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JOHN GALVIN KANE

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AND NON-FINANCIAL AID RECIPIENTS AT WINONA STATE

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Abstract approved: —

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Arthur L. Tollefson //

The purpose of this study was to compare and evaluate personal attitudes and perceptions, educational and vocational plans, activities and satisfaction among students of two basic groups selected for the study: a) financial aid recipients, b) non-financial aid recipients. Subgroups in each category consisted of over-achievers and under-achievers. Over-achievers were designated as those individuals whose grade point was .15 or more above their predicted grade point average. Under-achievers were designated as those individuals whose grade point average was .15 or more below their predicted grade point average.

The data were gathered from the student's files in the Office for Student Affairs, Registrar's Office and from administration of the College Student Questionnaire, Part Two (CSQ).

The data were subjected to statistical analysis to determine the validity of the following hypotheses: a) there is no significant difference in the proportions of students receiving financial aid and those not receiving financial aid whose achieved grade point averages are greater than or less than their predicted grade point average; b) there is no significant difference among the four groups used in the study on any of the eleven areas measured by the CSQ.

The samples used in testing hypothesis one consisted of 159 financial aid recipients and 267 non-financial aid recipients. A statistical analysis was conducted comparing the two groups using the Chi square test of significance to determine if any significant difference existed in relation to academic achievement. Hypothesis one was rejected at the five percent level of confidence. Students receiving financial aid were performing academically better than the non-financial aid students.

The samples for testing the other hypotheses consisted of four groups of students: 1) financial aid over-achievers - 55 students; 2) financial aid under-achievers - 52 students; 3) non-financial aid over-achievers - 53 students; 4) non-financial aid under-achievers - 53 students. Between the financial aid over-achievers and financial aid under-achievers, a significant difference was found at the one percent level of confidence in the area of study habits favoring the financial aid over-achiever. A significant difference favoring the financial aid under-achiever was found in the area of liberalism at

the five percent level of confidence.

A significant difference was found between non-financial aid over-achievers and under-achievers in the area of satisfaction with the faculty and administration at the five percent level of confidence favoring the non-financial aid over-achievers.

A significant difference between financial aid over-achievers and non-financial aid over-achievers favoring the financial aid over-achievers was found in the area of family independence at the one percent level of confidence.

Significant differences between financial aid under-achievers and non-financial aid under-achievers were found at the one percent level of confidence in the areas of satisfaction with the faculty and administration and at the five percent level in the areas of family independence, extra-curricular involvement and cultural sophistication favoring the financial aid under-achiever.

Analysis of the demographic data indicated that financial aid over-achievers were significantly different in age: the over-achievers were younger. There was also a significant difference in place of residence: the majority of over-achievers lived in the college dormitories, while the majority of under-achievers lived in off campus housing. There was a significant difference in achievement for students working more than 15 hours per week: more under-achievers than over-achievers were working 15 hours or more per week. There

was no significant difference in achievement between financial aid and non-financial aid subgroups for students working up to 15 hours per week.

A Comparative Study of Academic Success and Other  
Selected Characteristics of Financial Aid and Non-  
Financial Aid Recipients at Winona State College

by

John Galvin Kane

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Professor of Education  
in charge of major

*Redacted for Privacy*

---

Dean of the School of Education

*Redacted for Privacy*

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Dean of Graduate School

Date thesis is presented

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Typed by Mary Jo Stratton for John Galvin Kane

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A COMPARATIVE STUDY OF ACADEMIC SUCCESS AND  
OTHER SELECTED CHARACTERISTICS OF FINANCIAL  
AID AND NON-FINANCIAL AID RECIPIENTS  
AT WINONA STATE COLLEGE

I. INTRODUCTION

Programs of financial assistance to students attending colleges and universities in the United States have changed dramatically. The first recorded scholarship according to Van Dusen and O'Hearne (1968) was established in 1643 when Lady Anne Mowlson gave 100 English pounds as an endowment for the support of "some poor scholar" at Harvard. Seymour Harris (1959), then Chairman of the Department of Economics at Harvard University, estimated that the \$96 million spent on student aid in the 1955-56 academic year would increase to more than \$600 million by the academic year 1969-70. It now appears that the assistance will be more than three times the amount Harris estimated. During the 1968-69 school year, more than \$2.2 billion financial assistance aided more than one million students (Kirkpatrick, 1968).

Universal higher education, only a dream 10 or 15 years ago, has come closer to realization. At the present time it is the expectation of most Americans that they will attend post-secondary institutions of some form or their children will attend. The 1968-69 Annual Report of the American College Testing Program recalls that 100 years ago, enrollment in higher education in this country was approximately 50,000 students, close to two percent of the students in the college age

group. By 1939, 14 out of 100 students in the 18 to 21 year age group were in college. It was 46 out of 100 in 1965 and could be 55 out of 100 by 1974. In 1939, the report states that 1.3 million students were in college; it more than doubled to three million in 1956, went to 7.6 million in 1968-69, and there are serious expectations of ten million in 1975-77.

Community colleges are expected by many persons to be a major resource for the additional students expecting to go on to post-secondary higher education. One of the major goals of community colleges, providing vocational-technical educational programs, has grown rapidly in the past decade and is strongly supported by Federal funds.

In regard to the increasing enrollment, Williamson (1961) states that he believes in the responsibility of a state university to serve the state through conservation of human talent. This conservation is to be achieved by the fullest possible educational development of each individual according to his capabilities. But, according to Williamson, the university is not an institution open to enrollment of all students who desire to come or who can financially afford to enroll. Rather it is to be reserved for those whose intellectual powers are such that they can master university level materials.

In the last decade, institutions of higher education have required increasingly larger amounts of money to provide for increasing numbers

of students and the rapid expansion of knowledge. In 1968, almost two percent of the gross national product was spent by institutions of higher education, an amount double the one percent which had been steady for almost 30 years since the beginning of the Depression period. The ACT report projections and estimates for the future indicate that three percent of the gross national product will be "absolutely essential to accommodate the required growth and development of higher education by 1976-80." Funding of this magnitude will require massive support from states and private sources as well as increasingly large amounts from the Federal government.

The ACT report makes assumptions that do not take into account the present taxpayer's rebellion, President Nixon's curtailment of educational projects, and limited budgets for higher education by state legislatures. An example is the State of Washington where the University of Washington, Western Washington College and Washington State University have all announced enrollment limitations for the 1970-71 academic year because of budgetary allotments.

In December 1968, the Carnegie Commission on Higher Education published its special report "Quality and Equality: New Levels of Federal Responsibility for Higher Education." This was followed in January of 1969 by the report from the United States Department of Health, Education and Welfare (HEW) entitled "Toward a Long-Range Plan for Federal Financial Support for Higher Education." Both reports

placed the major load in the financing of higher education in the next decade on increased funding from the Federal Government.

The Carnegie and the HEW reports emphasize the need to provide equality of opportunity for all qualified students to attend higher educational institutions, thus making provisions for nearly "universal" higher education. Harris takes a somewhat different view and states that the present mass appeal used to recruit students "en masse" to higher education will produce too many college graduates. He assumes a relatively limited and fixed demand for college graduates particularly in terms of vocational requirements and apparently feels that the demand is now being met. Harris fears that college graduates, unsuccessful in finding work in jobs they have anticipated, will become frustrated intelligentsia who will provide raw materials for an American fascistic movement.

The ACT report indicates almost half of all college students come from families earning more than \$10,000 a year and less than ten percent come from families which earn below \$3,000 per year. This assumes that lack of money is what keeps the percentage of college students from both groups being equal. But, intelligence is related to earning power and intelligence is basically inherited. Genetic probability factors along with cultural inequities in a competitive, capitalistic society, would seem to indicate that there will be a difference in production of college caliber students from the two

income levels.

The Carnegie Commission states explicitly that one of the most urgent national priorities for higher education between now and 1976-77 is the removal of financial barriers for all youth who enroll in colleges and universities, whether in academic or in occupational programs. Since student financial aid is being used to effect major social change, the administration of financial aid deserves close and careful scrutiny.

The purpose of this study then is to compare and evaluate personal attitudes and perceptions, educational and vocational plans, activities and satisfaction of students of two general classes of financial aid recipients as well as comparable classes of non-financial aid recipients in terms of predicted and actual grade point achievement in order to determine whether this data contains information useful to the efficient, effective and equitable organization and administration of financial aid programs.

## The Problem

### Statement of the Problem

The problem can be stated in the form of several questions:

1. Do financial aid recipients use their scholastic abilities more successfully than non-financial aid recipients as measured by a comparison of frequency of under-achievers



and over-achievers in each of the two groups ?

2. Of the students receiving financial aid, do those classified as over-achievers differ significantly from those classified as under-achievers in the characteristics measured by Part Two of the College Student Questionnaire ?

These characteristics are:

- a. satisfaction with the faculty
  - b. satisfaction with the administration
  - c. satisfaction with major
  - d. satisfaction with students
  - e. study habits
  - f. extracurricular involvement
  - g. family independence
  - h. peer independence
  - i. liberalism
  - j. social conscience
  - k. cultural sophistication
3. Of the students not receiving financial aid, do those classified as over-achievers differ significantly from those classified as under-achievers in the characteristics measured by Part Two of the College Student Questionnaire listed previously ?
  4. Of the students classified as over-achievers, do those

receiving financial aid differ significantly from those not receiving financial aid in the characteristics measured by Part Two of the College Student Questionnaire ?

5. Of the students classified as under-achievers, do those receiving financial aid differ significantly from those not receiving financial aid in the characteristics measured by Part Two of the College Student Questionnaire ?
6. Are there significant differences between the sub-groups on the various demographic variables studied in the College Student Questionnaire ?

### Statement of the Hypotheses

To facilitate administering the tests of significance, the questions presented in the statement of the problem are stated as null hypotheses:

1. There is no significant difference in the proportions of students receiving financial aid and those not receiving financial aid whose achieved grade point averages are greater than or less than their predicted grade point averages.
2. Of the students receiving financial aid, there is no significant difference between over-achievers and under-achievers on the 11 characteristics measured by the College Student Questionnaire, Part Two.
3. Of the students not receiving financial aid, there is no

significant difference between over-achievers and under-achievers on the 11 characteristics measured by the College Student Questionnaire, Part Two.

4. Of the over-achievers, there is no significant difference between the financial aid and non-financial aid recipients on the 11 characteristics measured by the College Student Questionnaire, Part Two.
5. Of the under-achievers, there is no significant difference between the financial aid and non-financial aid recipients on the 11 characteristics measured by the College Student Questionnaire, Part Two.
6. There are no significant differences among any logical pairings of sub-groups in relation to any of the demographic data collected on the College Student Questionnaire.

### Importance of the Study

The most effective utilization of financial aid programs is vital in higher education and to society. In order to make valid decisions regarding organization and administration of these programs, much more precise information about the students participating in these programs must be generated and utilized.

The relationship between financial aid recipients and their scholastic achievement is of importance to several groups of people --

the students, their parents, the college, and the public. Those responsible for the administration of colleges and universities would welcome evidence that students receiving financial aid do as well as or better than non-financial aid students who pay part of the cost of a college education. If it were possible, for example, for the president of a college or university to appear before the State Legislature or Board of Regents armed with evidence that students receiving financial aid were doing as well as others from the standpoint of scholarship, the difficulty of securing adequate financial support for low income students would be somewhat reduced.

The general tax-paying public might more readily support more financial aid to students if they could be assured that the colleges and universities would make strenuous efforts to place emphasis upon the student's academic achievement, character, and future promise in selecting students with need for financial assistance.

This study should provide information which can be used to determine the relationship between measures of academic potential and measures of college achievement in order to forecast the performance of future students receiving financial aids. In addition, this study should determine if any significant differences exist in attitudes and perceptions, educational and vocational plans, activities and satisfaction of students, between over-achievers and under-achievers, among both financial aid and non-financial aid recipients which would

require differential treatment of the students with respect to student personnel services intended to facilitate successful attainment of their educational objectives.

#### Limitations of the Study

The conclusions of this study are applicable only to those students from the population from which the samples used in this study were drawn. The nature of this study would require replication studies at particular institutions desiring to determine the similarities and differences of the classes involved in order to avoid invalid generalizations arising from such comparisons.

#### Definition of Terms Used

**American College Test:** The American College Test consists of four tests in English, mathematics, social studies, and natural science. The test scores were designed to measure as directly as possible the abilities the student will have to apply in his college course work.

**College Grade Point Average:** College grade point average was defined for sophomores as the student's accumulative grade point for his first academic year of study, including at least 45 hours of credit. College grade point average for juniors was defined as the student's accumulative grade point for his first two academic years of study, including at least 90 hours of credit.

**Financial Aid Recipients:** Financial aid recipients were defined as those sophomore and junior students whose parents' confidential statement demonstrated a need for assistance and received either an Educational Opportunity Grant, National Defense Student Loan, Federally Insured Loan, College Work-Study Grant, or a combination of the above.

**Non-Financial Aid Recipient:** Non-financial aid recipients were defined as those sophomore and junior students at Winona State College who did not submit an application for financial assistance to the financial aid office previous to the time of this study.

**Over-Achievers:** Over-achievers were designated as those individuals whose grade point average was .15 or more above their predicted grade point average.

**Under-Achievers:** Under-achievers were designated as those individuals whose grade point average was .15 or more below their predicted grade point average.

**Predicted Grade Point Average:** The predicted grade point average was the grade point average calculated from the American College Test scores and high school grades, using a regression equation.

**High School Grades:** High school grades were the most recent grades prior to the student's senior year in high school in each of four subject areas - English, mathematics, social studies, and natural

science.

The following definitions were taken directly from the College Student Questionnaire - Technical Manual (1965, p. 16-18) and should be considered working definitions of what each section of this instrument attempts to measure.

**Satisfaction With Faculty (SF):** Refers to a general attitude of esteem for instructors and the characteristic manner of student-faculty relationships at the respondent's college. Students with high scores regard their instructors as competent, fair, accessible, and interested in the problems of individual students. Low scores imply dissatisfaction with faculty and the general nature of student-faculty interaction.

**Satisfaction with Administration (SA):** Defined as a generally agreeable and uncritical attitude toward the college administration and administrative rules and regulations. High scores imply satisfaction with both the nature of administrative authority over student behavior and with personal interactions with various facets of the administration. Low scores imply a critical, perhaps contemptuous view of an administration that is variously held to be arbitrary, impersonal, and/or overly paternal.

**Satisfaction with Major (SM):** Refers to a generally positive attitude on the part of the respondent about his activities in his field of academic concentration. High scores suggest not only continued

personal commitment to present major field, but also satisfaction with departmental procedures, the quality of instruction received, and the level of personal achievement within one's chosen field. Low scores suggest an attitude of uncertainty and disaffection about current major field work.

**Satisfaction With Students (SS):** Refers to an attitude of approval in relation to various characteristics of individuals comprising the total student body. High scores suggest satisfaction with the extent to which such qualities as scholastic integrity, political awareness, and particular styles and tastes are perceived to be characteristic of the student body. Low scores imply disapproval of certain characteristics that are attributed to the overall student body.

**Study Habits (SH):** Refers to a serious, disciplined, planful orientation toward customary academic obligations. High scores represent a perception of relatively extensive time devoted to study, use of systematic study routines and techniques, and a feeling of confidence in preparing for examinations and carrying out other assignments. Low scores suggest haphazard, perhaps minimal, attempts to carry through on instructional requirements.

**Extracurricular Involvement (EI):** Defined as relatively extensive participation in organized extracurricular affairs. High scores denote support of the wide involvement in student government, athletics, religious groups, preprofessional clubs, and the like. Low scores



represent disinterest in organized extracurricular activities.

Family Independence (FI): Refers to a generalized autonomy in relation to parents and parental family. Students with high scores tend to perceive themselves as coming from families that are not closely united, as not consulting with parents about important personal matters, as not concerned about living up to parental expectations, and the like. Low scores suggest "psychological" dependence on parents and family.

Peer Independence (PI): Refers to a generalized autonomy in relation to peers. Students with high scores tend not to be concerned about how their behavior appears to other students, not to consult with acquaintances about personal matters, and the like. They might be thought of as unsociable, introverted, or inner-directed. Low scores suggest conformity to prevailing peer norms, sociability, extraversion, or other-directedness.

Liberalism (L): Defined as a political-economic-social value dimension, the nucleus of which is sympathy either for an ideology of change or for an ideology of preservation. Students with high scores (liberals) support welfare statism, organized labor, abolition of capital punishment, and the like. Low scores (conservatism) indicate opposition to welfare legislation, to tampering with the free enterprise system, to persons disagreeing with American political institutions, etc.

Social Conscience (SC): Defined as moral concern about perceived social injustice and what might be called "institutional wrongdoing" (as in government, business, unions). High scorers express concern about poverty, illegitimacy, juvenile crime, materialism, unethical business and labor union practices, graft in government, and the like. Low scores represent reported lack of concern, detachment, or apathy about these matters.

Cultural Sophistication (CS): Refers to an authentic sensibility to ideas and art forms, a sensibility that developed through knowledge and experience. Students with high scores report interest in or pleasure from such things as wide reading, modern art, poetry, classical music, discussions of philosophies of history, and so forth. Low scores indicate a lack of cultivated sensibility in the general area of the humanities.

## II. REVIEW OF THE LITERATURE

A search of available literature reveals that that there are no studies which have investigated the specific questions of this study. Knight's (1968) study in comparative achievement of financial aid recipients is the only study which investigates problems similar to those considered by this study. Studies in areas partially related to the problems of this study have been published; selected studies from these areas are reviewed below in the following categories: Historical Background of Financial Aid; General Studies in Financial Aid; Comparative Studies of Student Aid Recipients; Comparative Studies of Employed Students; Studies Relating to the Nature, Prediction, and Characteristics of Achievement and Achievers. A summary of selected major findings of these studies follows the review of the literature.

### Historical Background of Financial Aid

The original purpose of student aid according to Van Dusen and O'Hearne (1968) was to make a college education available to those individuals who could not themselves afford to pay the costs. Early programs of student financial aid were begun with money given to institutions by private individuals specifically to aid needy and worthy students; in many instances those funds were supplemented by allocations from the general funds of the institutions themselves.

This original emphasis on student financial need continued

through the years until the 1940's, although it is also true that during much of this time alterations and embellishments were made in the institutional practices. Van Dusen and O'Hearne state these alterations were made in an effort to serve national and institutional purposes through student financial aid while at the same time enabling needy students to attend college. Rudolph (1962) claims that the institutions used aid funds to recruit students in the hope that the subsidized pupils would help to attract other enrollees who would be able to pay the charges. Colleges also desired to have some needy students on the campus so that the institutions would not be criticized as being snobbish havens for the affluent.

The continued emphasis on the need of the student as a criterion for selection for assistance during those years was evidenced by the establishment of funds by fraternities for indigent members, the arrangement of textbook loans for needy students, the operation of special dining halls for the poor, and the introduction of manual labor programs for students. Rudolph writes that an early example of the poor being given first preference in locating term-time jobs was the establishment at Yale in 1900 of the "Bureau of Self Help" to assist needy but ambitious students.

The desire to achieve a number of different goals through the instrument of student financial aid has been apparent throughout the history of American higher education. Near the end of World War II,

the Servicemen's Readjustment Act of 1944, known as the "GI Bill," was passed; this action channeled into college a large number of students with substantial amounts of support from the Federal government granted without regard to financial need.

The term "scholarship" was used initially in connection with student financial aid to mean a gift of money granted to a student who could not otherwise afford to attend college. Many institutions found that the amounts of scholarship funds that previously had been used to support needy students were no longer required for that purpose. These institutions began to use such funds to attract and reward students with academic or other special talents with little or no regard to the financial conditions of such individuals.

Van Dusen mentions that the term "scholarship" thus acquired the additional meaning of a gift of money used to reward talented students; such phrases as "academic scholarship," "athletic scholarship," and "music scholarship" came into popular usage.

Another shift in the rationale of financial aid programs began in the late 1950's, when agencies of the federal government began to provide assistance to college students. The National Defense Student Loan Program (NDSL), authorized by the National Defense Act of 1958, was clearly a loan program which followed the pattern established by earlier scholarship programs in that it originally required that preference among needy student borrowers be given to those of

exceptional promise who would enter such "critical" areas as mathematics, science, foreign languages, engineering, and education.

In 1964, the Congress of the United States passed the Economic Opportunity Act, which authorized the College Work-Study Program. This program combined federal and college funds to encourage and to extend the employment of students, both on the campus and in non-profit off-campus agencies. Initially the College Work-Study Program was restricted to students from extremely low-income families; these limitations were revised to require only that preference in employment be given students from low-income families.

The Higher Education Act of 1965 centralized the administration of sponsored student aid activities in the U.S. Office of Education and established the Educational Opportunity Grants Program. This program authorizes direct grants, which are not to be repaid, to students who demonstrate that they and their families are unable to pay for higher education. The grants may not exceed \$1,000 or one-half the amount the student needs to go to college, whichever is less, and a matching amount must be made available to the student from other approved sources of student financial aid.

The major federal programs of student aid have now departed from an earlier program of limiting eligibility to academically superior students. The Educational Opportunity Grant Program and the College Work-Study Program stipulate only that the student

maintain normal progress toward his degree, according to the standards usually used by the institution to define "normal progress." The essential criterion of these programs is the student's need for funds. Thus, the purpose of the principal financial aid program of today is markedly similar to the original intention of student aid programs -- to make the best use of the talents of all the country's young men and women.

With the passing of the Economic Opportunity Act of 1964, there has been an intensified effort to raise the standard of living of economically-deprived groups in the United States. One of the ways in which this goal is pursued is by providing greater opportunities for educational achievement at all levels of schooling.

#### General Studies Relating to Financial Aid

Isaacson and Amos (1957) reported that for every student in college this country has another person of equal or higher ability who does not attend college because of lack of financial assistance. However, Berdie's (1954) study suggested that the mere availability of scholarship money does not widely serve as an effective inducement to college attendance for many promising students. He found that psychological factors, ecological factors, economic level and cultural level of the home are closely related to a student's plan for education after high school. The results of Berdie's study involving 25,000

students from Minnesota, indicated the following:

1. The waste of talent among girls is approximately 50 percent greater than the waste among boys.
2. The economic status of a family determines to a large extent whether or not children in the family will attend college, but for children of superior talent, this economic status does not provide as much of a limiting barrier as it does for children of lesser ability.
3. The failure of high ability students to attend college is in general due not only to lack of funds, but also to a complex pattern involving among other things low home cultural status.
4. An individual is more likely to attend college if a college is within his immediate vicinity. A large proportion of the students who live outside of metropolitan areas do not live within commuting distance of a college and this factor of geography explains in part why some students qualified to do college work do not attend college.
5. The higher the level of the father's occupation, the greater the probability that the student will attend college.

Reeves (1950) found that national origin, geographic location, admission policies, and differences of different racial or ethnic groups in desire for education were all barriers to higher education in



addition to lack of financial assistance for students of high ability.

The failure of this group to continue education results in a loss to the individual because he is less likely to reach his fullest development and most satisfying level of attainment. There is also a loss to our society when we fail to develop the maximum potential which this group possesses. Every opportunity should be explored and maximized to increase this opportunity for capable students both to begin and to continue their college education.

In past years, economic background proved an important variable in determining who would attend college. Schroeder and Sledge (1966) suggested that personal or motivational factors may be more important determinants of college achievement than the socio-economic level of the parents; however, Astin (1964) found that the majority of dropouts from college came from the lower of the socio-economic groups attending college.

Moon (1964), in discussing the need for planning future methods of awarding student financial aid, included the importance of having information available regarding the student's nonacademic characteristics and environment as well as his level of academic achievement and ability.

The EOG Program, part of the "poverty program," was initially overshadowed by beliefs that the recipients would have a much greater attrition rate than would the average student population.

Wright (1966) found significant relationships between family income level and academic achievement: this observation would tend to support such beliefs.

#### Comparative Studies of Financial Aid Recipients

An examination of the differences that exist between students from low-income background and matched controls at the time the students enter college generally would seem to penalize the impoverished college student in adjusting to academic life and to social situations found within the college setting.

Bradfield (1967), in a study of Work-Study freshmen males, found that low-income students appeared lower in their need for precision, more resistant to structure and planning, less interested in amusements and recreation, and more non-conforming to the explicit and implicit "rules" of the college institution with its resultant social structure. Although few psychological differences were found between students from low-income backgrounds and other college students at the time they entered college, in general these differences were such as to logically favor the adjustment of the control student over that of the student from the low-income background. Bradfield's study, which showed the Work-Study group to be performing academically as well as or slightly better than the control group at the end of one semester, was unexpected. The difference between the groups on

grade point average was not statistically significant although it was suggestive that the Work-Study students had a higher level of performance than did their matched controls. Bradfield mentions that the significant motivational or attitudinal determinants that served to counteract the personality factors that logically should have contributed to poorer performances were untapped by the research instruments used in the present study.

For college personnel, the results of Bradfield's study suggest that students from lower socio-economic backgrounds are sufficiently similar to college students in general so that no gross changes need be made in the college structure to accommodate them. However, subtle changes may be necessary in what to expect from such a student's behavior, and in how suggestions are made to him to modify his behavior, in order that his dislike of structure, organization, and control does not rise to the point where he chooses to quit school rather than to change.

Baber and Caple (1970) report that proposals are currently being made that would result in development of programs to meet suspected needs for special services for certain of these disadvantaged students. Such programs would require that the student financial aid officer have knowledge of factors usable in identifying prospective EOG students with special needs in order to provide them with appropriate counseling and guidance resources.

Baber and Caple conducted a study of 251 first-semester freshmen EOG recipients who enrolled in the University of Missouri-Columbia for the fall semester of 1966. The purpose of their study was to discover among EOG recipients factors that differentiated between Missouri-Columbia freshmen EOG recipients who persisted in the University of Missouri-Columbia and freshmen EOG recipients who did not persist and to determine which factors may be the most useful to the financial aid officer in identifying EOG students with particular needs for guidance service.

Many of the variables that the student financial aid officer must use to determine the student's financial need, especially family and environmental variables, did not provide adequate means of differentiating between those EOG students who would persist in the university and those who would not in this study. The most discriminating variables in this study were those involving scholastic ability and academic achievement. No new basis was found for predicting students' academic success in terms of persistence or for identifying those students who would need special guidance services.

Kaiser and Bergen (1968) compared employed first-semester freshmen who received financial aid with (1) non-employed but similarly aided freshmen, and (2) with non-employed and unaided freshmen. Their investigation showed no significant differences in average achievement. Each student in the study was paired with

another on the basis of sex, ACT score, high school grade point average, and college semester hours completed. The results showed that part-time employment did not appreciably affect first semester achievements of the selected students. High school counselors, Kaiser states, may recommend to college-bound seniors that part-time employment may be an important financial aid without adverse effects on their academic achievement.

Knight (1968) made a comparative analysis of the achievement of freshmen financial aid recipients enrolled in three Louisiana state supported colleges and the major findings stated that the best single predictor of achievement was high school rank followed by verbal-mathematical aptitude. High school size, when utilized with this set of predictors, contributed little toward predictive efficiency.

Of significance relative to the categorical variables in Knight's study was the finding that recipients of loans achieved at a significantly lower rate than did employment recipients.

Zaccardelli (1968) found that students receiving financial aid were achieving comparably in terms of academic success with the group of students not receiving financial aid although more of them were on academic probation. The group of students in this study receiving financial aid were not encountering a significantly larger number of problems of adjustment in college except in the important area of finances.

Falck (1966) designed a study to determine if there were identifiable factors which differentiated the academically successful students from the academically unsuccessful first-year students participating in the federal Work-Study program at the University of Colorado. No significant differences were found between the academic accomplishment of all the students participating in the Work-Study Program and a comparison group of the freshman class as a whole. The Work-Study students did as well as the others.

Falck's study revealed that appropriateness of vocational choice, the evaluative factor on the concepts - Study and Grades, and the Theoretical factor on the Study of Values were found to differentiate significantly the academically successful from the unsuccessful students within the Work-Study group.

#### Comparative Studies of Employed and Unemployed Students

Keene (1961) stated, "it is suspected that the student who is willing to take a part-time job in order to provide for part of his finances in college is a more mature person than the non-worker, a person with a realistic goal in life, a steady outlook and attitudes and the ability to adjust to new situations."

Budd (1956) tested the hypothesis that "the entering freshman is handicapped in his initial adjustment by remunerative employment." His study failed to reveal significant relationships at the .05 level

among four variables.

The results of Budd's study for the four variables using the Pearson product moment coefficient of correlation are as follows:

Outside work and academic adjustment	$r = .038$
Credit hours and academic adjustment	$r = .208$
Ability and academic adjustment	$r = .004$
Outside work and academic load	$r = .227$

In a study conducted at Indiana University by Trueblood (1957), a random sample of 500 working students indicated that there was no difference between the academic achievement of workers and that of non-workers. Another study at Modesto Junior College by Anderson (1966) showed no differences between academic achievement of first semester freshmen who worked and a control group who did not work.

The general conclusions from a number of studies (Kaiser and Bergen, 1968; Trueblood, 1957; Dickinson and Newbegin, 1959; Isaacson and Amos, 1957; Stark, 1965; Anderson, 1966; Henry, 1967) that have been carried out concerning the relationship of student employment to grades is that part-time employment does not adversely affect college grade point average. However, most of the prior studies correlated hours worked with achievement, replication studies were not conducted and scholastic aptitude was not controlled.

An exception to these criticisms is Henry's (1967) study of University of Missouri freshmen who were (a) employed up to 15 hours per week under a student labor program or the Work-Study program,

or (b) not employed. He equated working and non-working students by grouping them into four ability levels using an aptitude test and rank in high school class. Finding no significant differences in mean achievement between employed and non-employed freshmen, Henry concluded that needy freshmen may work up to 15 hours a week without fear of sacrificing their academic achievement.

Henry states on the basis of his study and other studies, that financial aid officers and counselors can advise entering freshmen who need financial assistance to seek part-time employment up to 15 hours a week without fear of the students sacrificing academic achievement. This evidence is in contradiction, Henry states, to much of the advice currently given to high school seniors and has significance for the current emphasis upon seeking out needy students who may be helped through the Federal Work-Study Program.

#### Studies Relating to the Nature, Prediction, and Characteristics of Achievement and Achievers

As is well known, the performance of some students exceeds the level that would be predicted from measures of intellectual ability, while the performance of others falls below the predicted level. The first type of student is known as the over-achiever and the second, the under-achiever.

Lavin (1965) states it is incorrect to consider high and low achievement to be synonymous with over- and under-achievement. The



distinction between the concepts is that high and low achievement are defined in terms of an absolute standard of performance, while over- and under-achievement involve the discrepancy between predicted and actual performance. Lavin explains if high achievement is defined as the attainment of at least an A average and low achievement as the attainment of no higher than a low C average, then a student could be a high achiever but not an over-achiever. An example of the former would be a student of very high ability who attains an A average. If his grades are at a level predicted for a person of his talent, he would not be an over-achiever, even though his level of performance is high. On the other hand, if a student of very limited ability attained a B average, his performance might exceed the level predicted on the basis of ability. Thus he would be an over-achiever, but not a high achiever.

Lavin states that failure to equate performance groups for ability is a shortcoming of many studies. The solution to the problem lies in operationally defining over-achievement and under-achievement as discrepancies between observed grades and predicted grades.

Vaughn's (1967) study investigated the relationship between personality traits and academic achievement for achievers and non-achievers at the university level, while holding scholastic ability constant. Although no distinctive traits characterized the achiever, the non-achiever showed pronounced tendencies in the direction of

impulsivity, over-activity, and excessive sociability. The non-achiever also scored significantly lower than the achiever in social responsibility.

In conclusion, Vaughan states that his study showed the college non-achiever frequently differing from the achiever in extraversion, overactivity, a failure to learn from experience and a disregard for social responsibility. There is also some indication that achievers tend to have higher Masculinity-Femininity scores.

On the basis of the Minnesota Multiphasic Personality Inventory, Morgan (1952) saw the achiever as a dependable, serious person who is endowed with dominance in social situations, optimism and permissiveness, while the non-achiever is callous, socially insensitive, irresponsible and self-centered.

Owens and Johnson (1949) however, maintain that the non-achiever is too social an individual to be concerned with study; in addition, he has little tendency to depression, worry, and psychic tension. Holland (1960) suggests that non-intellectual variables such as persistence and deferred gratification are useful in prediction and understanding the academic achiever.

Magoon and Maxwell (1965) analyzed the demographic differences between high and low achieving university students. They found that the low achieving student was more likely to have joined a fraternity, be working part-time, dating more frequently, studying fewer hours

and volunteering less frequently in class than his high achieving compeer.

Hood (1967) found introverted, less socially outgoing students achieved higher grades in college than would be expected from their scholastic aptitude test scores. Reasons for this difference, Hood stated, could be that introverted students find more time available for study with fewer competing social interests and/or that lack of social success results in greater motivation for academic success. He mentions that research in the future should examine the actual behavior associated with personality characteristics that result in lower college achievement.

Hoyt and Munday (1968), both connected with the American College Testing (ACT) Program, examined scores on the ACT with the prediction of academic success. Hoyt and Munday attempted to discover which, if any, predictors of academic success had low correlations with ACT scores. Presumably, if a low correlation existed, the two or more items could be combined to provide a better predictor than either alone. Munday found that intelligent quotient (IQ) scores correlate rather highly with ACT scores but only moderately with high school grades. Thus, prediction might be improved by combining grades and test scores. It might be noted that this practice has been common for some time.

Hoyt (1968) wanted to develop generalized regression weights to

take into account differences among colleges in the type of student and rigor of grading. He found that this could be done with some success and the results of computations for 1,000 colleges are available from the Research and Development Division of ACT. (Winona State College, from which the sample for this study was selected, is one of the participating colleges.)

Cole (1969) obtained the correlations of college grades in the four subject areas (English, Mathematics, Social Studies, and Natural Sciences) with the four ACT tests and high school grades to directly assess the differential validity of the ACT tests and of high school grades for comparison. For the years 1966 and 1967 the correlations for the approximately 250 colleges with this data were collected. The correlations from this study are given in the following table:

Correlations of College Grades With  
ACT Tests and High School Grades

	ACT E	ACT M	ACT SS	ACT NS	HS E	HS M	HS SS	HS NS
COL-E	.47	.24	.34	.27	.43	.26	.30	.27
COL-M	.28	.38	.24	.22	.30	.35	.29	.30
COL-SS	.34	.29	.43	.33	.37	.28	.40	.31
COL-NS	.35	.39	.38	.39	.37	.37	.37	.37

The correlations are lower than would ordinarily be found in an unselected group because of some restriction of range within the colleges. The table does indicate that the ACT tests show as much differential validity as high school grades.

Crawford (1966), in studying the effects of offers of financial assistance to talented high school students with limited financial means, found significant differences between the students offered aid and those who were not offered aid. Students offered aid more frequently enrolled in college immediately following their high school graduation and less often found it necessary to interrupt or discontinue their college studies. Crawford's major conclusion from his study was that a national program of financial assistance for students with limited financial means could effectively reduce academic talent loss by enabling students to enroll in college immediately following their high school graduation and by providing the financial means for them to complete their studies without interruption.

Baird (1969) directed his study toward two groups of students: those from families with incomes below \$5,000 who planned to attain professional level degrees and those students from families with incomes of \$15,000 or higher who sought junior college degrees or the equivalent. Baird found in his studies that there was a slight positive association between family income and degree plans. Thus, while a greater percentage of low income than high income students planned junior college degrees, and a slightly greater percentage of high income than low income students planned professional level degrees, the differences were certainly not as large as might be expected. By far, the largest percentage of students planned bachelor's degrees

regardless of family income. Although more students who planned junior college degrees came from low income families, almost exactly the same number of students who planned professional level degrees came from the lowest as well as the highest income categories.

The major field choices of students who planned junior college degrees appeared unrelated to family income. Among those planning professional level degrees, however, family income was related to major field choices. Students from wealthier families more frequently planned pre-law and pre-medical majors, while students from low income families more often planned education majors. Students planning junior college degrees more frequently proposed majors in business, finance, trade and industry.

The most obvious general trend in Baird's study was that students with discrepant family incomes and degree goals were more like other students with the same degree goals than they were like students from families with similar incomes. Although there was a positive relation between family income and degree plans, income alone did not seem to be as powerful a determinant of degree plans as other characteristics considered singly.

Within Baird's sample there was a slight positive association between family income and ACT composite score. This suggests that the students from less wealthy families who aspired to high level

degrees were over-achievers, while students from wealthy families who aspired to low level degrees were under-achievers. The fact that many students from low income families planned professional level or master's level degrees supports the belief in the upward social mobility of American society. Sixty percent of the students in this study planning a professional level degree came from families with incomes below \$10,000; however, since approximately 80 percent of families in the United States have income below \$10,000 (Robinson, Morton and Calderwood, 1967), the distribution is not as disproportionate as the ACT report indicates.

An extensive study of the relationship of family income, self-concept, and academic stress was conducted by Wright (1966) at the University of Florida. Involving 350 students over a two-year period, the study indicated that the economically deprived student with a low self-concept achieved relatively higher academically than the wealthier student with a higher self-concept. While there is some concern in most institutions about recruiting students from low socio-economic levels, there appears to be some indication that these students may actually put forth more effort to achieve academically than do other students.

#### Summary of the Review of the Literature

The topic of financial aid has not generated any appreciable

degree of research despite its tremendous growth since the late 1950's. During these years there were four factors that accelerated the development of the role of financial aid. First, this was a period of sharply rising college costs and second, of rapid expansion of the college-going population, particularly into the economic strata of the community that produced relatively few college students before World War II. The third factor was the desire to remove family income as a prime determinant of who attends college. These three factors combined have generated an immense demand for financial aid and, to a surprising degree, the demand has been met. This has resulted in the fourth major factor: increased financial aid resources have required the administrative structure within the colleges to cope with additional students and their grants, loans, and jobs.

The findings of the review of the literature have indicated that the techniques of financial aid are quite fully developed and sound, but information about the sources, effects, and ultimate worth of the various types of financial aid is inadequate. The literature is replete with descriptive articles regarding financial aid, but apart from the economic studies conducted by the College Scholarship Service and the ACT to refine the basic need analysis system, the amount of useful research done in the field of financial aid is minimal.

Studies indicate that employment up to 15 hours per week does not adversely affect grade point average at any ability level; therefore,



part-time work in moderation can provide an additional source of income without endangering classroom performance. Other studies found that socio-economic class is an important variable in financial aid decisions and that the lower an applicant's socio-economic class, the more likely his chances of being awarded aid. High test scores sometimes resulted in favorable treatment for some applicants from high income backgrounds.

A fascinating ancillary was Schlekot's (1968) study that students from lower social groups selected less expensive colleges even when their academic credentials equalled those of their upper class competitors. Providing a true equal opportunity to people of equal talent, including that of going to the most expensive or prestigious colleges, regardless of the economical or social status from which they come, is a major need of our existing financial aid programs.

The review of the literature suggests that future studies of achievement should continue to examine in depth the institutional contexts, psychological and social influences, the interrelationship of variables, sex differentiation, and effects of counseling and advisement; the review of the literature also stresses the need for study of additional variables which may contribute to the achievement of the college student.

### III. METHOD AND PROCEDURE

Essential to the purposes for which this study was conducted were the two basic groups of students selected for the study. One group consisted of over-achievers and one group of under-achievers. Each of these groups was subdivided into financial aid recipients and non-recipients of financial aid.

For the purpose of this study, over-achievers were designated as those individuals whose grade point was .15 or more above their predicted grade point average. Under-achievers were designated as those individuals whose grade point average was .15 or more below their predicted grade point average. This made possible the following logical comparisons.

1. Financial aid over-achievers versus financial aid under-achievers.
2. Non-financial aid over-achievers versus non-financial aid under-achievers.
3. Financial aid over-achievers versus non-financial aid over-achievers.
4. Financial aid under-achievers versus non-financial aid under-achievers.

Additional special sub-groups compared in the study were:

1. All over-achievers versus all under-achievers.

2. All financial aid recipients versus all non-financial aid recipients.

### Selection of Samples

The selection of the students for the study was based on several factors. To be eligible for the sample selection the student:

1. had to be a sophomore who had completed a minimum of at least 45 quarter hours in one academic year or a junior who had completed at least 90 quarter hours in two academic years at Winona State College.
2. had to have high school grades and the American College Test (ACT) scores on record.
3. had to meet the definition of an over-achiever or under-achiever.

The predicted grade point average was calculated from the American College Test scores and high school grades using the regression equation:  $y = B_1X_1 + B_0$ , a mathematical expression describing the operations to be performed in predicting a criterion with maximum accuracy, assuming the relation of the prediction (s) to the criterion is linear (Hoyt and Munday).

Because several predictors ( $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$  and  $X_5$ ) are used, in this study the equation takes the form  $y$  (predicted) =  $B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_0$ , where  $y$  is the predicted criterion (grade

point average),  $B_1$ ,  $B_2$ ,  $B_3$ ,  $B_4$ ,  $B_5$  are the regression weights associated with each predictor (four ACT tests and high school grades), the  $X$ 's are predictor scores and  $B_0$  is the regression constant.

The American College Test Research Service provided a computational table for predicting overall grade point average for students at Winona State College (see Appendix A).

This information was programmed into an International Business Machine 1130 Computer. The results were used to classify students as over-achievers and under-achievers. Four hundred twenty-six students met the criteria for the original population. Within the original population, 236 students were classified as over-achievers and 190 were classified as under-achievers.

The financial aid office sub-divided the over- and under-achievers into financial aid recipients and non-recipients of financial aid. Financial aid recipients were students receiving an Educational Opportunity Grant, National Defense Student Loan, Work-Study Grant, Federally Insured Loan, or a combination of the above. Students who did not submit an application for financial assistance to the financial aid office were classified as non-financial aid recipients.

In August, 1969, the 426 students in the original population were divided into the following sub-groups:

1. financial aid over-achievers --- 98 students
2. financial aid under-achievers --- 61 students

3. non-financial aid over-achievers --- 138 students
4. non-financial aid under-achievers --- 129 students

At the beginning of winter quarter, 1970, a letter of explanation was sent to the still-enrolled students of the original population, asking them to participate in the study (see Appendix B). Due to the draft, marriage, academic dismissals, transfers, and other reasons, the number of students in the study had decreased to 367 students by the beginning of the winter quarter, 1970. The sub-groups at the beginning of winter quarter consisted of the following number of students:

1. financial aid over-achievers --- 89 students
2. financial aid under-achievers --- 55 students
3. non-financial aid over-achievers --- 119 students
4. non-financial aid under-achievers --- 104 students

The College Student Questionnaire, Part Two, (CSQ), was administered to the 144 students who responded to the initial letter of request. The CSQ was administered to individual students over a period of four days at the College Center (Union).

A second letter of request (see Appendix C) was sent to students who had not responded to the first letter and the CSQ was again administered at the College Center to the 59 students who responded to the second request. A special effort was made to contact the 55 enrolled "financial aid under-achievers" because the Educational Testing Service (ETS) considers an adequate sample size in any

sub-group to be at least 50. These individuals were contacted by telephone and sent a third letter requesting them to respond (see Appendix D). Ten students responded to the telephone call and third letter.

Of the 367 students enrolled, 213 students responded to the letters and telephone follow-up. The findings and conclusions are, therefore, based on the responses of 58 percent of the total group contacted. The number of students in each sub-group completing the CSQ was as follows:

1. financial aid over-achievers --- 55 students
  2. financial aid under-achievers --- 52 students
  3. non-financial aid over-achievers --- 53 students
  4. non-financial aid under-achievers --- 53 students
- Total --- 213 students

#### Sources of Data

There were two main sources of data for use in this study.

#### Official College Records

From the official college records located in the Office of Student Affairs and the Registrar's Office, the following information was obtained.

1. High school grades: The student's high school grades in

English, mathematics, social studies and natural science as reported to the American College Test Program.

2. College grade point average: The student's cumulative grade point average for his first or second year of college study, depending upon number of quarter hours completed.
3. American College Test scores: The student composite and individual raw score in each of the four sub-tests of the ACT.

### The College Student Questionnaire (CSQ), Part Two

The CSQ is a multi-purpose research instrument, designed by Educational Testing Service to facilitate the study of biographic and attitudinal characteristics of groups of college students. The CSQ, Part Two, takes about an hour and a half to administer and consists of 200 multiple choice questions. The number of response alternatives per item ranged from two through nine; the typical item has four alternatives. Responses are recorded on a separate answer sheet which is processed by optical scanning equipment at Educational Testing Service, Princeton, New Jersey. An outline of the contents of CSQ, Part Two, is given below.

1. Section One: Educational and Vocational Plans
  - a. Basic demographic data: sex, age
  - b. Status as student: class, residence
  - c. Educational plans: major, graduate work

- d. Vocational plans
  - e. Financial support
2. Section Two: College Activities
- a. Extracurricular activities
  - b. Attitudes reflecting faculty and student-faculty relations
  - c. Attitudes reflecting administration and administrative rules, regulations
  - d. Sources of satisfaction and problems
  - e. Fraternity-sorority considerations
  - f. Estimated grade average
  - g. Study techniques and attitudes
  - h. Leisure time activities
  - i. Outside reading preferences
  - j. Attitudes about the student body
  - k. Attitudes about work in major field
3. Section Three: Attitudes
- a. Respondent's religious preference
  - b. Instructional preferences
  - c. Attitudes reflecting independence from family
  - d. Attitudes reflecting independence from peers
  - e. Political attitudes
  - f. Attitudes reflecting social conscience
  - g. Activities reflecting cultural sophistication



### Tabulation of the Data

Once the data in the study had been collected, the following steps were undertaken for the analysis of the results:

1. After the completion of the administration of the questionnaire, the answer sheets were sent to the Educational Testing Service (ETS), Princeton, New Jersey, for tabulating and scoring. The scoring service from ETS provided a computer print-out consisting of abstracted item stems and response alternatives and scale scores; frequency distribution, means and standard deviations for the total group and the sub-groups.
2. Upon receipt of the statistical data from ETS, the data were punched on fortran statement cards and analyzed for significant differences by the International Business Machine 1130 Computer.

In testing the six hypotheses of this study the following statistical processes were used.

1. In testing the first hypothesis that there was no significant difference between financial aid and non-financial aid recipients and academic achievement, the Chi-square test (Snedecor and Cochran, 1968) was used (see Appendix E).
2. In testing hypotheses two, three, four and five the t-test was used to determine whether there were significant differences

on the 11 scales of the CSQ between the following groups (Ferguson, 1966) (see Appendix E):

- a. financial aid over-achievers and financial aid under-achievers.
  - b. non-financial aid over-achievers and non-financial aid under-achievers.
  - c. financial aid over-achievers and non-financial aid over-achievers.
  - d. financial aid under-achievers and non-financial aid under-achievers.
3. In testing hypothesis six that there were no significant differences between the sub-groups on the variables studied, the Chi-square test was used.

#### IV. ANALYSIS OF DATA

This chapter presents a discussion of the results of the analyses of the data used in testing six hypotheses (see page 7). Original data were collected to determine whether a significant difference existed between financial aid and non-financial aid recipients with respect to academic achievement. The first hypothesis was tested using the total population fitting the criteria, 426 students; the other five hypotheses were limited to the 213 students of the population persuaded to take the College Student Questionnaire, Part Two (CSQ).

##### Findings Related to the First Hypothesis

The first hypothesis was tested to determine if a significant difference existed between financial aid and non-financial aid recipients and academic achievement. Table 1 reveals the results of the Chi-square test of independence of the two variables used in the first hypothesis, financial aid and non-financial aid recipients and academic achievement.

The hypothesis that there was no significant difference in the proportions of students receiving financial aid and those not receiving financial aid whose achieved grade point averages are greater than or less than their predicted grade point average was rejected at the five percent level of confidence. The financial aid group was performing academically better than the non-financial aid group.

Table 1. The Chi-square test of independence of the two variables, financial aid and non-financial aid recipients and academic achievement.

Group	Over-achievers N	Under-achievers N	$X^2$
Financial aid recipients	98	61	5.6159 <sup>a</sup>
Non-financial aid recipients	138	129	

$X^2$  (.05) = 3.84

<sup>a</sup>Significant

#### Findings Related to the Second Hypothesis

In testing the second hypothesis, financial aid over-achievers were compared to financial aid under-achievers on the 11 scales of the CSQ. Table 2 compares differences in score distribution of the two groups.

Using the t-test, the statistical analysis revealed no significant difference between the two groups on the factors of satisfaction with faculty, administration, major, students, extracurricular involvement, family independence, peer independence, social conscience, and cultural sophistication.

Financial aid over-achievers had significantly higher scores on the scale of study habits while financial aid under-achievers had significantly higher scores on the scale of liberalism.

An examination of the item responses of the financial aid

Table 2. Comparison of differences in score distribution on the 11 CSQ scales, using the t-test, for financial aid over-achievers and financial aid under-achievers.

Variable		Financial aid over- achievers	Financial aid under- achievers	N	T	P
Satisfaction with faculty	$\bar{X}$ S. D.	24.58 4.32	25.81 4.52	107	.44	NS
Satisfaction with administration	$\bar{X}$ S. D.	27.39 4.29	28.10 3.71	107	.91	NS
Satisfaction with major	$\bar{X}$ S. D.	27.77 3.71	28.10 4.37	84	.37	NS
Satisfaction with students	$\bar{X}$ S. D.	27.04 3.62	26.06 3.93	107	.98	NS
Study habits	$\bar{X}$ S. D.	27.04 2.87	24.67 4.08	107	3.49	.01
Extracurricular involvement	$\bar{X}$ S. D.	19.96 4.07	20.69 3.77	107	.96	NS
Family independence	$\bar{X}$ S. D.	23.96 5.20	23.58 4.50	107	.40	NS
Peer independence	$\bar{X}$ S. D.	23.89 3.81	22.71 3.38	107	1.69	NS
Liberalism	$\bar{X}$ S. D.	25.89 4.38	27.63 5.07	107	1.987	.05
Social conscience	$\bar{X}$ S. D.	28.67 4.15	29.40 4.83	107	.83	NS
Cultural sophistication	$\bar{X}$ S. D.	22.89 4.25	23.44 4.01	107	.69	NS

under-achievers on the CSQ revealed that the group daydreamed frequently when studying, watched television more, had spent more time playing cards and also spent more time on automotive activities than the financial aid over-achiever. In scoring higher on liberalism, financial aid under-achievers were more concerned about the extent of poverty, organized labor and the welfare system.

### Findings Related to the Third Hypothesis

The third hypothesis was tested by comparing non-financial aid over-achievers and under-achievers on the 11 scales of the CSQ.

Table 3 compares differences in score distribution of the two groups.

Using the t-test, the statistical analysis revealed no significant difference between the two groups on the factors of satisfaction with students, major, extracurricular involvement, family independence, peer independence, liberalism, social conscience, and cultural sophistication.

The non-financial aid over-achievers had significantly higher scores on the scales of satisfaction with faculty and administration. An examination of the item responses of the non-financial aid over-achievers on the CSQ revealed that the group tended to rate their faculty and administration as more competent, fairer, more accessible and more interested in their problems than the non-financial aid under-achievers.

Table 3. Comparison of differences in score distribution on the 11 CSQ scales, using the t-test for non-financial aid over-achievers and under-achievers.

Variable		Non-financial aid over- achievers	Non-financial aid under- achievers	N	T	P
Satisfaction with faculty	$\bar{X}$ S. D.	24.11 4.10	22.26 4.40	105	2.24	.05
Satisfaction with administration	$\bar{X}$ S. D.	27.72 3.99	25.47 5.00	106	2.56	.05
Satisfaction with major	$\bar{X}$ S. D.	27.43 3.77	27.52 4.28	62	.08	NS
Satisfaction with students	$\bar{X}$ S. D.	26.62 3.86	25.79 4.78	105	.98	NS
Study habits	$\bar{X}$ S. D.	26.09 4.42	24.52 4.42	105	1.82	NS
Extracurricular involvement	$\bar{X}$ S. D.	19.36 4.78	19.00 4.26	106	.41	NS
Family independence	$\bar{X}$ S. D.	21.70 5.28	21.45 4.66	105	.26	NS
Peer independence	$\bar{X}$ S. D.	23.70 3.79	23.79 3.39	105	.13	NS
Liberalism	$\bar{X}$ S. D.	26.08 3.75	26.29 4.35	105	.26	NS
Social conscience	$\bar{X}$ S. D.	28.98 5.12	27.88 4.61	105	1.16	NS
Cultural sophistication	$\bar{X}$ S. D.	22.47 4.58	21.60 4.90	106	.94	NS

### Findings Related to the Fourth Hypothesis

The fourth hypothesis was tested by comparing financial aid over-achievers to non-financial aid over-achievers on the 11 scales of the CSQ. Table 4 compares differences in the score distribution of the two groups.

Using the t-test, the statistical analysis revealed no significant difference between the two groups on the factors of satisfaction with faculty, administration, students, major, study habits, extracurricular involvement, peer independence, liberalism, social conscience, and cultural sophistication.

Financial aid over-achievers had significantly higher scores on the scale of family independence. An examination of the item responses revealed that 53 percent of the non-financial aid over-achievers depended on their parents for financial support compared to seven percent of the financial aid over-achievers. There appears to be a relationship between family independence and the financial needs of the student; 'money from home' seems to sustain the students' degree of family dependence.

### Findings Related to the Fifth Hypothesis

The fifth hypothesis was tested by comparing financial aid under-achievers to non-financial aid under-achievers on the 11 scales of the CSQ. Table 5 compares differences in score distribution of the two



Table 4. Comparison of differences in score distribution on the 11 CSQ scales using the t-test for financial aid over-achievers and non-financial aid over-achievers.

Variable		Financial aid over-achievers	Non-financial aid over-achievers	N	T	P
Satisfaction with faculty	$\bar{X}$ S. D.	24.58 4.32	24.11 4.10	108	.57	NS
Satisfaction with administration	$\bar{X}$ S. D.	27.39 4.29	27.72 3.99	108	.41	NS
Satisfaction with major	$\bar{X}$ S. D.	27.77 3.71	27.43 3.77	79	.40	NS
Satisfaction with students	$\bar{X}$ S. D.	27.04 3.26	26.62 3.86	108	.58	NS
Study habits	$\bar{X}$ S. D.	27.04 2.87	26.09 4.42	108	.18	NS
Extracurricular involvement	$\bar{X}$ S. D.	19.96 4.02	19.36 4.78	108	.70	NS
Family independence	$\bar{X}$ S. D.	23.96 5.20	21.70 5.28	108	2.24	.05
Peer independence	$\bar{X}$ S. D.	23.89 3.81	23.70 3.79	108	.26	NS
Liberalism	$\bar{X}$ S. D.	25.89 4.38	26.08 3.75	108	.24	NS
Social conscience	$\bar{X}$ S. D.	22.89 4.15	22.47 5.12	108	.49	NS
Cultural sophistication	$\bar{X}$ S. D.	22.89 4.25	22.47 4.58	108	.49	NS

Table 5. Comparison of differences in score distribution on the 11 CSQ scales using the t-test for financial aid under-achievers and non-financial aid under-achievers.

Variable		Financial aid under- achievers	Non-financial aid under- achievers	N	T	P
Satisfaction with faculty	$\bar{X}$ S. D.	25.81 4.52	22.26 4.40	105	4.07	.01
Satisfaction with administration	$\bar{X}$ S. D.	28.10 3.71	25.47 5.00	105	3.05	.01
Satisfaction with major	$\bar{X}$ S. D.	28.10 4.37	27.52 4.28	67	.54	NS
Satisfaction with students	$\bar{X}$ S. D.	26.06 3.93	25.79 4.78	104	.31	NS
Study habits	$\bar{X}$ S. D.	24.67 4.08	24.52 4.42	104	.18	NS
Extracurricular involvement	$\bar{X}$ S. D.	20.69 3.77	19.00 4.26	105	2.15	.05
Family independence	$\bar{X}$ S. D.	23.58 4.50	21.45 4.66	105	2.38	.05
Peer independence	$\bar{X}$ S. D.	22.71 3.38	23.79 3.39	105	1.63	NS
Liberalism	$\bar{X}$ S. D.	27.63 5.07	26.79 4.35	104	1.44	NS
Social conscience	$\bar{X}$ S. D.	29.40 4.83	27.88 4.61	104	1.64	NS
Cultural sophistication	$\bar{X}$ S. D.	23.44 4.01	21.60 4.90	105	2.10	.05

groups.

Using the t-test, the statistical analysis revealed no significant difference between the two groups on the factors of satisfaction with students, major, study habits, peer independence, liberalism, social conscience. Financial aid under-achievers had significantly higher scores on the scales of satisfaction with faculty and administration, extracurricular involvement, family independence, and cultural sophistication.

An interesting comparison of the two groups was in the area of extracurricular involvement. Fifty-one percent of the non-financial aid under-achievers did not participate in any extracurricular activity compared to 27 percent of the financial aid under-achievers. However, 43 percent of the non-financial aid under-achievers were working more than 16 hours per week compared to 25 percent of the financial aid under-achievers. In addition, 42 percent of the non-financial aid under-achievers lived with their parents, compared to 12 percent of the financial aid under-achievers who tended to be older.

The statistical difference in scores on the cultural sophistication scale indicated a "lack of cultivated sensibility in the general areas of the humanities" (see page 15) on the part of the non-financial aid under-achievers.

Findings Related to the Sixth Hypothesis

The sixth hypothesis was tested by comparing sub-groups of financial aid and non-financial aid recipients in several areas not included in the 11 scales of the CSQ. In order to provide more information concerning the sub-groups, summaries of that data are provided in the following pages. In those cases where the data appeared to differ from expected values, the Chi-square test was used.

Range of Age: Table 6 presents a summary of the data pertaining to range of age for the sample group. Tables 7, 8, and 9 reveal the results of the Chi-square test of independence of two variables, achievement and age, for various sub-groups of financial aid and non-financial aid recipients.

Table 6. Ranges of ages for financial aid and non-financial aid recipients.

Age	Financial Aid				Non-financial Aid			
	Over-achievers		Under-achievers		Over-achievers		Under-achievers	
	N	%	N	%	N	%	N	%
17	2	4	0	0	0	0	0	0
18	2	4	0	0	0	0	1	2
19	43	77	25	48	41	77	44	83
20	7	13	23	44	9	17	5	9
21	0	0	1	2	1	2	3	6
22	1	2	1	2	0	0	0	0
23	0	0	2	4	2	4	0	0
24 or older	0	0	0	0	0	0	0	0
Total	55	100%	52	100%	53	100%	53	100%

Table 7. The Chi-square test of independence of the two variables, achievement and age, for over-achievers and under-achievers.

Group	19 or younger	20 or older	$X^2$
Over-achievers	88	20	6.27 <sup>a</sup>
Under-achievers	70	35	

$$X^2 (.05) = 3.84$$

<sup>a</sup>Significant

Table 8. The Chi-square test of independence of the two variables, achievement and age, for financial aid recipients.

Group	19 or younger	20 or older	$X^2$
Financial aid over-achievers	47	8	17 <sup>a</sup>
Financial aid under-achievers	25	27	

$$X^2 (.01) = 6.64$$

<sup>a</sup>Significant

Table 9. The Chi-square test of independence of the two variables, achievement and age, for non-financial aid recipients.

Group	19 or younger	20 or older	$X^2$
Non-financial aid over-achievers	41	12	.98
Non-financial aid under-achievers	45	8	

$$X^2 (.05) = 3.84$$

<sup>a</sup>Non-significant

The Chi-square test of independence was applied to a combination of the age categories (19 or younger, 20 or older) and revealed a significant difference between the over-achievers and under-achievers at the five percent level of confidence and at the one percent level of confidence between the financial aid over-achievers and under-achievers. Eighty-five percent of the financial aid over-achievers were 19 or younger, while 52 percent of the financial aid under-achievers were 20 or older.

Expected Employment During College: A summary of sample groups expectations of employment during the college year is presented in Table 10. Tables 11, 12, and 13 present the results of the Chi-square test of independence for financial aid and non-financial aid recipients regarding employment.

Table 10. Expected employment for financial aid and non-financial aid recipients.

Employment (hrs /week)	Financial Aid				Non-financial Aid			
	Over- achievers		Under- achievers		Over achievers		Under- achievers	
	N	%	N	%	N	%	N	%
None	19	35	17	33	35	66	17	32
Less than 6	1	2	3	6	2	4	5	9
6 to 10	10	18	10	19	6	11	2	4
11 to 15	14	25	9	17	3	6	6	11
16 to 20	7	13	4	8	0	0	6	11
21 to 25	2	4	5	10	4	8	8	15
26 to 30	0	0	0	0	2	4	2	4
more than 30	2	4	4	8	1	2	7	13

Table 11. The Chi-square test of independence of two variables, achievement and expected employment, for combined groups of over- and under-achievers.

Group	6 hrs /less	6-15 hrs	$X^2$	
Over-achievers	57	33	.11 <sup>a</sup>	
Under-achievers	42	27		
	<u>6 hrs /less</u>	<u>6-15 hrs</u>	<u>16 hrs /more</u>	<u><math>X^2</math></u>
Over-achievers	57	33	18	10.00 <sup>b</sup>
Under-achievers	42	27	36	
$X^2$ (.05) = 3.84		$X^2$ (.01) = 9.22		
<sup>a</sup> Non-significant		<sup>b</sup> Significant		

Table 12. The Chi-square test of independence of two variables, achievement and expected employment, for financial aid recipients.

Group	6 hrs /less	6-15 hrs	$X^2$	
Financial aid over-achievers	20	24	.19 <sup>a</sup>	
Financial aid under-achievers	20	19		
	<u>6 hrs /less</u>	<u>6-15 hrs</u>	<u>16 hrs /more</u>	<u><math>X^2</math></u>
Financial aid over-achievers	20	24	11	.269 <sup>b</sup>
Financial aid under-achievers	20	19	13	
$X^2$ (.05) = 3.84		$X^2$ (.05) = 3.84		
<sup>a</sup> Non-significant		<sup>b</sup> Non-significant		

Table 13. The Chi-square test of independence of two variables, achievement and expected employment, for non-financial aid recipients.

Group	6 hrs /less	6-15 hrs	$X^2$	
Non-financial aid over-achievers	37	9	.31 <sup>a</sup>	
Non-financial aid under-achievers	22	8		
	<u>6 hrs /less</u>	<u>6-15 hrs</u>	<u>16 hrs /more</u>	<u><math>X^2</math></u>
Non-financial aid over-achievers	37	8	7	12.46 <sup>b</sup>
Non-financial aid under-achievers	22	8	23	
	$X^2 (.05) = 3.84$		$X^2 (.01) = 9.22$	
	<sup>a</sup> Non-significant		<sup>b</sup> Significant	

An analysis of the data combining two categories of expected employment (six hours or less, six to 15 hours) utilizing the Chi-square test of independence revealed no significant differences between financial aid and non-financial aid sub-groups.

However, when adding the third category (16 hours or more) the Chi-square test of independence revealed a significant difference at the one percent level of confidence for two groups, all over- and under-achievers and non-financial aid over- and under-achievers. The data on expected employment suggests that working up to 15 hours per week has no relationship to achievement, while working more than 15 hours per week does have a relationship to achievement.



Place of Residence: A summary of the place of residence of the sample is presented in Table 14. Tables 15, 16, and 17 present the results of the Chi-square test of independence for financial aid and non-financial aid students in relation to place of residence.

Table 14. Place of residence for financial aid and non-financial aid students.

Group	Financial Aid				Non-financial Aid			
	Over-achievers		Under-achievers		Over-achievers		Under-achievers	
	N	%	N	%	N	%	N	%
College dormitory	37	67	18	35	29	55	17	32
Fraternity-sorority	0	0	2	4	0	0	3	6
With parents	5	9	7	13	14	26	19	36
With friends or relatives	2	4	1	2	2	4	0	0
Private room off campus	2	4	5	10	2	4	1	2
Private apartment off campus	9	16	19	37	6	11	12	23

An analysis of the data comparing achievement and place of residence, utilizing the Chi-square test of independence, revealed a significant difference at the one percent level of confidence between all over- and under-achievers, and financial aid over- and under-achievers; a comparison of non-financial aid over- and under-achievers revealed a significant difference at the five percent level of confidence. A majority of over-achievers resided in college dormitories, while the majority of the under-achievers resided in off-campus

Table 15. The Chi-square test of independence of the two variables, achievement and place of residence, for combined groups of over- and under-achievers.

Group	College dormitory	Off-campus (including parents)	$X^2$
	N	N	
Over-achievers	66	35	17.1 <sup>a</sup>
Under-achievers	42	69	
$X^2 (.01) = 6.64$		<sup>a</sup> Significant	

Table 16. The Chi-square test of independence of the two variables, achievement and place of residence, for financial aid recipients.

Group	College dormitory	Off-campus (including parents)	$X^2$
	N	N	
Financial aid over-achievers	37	18	11.9 <sup>a</sup>
Financial aid under-achievers	18	34	
$X^2 (.01) = 6.64$		<sup>a</sup> Significant	

Table 17. The Chi-square test of independence of the two variables, achievement and place of residence, for non-financial aid recipients.

Group	College dormitory	Off-campus (including parents)	$X^2$
	N	N	
Non-financial aid over-achievers	29	24	5.57 <sup>a</sup>
Non-financial aid under-achievers	17	35	
$X^2 (.05) = 3.84$		<sup>a</sup> Significant	

housing or with their parents.

### Summary of Results

The first hypothesis dealt with the question, "Do financial aid recipients use their scholastic abilities more successfully than non-financial aid recipients as measured by a comparison of frequency of under-achievers and over-achievers?" The statistical analysis revealed a significant difference at the five percent level of confidence in favor of the financial aid recipients.

Sub-groups of financial aid and non-financial aid recipients were compared in the next four hypotheses by use of the CSQ and the t-test. The statistical analysis revealed a significant difference between financial aid over-achievers and under-achievers in study habits, with the financial aid over-achievers scoring higher.

The comparison between non-financial aid over- and under-achievers revealed a significant difference on satisfaction with the faculty and satisfaction with the administration, with the non-financial aid over-achiever scoring higher.

The comparison between financial aid and non-financial aid over-achievers revealed a significant difference on the family independence scale, with the financial aid over-achievers scoring higher.

The statistical analysis revealed more significant differences

between financial aid under-achievers and non-financial aid under-achievers than any of the other sub-groups. Financial aid under-achievers had significantly higher scores in the areas of satisfaction with faculty and administration, extracurricular involvement, family independence and cultural sophistication.

Tables 18 and 19 present a summary pertaining to the acceptance or rejection of null hypotheses two, three, four and five under study.

The sixth hypothesis compared sub-groups on various demographic variables. A significant difference was found between the groups on achievement and age, achievement and place of residence, and achievement and employment.

Table 18. Summary table pertaining to the retention or rejection of the second and third null hypotheses.

Variable	Corresponding hypothesis	
	Financial aid Over-achievers Under-achievers	Non-financial aid Over-achievers Under-achievers
Satisfaction with faculty	accepted	rejected
Satisfaction with administration	accepted	rejected
Satisfaction with major	accepted	accepted
Satisfaction with students	accepted	accepted
Study habits	rejected	accepted
Extracurricular involvement	accepted	accepted
Family independence	accepted	accepted
Peer independence	accepted	accepted
Liberalism	rejected	accepted
Social conscience	accepted	accepted
Cultural sophistication	accepted	accepted

Table 19. Summary table pertaining to the retention or rejection of the fourth and fifth null hypotheses.

Variable	Corresponding hypothesis	
	Financial aid over-achievers Non-financial aid over-achievers	Financial aid under-achievers Non-financial aid under-achievers
Satisfaction with faculty	accepted	rejected
Satisfaction with administration	accepted	rejected
Satisfaction with major	accepted	accepted
Satisfaction with students	accepted	accepted
Study habits	accepted	accepted
Extracurricular involvement	accepted	rejected
Family independence	rejected	rejected
Peer independence	accepted	accepted
Liberalism	accepted	accepted
Social conscience	accepted	accepted
Cultural sophistication	accepted	rejected

## V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The primary purpose of this study was to compare and evaluate certain common identifiable characteristics of two general classes of students, financial aid recipients and non-financial aid recipients, in terms of predicted and actual grade point achievement, attitudes toward the college, and demographic characteristics in order to determine whether this data contained information useful to the efficient, effective, and equitable organization and administration of financial aid programs.

This study dealt with the following specific questions:

1. Do financial aid recipients use their scholastic abilities more successfully than non-financial aid recipients as measured by a comparison of frequency of under-achievers and over-achievers in each of the two groups?
2. Of the students receiving financial aid, do those classified as over-achievers differ significantly from those classified as under-achievers in attitudes toward the college as measured by Part Two of the College Student Questionnaire (CSQ)? These 11 characteristics are:
  - a. satisfaction with the faculty
  - b. satisfaction with the administration
  - c. satisfaction with major
  - d. satisfaction with students

- e. study habits
  - f. extracurricular involvement
  - g. family independence
  - h. peer independence
  - i. social conscience
  - j. liberalism
  - k. cultural sophistication
3. Of the students not receiving financial aid, do those classified as over-achievers differ significantly from those classified as under-achievers in the attitudes measured by Part Two of the CSQ?
  4. Of the students classified as over-achievers, do those receiving financial aid differ significantly from those not receiving financial aid in the attitudes measured by Part Two of the CSQ?
  5. Of the students classified as under-achievers, do those receiving financial aid differ significantly from those not receiving financial aid in the attitudes measured by Part Two of the CSQ?
  6. Do significant differences exist between financial aid and non-financial aid recipients on the various demographic variables as indicated in Part Two of the CSQ?

The sample for the testing of the first hypothesis of this study



consisted of 426 students from the following two groups:

1. All sophomore financial aid recipients who had completed a minimum of at least 45 quarter hours in one academic year and all junior financial aid recipients who had completed at least 90 quarter hours in two academic years at Winona State College, who had the necessary data on file in their permanent file, and who met the definition of over-achiever or under-achiever as used in this study. This group consisted of 159 students.
2. All sophomore non-recipients of financial aid who had completed a minimum of at least 45 quarter hours in one academic year and all junior non-recipients of financial aid who had completed at least 90 quarter hours in two academic years at Winona State College, who had the necessary data on file in their permanent file, and who met the definition of over-achiever or under-achiever as used in this study. This group consisted of 267 students.

This sample for testing hypothesis one consisted of 426 students.

A statistical analysis was conducted comparing the two groups using the Chi-square test of significance to determine if any significant difference existed in relation to academic achievement.

This sample for testing hypothesis two, three, four, five, and six consisted of the 213 students who responded to Part Two of the

CSQ.

After the completion of the administration of the CSQ, the answer sheets were sent to the Educational Testing Service (ETS) for tabulating and scoring. Upon receipt of the statistical data from ETS, mean t-scores on the scales of the CSQ were compiled for sub-groups of financial aid and non-financial aid recipients to test hypothesis two, three, four, five, and six. Various demographic variables for the sub-groups were analyzed by the Chi-square test of significance to test hypothesis six.

### Conclusions

From the results of this study, the following conclusions and implications were drawn.

1. The first hypothesis that there is no significant difference in the proportion of students receiving financial aid and those not receiving financial aid whose achieved grade point averages are greater than or less than their predicted grade point average was rejected at the five percent level of confidence. Students receiving financial aid were achieving or performing academically as well or better than the non-financial aid students from the population in this study. The fact that the financial aid recipients were achieving as well or better than the non-financial aid recipients indicates that

financial aid programs are fulfilling their purpose. This finding is similar to studies done by Falck (1966), Bradfield (1967), and Zaccardelli (1968).

2. It can be concluded that while many similarities existed among financial aid and non-financial aid students in their attitudes and opinions, there were significant differences between the groups. Financial aid was helpful to some students, but did not solve all their educational problems. Quite evident was the fact that there were students receiving financial aid who under-achieved and under-achievers who did not receive financial aid, but could have profited from receiving financial aid.
  - a. Between the financial aid over-achievers and financial aid under-achievers, a significant difference was found on the scales of study habits and liberalism. The financial aid over-achievers tended to have higher scores on the scale of study habits which, according to the CSQ manual, indicates that this group was more serious towards academic obligations, had a systematic routine, and a feeling of confidence in preparing for examinations and carrying out assignments. The financial aid under-achiever studied less, was usually behind in assignments, and felt inadequately prepared

for examinations. The significantly higher scores on the scale of liberalism is interpreted by the CSQ manual as a political-economic-social value dimension, the nucleus of which is sympathy for an ideology of change. Financial aid over-achievers favored the preservation of the present political-economic-social system.

- b. Significant differences were found between non-financial aid over-achievers and under-achievers in the areas of satisfaction with the faculty and satisfaction with the administration. The non-financial aid over-achiever rated the faculty higher in terms of being interested in the problems of individual students, in addition to being competent, fair, and accessible. Of the four sub-groups used in the study, the non-financial aid under-achiever expressed the greatest degree of dissatisfaction with the faculty. The non-financial aid under-achiever also rated the administration lower than the other sub-groups. The most critical view of the administration was that they were too paternal.
- c. It can be concluded that there was a significant difference between financial aid over-achievers and non-financial aid over-achievers on the scale of family independence. A majority of the financial aid

over-achievers lived in the college dormitories, depended upon loans and Work-Study Grants for their main financial support, and were less concerned with living up to parental expectations. The non-financial aid over-achievers depended upon their parents for their main financial support, and although a majority of the group lived in college dormitories, over one-fourth lived with their parents.

- d. The statistical analysis of data for comparing financial aid and non-financial aid under-achievers revealed that financial aid under-achievers had significantly higher scores on the scales of satisfaction with administration and faculty, extracurricular involvement, family independence, and cultural sophistication. The non-financial aid under-achiever expressed dissatisfaction with the faculty and the general nature of the student-faculty interaction. They were less interested in organized extracurricular activities, student government, athletics, and social events. The financial aid under-achievers in general were happy with the college, while the non-financial aid under-achievers constitute a group whose needs apparently are not being met. It appears likely that a sub-group of the non-financial aid

over-achievers had insufficient financial resources.

3. Analysis of the demographic data indicated that other measurable differences existed between the various groups. Significant differences were found between the groups on achievement and age, achievement and place of residence, and achievement and employment. The majority of over-achievers, both financial aid and non-financial aid students, lived in the college dormitories, while the majority of under-achievers, both financial aid and non-financial aid students, lived in off-campus housing. Financial aid over-achievers tended to be younger than financial aid under-achievers.
4. It can be concluded from the results of this study that there are no significant differences in achievement between the financial aid and non-financial aid sub-groups for students working up to 15 hours per week. This conclusion is consistent with the findings reported in studies by Budd (1956), Trueblood (1957), Henry (1967), and Kaiser and Bergen (1968). These results suggest that financial aid directors should be able to include Work-Study Grants in the financial aid package offered to students without interfering with academic achievement. However, there was a significant difference in this study for students working more than 15 hours per week. Of the 105 students classified as

under-achievers, 36 were working more than 15 hours per week compared to 18 out of 108 students classified as over-achievers. Apparently, there are students not receiving financial aid who are in need of money, but, as is evident by the number of hours they are working, they are not receiving enough financial aid or are not making application for financial aid. Another possibility is that the under-achiever whose family has a below-average income is understandably reluctant to borrow in order to get through college.

5. The findings of this study indicate patterns which differentiate one group from the other.
  - a. The financial aid over-achiever tends to:
    - (1) live in the college dormitory
    - (2) be serious and disciplined towards academic obligations
    - (3) have a loan and be working no more than 15 hours per week
    - (4) be satisfied with the faculty and administration
    - (5) have an interest in either music, art, or poetry.
  - b. The financial aid under-achiever tends to:
    - (1) live in an off-campus room or apartment
    - (2) study less than the financial aid over-achiever
    - (3) have a loan and be working no more than 15 hours

per week

- (4) be satisfied with the faculty and administration of the college, but dissatisfied with the political-economic-social system of the United States
  - (5) watch television, play cards, and participate in automotive activities
  - (6) be older than the financial aid over-achiever.
- c. The non-financial aid over-achiever tends to:
- (1) live in college dormitory or with parents
  - (2) rely on parents for main source of financial support
  - (3) be serious about academic obligations
  - (4) work very little
  - (5) be concerned about poverty and social injustice.
- d. The non-financial aid under-achiever tends to:
- (1) live in off-campus apartments or with parents
  - (2) be dissatisfied with the faculty and administration
  - (3) work more than 15 hours per week
  - (4) participate in no extracurricular activities
  - (5) watch television, play cards, and lack cultural sophistication.

### Recommendations

American society has a great stake in college education: The



students themselves, their family members, their teachers, their tax-paying supporters, and many others invest a great deal of time, energy, care, and money into this venture and they rightfully expect a return on their money. The number of applicants qualifying for financial aid is exceeding the dollars available. This pressure will require schools to employ subjective and perhaps, ascriptive criteria in the selection process of financial aid recipients.

Increasing attention is being paid in higher education to student characteristics, non-intellective as well as cognitive, to their correlates and to the impact that the college environment has upon them. Studies such as this one should be replicated at other institutions of higher learning to probe more deeply for answers to the questions raised in this study, such as the effect of place of residence, working and attending college at the same time, attitudes and values upon achievement.

Future research is needed to find out why certain students receiving financial aid are not succeeding. Programs need to be developed that will produce attitudinal, interest, and motivation changes these students need to succeed. It is apparent from the results of this study that under-achievers do not study effectively. It is recommended that a program be designed to develop the necessary motivation and provide the essential study skills. The more liberal social outlook of under-achievers merits further study and investigation. We also need to apply a more aggressive program to contact students who need financial aid, but are not making application for

financial aid.

Another aspect of the expanding financial aid program is the recruitment of culturally and economically deprived students who would not otherwise attend college. Since there is some question as to the motivational and cultural background of these students and since many of them rank in the lower one-half of their high school class, there is a need to know more about their special problems and chances of success in college. Since different colleges draw different types of students, research is needed to determine what types of institutions should receive increased funding, especially in community colleges, if the present form of financial aid is to continue.

If the expected trend in financial aids continues, there will be a greater demand to insure the most effective utilization of the financial dollar. This will occur only if we know more about the student population and what effect other coordinate programs designed to modify attitudinal and scholarly orientation have upon the students.

However, the most important benefits of financial aids cannot be measured directly in terms of dollars and cents. How can one measure the benefits to society as a whole from the contributions of individuals whose college education has been made possible through financial aids?

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## APPENDICES



## APPENDIX A

AMERICAN COLLEGE TEST RESEARCH  
SERVICE COMPUTATION TABLE

- a. To predict G. P. A. from ACT scores, add the appropriate digits from Figure 1 below to the ACT constant (3), then mark off one decimal position.
- b. To predict G. P. A. from high school grades add the appropriate digits from Figure 2 below to the high school constant (5), then mark off one decimal position.
- c. To obtain the optimum ACT index, average the two predictions.

Figure 1. ACT (Score) times (Regression Coefficient).

Score	English	Mathematics	Social Studies	Natural Science
36	14	6	11	2
35	14	6	11	2
34	13	6	10	2
33	13	6	10	2
32	13	5	10	1
31	12	5	9	1
30	12	5	9	1
29	11	5	9	1
28	11	5	9	1
27	11	5	8	1
26	10	4	8	1
25	10	4	8	1
24	10	4	7	1
23	9	4	7	1
22	9	4	7	1
21	8	4	6	1
20	8	3	6	1
19	8	3	6	1
18	7	3	5	1
17	7	3	5	1
16	6	3	5	1

(Continued on next page)

Figure 1. (Continued)

Score	English	Mathematics	Social Studies	Natural Science
15	6	3	5	1
14	6	2	4	1
13	5	2	4	1
12	5	2	4	1
11	4	2	3	1
10	4	2	3	0
9	4	2	3	0
8	3	1	2	0
7	3	1	2	0
6	2	1	2	0
5	2	1	2	0

Figure 2. High School (Grade) times (Regression Coefficients).

	English	Mathematics	Social Studies	Natural Science
A = 4	10	4	9	5
B = 3	7	3	6	4
C = 2	5	2	4	2
D = 1	2	1	2	1

Regression Coefficients

	<u>B<sub>0</sub></u>	<u>B<sub>1</sub></u>	<u>B<sub>2</sub></u>	<u>B<sub>3</sub></u>	<u>B<sub>4</sub></u>
ACT Scores	0.339	0.040	0.017	0.031	0.005
High School Grades	0.540	0.244	0.099	0.214	0.118

## APPENDIX B

January 5, 1970

Dear

I am presently involved in carrying out a research study in an attempt to determine some of the attitudes and opinions of students attending Winona State College. Through a stratified random sampling process, you have been selected as being representative of various student groups within the college to answer a nationally standardized questionnaire which will help us obtain this information.

In the questionnaire, you will be asked for a variety of information about your plans, activities, and attitudes. Your answers and those of the other students will help provide a broad description of the student body. In no case will the answers of individual students be singled out.

If at all possible, would you take one hour of your time on one of the following dates and times to respond to this questionnaire?

Dates:                    Monday        January 12, 1970  
                                  Tuesday        January 13, 1970  
                                  Wednesday    January 13, 1970  
                                  Thursday     January 15, 1970

Times:                    9:00 to 12:00 a. m.  
                                  1:30 to 4:00 p. m.  
                                  6:00 to 8:00 p. m.

Place:                    College Center - conference rooms 1 and 2

Your efforts to participate in this study will be greatly appreciated.

Sincerely,

John Kane  
Associate Dean of Students

## APPENDIX C

January 21, 1970

Dear

I am presently involved in carrying out a research study in an attempt to determine some of the attitudes and opinions of students attending Winona State College. Through a stratified random sampling process, you have been selected as being representative of various student groups within the college to answer a nationally standardized questionnaire which will help us obtain this information.

In the questionnaire, you will be asked for a variety of information about your plans, activities, and attitudes. Your answers and those of the other students will help provide a broad description of the student body. In no case will the answers of individual students be singled out.

If at all possible, would you take one hour of your time on one of the following dates and times to respond to this questionnaire?

Dates:                    Tuesday      January 27, 1970  
                                 Thursday     January 29, 1970

Times:                    6:00 to 8:00 p. m.

Place:                    College Center - conference room 7

Your efforts to participate in this study will be greatly appreciated.

Sincerely,

John Kane  
Associate Dean of Students

## APPENDIX D

January 27, 1970

Dear

I was sorry you were unable to make the scheduled time for the questionnaire being given on campus. As you may recall, you were selected through a stratified random sampling process as being representative of various groups within the college to answer a nationally standardized questionnaire.

In order to make the findings of this study meaningful and useful, your help is still very much needed. Would you please pick up a copy of the questionnaire in Somsen 106 and return the following day?

Sincerely,

John Kane  
Associate Dean of Students

## APPENDIX E

## Formula for Chi-square

$$X^2 = \frac{(f_1 - F_1)^2}{F_1} + \frac{(f_2 - F_2)^2}{F_2}$$

## Formula for t-test

$$t = \frac{M_1 - M_2}{\sqrt{\frac{(N_1 - 1)(SD_1)^2 + (N_2 - 1)(SD_2)^2}{N_1 + N_2 - 2} \cdot \frac{N_1 + N_2}{N_1 N_2}}}$$