of College Attended

Source of variation	df	MS	F
Regression	1	629.78	1344.10*
Constant	1	302.40	645.39*
Gender enrollment (A)	3	12.26	26.17*
Type of college (B)	1	123.11	262.75*
(A) X (B)	3	2.76	5.89*
Error	14233	.47	
Total	14242		

* $p < .001$.

Table 13 presents the results of the analysis of covariance for high school graduates attending private colleges. Table 14 presents the results of the multiple comparison tests of high school graduates attending private college which reveal the following significant outcomes:

1. Public high school graduates ($M = 2.847$) achieved significantly ($F = 63.18$, $p < .001$) higher GPAs than private high school graduates ($M = 2.664$).

2. Public high school graduates ($\bar{M} = 2.820$) achieved significantly ($F = 53.91, p < .001$) higher GPAs than graduates of boys-only high schools ($\bar{M} = 2.633$).

3. Private high school graduates ($\bar{M} = 2.664$) achieved significantly ($F = 4.37, p < .05$) higher GPAs than graduates of boys-only high schools ($\bar{M} = 2.633$).

4. Private high school graduates ($\bar{M} = 2.664$) achieved significantly ($F = 11.41, p < .05$) lower GPAs than graduates of girls-only high schools ($\bar{M} = 2.796$).

5. Graduates of boys-only high schools ($\bar{M} = 2.633$) achieved significantly ($F = 19.72, p < .01$) lower GPAs than graduates of girls-only high schools ($\bar{M} = 2.796$).

Table 13. Analysis of Covariance: Gender Enrollment Pattern of High School Attended for Private Colleges Attended and Student's First-Year College GPA

Source of variation	<u>df</u>	<u>MS</u>	<u>F</u>
Regression	1	307.25	870.49*
Constant	1	309.70	877.41*
Gender enrollment	3	11.86	33.59*
Error	8405	.35	
Total	8410		

* $p < .001$.

Table 14. Multiple Comparison (F) Tests for Graduates of High Schools of Different Gender Enrollment Patterns Attending Private Colleges

	(A) Public school graduates (coed)	(B) Private school graduates (coed)	(C) Boys' school grads	(D) Girls' school grads
Adjusted means	2.820	2.664	2.633	2.796
(A) 2.820	-	63.18**	53.91**	.69
(B) 2.664	-	-	4.37*	11.41**
(C) 2.633	-	-	-	19.72**

* $p = < .05$. ** $p = < .001$.

Table 15. Analysis of Covariance: Gender Enrollment Pattern of High School Attended for Public Colleges Attended and Student's First-Year College GPA

Source of variation	df	MS	F
Regression	1	329.38	519.40*
Constant	1	48.89	77.10*
Gender enrollment	3	5.74	9.06*
Error	5827	.63	
Total	5832		

* $p < .001$.

Table 16. Multiple Comparison (F) Tests for Graduates of High Schools of Different Gender Enrollment Patterns Attending Public Colleges

	(A) Public School graduates (coed)	(B) Private School graduates (coed)	(C) Boys' school grads	(D) Girls' school grads
Adjusted means	2.407	2.312	2.150	2.536
(A) 2.407	-	.11	22.11**	4.26*
(B) 2.312	-	-	16.13**	4.16*
(C) 2.150	-	-	-	22.62**

* $p = < .05$. ** $p = < .001$.

Table 15 presents the results of the analysis of covariance for high school graduates attending public colleges. Table 16 presents the results of the multiple comparison tests for the high school graduates attending public colleges which reveal the following significant outcomes:

1. Public high school graduates ($M = 2.407$) achieved significantly ($F = 22.11$, $p < .001$) higher GPAs than graduates of boys-only high schools ($M = 2.150$).

2. Public high school graduates ($M = 2.407$) achieved significantly ($F = 4.26$, $p < .05$) lower GPAs than graduates of girls-only high schools ($M = 2.536$).

3. Private high school graduates ($\bar{M} = 2.312$) achieved significantly ($F = 16.13, p < .001$) higher GPAs than graduates of boys-only high schools ($\bar{M} = 2.150$).

4. Private high school graduates ($\bar{M} = 2.312$) achieved significantly ($F = 4.16, p < .05$) lower GPAs than graduates of girls-only high schools ($\bar{M} = 2.536$).

5. Graduates of boys-only high schools ($\bar{M} = 2.150$) achieved significantly ($F = 22.62, p < .001$) lower GPAs than graduates of girls-only high schools ($\bar{M} = 2.536$).

Residential Pattern of High School Attended

The fifth analysis dealt with a comparison of students' first-year college GPA with the residential pattern of the type of high school from which they graduated and the type of college attended. Hypothesis 5 held that there will be no significant differences in the college GPA of graduates of public high schools and private school graduates of schools of different residential patterns.

The data were analyzed using a 3 X 2 analysis of covariance design. The independent variables of this analysis consisted of nonresidential high schools (public and private day schools) and residential high schools, which consisted primarily of private boarding schools. The residential school category includes private schools that

listed themselves as boarding/day, boarding only and military schools.

Table 17. The Adjusted Mean First-Year College GPA by Residential Pattern of High School Attended and Type of College Attended

	College attended					
	Private		Public		Total	
H/S attended	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>	<u>N</u>	<u>M</u>
Public (Day school)	5443	2.820	4780	2.416	10223	2.618
Private (Day school)	2192	2.794	986	2.357	2548	2.575
Private (Boarding schl.)	775	2.633	66	2.132	841	2.382
Total	8410	2.733	5832	2.372	14242	2.552

Table 17 presents the adjusted mean GPAs of the sample student population by the residential pattern of the high school from which the students graduated and the present type of college they are attending. Table 18 presents the results of the analysis of covariance on these data. The analysis revealed that there were significant ($F = 19.23$, $p < .001$) main effect differences between the students

graduating from high schools of different residential patterns; therefore, Hypothesis 5 was rejected.

Table 18. Analysis of Covariance: Residential Pattern of High School attended by Type of College Attended and Student's First-Year College GPA

Source of variation	df	MS	F
Regression	1	622.33	1328.49*
Constant	1	268.70	573.59*
Residential pattern (A)	2	9.01	19.23*
Type of college (B)	1	71.14	151.87*
(A) X (B)	2	.41	.88
Error	14235	.47	
Total	14242		

* $p < .01$.

Table 19 presents the data on the analysis of covariance for high school graduates attending private colleges. Table 20 presents the multiple comparison tests on students attending private colleges that revealed the following significant outcomes:

1. Public (nonresidential) school graduates achieved a significantly ($F = 23.64$, $p < .001$) higher GPA ($M = 2.867$)

than private (nonresidential) high school graduates ($\bar{M} = 2.794$).

2. Public (nonresidential) high school graduates achieved a significantly ($F = 133.53, p < .001$) higher GPAs ($\bar{M} = 2.867$) than private (residential) high school graduates ($\bar{M} = 2.633$).

3. Private (nonresidential) high school graduates achieved a significantly ($F = 59.12, p < .05$) higher GPA ($\bar{M} = 2.794$) than private (residential) high school graduates ($\bar{M} = 2.633$).

Table 19. Analysis of Covariance: Residential Pattern of High School by Private College Attended and Student's First-Year College GPA

Source of variation	df	MS	F
Regression	1	306.19	872.33*
Constant	1	296.90	845.87*
Residential pattern	2	24.67	70.28*
Error	8406	.35	
Total	8410		

* $p < .001$.

Table 20. Multiple Comparison (F) Test for Graduates of High Schools of Different Residential Patterns Who Attended Private Colleges

	(A) Public school (nonresidential)	(B) Private school (nonresidential)	(C) Private school (residential)
Adjusted means	2.867	2.794	2.633
(A) 2.867	-	23.64*	133.53*
(B) 2.794	-	-	59.12**

** $p < .05$. * $p = < .001$.

Table 21. Analysis of Covariance: Residential Pattern of High School by Public College Attended and Student's First-Year College GPA

Source of variation	df	MS	F
Regression	1	325.30	511.19**
Constant	1	39.71	62.40**
Residential pattern	2	1.89	2.98*
Error	5828	.64	
Total	5832		

* $p = .051$. ** $p < .001$.

Table 22. Multiple Comparison (F) Test for Graduates of High Schools of Different Residential Patterns Who Attended Public Colleges

	(A) Public School graduates (nonresidential)	(B) Private School graduates (nonresidential)	(C) Private School graduates (residential)
Adjusted means	2.407	2.357	2.132
(A) 2.407	-	.99	5.17**
(B) 2.357	-	-	3.78*

* $p = < .052$. ** $p = .05$.

Table 21 presents the data on the analysis of covariance for high school graduates attending public colleges. Table 22 presents the multiple comparison tests on students attending public colleges which revealed the following significant outcomes:

1. Public (nonresidential) high school graduates achieved a significantly ($F = 5.17$, $p < .05$) higher GPA ($M = 2.407$) than private (residential) high school graduates ($M = 2.132$).

2. Private (nonresidential) high graduates achieved a significantly ($F = 3.78$, $p < .001$) higher GPA ($M = 2.357$)

than private (residential) high school graduates ($M = 2.132$).

Actual versus Predicted Academic Performance

The sixth analysis differed from previous analyses in that it was an analysis of variance of the standardized residual scores of a comparison of the student's actual first-year college GPA and that predicted by the student's SAT scores. Hypothesis 6 held that graduates from either public or private high schools will achieve academically better than they were expected to achieve, based on the their SAT scores, at the end of their freshman year in college as measured by their grade point averages.

The analytical method for Hypothesis 6 was similar to the method used by Hand and Prather (1990). Multiple regression equations for the sample who attended either a private or public college were developed to determine the residual between predicted and actual GPA for each student. The independent variables were the SAT verbal and mathematics scores for each student in the sample. The dependent variable was the college GPA. Hand and Prather also used high school socioeconomic status and figures for free- and reduced-price lunches as independent variables. They reported, however, that the coefficients for SAT scores were more consistent than those for the other independent

variables and that "the predictions would [have been] almost identical even if a correction for high school socioeconomic status were not included in the equations" (p. 6).

To determine whether the graduates of either a public or private high school achieved better than expected at both private and public colleges, the standardized residual for each type of graduate was tested using a correlated one-tailed t -test, $(\bar{m}_1 - \bar{m}_2) = \text{residual divided by the standard error of the mean difference} > 0.$ "

Table 23 contains the students' adjusted mean residual and standard error of the mean difference (SE) at the end of their freshman year in college. The results of the t -tests were as follows:

Table 23. The Mean Standardized Residual First-Year College GPA by Type of High School Attended and Type of College Attended

H/S attended	College attended					
	Private			Public		
	<u>N</u>	<u>M</u>	<u>(SE)</u>	<u>N</u>	<u>M</u>	<u>(SE)</u>
Public	5443	.0741	(.013)	4780	.0114	(.01)
Private	2967	-.1360	(.019)	1052	-.0518	(.03)

1. Public high school graduates attending private colleges achieved statistically higher [t (5442) = 5.692, p < .0005] first-year GPAs than predicted by the SAT .

2. Public high school students attending public colleges achieved higher GPAs than predicted, but the difference was statistically nonsignificant [t (4779) = 1.0, p > .05].

3. Private high school graduates attending private colleges did not achieve higher than predicted GPAs. The outcome was statistically significant [t (2966) = 7.157, p < .0005].

4. Private high school graduates attending public colleges did not achieve higher than predicted GPAs. The outcome was statistically significant [t (1051) = 1.66, p < .05].

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

The problem of this study was to determine if a difference existed between the academic achievement (the GPA) of private and public high school graduates, at the end of their first year of college studies for students attending a private or public college.

Part of the impetus for this study came from Coleman and Hoffer's (1987) assertion that, "the question of how public and private students fare once they leave [high] school is . . . the critical test of the claim that private schools are more effective than public schools" (p. xxvi). An additional part of the impetus for conducting this study, especially analyzing students' first-year college GPA as the dependent variable, was influenced by both Boyer's (1987) statement of the continuous nature of the educational process and the need to bring the college into the discussion of educational reform and the study by Hand and Prather (1990), who used college freshmen's GPA as the dependant variable in an investigation of effective schools.

The population of the study consisted of all freshman students attending 200 of the 415 colleges described in Barron's Guide to the Best, Most Popular & Most Exciting Colleges (1988). The sample of the study consisted of 14,242 freshman students who had completed their freshman year at one of the 17 colleges (15 private and 2 public) that participated in this study. Private high school graduates comprised 28.2% of the sample. On the national level, however, private schools account for about 10% of high school graduates. All data on the students in the sample were supplied by the admissions office of each particular college.

Hypotheses tested stated that there would be no significant difference between the grade point averages (GPAs) of public and private high school graduates at the end of their freshman year in attendance at public or private colleges, by the following variables: (a) type of college attended, (b) size of high school graduating class, (c) religious affiliation (secular or sectarian) of high school, (d) gender enrollment pattern (coeducational, single sex) of the high school, (e) residential pattern (day school, boarding school) of the student's high school. The final hypotheses held that students who graduated from either public or private high schools would achieve academically better than they were predicted to achieve in college.

The first five hypotheses of the study used an analysis of covariance on the sample for each of the independent variables using the student's first-year college GPA as the dependent variable and the SAT (Verbal and Math scores combined) as the covariate to determine if there were significant differences in academic achievement. Follow-up studies for simple effects were conducted on significant main effects differences and/or significant interactions.

The analysis of Hypothesis 6, to determine whether graduates of different types of high schools achieved academically better than they were expected to perform was tested using a simple t -test of residual error against zero.

The basic limitations of the present study were that the results can be generalized only to the sample defined as students attending 17 of the colleges that supplied data for this study. Furthermore, academic achievement has been defined as a student's GPA at the end of the first year in college and not by the quality of the college or high school attended or any other factors which may influence student performance. Finally, the hypotheses of the study cannot be generalized to the individual colleges the students attended nor to the high schools from which the students graduated.

Summary of Findings

The analysis by type of high school from which the students graduated and the type of college they attended showed that the first-year GPAs of public high school graduates attending private colleges were significantly higher than those of public high school graduates attending public colleges. The same was true for graduates of private high schools who were attending private colleges compared to those who were attending public colleges. Also, the overall mean first-year GPA for public high school graduates attending private colleges was significantly higher than that for private school graduates attending private colleges. The overall difference in mean first-year college GPA between graduates of private and public high schools, however, was not statistically significant for students attending public colleges.

The analysis by the size of the high school graduating class revealed several significant differences between private and public high school graduates. Only graduates of public high schools with graduating classes between 100 and 249 achieved a higher GPA than their private high school counterparts in private colleges. In one instance, for high schools with graduating classes above 500 students, private school graduates at public colleges achieved a higher GPA than their public school counterparts.

The analysis by religious affiliation revealed statistically significant differences in favor of public high school graduates attending private colleges, among public school graduates and graduates of either nonsectarian private schools or graduates of private schools with religious affiliation other than that with the Catholic Church. Catholic high school graduates achieved higher first-year college GPAs than graduates of all other categories of graduates of private high schools to a statistically significant degree. The difference between the grade point averages of graduates of public schools and graduates of Catholic schools was nonsignificant.

Graduates of public schools achieved a higher GPA than graduates of nonsectarian private schools. Graduates of both Catholic high schools and private schools with other religious affiliations also achieved higher GPAs than graduates of nonsectarian private schools.

The analysis by gender enrollment pattern revealed that, for private colleges, graduates of public high schools achieved a higher GPA than graduates of all types of private high schools, that is, coeducational, boys' schools, and girls' schools. The difference between public high school graduates and graduates of all-girls' high schools, however, was statistically insignificant. Graduates of private girls' high schools, however, achieved a statistically

significant higher GPA than graduates of either private coeducational or boys' high schools.

Graduates of private all-girls' high schools attending public colleges achieved a higher GPA than graduates of all other gender enrollment patterns attending public colleges. Between public coeducational high schools and private coeducational high schools the difference was statistically insignificant.

The analysis by residential pattern dealt with a comparison of graduates of public high schools with graduates of private day schools and with graduates of private boarding schools. Graduates of public high schools attending private colleges achieved a statistically significant higher GPA than graduates of both categories of private high schools attending private colleges. Both public high school graduates and graduates of private day schools attending public colleges achieved a statistically significant higher GPA than graduates of private boarding schools attending public colleges.

The final hypothesis analyzed the difference between the grade point average predicted by the student's SAT scores and the student's actual grade point average. For both private and public colleges, public high school graduates achieved higher residuals than those of private high school graduates. However, for private colleges the difference between predicted and actual GPAs for public high

school graduates was statistically significant. At both private and public colleges, however, private high school graduates achieved significantly lower GPAs than predicted by their SAT scores.

Conclusions

Six hypotheses were tested in this study with a focus on answering the following two research questions:

1. Is there a significant difference at the end of the freshman year between the college academic achievement (GPA) of graduates of public and private high schools who attend public and private colleges?

2. Are there characteristics about the high school (i.e., size of graduating class, affiliation of the school, gender enrollment pattern, and residential pattern) from which students graduated that have an effect on their academic achievement (GPA) in public and private colleges at the end of their freshman year?

Based on the collection and analyses of data in this study, several conclusions follow.

1. This study investigated hypotheses that there would be no difference in college academic achievement between graduates of public and private high schools during their first year in public or private college. The collection and analyses of data in this study have supported most of these

hypotheses. The analyses for Hypothesis 1 revealed that the type of high school from which a student graduated did not have a significant effect on their first-year college GPA at a private or public college. There was, however, a significant interaction between the type of high school and the college attended. Follow-up analysis showed that the difference in GPA between public and private high school graduates at public colleges was statistically insignificant. On the basis of these analyses, however, it is concluded that (a) both public and private high school graduates achieve higher GPAs at private colleges than at public colleges; and (b) that public high school graduates tend to perform academically better than private high school graduates at private colleges.

Some reasons for these results may be that, because private colleges usually charge higher fees than public colleges, students who attend private colleges are subjected to greater pressure to succeed from a variety of sources, such as the home and the community, than are students who attend public colleges. These results also may be accounted for by differences in grading policies between public and private colleges (cf. Margolick, 1994; "Making the grades," 1994; MCWilliams, 1994; Rebholz, 1994).

2. The variable of high school graduating class size did not have an effect on the comparative first-year college GPAs of both public and private high school graduates at

either public or private colleges. There were several statistically significant interactions between variables in this analysis: (a) type of high school by graduating class size, (b) type of high school by type of college attended, and (c) type of high school by type of graduating class size by type of college attended. The interaction between type of college attended and graduating class size was not statistically significant. Follow-up analyses showed that, for graduates of high schools with graduating classes between 100 and 249 students, graduates of public high schools achieved statistically higher first-year college GPAs than did their private high school counterparts at both public and private colleges. Graduates of public high schools with graduating classes below 100 achieved statistically higher first-year college GPAs than did private high school graduates only at private colleges. Private graduates in the above categories of graduating class size comprise 93% of the study sample of private high school graduates.

3. The variable of affiliation of high school (secular or sectarian) does not have an effect on college achievement. Graduates of a nonsectarian high school achieve academically at college, public or private, as well as the graduate of a high school with a religious affiliation. Among private colleges, the relative success of Catholic school graduates may be attributable to the

religious discipline and education, to the motivation implied by self-selection, or to the fact that the size of the average Catholic high school graduating class (191) is considerably larger than that of the average nonsectarian private high school (101).

4. The variable of gender enrollment pattern does not have a statistically significant effect on college achievement at all types of colleges. The success of all-girls' schools and the relative lack of success of all-boys' schools suggests caution in separating the sexes in high school to achieve academic success for both boys and girls.

5. The variable of residential pattern of the high school from which the student graduated had an effect on their college achievement. Nonresidential high school graduates performed academically better at both private and public colleges than students who graduated from a residential high school. When residential students go off to college, especially to a large public college, they may miss the cloistered or possibly sheltered environment they had in high school. At the same time, since the lower performance appears also in the small private liberal arts colleges, perhaps the best explanation for the comparatively low grade point average of boarding school graduates is that the very experience of having been away from home and the tutelage of one's parents for several years may have deprived the boarding school student of the necessary self-

discipline that is needed when the college freshman finds himself or herself for the first time truly on his or her own.

6. The earlier study on which this hypothesis was based interpreted the residual of the GPA and the direction of the residual as evidence of effective and possibly ineffective high schools. The findings of the present study cannot be extended to such an interpretation. They do, however, once again call into question the assumption held by many Americans that private "preparatory" high schools do a better job of preparing their graduates for success in college than do public high schools.

Implications

The results of this study generally support public education as effective preparation for college academic success. Given the limitations of the sample, several factors may, however, explain the apparent support of these data for the above conclusions.

First, the typical public school graduate came from a high school with a larger graduating class than did his private school counterpart. Conant (1959) recognized the handicap of the small school. He stated that "Wide academic programs are not likely to be offered when the academically talented in a school are so few in number" (p.

37). The "Elimination of the Small High School" was, for Conant, "A Top Priority." Lightfoot (1983) reported that the course catalogue for Brookline High School, a public high school with an enrollment of 2,100, lists over 500 courses. "To an outsider leafing through the catalog, the choices seem endless and the possibilities overwhelming" (p. 197). Although several studies have shown that the percentages involved in extracurricular participation are higher for small schools than large ones, studies that have looked at academic achievement have recognized the value of a large student body (Barker, 1964; Lindsay, 1984).

Second, all students in the sample of this study had succeeded: All had graduated from high school, and all had been accepted by a college. Everything in the education of a private and public school graduate had been designed for and devoted to this college acceptance.

Although college application and acceptance rates for public schools rarely reach the 90+% touted by private schools, all public schools do send a sizable percentage of their graduates onto college. Tracking students, that is, placing students in various levels of a subject depending on perceived ability, has been the subject of discussion for elementary and middle school students. For most academic subjects, however, high school administrators continue to place (i.e., track) students either by predetermined ability or by individual student (or parent) desire, into Basic (or

remedial), Standard, Honors, or AP (Advancement Placement) classes. The college application and acceptance rate for public high schools for students enrolled in Honors or in AP classes equals that of the best private schools.

Third, we should not ignore the role of individual determination in academic achievement regardless of educational institutional setting. Winerip (1994) described an exchange program that brought nine high school seniors from a Navajo reservation school in Arizona to "one of the nation's premier prep schools, Choate Rosemary Hall" for six weeks (p. B8). Although initially quite anxious, the Navajo students quickly found themselves able to keep up with a demanding academic program. One Navajo student described his reaction thus: "Even though they have more money, I could achieve the same. See, I might be a little more determined" (p. B8).

Recommendations for Further Study

Federal and state departments of education, as well as several organizations concerned with the evaluation of American education, have indicated that, for the future, the quality of American education will be judged by academic outcomes rather than by financial input. Clearly, studies of high school students in the years immediately following high school graduation may provide information of the educational effectiveness of those schools. College

freshmen may be affected by their pre-college education and home life, which may have an affect on their college education as well. The results of this study, however, indicate that no further research on the relative effectiveness of public versus private high school based on first- year college GPA seems warranted. Analyses of academic college achievement in terms of various demographic variables may be useful in understanding the factors affecting students' academic achievement in college.

Since the earliest days of formal schooling, educators in both the public and private sector have emphasized the role of the high school as the training ground for civic responsibility and future leadership. Examination of the literature of educational goals suggests that further investigation of the relationship of pre-college education to a student's participation in leadership roles in extracurricular college activities may be useful.

APPENDIX

THE SAT

The validity of the SAT and the fairness of the test as an unbiased indicator of college aptitude have often been topics of debate. Private school students are often given the opportunity to take the SAT and the PSAT (Preliminary Scholastic Aptitude Test) several times for practice. In addition, many private school students enroll in one of the commercial SAT review classes. It makes sense, then, to ask: Do these experiences provide an advantage for private school students?

The Educational Testing Service (ETS), the parent company of the SAT, goes to great lengths to deny the coachability of the SAT to students, college admissions officers, and to all interested. ETS claims that the SAT tests college aptitude and not a particular curriculum. In 1955, ETS admitted that "if the Board's tests can be regularly beaten through coaching, then the Board is itself discredited" (Owen, 1985, p. 91).

Other studies have confirmed that there are limited benefits of coaching for the SAT. Smyth (1989) surveyed seniors during the 1987-88 school year at eight private, nonboarding, college preparatory schools in the Washington, D.C. area. He found that short-term coaching, like that provided by the commercial companies, did not yield significantly greater verbal scores. Math score gains for coached students were statistically significantly higher, but in terms of scaled SAT scores the difference was only 15

to 35 points, or only two or three additional answers. Snedecor (1989) surveyed 535 students from 10 independent schools in the Philadelphia area and reached a similar conclusion, that "S.A.T. (sic) coaching schools seemed to make little difference in score gain" (p. 18).

While the coaching debate will continue as long as there are companies whose profitability depends upon the coaching of students for the SAT, there is general agreement among coaches and commentators that the Math SAT is more susceptible to coaching than is the Verbal SAT.

The Verbal SAT is, however, susceptible to the claim of cultural bias. The debate on cultural bias takes place in periodicals with larger readership than scholarly research journals, such as in the pages of the New York Times. David Reich, a junior at Georgetown Day School, in suburban Washington, D.C., charged on June 3, 1991, that, in response to criticism of cultural bias from the left, the Educational Testing Service had "painted reality in the views of wishful thinking," by asking too many questions that emphasized the accomplishments of minorities, women, and Third World countries (p. A11). In reply, John Rosenthal, a former teacher at one of the commercial coaching service, on June 15, 1991, suggested that Reich "should thank the [ETS] for making the test easier for him" (p. A15). In going to such lengths to "avoid offending anybody," Rosenthal insisted that high school seniors now had "yet another reason to

recognize that the S.A.T. (sic) tests not aptitude but merely the ability to take the S.A.T. The students who benefit most from such questions are those seniors rich enough to afford coaching and preparation classes that teach them how to take the test" (p. A15).*

Donald M. Stewart, the president of the College Board, wrote a letter to the New York Times, on June 4, 1991, in response to the claim that the SAT is "the closest American version of a national test" (p. A14). He responded to the charge of cultural bias:

It differs from other national tests in that it measures broad verbal and mathematical reasoning skills that students learn throughout their courses and outside of school as well. College applicants can display their reasoning skills, without regard to background, geography or particular courses. The S.A.T. (sic) is thus faithful to the idea of fairness, local control and pluralism that underpin our American education system. (p. A14)

D'Souza (1991) agreed with Stewart (1991) on the validity of the SAT. In a controversial book on American higher education, D'Souza argued thus:

Every admissions officer knows that a 1,200 SAT score by a student from Harlem or Anacostia, who comes from a broken family and has struggled against peer pressure and a terrible school system, means something entirely

*In 1994 ETS revised the SAT, in response to charges of bias against women and minorities, replacing total reliance on multiple choice question with questions calling for literary analysis and written answers to mathematical problems. Nonetheless, anxious students continued to seek out coaching services. In fact, " 'Enrollments are up dramatically,' said Melissa Mack, a spokesman for Kaplan Educational Centers, the nation's largest test preparation company" (Honan, 1994).

different from a 1,200 score from a student from Scarsdale or Georgetown, whose privileges include private tutors and SAT prep courses. (p. 251)

The SAT is also used as a basis for comparing the educational quality of schools and school districts within states, and for comparing the states in the nation. Recent research suggests that this use of the SAT may be inappropriate. The combination of several non-school variables, such as selection of students taking the SAT, the sensibility of the SAT to social and economic factors outside the schools, and differences in student populations and educational programs within schools complicates the use of the SAT for assessment of school quality (Fetler, 1991). Owen (1985) agreed that the predictive validity of the SAT was limited to its criterion, which he identified as the freshman grade point average. "Predicting this average," he maintained, "is the only use for which the SAT is 'valid'" (p. 282). Therefore, the SAT has been used as a covariate for individual students' GPAs in the sample.

According to the College Entrance Examination Board, average SAT Scores for college-bound students in 1991 were 422 (verbal) and 474 (math). Mean SAT scores for students analyzed in the study are given in Table 24.

Table 24. Mean SAT Scores for Students in the Study Sample

High school category	Verbal	<u>SD</u>	Math	<u>SD</u>	Total	<u>SD</u>
Public school (<u>n</u> = 10223)	504	87	566	91	1070	157
Private school (<u>n</u> = 4019)	507	81	550	87	1058	145

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