The relationship between high school curriculum and collegiate academic success

Nancy Bramhall

University of Northern Iowa
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Abstract
Newspapers and magazines have bombarded the American public in recent years with reports that national test scores on the American College Test (ACT) and the Scholastic Aptitude Test (SAT) were steadily dropping. Many people believe this drop in scores meant the quality of education was declining. Are the educational standards of our high schools lower today than they were twenty years ago? If so, what are the ramifications for our colleges and universities? The Advisory Panel on the SAT Score Decline stated, “There is a clearly observable evidence of diminished seriousness of purpose and attention to mastery of skills and knowledge in the learning process as it proceeds in the schools, the home and the society generally” (Wirtz et al., 1977, p. 47). Although SAT scores showed a slight increase in 1983–84 (Biemiller, 1985), it is too early to determine whether this indicates the decline in scores may be reversed.
THE RELATIONSHIP BETWEEN HIGH SCHOOL CURRICULUM
AND COLLEGIATE ACADEMIC SUCCESS

A Research Paper
Presented to
The Department of Educational Administration
and Counseling
University of Northern Iowa

In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts in Education

by
Nancy Bramhall
August 1985
This Research Paper by: Nancy Bramhall

Entitled: The Relationship Between High School Curriculum and Collegiate Academic Success

has been approved as meeting the research paper requirement for the Degree of Master of Arts in Education.

24 June 1985
Date Approved

Robert L. Frank
Advisor/Director of Research Paper

24 June 1985
Date Approved

Ann Vernon
Second Reader of Research Paper

6/24/85
Date Received

Norman McCumsey
Head, Department of Educational Administration and Counseling
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Chapter One
INTRODUCTION

Newspapers and magazines have bombarded the American public in recent years with reports that national test scores on the American College Test (ACT) and the Scholastic Aptitude Test (SAT) were steadily dropping. Many people believe this drop in scores meant the quality of education was declining. Are the educational standards of our high schools lower today than they were twenty years ago? If so, what are the ramifications for our colleges and universities? The Advisory Panel on the SAT Score Decline stated, "There is a clearly observable evidence of diminished seriousness of purpose and attention to mastery of skills and knowledge in the learning process as it proceeds in the schools, the home and the society generally" (Wirtz et al., 1977, p. 47).

Although SAT scores showed a slight increase in 1983-'84 (Biemiller, 1985), it is too early to determine whether this indicates the decline in scores may be reversed.

Many reasons are given for the gradual decline in scores that our college bound young people have been receiving. Some educators feel that schools alone cannot be blamed for test score decline. Many social factors can be assumed to contribute to the drop such as family breakdown, TV, new lifestyles, political turbulence, desegregation and changing student composition (Thomson and DeLeonibus, 1978). Ernest Boyer (1980) believes the decline in national test scores indicates a serious problem within our nation's high schools. Much controversy and criticism is surrounding our secondary schools. Do the recipients of a high school diploma possess a good, solid background of history, math,
science, literature and foreign language? Unfortunately, many do not. One reason for this may be that today's high school student may include numerous electives in his/her curriculum. This practice may result in the selection of fewer academic courses or subjects (Krug, 1960). Ashcraft (1967) noted that numerous high schools have increased their number of course offerings by as much as 475 percent over the past 50 years. Much of this has occurred in the last fifteen to twenty years of the period.

When high school students are permitted to enroll in a large number of non-academic classes by utilizing the generous elective option, one might question whether this preparation is adequate for those who decide to enter college. In the past, colleges required entering students to have completed a rather rigorous academic program in high school. This is no longer the case at many colleges and universities. It appears there is a need to determine whether there is a relationship between high school curriculum and collegiate academic success.

Statement of the Problem

The purpose of this descriptive study was to determine whether high school graduates whose curriculum consisted primarily of academic subjects earned higher grades as freshmen at the University of Northern Iowa (UNI) than their classmates whose curriculum consisted primarily of non-academic subjects. All May 1975 graduates of a selected Iowa high school who attended the University of Northern Iowa for at least two semesters with first enrollment being Fall 1975 were included in the study.
Conflicting points of view exist on whether there is a relationship between high school curriculum and college achievement as measured by grade point average (GPA). It would appear that in recent years a limited amount of research has been conducted in this area. Instead, studies have been undertaken using high school rank in class, high school grade point average, and ACT/SAT scores as criterion for predicting collegiate academic success.

An ad hoc committee of six persons was appointed by the chair of the University Faculty Senate to investigate the feasibility and possible ramifications of increasing admission standards at UNI (Faculty Senate Minutes, 1980). This committee was appointed in order to respond to some of the serious concerns expressed by various UNI faculty members. These concerns centered around the lack of academic preparation shown by an increasing number of students entering UNI for the first time. The intent of the committee was to encourage all students to take a minimum level of prescribed courses in high school. Specifically, the ad hoc committee recommended that the University of Northern Iowa adopt an admissions policy the effect of which will be to encourage students who apply for admission to complete a high school preparatory program containing a minimum of specified courses.

This study will provide important data for the UNI Admissions Office and other interested administrators and faculty.

Importance of the Study

Colleges and universities across the nation face a potentially serious problem of declining enrollment because of a diminishing pool of high school graduates. If high school graduates come to college
with a poor academic background they are more likely to either become
discouraged and drop out, or, even worse, be forced to drop out because
of failing grades. Academically well-prepared students are more likely
to persist and graduate from college. Retention of students is becoming
increasingly important to college administrators.

Although retention of students is extremely important, perhaps even
more crucial is the increasing reluctance being shown by many professors
to engage in the role of remedial teacher to larger and larger numbers
of students who are entering college with a serious lack of preparation
for collegiate level study. These professors do not wish to lower the
standards previously set for adequate performance in their classrooms in
order to accommodate those students with insufficient preparation. If
the value of a bachelor's degree is to remain high, classroom standards
must also remain high. There is a need to discover what role, if any,
high school curriculum plays in relationship to grade point average at
the end of the freshman year of college. If a positive relationship is
found, this study may be of interest to those administrators and faculty
who are examining admission standards at the University of Northern
Iowa.

It may not be prudent for a secondary school to completely overhaul
its graduation requirements. The high school of today must adequately
prepare all students, not just the college bound. But, perhaps a
change in university entrance requirements is feasible. By imposing
certain academic requirements, colleges would force all students who
wish to be admitted to engage in a solid, academically sound college
prep program in high school.
Limitations of the Study

This study is based on an analysis of each student's secondary school record or transcript as well as the college record or transcript. The findings of the researcher will not be generalized to other school systems because the students used in this study did not consist of a random sample. Instead, the sample was an intact school group.

In addition, the study only included the May 1975 graduates of the selected Iowa high school who attended the University of Northern Iowa. It is not known what type of high school curriculum was selected by graduates who chose to attend other colleges or universities. Also unknown is the grade point average earned by these students at the end of their freshman year of college. Students who attended college elsewhere may have had a stronger or weaker academic preparation in high school as compared to their classmates who attended UNI.

Another limitation that should be noted is that this study does not attempt to analyze the GPA at the end of the sophomore or junior year of college.

If a positive relationship is found between high school curriculum and collegiate academic success, an over-simplistic interpretation of this finding must be avoided.

Definition of Terms

High School Curriculum/High School Preparation. The specific content of academic and non-academic courses taken at the secondary school level which consists of grades 10, 11 and 12.

Academic Course. Mathematics, including algebra, geometry, trigonometry, analysis and statistics; Science, including biology,
chemistry, physics, and botany; Social Studies including psychology, history, economics, political science and sociology; Foreign Language; and English, including journalism and speech.

**Non-Academic Course.** Vocational and general courses such as typing, shorthand, bookkeeping, art, home economics, industrial arts, arithmetic, music (performance) and driver's education.

**Collegiate Academic Success/Collegiate Achievement.** The grade point average at the end of the freshman year of college.

**Unit.** Represents the study of a subject for a full school year with class meetings the equivalent of four or five times a week.

**Credit.** One unit equals two credits.

**Grade Point Average.** (GPA) At the college level, a grade that is first expressed nominally (A,B,C,D,F) and is then converted to a numerical value (such as A=4, B=3, and so forth), so that an average for all courses can be computed.

**Elective.** An optional course or subject in a school curriculum; a course or subject that is not required.
Chapter Two

REVIEW OF RELATED LITERATURE

The first high school was established in 1821 with its primary function being to train students who did not want to attend college (Wiles, 1963). A curriculum consisting of English, rhetoric and mathematics was offered. However, little by little, Latin, Greek and other college prep courses crept into the high school curriculum. By 1890, a group called the Committee of Ten was formed to study the high school program. This Committee concluded that the main function of the high school should be to prepare students for life, not to primarily prepare them for college (Wiles, 1963). According to Wiles, a national committee was formed in 1918 to study and review the high school curriculum. This committee also recommended that stress should be placed on preparing for life, not preparing for college. But despite these recommendations, many schools continually drifted back to a primary focus on college preparation (Wiles, 1963).

An eight-year experiment to determine the effects of modifying the curriculum of the secondary school was undertaken in 1932. The findings indicated "the schools that deviated most from the traditional college preparatory curriculum produced the students who were most successful in college" (Wiles, 1963, p. 7). Following the Eight-Year Study, high schools enjoyed a great deal of "curricular freedom" (Carnegie Commission on Higher Education, 1973, p. 21). In 1957, the American high school was strongly criticized and accused of providing its students with an inferior education when compared with Russia. According to the Carnegie Commission, this resulted in a complete
academic reform. It seems the curriculum of the American high school has always been under constant scrutiny. This has resulted in the pendulum swinging back and forth between a high school curriculum which prepares students for the world of work and one which prepares them for the college classroom.

In a report from the Advisory Commission on Articulation between Secondary Education and Ohio Colleges (1981), it was noted "tight economic conditions and declining student populations are leading to retrenchment programs in the secondary schools that further undermine college preparatory education" (p. 2). The Advisory Commission (1981) points out the need to refocus attention on the college prep program in the high school. The rationale is as follows:

The Commission recognized that a number of students are leaving high school unprepared for collegiate level work, particularly in the areas of English composition and mathematics. Although courses in these subjects are in place in most high schools, students may choose not to take them realizing that college entrance is not contingent upon courses taken. Lack of motivation, poor study skills, misunderstanding of college requirements and late decisions to attend college all contribute to students being ill-prepared academically (p. 1).

The Ohio Advisory Commission made nine recommendations at the conclusion of their study of which three seem particularly relevant to the study being undertaken by this writer.

Recommendation 1: The college preparatory curriculum should include 4 units of English and a minimum of 3 units of mathematics, one of which should be taken in the senior year. It is also suggested that 3 units of social studies, 3 units of science and 3 units of foreign language complete the college preparatory curriculum (p. 1).

Recommendation 3: Private and state-assisted four-year colleges and universities should require that students who wish to be admitted to their institutions on an unconditional basis must have successfully completed all the requirements
of a college preparatory curriculum (p. i).

Recommendation 7: The college preparatory curriculum should be clearly explained by teachers, counselors, and administrators to the parents of secondary students, the students and the general public. The consequences of not taking the college preparatory program should also be outlined (p. ii).

According to Ernest Boyer (1980), president of the Carnegie Foundation for the Advancement of Teaching, "the high schools in America are in serious trouble and higher education must become involved" (p. 7). Boyer argues that many of the high school graduates who go on to college are not well prepared. "Since the mid-1960's: the verbal and mathematics SAT scores have gone down as have American College Testing scores in English, social science and mathematics..." (Boyer, 1980, p. 7). Boyer offers several suggestions which might bring about a change in this situation but the one which seems especially pertinent is "if we want quality in higher education, we must focus once again on the curriculum in the schools" (p. 9).

In the United States, curriculum is not established by a national ministry or a department of education. There is not even a state-wide uniform pattern in high school curriculum. Therefore, changes can be made at the local level, if desired. Indeed, many secondary schools made a number of curriculum changes, especially during the 1960's when student demands for relevance prompted some instructors to begin presenting their disciplines in connection with contemporary themes (Webber, 1979). William J. Bennett, director of the National Humanities Center, reports that in some literature and humanities courses high school students "read nothing written before 1960" (Webber, 1979, p. 11). Some educators may feel this is a "watered down" curriculum. However,
it is possible that the administrators in these schools believe as Steeves and English (1978) that a "curriculum which is developed apart from the consideration of the learners runs the risk of building in student failure and discipline problems" (p. 320).

Not all of our nation's young people who go on to college are ill prepared as a result of their secondary school curriculum. Although it is true that SAT scores have dipped in recent years, some high schools have reported steady or improved scores. The principals of 34 schools who participated in a study undertaken by Thomson and DeLeonibus (1978) feel there are several reasons for the high SAT scores earned by their students during the years 1973-1976. They include:

1. Academic rigor
2. English curriculum
3. Mathematics curriculum
4. Educational guidance programs
5. Ability grouping
6. Teacher attitudes and expectations
7. Parental and student attitudes and expectations (p. 29)

Thomson and DeLeonibus (1978) found that the schools who reported steady or improved SAT scores took certain initiatives and maintained specific standards. The one constant found was that both parents and teachers expect good academic progress, communicate these expectations to the students and work together to achieve that goal. The administrators indicated they believe that college bound students should face a moderately stiff curriculum. Some schools made a special effort to encourage students to enroll in advanced math and English composition. In addition, these schools did not yield to pressure to offer fewer foreign language and physical science courses. Lawrence E. Grant, principal of Whitefish Bay High School (WI) states, "I continue
to believe that the most basic disciplines, taught properly, are our hope for the future" (Thomson and DeLeonibus, 1978, p. 6). It may be possible to conclude that by virtue of their high SAT scores, the students from the aforementioned 34 schools have had a solid academic preparation in high school. Although the Thomson and DeLeonibus study does not consider the effect this preparation may have on grade point average in the freshman year of college, it would be interesting to follow these students to determine whether there is a correlation.

It is possible the 34 principals might disagree with the findings of the Carnegie Commission on Higher Education (1973). The Carnegie Commission states, "The old idea that a set of tough academic courses at the high school level constitutes a college preparatory program is simply obsolete..." (p. 71). Additionally, the Commission (1973) points out:

The traditional 'college prep' program has little meaning in an era of universal access, since students will find a place in college regardless of their high school program. Thorough grounding in the basic skills of reading, writing and arithmetic is essential for all high school graduates, whether college-bound or not. Beyond these skills, colleges should not require or suggest particular courses of study at the secondary level unless these requirements or suggestions are tied explicitly to the colleges' own program or degree requirements. Many colleges will, of course, expect some contribution toward a broad general education preparatory to their own programs or in lieu of their own programs (p. 4).

The Carnegie Commission cited the Eight-Year Study (Aikin, 1942) as an example of the relative unimportance of studying certain subjects in high school. The Eight-Year Study, an experiment with enormous ramifications for educators, took place between 1932 and 1940. Thirty high schools and three hundred colleges were selected as participants
in the study. The high schools experimented with their curriculum but the students were not penalized when applying to college (Aikin, 1942). "The Eight-Year Study was controversial, but the conclusion was clear: Success in a liberal arts college does not depend upon the study of certain subjects for a certain period in high school" (Carnegie Commission on Higher Education, 1973, p. 21). According to the Carnegie Commission, the important thing is: "what the student knows, not how many years he has sat through particular courses..." (p. 42). The Commission does admit the importance of studying math, however. In their report they make the following recommendation: "High school students should be encouraged to study mathematics sequentially throughout secondary school in order to keep options open to college programs, jobs, and careers requiring background in mathematics" (p. 43). This recommendation appears to be in opposition to the Commission's philosophy of not favoring required courses.

In a study using a sample drawn from the National Longitudinal Surveys of young men attending college in the 1960's, Kohen, Nestel, and Karmas (1978) found "there is very little evidence that the student's high school curriculum affects the likelihood of success beyond the freshman year" (p. 243). Ashcraft (1969) agrees with Kohen, Nestel and Karmas (1978) that the high school background is not highly critical to college success. He indicates that general intelligence and other factors may influence college achievement more than high school curriculum.

In reviewing the literature, Wayne L. Schroeder and George W. Sledge (1966) found that, with very few exceptions, no significant
relationships were found between courses and course patterns and college achievement. It may be important to note, however, that Ashcraft (1967) found "the pattern of courses completed in high school as related to college achievement was of more interest to educators between the years 1920 to 1940" (p. 14). This may account for the fact that it is somewhat difficult to find recent studies on the subject.

The possible relationship between high school preparation and attrition in college is cited in several studies. For example, Peng and Fetters (1978), using data drawn from the base year and the first and second follow-ups of the National Longitudinal Study of the High School Class of 1972, found more four-year college persisters took an academic (college prep) high school program than those who withdrew from college. According to Peng and Fetters, "The high school program is particularly noteworthy because it seems to indicate that a particular curriculum may have...prepared students differently so that they are better qualified for and have a greater commitment to college education" (p. 371). Ashcraft (1969) also found that the dropout rate was significantly higher in the non-college prep group.

Lathrop (1960) conducted a study at Iowa State College (ISC) and found that the high school pattern of courses had an effect on survival-attrition tendency. At the end of the first quarter 97.8% of the college prep group survived (stayed in school) as compared to 91.1% of the vocational group. Lathrop (1960) states, "Survival past the first quarter is an indication of eventual graduation. However, it is no guarantee of graduation as evidenced by the fact that less than 55%
of the students who survived the first quarter eventually graduated" (p. 45-46). Lathrop (1960) also found "the pattern of courses a student completes in high school greatly influences his college achievement at Iowa State College" (p. 48). However, Lathrop warns against placing too much confidence in this finding as reliability would be increased as evidence is accumulated over a period of time. The mean first quarter grade point average for students identified as having completed a college prep curriculum in high school was 2.41 while the group identified as having completed a vocational high school curriculum was 2.17.

It would appear that although much has been written about: (1) high school curriculum, and (2) the relationship between scores on college entrance exams and college success, there is a limited amount of current research on the relationship between high school curriculum and collegiate academic success. The literature cited in this paper reveals conflicting viewpoints as to whether such a relationship exists.
Chapter Three

DESIGN AND RESULTS OF THE STUDY

This study was undertaken in an attempt to determine whether there is a relationship between high school curriculum and collegiate academic success. An ex-post facto design is used when the independent variables have already occurred. Therefore, the actual research begins with the observation of a dependent variable. In this study, the independent variables are: the high school rank in class, the high school grade point average, the ACT composite standard score, percentage of academic courses taken in high school and gender. The dependent variable is the UNI grade point average at the end of two semesters. The independent variables are studied to determine whether there is a relationship between them and the dependent variable. It should be noted that there are some weaknesses in ex-post facto research. First, there is no way that the independent variables can be manipulated. Second, there is no control group for purposes of comparison.

Collection of the data

The sources of data included: the secondary school record, the college record, and a computer print-out showing ACT composite standard scores. These records were obtained from the UNI Registrar's Office. In addition, a brochure entitled "High School Curriculum Offerings and Requirements for Graduation" (1979) was utilized as well as the Student-Parent Handbook for Educational Planning (1977). The handbook contained descriptions of each course offered and was used by the researcher as a reference to determine whether a course should be identified as academic or non-academic in content.
Procedures

For the purpose of this study, it was decided to evaluate only course work taken in grades 10, 11 and 12. The rationale used was that work taken in the 9th grade should be omitted because most courses were required subjects and thus all student records were very similar in content. Very few electives were available to freshmen.

Each high school record was examined by the researcher and every course was evaluated and labeled as academic or non-academic with the following exceptions:

1. Physical education and health courses were completely omitted from the tally.
2. Independent study, contemporary readings and individual readings were omitted from the tally because of the difficulty involved in identifying content.

Traditional college prep courses such as algebra, geometry, trigonometry, analysis, statistics, biology, chemistry, physics, botany, psychology, history, economics, political science, sociology, foreign language, journalism and speech were labeled as academic courses while vocational and applied courses such as typing, shorthand, bookkeeping, art, home economics, industrial arts, arithmetic, music (performance) and driver's education were identified as non-academic in content.

The researcher took into account the fact that a limit of 3 credits for performance groups in music and a limit of 1 credit for cadet teaching will count toward graduation at the designated Iowa high school.
The number of academic credits and the number of non-academic credits were totaled. The total number of credits taken in grades 10-12 (minus credits in physical education, health, independent study, contemporary readings and individual readings) were divided into the number of academic credits providing a measure of the high school curriculum for each student. This number was expressed as a percentage.

The following variables were recorded for each of the 77 students.

1. High school rank in class
2. High school grade point average
3. ACT composite standard score
4. Percentage of academic courses taken in high school
5. Gender
6. UNI grade point average at the end of two semesters
7. UNI grade point average at graduation

The data collected was entered into the Harris 800 computer and was analyzed by using the Statistical Package for the Social Sciences (SPSS) program.

Demographics of the Population

Of the 77 students used in this study, 30 were male and 47 were female. These students graduated from a selected Iowa high school in May 1975 and entered the University of Northern Iowa for the first time in fall 1975. Randomization was not used because the available data existed only on an intact school class.

Several observations may be made about the group being studied. The mean ACT score earned was 21.080 (N=75). In 1981 about half the entering UNI freshmen had a 21 or better score on the ACT test so it can be seen that the study group is about average.
The mean high school grade point average was 3.045 (N=77) while the mean grade point average after two semesters at UNI was 2.510 (N=77). Although not an official part of the study, it was deemed appropriate to include the UNI grade point average at graduation as a dependent variable. It was found that of the 77 students used in the study, 48% graduated from UNI. The mean grade point average at graduation was 2.951 (N=37).

It was found that the average student's curriculum consisted of 68.558% academic courses (N=77) with a fairly high standard deviation of 13.564. The range was quite broad with a minimum of 42.300 and a maximum of 96.500. This would seem to indicate that while some students take only the academic courses that are required, others choose an abundance of academic courses to use as electives. Table 1 summarizes these results.

Table 1
Means and Standard Deviations for Descriptive Data

<table>
<thead>
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<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
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<tr>
<td>Rank in class</td>
<td>77</td>
<td>243.909</td>
<td>81.666</td>
</tr>
<tr>
<td>High school GPA</td>
<td>77</td>
<td>3.045</td>
<td>0.476</td>
</tr>
<tr>
<td>ACT score</td>
<td>75</td>
<td>21.080</td>
<td>4.753</td>
</tr>
<tr>
<td>Academic courses</td>
<td>77</td>
<td>68.558</td>
<td>13.564</td>
</tr>
<tr>
<td>GPA at end of 2 semesters</td>
<td>77</td>
<td>2.510</td>
<td>0.646</td>
</tr>
<tr>
<td>GPA at graduation</td>
<td>37</td>
<td>2.951</td>
<td>0.502</td>
</tr>
</tbody>
</table>
Results of the Study

The findings reveal that a high correlation exists between high school grade point average and UNI grade point average at the end of two semesters. The second most significant criterion was high school rank in class while ACT score ranked third in importance. The pattern of academic courses in high school showed very little significance. A correlation coefficient was computed in order to investigate the relationship between high school rank in class, percentage of academic courses, ACT score and high school grade point average, which are all predictor variables, and UNI grade point average at the end of two semesters. Table 2 summarizes these results.

Table 2
Pearson Correlation Coefficients of Predictor Variables and UNI Grade Point Average at the End of Two Semesters

<table>
<thead>
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<th>Predictor Variables</th>
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<tr>
<td>Academic courses</td>
<td>.2304*</td>
</tr>
<tr>
<td>ACT score</td>
<td>.5987**</td>
</tr>
<tr>
<td>High school GPA</td>
<td>.7402**</td>
</tr>
<tr>
<td>Rank in class</td>
<td>.7277**</td>
</tr>
</tbody>
</table>

*significant at .05 level
**significant at .01 level
When the relationship between high school grade point average and UNI grade point average at graduation is examined, it can be seen that there is a positive correlation between the two. This might indicate that a strong student in high school is apt to be a strong student in college. There is also a substantial relationship between high school rank in class and UNI grade point average at graduation. Again the ACT score was the third most significant predictor. It may be noted that there is very little correlation between academic preparation and UNI grade point average at graduation. Table 3 summarizes these results.

Table 3

Pearson Correlation Coefficients of Predictor Variables and UNI Grade Point Average at Graduation

<table>
<thead>
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<th>Predictor Variables</th>
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<tr>
<td>Academic courses</td>
<td>.2076</td>
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<tr>
<td>ACT score</td>
<td>.4475*</td>
</tr>
<tr>
<td>High school GPA</td>
<td>.8028*</td>
</tr>
<tr>
<td>Rank in class</td>
<td>.7834*</td>
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</table>

*significant at .01 level

The results of the F test led to a conclusion that there were no significant variations by sex, pattern of academic courses or ACT scores. However, high school grade point average was found to be a very significant covariate. It should be noted that rank in class was not
included as a covariate on Table 4 or Table 5. When it was included in the computer program, it threw off the calculations. High school grade point average and rank in class represent the same thing. Table 4 summarizes the findings.

Table 4

Analysis of Covariance of Academic Preparation, ACT Scores and High School GPA with UNI Grade Point Average at the End of Two Semesters

<table>
<thead>
<tr>
<th>Source</th>
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<td>Covariates</td>
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<td>3</td>
<td>3.214</td>
<td>22.461*</td>
</tr>
<tr>
<td>Academic courses</td>
<td>0.155</td>
<td>1</td>
<td>0.155</td>
<td>1.081</td>
</tr>
<tr>
<td>ACT score</td>
<td>0.007</td>
<td>1</td>
<td>0.007</td>
<td>0.050</td>
</tr>
<tr>
<td>High school GPA</td>
<td>5.799</td>
<td>1</td>
<td>5.799</td>
<td>40.533*</td>
</tr>
<tr>
<td>Main Effects</td>
<td>0.203</td>
<td>1</td>
<td>0.203</td>
<td>1.418</td>
</tr>
<tr>
<td>Sex</td>
<td>0.203</td>
<td>1</td>
<td>0.203</td>
<td>1.418</td>
</tr>
<tr>
<td>Explained</td>
<td>9.844</td>
<td>4</td>
<td>2.461</td>
<td>17.200*</td>
</tr>
<tr>
<td>Residual</td>
<td>4.292</td>
<td>30</td>
<td>0.143</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>14.136</td>
<td>34</td>
<td>0.416</td>
<td>-</td>
</tr>
</tbody>
</table>

*significant at .01 level

Table 5 reveals no significant variations by sex, pattern of academic courses or ACT scores. When analyzed with UNI grade point average at the time of graduation, it is found that high school grade point average is very significant. Table 5 summarizes the findings.
Table 5

Analysis of Covariance of Academic Preparation, ACT Scores and High School GPA with UNI Grade Point Average at Graduation

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>6.253</td>
<td>3</td>
<td>2.084</td>
<td>25.087*</td>
</tr>
<tr>
<td>Academic courses</td>
<td>0.012</td>
<td>1</td>
<td>0.012</td>
<td>0.148</td>
</tr>
<tr>
<td>ACT score</td>
<td>0.182</td>
<td>1</td>
<td>0.182</td>
<td>2.193</td>
</tr>
<tr>
<td>High school GPA</td>
<td>4.376</td>
<td>1</td>
<td>4.376</td>
<td>52.670*</td>
</tr>
<tr>
<td>Main Effects</td>
<td>0.221</td>
<td>1</td>
<td>0.221</td>
<td>2.665</td>
</tr>
<tr>
<td>Sex</td>
<td>0.221</td>
<td>1</td>
<td>0.221</td>
<td>2.665</td>
</tr>
<tr>
<td>Explained</td>
<td>6.474</td>
<td>4</td>
<td>1.619</td>
<td>19.481*</td>
</tr>
<tr>
<td>Residual</td>
<td>2.492</td>
<td>30</td>
<td>0.083</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.967</td>
<td>34</td>
<td>0.264</td>
<td></td>
</tr>
</tbody>
</table>

*significant at .01 level

The data indicates there is no significant relationship between high school curriculum and collegiate academic success. There seems to be evidence that there is a fairly strong correlation between high school grade point average and UNI grade point average at the end of two semesters and at graduation.
Chapter Four

SUMMARY AND IMPLICATIONS

The purpose of this descriptive study was to determine whether high school graduates whose curriculum consisted primarily of academic subjects earned higher grades as freshmen at the University of Northern Iowa (UNI) than their classmates whose curriculum consisted primarily of non-academic subjects. All May 1975 graduates of a selected Iowa high school who attended the University of Northern Iowa for at least two semesters with first enrollment being Fall 1975 were included in the study.

Procedures

The high school record of the 77 subjects was examined by the researcher and every course was evaluated and labeled as academic or non-academic with the following exceptions:

1. Physical education and health courses were completely omitted from the tally.
2. Independent study, contemporary readings and individual readings were omitted from the tally because of the difficulty involved in identifying content.

Traditional college prep courses such as algebra, geometry, chemistry, physics, foreign language and English were designated as academic courses while vocational and applied courses such as typing, bookkeeping, art, home economics, industrial arts and driver's education were identified as non-academic in content.

The number of academic credits and the number of non-academic credits were totaled. The total number of credits taken in grades 10-12
were divided into the number of academic credits providing a measure of the high school curriculum for each student. This number was expressed as a percentage.

The college record or transcript was obtained from the UNI Registrar's Office. The following variables were recorded for each of the 77 subjects.

1. High school rank in class
2. High school grade point average
3. ACT composite standard score
4. Percentage of academic courses taken in high school
5. Gender
6. UNI grade point average at the end of two semesters
7. UNI grade point average at graduation

The data was entered into the Harris 800 computer and was analyzed by using the Statistical Package for the Social Sciences Program.

Findings and Conclusions

The findings of this study indicate there is no relationship between high school curriculum and collegiate academic success as measured by grade point average at the University of Northern Iowa at the end of two semesters. Students whose curriculum consisted primarily of academic subjects do not earn higher grades as freshmen than their classmates whose curriculum consisted primarily of non-academic subjects.

The results indicated high school grade point average is the best predictor of collegiate academic success. Rank in class is also quite significant. High achievement in college is not dependent upon a certain pattern or combination of courses in high school.
If a student excels in high school, it appears he/she will also excel in college. It does not matter whether a college prep or a vocational program was followed.

It is not clear what implications for the future this study may have raised. It can be acknowledged that a high school curriculum should meet the needs of all students. Although the results of this study indicated students with a college prep background will not necessarily be higher achievers in college than those with a vocational background, many colleges and universities may disagree. The University of Northern Iowa implemented new admissions requirements starting fall 1984. The new guidelines require entering freshmen to have completed three years of English and three years of mathematics including a year each of composition and algebra. This action may be interpreted as an attempt to improve the quality of a bachelor's degree from UNI.
REFERENCES


Cedar Falls Community Schools. (1979). *High school curriculum offerings and requirements for graduation*. (Available from Cedar Falls Community Schools, 903 Washington, Cedar Falls, IA, 50613)


Faculty Senate Minutes. (1980, April 28). University of Northern Iowa, 13, 15.


