INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

76-15,797

BRUNK, Linda Joan, 1946-
AN ANALYSIS OF ENROLLMENT PATTERNS AND
ACADEMIC ACHIEVEMENT OF ADULTS IN THE
URBAN COMMUNITY COLLEGE.

The University of Oklahoma, Ph.D., 1975
Education, adult

Xerox University Microfilms, Ann Arbor, Michigan 48106

THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

AN ANALYSIS OF ENROLLMENT PATTERNS AND ACADEMIC ACHIEVEMENT

OF ADULTS IN THE URBAN COMMUNITY COLLEGE

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

LINDA J. BRUNK

NORMAN, OKLAHOMA

1975

AN ANALYSIS OF ENROLLMENT PATTERNS AND ACADEMIC ACHIEVEMENT

OF ADULTS IN THE URBAN COMMUNITY COLLEGE

APPROVED BY:

DISSERTATION COMMITTEE

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

The changing nature of our society requires virtually all
citizens to gain new skills and intellectual orientations through-
out their lives. Formal education of youth and young adults,
once thought of as a vaccine that would prevent ignorance later
in life, is now recognized as inadequate by itself to give people
all the educational guidance they will need to last a lifetime. The
obsolescence of knowledge, the rapid growth of new knowledge,
the shifts in national priorities, the multiplication and complexity
of social problems, and the close relationship between the appli-
cation of knowledge and social progress all lead to the conclusion
that lifelong learning is not only desirable but necessary.[1]

Background and Need for the Study

In recent years the rate of change has been accelerating at such a

rapid pace that virtually all aspects of life are in a continuous process of

transformation. Historically, a study of the rate of change will reveal that

the time between the discovery of new processes and their application has

been decreasing at a fantastic rate. "Beginning about 1720, the span between

discovery of new processes and their application for photography was 112

years, in the early 1800s the span was 56 years for telephone and 65 years for

television, later in the 1900s it was 15 years for radar, 6 years for the atomic

---

[1]Theodore Hesburgh, Paul Miller, and Clifton Wharton, Patterns for
Lifelong Learning (San Francisco: Jossey-Bass Publishers, 1973), p. 3.

1

bomb, 3 years for the transistor, and 2 years for the solar battery, ..."[2]

This acceleration of change in technological development has implications not only for the total development of mankind but more specifically for the development of the individual. In order for the individual worker to maintain parallel development with technological change, the average adult may face a shift in his occupation three or four times during his life.[3] These occupational changes will necessitate continuing education as a protection against educational and occupational obsolescence.

Technological change has made a far reaching impact on the societal setting in which we exist. Advancements in the medical area have given us the potential for longer, healthier lives, yet changes in the social structure prevent these longer lives from being fully utilized. Earlier retirement appears as a trend for the future. Business organizations are beginning to make early retirement an increasingly attractive option and many individuals are accepting it. The implementation of the United Auto Workers' Policy proposal for retirement after 30 years of employment would create a large pool of individuals retiring at about age 50. This trend is already apparent in the federal civil service and military where many individuals accept retirement in their late forties and early fifties.[4]

---

[2]Howard Y. McClusky, "The Coming of Age of Lifelong Learning," Journal of Research and Development, 7 (Summer 1974):99.

[3]Carnegie Commission on Higher Education, A Digest of Reports of the Carnegie Commission on Higher Education (New York: McGraw-Hill Book Co., 1974), p. 24.

[4]McClusky, p. 98.

Not only is there a trend developing in earlier retirement leading toward an increase in non-work time, but the literature also reveals a trend toward a lessening in the working hours while employed. A growing number of companies are experimenting with alternatives to the five-day, 40-hour workweek. The most common and lasting alternative utilized has been the four-day, ten-hour workweek. The percentage of those organizations which have adopted and retained this schedule is 85-90 percent.

Women, especially, have experienced changes in this century which have increased their alternatives for life activities. The modern woman marries earlier and gives birth to a smaller number of children at an earlier age. Her children, as a result, reach their independence when the woman is thirty-five to forty. Statistically, she then has over half of her life years ahead of her with a lessening of demands.[5] Without training or re-training the woman's prospects for a lengthening life span are bleak.

The question we as a society must ask is, "What activities will fill the increasing non-work time?" It would be naive to suggest that all this time would be devoted to educational pursuits, but we cannot overlook the obvious need for continuing education as it relates to technological advancements. It should be noted also that our society is becoming more highly educated. With the median level of schooling increasing, there is a corresponding increase in participation in educational programs after the regularly accepted "formal schooling." In a study by Johnstone,[6] data revealed that level of schooling is

---

[5] Ralph R. Fields, The Community College Movement (New York: McGraw-Hill Book Co., 1962), p. 87.

[6] McClusky, p. 99.

directly related to the rate of participation in on-going educational activities.

It has become apparent that massive technological and social changes require a society which is involved in continuous education, yet three myths still exist which come between realization of the need and implementation of the structure for lifelong learning.[7] The first myth is that childhood and youth are the times for learning while adulthood is the time for working. The second myth follows closely behind the first providing a rationale for this dichotomy of lifetime activity. This is the belief that an individual can learn enough between childhood and later youth to last a lifetime. The amount of knowledge available to an individual is expected to double in the next eight years,[8] and the amount of knowledge necessary for survival in our complex society makes lifelong learning a necessity.

The last myth is perhaps the most dangerous of the three. Society not only looks at childhood through youth as the only time for learning, but as the best time for learning. This myth implies the great untruth that "you can't teach an old dog new tricks." The literature of adult education is replete with valid research refuting this catchy misconception.

As educators, we find ourselves in an exciting time in the development of alternative patterns in educational participation. More and more we find ourselves discussing the concept of lifelong education defined by Lengrand[9]

---

[7]Ibid., pp. 101-102.

[8]B. Glen Davis, "Zero Population Growth: Effect on Adult Education," Adult Leadership, 22 (January 1974):245.

[9]Gary Dickinson, "Educational Variables and Participation in Adult Education: An Exploratory Study," Adult Education, 22 (Fall 1971):37.

as, "the uninterrupted continuation of the educational process to fulfill the aspirations and develop the potentialities of each individual and to meet the ever more pressing demands of a world in transformation."

The Carnegie Commission on Higher Education has made specific recommendations for implementation of continuing or lifelong education.[10] They recommend that higher education institutions provide opportunities to reenter education throughout their lives in a variety of program offerings. They go further to specify that each individual should be granted two years of postsecondary education which would be "placed in a bank" to be withdrawn in a manner which best meets the needs of the individual. This recommendation has great economic implications when one considers the high cost of such a program. The Commission goes on to recommend that institutions of higher education should develop admissions procedures which would provide opportunities for a new population of students, including adults.

We have discussed the need for lifelong education and certain recommendations for implementing it, but amongst the adult population is there an interest in such a concept? During 1972 the Commission on Non-Traditional Study surveyed the educational interests and activities of American adults.[11] The sample used in the study was stratified to become representative of approximately 104 million adults aged eighteen through sixty, exclusive of full-time students. To assess the interest level in learning, the commission

[10] Carnegie Commission on Higher Education, A Digest of Reports, pp. 329-330.

[11] Commission on Non-Traditional Study, Diversity by Design (San Francisco: Jossey-Bass Publishers, 1973), pp. 14-15.

asked of its sample: "Is there anything in particular that you'd like to know more about, or would like to learn how to do better?" 76.8 percent of the sample, which represents 79.8 million people, answered yes.[12] Obviously, this figure does not imply that nearly 80 million adults would register in our schools if given the opportunity, but it does imply a vast potential pool of interested "would-be learners," as the commission described them.

When this sample was asked what would be their motivations in wanting to study, eight motivational clusters were identified: (1) information and intellectual development, (2) job and educational development, (3) citizenship, (4) desire to be a better parent, husband, or wife, (5) social reasons, (6) requirements of employer, profession, or authority, (7) escape reasons, and (8) church or spiritual reasons. Motivational clusters (1) and (2) were the prime motivating factors for the would-be learners.[13]

This same study made an attempt to identify why the would-be learners had not continued educational studies in their adulthood and found that cost, rigidity of requirements, geographic location, and the time at which programs were offered proved obstacles to participation in educational activities.[14] Other authors have concerned themselves with obstacles to participation in learning. Stephan and Wheeler found that internal factors operated in keeping the adult out of the classroom. The adult questions his ability to learn and

---

[12]Ibid.

[13]Ibid., p. 18.

[14]Ibid., p. 19.

[15]William Stephan and Joseph Wheeler, "Facts and Figures," Adult Leadership, 18 (Decembr 1969):172

compete with younger students, and remembers distasteful past experiences with school. Regardless of the obstacles to learning found amongst the potential would-be learners, the Commission on Non-Traditional Study found that within the past 12 months a remarkable 32.1 million adults had actually engaged in educational activities described in terms of evening classes, extension courses, correspondence courses, on-the-job training, private lessons, independent study, and TV courses.[16] We established a need for continuing education; we have now established an interest.

Along with fulfilling the societal need for continuing education, institutions of higher education can utilize the increased adult enrollment to meet their own needs. During the 1960's higher education institutions were healthy growing entities. The 1970's, however, have resulted in a trend toward declining enrollments. We now find institutions, once unable to keep pace with their growing student population, becoming involved in market research to determine which markets will provide the greatest potential for future students. Many institutions have decided that if they design programs to attract this market, the boom is coming in adult and continuing education.[17]

The decline in enrollments have resulted from three fundamental changes in American society: shifts in the population, tightening of the economy, and changing attitudes of college age youth. The shifts which have taken place in the population have an impact not only on actual enrollments, but also

---

[16] Commission on Non-Traditional Study, Diversity by Design, p. 16.

[17] Velma A. Adams, "Adult Education: Where the bread and action are," College Management, 8 (April 1973):9.

on curriculum and staffing patterns. Berendzen,[18] in his analysis of future

higher education enrollments, has looked at three age groupings: 18-24,

25-34, and 35-44. These age groupings also correspond with data collected

by the U. S. Bureau of Census in its enrollment projections.

Berendzen sheds light on the youth culture which reigned during the

1960's and early 1970's. The youth group, 18-24, which represents a seven-

year span, was almost as large as the 25-34 group and larger than the 35-44

group which both represent ten-year spans. However, by 2000 this youth

group will once again be a minority. By the 1980's the youth culture will give

way to the era of the pre-middle-ager with the 25-34 year old in dominance.[19]

It must be realized that this group, 25-34, simply represents the

youth of the 1960's at a slightly older age. They are like a huge wave rushing

through this century. They are the same individuals who were confronting

college administrators during the tumultuous 60's demanding relevancy and

student involvement in educational planning. As they move into adulthood

they achieve a new power - that of tax control. As voting and taxpaying adults,

they will demand more of higher education institutions close to their homes and

request programs relevant to adults. Urban community centered schools, not

rurally located institutions, will become centers for continuing education.[20]

As schools look toward the adult population for enrollments, more professional

adult educators will be needed. Older students will have different problems

---

[18]Richard Berendzen, "Population Changes and Higher Education,"
Educational Record, 55 (Spring 1974):116.

[19]Ibid., p. 117.

[20]Davis, p. 245.

from their youthful counterparts and specialists will be needed in admissions and counseling to attack their special problems.

Most enrollment predictions look toward the adult population to offset the decline in youthful enrollments. Reasons given for percentage declines in college-age enrollments were identified in a study of high school graduates in the state of New York. In addition to a lack in student aid programs, the study determined these additional factors as contributing to a decline in enrollment in postsecondary programs:

1. The changing attitude of high school graduates toward the need for college education.

2. The much publicized lack of employment opportunities for the college graduate.

3. The changes in the military draft law and its impact on the college-age student.[21]

The high school graduate seems no longer stigmatized by not going on, and while most adults have little time and money to continue their education on a full-time basis, the society in which they exist continually increases its demand upon them. The Carnegie Commission on Higher Education has recommended that more youth "stop-out" from their formal education and participate in more variety of activities before making lifetime commitments for education and training. With decreases in youthful enrollments and a stabilization of the numbers of individuals in this group, the Carnegie Commission recommends an increase during the 1980's in adult programs.[22] The Commission uses Britain's Open University as an example of what potential there is in adult

---

[21] Berendzen, p. 118.

[22] Carnegie Commission on Higher Education, A Digest of Reports, p. 81.

education. In its first year, the university attracted 41,000 applicants for 25,000 student places. "With a population about four times the size of Britain's and a much higher ratio of high school graduates to population, the United States may expect this type of a development to attract much larger numbers..."[23]

The urban community colleges can provide relevant adult programs within close proximity of the daily activity patterns of the vast majority of adults in the United States. They provide a greater variety of educational programs than any other type of higher education institution at low cost, and most importantly to our present purposes, they provide continuing education opportunities to working adults to expand their minds and upgrade their skills and training. Societal trends, such as increased leisure time and increased unemployment, have focused more attention on continuing education and have provided a real opportunity for the community college to provide programs and become a true community institution.

The Carnegie Commission on Higher Education has recommended that a community college should be provided within commuting distance of all potential students in populous areas and that admission to such institutions should be provided through an open-door policy whereby all applicants who are high school graduates or 18 years of age may enter.[24] Other educators, such as Glass, recommend an increase in continuing education budgets at such institutions and talk of these budgets actually amounting to at least half of the

[23]Carnegie Commission on Higher Education, New Students and New Places (New York: McGraw-Hill Book Co., 1971), p. 58.

[24]Carnegie Commission on Higher Education, A Digest of Reports, p. 324.

total institutional budget.[25]

The Commission on Non-Traditional Study suggests that institutions outside the realm of higher education might be more appropriate for reaching desired adult learning situations,[26] but others writing in the area emphasize that state legislatures and agencies must recognize the community college as an instrument of social change and provide funds and reality planning which would assist in achieving the ideal of lifelong learning opportunities for as large a portion of the population as is practical.[27]

Gleazer[28] summarizes the role of the community college in creating a new concept of higher education: In the past, he states, Americans saw higher education as liberal arts or professional training which led to at least a baccalaureate degree. The community college has modified that concept to individual fulfillment for vocational and citizenship purposes without rigid time and degree requirements. The community colleges live in two worlds of traditional higher and continuing education and serve more non-traditional students as a result. To serve an ever growing number of non-traditional students, the Commission on Non-Traditional Study recommends that the two-year

---

[25]Thurman J. White, "Adults: From the Wings to Center Stage," in Higher Education for Everybody? ed. W. Todd Furniss (Washington, D.C.: American Council on Education, 1971), p. 174.

[26]Commission on Non-Traditional Study, Diversity by Design, p. 22.

[27]Clyde E. Blocker, Robert H. Plummer, and Richard C. Richardson, Jr., The Two-Year College: A Social Synthesis (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), pp. 276-277.

[28]Edmund J. Gleazer, Jr., "The Emerging Role of the Community Junior College," Peabody Journal of Education, 48 (July 1971): 255.

college must be transformed into a fifty-year college.[29]

Statement of the Problem

The problem for this research is: How do the enrollment patterns and academic achievements of adults attending an urban two-year college compare with those of the traditionally aged college student? More specifically, when grouped according to age are there significant differences in the number of credit hours in which a student enrolls, the time of day a student enrolls, the program divisions in which a student enrolls, and the grade point average a student achieves?

Purpose of the Study

It has been only recently that definitive studies have been made of community college students and most of these ignore, or only casually treat, the adult student. It is not surprising that the adult student is rarely reported in education statistics due to lack of a standard definition of adults. This problem has been further complicated by a lowering of voting age. Increasingly, community colleges are attracting new groups of students who are older than the typical college student. More research needs to be undertaken to understand the nature of these students. It is not the purpose of this paper to establish a definition of "adult" or develop answers to societal questions concerning their education but to examine certain characteristics of non-traditionally aged community college students for the purpose of utilizing such data in future curricular and administrative planning.

---

[29]Commission on Non-Traditional Study, Diversity by Design, p. 51.

Several organizations are working to gather and disseminate information

on the adult learner including the ERIC Clearinghouse in Career Education,

the Adult Education Association, and the Society for College and University

Planning.[30] The Carnegie Commission recommends that the U.S. Office of

Education develop more data on enrollments by program divisions and changes

in enrollment by field of study.[31] The Office of Education is currently involved

in a survey of adult participation in postsecondary education. The Carnegie

Commission has also recommended that data collection in the area of adult par-

ticipation be centralized so that consistent definitions and compatible units of

age groups can be established.[32]

Lunneborg emphasizes the need for reliable information on academic

characteristics of the older student for guidance purposes.[33] This need was

further emphasized by a study of adult students at Pennsylvania State University.[34]

This study established that of the adult students within the sample 58% responded

that they felt some urgency in obtaining assistance to assess their interests and

---

[30]Berendzen, pp. 123-124.

[31]Carnegie Commission on Higher Education, A Digest of Reports, p. 27.

[32]Carnegie Commission on Higher Education, Toward a Learning Society (New York: McGraw-Hill Book Co., 1973), p. 71.

[33]Patricia Lunneborg, Doris Olch, and Virginia de Wolf, "Prediction of College Performance in Older Students," Journal of Counseling Psychology, 21 (May 1974):215.

[34]Gerald D. Williams et al., "Urgency and Types of Adult Counseling Needs Among Continuing Education Students," Journal of College Student Personnel, 14 (November 1973):501.

abilities. Relating to this area of a need for adult information for guidance purposes, Wrenn[35] states that it is unethical to admit students without regard for their chances of succeeding, going on to say that before two-year colleges can answer questions on prognosis of success, more attention must be devoted to research and evaluation.

As stated earlier, data gathered in this study will be used in considering future curricular and administrative plans. The open-door admissions policy provides an opportunity for many who in the past had no entry into higher education. An opportunity is not enough, however, for a variety of offerings related to the emerging needs of youth and adults alike must be designed. As a result, there has been a heavy emphasis on broadening the variety of offerings in the community college beyond the scope of the traditional two-year transfer programs. Almost every day a new technical or occupational program is developed in a community college in the United States.[36]

Many criticize the educational offerings of postsecondary institutions as meeting the institutions' needs rather than those of the clientele. They advocate looking at the needs and interests of the learner and designing programs with these in mind. One successful method utilized in the community college for designing community related curriculum has been through the use of citizens' advisory councils. These councils, representing all socio-economic and geographic groups within the community can assist in planning for community relevant curriculum and administrative procedures.

---

[35]Blocker, p. 251.

[36]W. A. Harper, "The Community and Junior College: An Overview," Peabody Journal of Education, 48 (July 1971):260.

Another method for assessing interests and needs of potential learners

is by surveying this population and asking them what their interests are.

The Commission on Non-Traditional Study asked what areas of learning were

of interest to those within their sample and found that vocational subjects were

dominant.[37] One additional method, that of surveying actual participation

patterns of adult learners, was also used by the Commission. This study

utilized the latter method.

Several specific aspects of curricular and administrative planning

were considered in this study. The growth of part-time learning, affected

in large part by the upsurge in adult enrollments, must be analyzed. The

Carnegie Commission suggests that part-time students should be eligible for

all programs and services provided full-time students.[38] Special ramifica-

tions are found in this recommendation for state planners who have in the past

viewed program development as it related to full-time students, and financial

aid programs which, in most cases, have provided funds for only full-time

students.

Another factor to be considered in enrollment projections and curricular

planning is the veteran enrollment. Especially at the community college, a

significant proportion of students enrolled are using veterans' educational bene-

fits to finance their education. In 1973, it was estimated that one-sixth of all

community college students were veterans.[39] Legislation eliminating educational

---

[37]Commission on Non-Traditional Study, Diversity by Design, p. 16.

[38]Carnegie Commission on Higher Education, A Digest of Reports, p. 236.

[39]"The Community Junior College Encounters the Veteran," Community and Junior College Journal, 43 (February 1973):20.

benefits for new military enlistments after 1975, and a gradual decline in the number of veterans receiving benefits due to usage of such benefits and the mere expiration of benefits makes it necessary in designing future plans based on current participation patterns to separate the veteran adult from the non-veteran adult and determine if differences exist in their participation patterns. This study considered non-veteran/veteran differences.

In addition to participation patterns, this study will also investigate the academic achievement levels of adult students in the community college. We discussed the myths concerning adult learning. These same myths have found their way into the minds of college faculty members and administrators, as well as students. The Carnegie Commission found that too often the adult student was looked upon as inferior,[40] but other research has found that this student more often is academically superior to his youthful counterpart. In observing levels of academic achievement of both college age youth and adult students, this study attempted to add to the literature necessary to clarify this issue on academic potential.

Definition of Terms

College Age Youth defines high school students who have entered college immediately or shortly after high school graduation, to continue their education on a full- or part-time basis, and who are 17-24 years of age.

Adult Students refer to students attending the community college on a full- or part-time basis who are at least 25 years of age.

---

[40]Carnegie Commission on Higher Education, Less Time More Options (New York: McGraw-Hill Book Co., 1971), p. 19.

Community College describes an urban two-year postsecondary

institution with a comprehensive transfer and career-orientated curriculum.

Veteran refers to a student who is attending the community college

and utilizing the veterans' educational benefits program.

Hypotheses

In an effort to answer questions posed earlier, certain hypotheses

were tested. Statistical procedures were applied which looked at the

differences in enrollment patterns and academic achievement between veteran

and non-veteran adults and college-age youth. The hypotheses tested were:

$H_0 1$: No discrimination can be made among age groups
on the basis of the variables G.P.A. and credit
hour enrollment.

$H_0 2$: No discrimination can be made among enrollments
by academic divisions on the basis of G.P.A.,
credit hour enrollment and age.

$H_0 3$: No discrimination can be made between veteran
and non-veteran students on the basis of age,
G.P.A., and credit hour enrollment.

In addition to the hypotheses tested, other factors were considered.

The analysis of data will concern itself with additional student characteristics

such as sex, high school completion, and the time of day a student is enrolled

and their relationship with enrollment patterns.

Delimitations

This study concerned itself only with those students completing credit

applicable coursework at Oscar Rose Junior College in Midwest City, Oklahoma,

during the spring semester of 1975. The study asked specific questions

concerning comparisons between enrollment patterns and achieved grade

point averages of college age youth and adult students in attendance.

Assumptions

One basic assumption of this study is that students attending Oscar

Rose Junior College during the spring semester of 1975 are typical of students

attending other urban two-year colleges for the purpose of generalizing

conclusions on adult enrollment and achievement patterns. Due to the college's

location near a military facility, it may have a higher proportion of veteran

students, and for this and other previously explained reasons, veteran students

were considered separately. A more specific description of the community, the

college and its students will be found in Chapter III.

Overview of the Study

Chapter II presents a review of the literature concerning the general

characteristics, enrollment characteristics, and academic achievements of

adults attending the community college. Chapter III contains a description of

the population and sampling technique, and a description of the data collection

and analysis procedures to be utilized. Chapter IV contains an analysis of the

data collected along with a discussion of the findings. Chapter V presents a

summary with conclusions, implications, and recommendations based on data

analysis.

CHAPTER II

REVIEW OF RELATED LITERATURE

General Characteristics of Adult Students
Attending Community Colleges

The community college serves two distinct populations. The first,

college-age youth, are high school graduates who enter college immediately

or shortly after graduation from high school. The second population consists

of those individuals who are not college age. Much has been written about

college-age youth, but there is a scarcity of literature concerning the charac-

teristics of the older adult community college student. Blocker,[41] et al.,

have described this adult student as more mature with "a seriousness of pur-

pose and specificity of behavior, both personal and academic." They go on

to say that the adult student views the two-year college as a stepping-stone

to fulfillment of personal and vocational goals. Their interests in the college

are centered around their coursework. Cohen[42] explains that the mature adult

student has little time for extracurricular activities because of his employment

and family responsibilities, and little interest in such activities because of their

unrealistic approach toward community involvement. According to Blocker,[43]

---

[41]Blocker, p. 108.

[42]Arthur M. Cohen, Dateline '79: Heretical Concepts for the Community College (Beverly Hills: Glencoe Press, 1969), p. 72.

[43]Blocker, p. 123.

et al., the vast majority of adult students are married with families and engaged in full-time jobs. One study of adult community college students found that the members of this group worked a median of forty-three hours per week. Fifteen percent worked fewer than thirty-five hours per week, and twenty-one percent worked forty-five hours or more.[44] These same students are involved in many vocational and leisure activities which seldom have any relation with the community college they attend. The adult student is a major force in the diversity of students at the community college. These students are simply the advance guard of the community college students of the future.

For these students their age alone may act as an obstacle to enrolling in post-secondary programs. The Carnegie Commission on Higher Education listed the five most relevant barriers to higher education as:

1. Family income - with those in the upper income brackets more likely to attend college than those in lower brackets.

2. Ethnic grouping - with minority groups less well represented than whites.

3. Geographic location - with discrepancies in attendance patterns representing various regions within the U. S.

4. Quality of early schooling - with substantial differences in local school districts resulting in poor educational foundations for many individuals.

5. Age - with fewer opportunities in higher education available solely on the basis of age (a factor which affects every individual as he moves through life.)[45]

---

[44]Ibid., p. 125.

[45]Carnegie Commission on Higher Education, A Digest of Reports, p. 15.

The Commission suggests that by the year 2000 opportunities must be totally free of these barriers.

In a consultant's paper presented to the Oklahoma State Regents for Higher Education, Glenny states that the average age of those attending college is on the rise and that a more pronounced impact of this rise is found in the community college. He further states that this increase in age can be attributed in great part to the brisk increase in adult and continuing education in non-degree oriented enrollments.[46] By 1960 the trend toward increased adult enrollments was already becoming apparent. Medsker found that one-sixth of two-year college enrollments were from the age group 30 years or older.[47] In 1970 in its report, The Open-Door Colleges, The Carnegie Commission found that approximately half of the students in two-year colleges were adults, ranging from 22 to 70 or more years of age.[48] The Commission suggests that state planning bodies keep close watch on trends in adult enrollments in the community college and utilize this data on revising enrollment projections.[49]

Other factors besides actual age must be taken into account when considering the characteristics of the adult student. Data collected during

---

[46] Lyman A. Glenny, State Planning Issues of the Next Decade: Numbers, Costs, Programs (Oklahoma City: Oklahoma State Regents for Higher Education, 1975), p. 3.

[47] Leland L. Medsker, The Junior College: Progress and Prospect (New York: McGraw-Hill Book Co., 1960), p. 44.

[48] Carnegie Commission on Higher Education, The Open-Door Colleges (New York: McGraw-Hill Book Co., 1970), p. 6.

[49] Ibid., p. 35.

Project Focus[50] found that motivational problems were at a minimal level

amongst the older students. Any problems of motivation had been overcome

with the initial decision to return to education. In fact, motivational levels are

often so high as to create negative attitudes by adults toward faculty, younger

students, and administrators. Older students often demand adherence to pub-

lished course descriptions,[51] feeling cheated if topics they "paid" for are not

covered. The adult students often set high standards for themselves in spe-

cific courses and reject "capricious or immature behavior by instructors and

bureaucratic procedures and requirements by the administration."[52]

We have considered the attitude of adults toward their educational

experience, but what of the attitudes of others toward adults? In an attitudinal

survey of students and faculty at the community college the following results

were established:

<u>STUDENT RESPONSES</u>

94.5% said mixed ages were desirable or of no consequence.

85.1% said they would enroll if they knew in advance that
other students would be much younger than themselves.

94.2% said they would enroll if they knew in advance that
other students would be much older.

94.3% felt that the instructor did not speed up the pace of
instruction for the benefit of the younger group.
When the question was rephrased

95.5% felt that the instructor did not slow down the pace
of instruction for the benefit of the older group.

---

[50]Gleazer, p. 14.

[51]Robert W. Comfort, "Higher Adult Education Programming: A Model,"
<u>Adult Leadership</u> 23 (May 1974):7.

[52]Blocker, p. 124.

INSTRUCTOR RESPONSES

80.3% stated that mixed ages did not affect teaching.

85.6% stated there was no significantly slower rate in learning on the part of older students.

80.3% stated that additional time for test taking was not a factor when considering the older student.[53]

Adult women students are often discussed separately in the literature concerning adults in the community college. Women students can generally be categorized into three groups: single college-age women, single adult women, and married women. The single college-age woman attends college for vocational preparation and as an effort to reach higher socio-economic status. The second group made up of single, divorced, or widowed adult women attend for different reasons. They often are employed and seeking to upgrade their position in the work world. Married women attend the community college for the widest variety of reasons. They seek skill training to obtain jobs to supplement the family income, they seek training and intellectual experiences to make them a better parent, they seek experiences to fulfill voids left after their child-rearing responsibilities are completed, and they attempt to obtain educational levels commensurate with their husbands' to build stronger marital relationships.[54]

Another special group which must be considered is the adult veteran student. Veterans are generally three years older than college-age youth but still younger on the whole than the remaining adult students. They are often even more highly motivated than their non-veteran counterpart.

---

[53]Stephan and Wheeler, pp. 197-198.

[54]Blocker, pp. 126-127.

Enrollment Characteristics of Adults
Attending Community Colleges

The part-time enrollments in the community college currently out-number

the full-time enrollments, and the increase in adult enrollments plays an impor-

tant role in this trend toward increasing part-time enrollments. In the 1972-73

report on enrollments in American two-year colleges, Parker[55] reported that

full-time students showed only a 0.1% increase over the previous school year

while part-time enrollments increased 12.9%. There was actually a loss of 3.7%

in full-time enrollments for men while the full-time enrollments for women

increased 6.3%. The increased women's enrollment was apparently caused by an

increasing awareness by women to utilize education as a stepping-stone into the

mainstream of society. Parker stated that the increase in part-time enrollments

represents not only a changing pattern in student enrollments, but the flexibility

and initiative of the two-year colleges in meeting the changing student "market",

especially in the area of adult and continuing education.

In his 1973-74 report,[56] Parker found that part-time enrollments then

outnumbered full-time enrollments comprising 52% of the students in two-year

colleges. He once again emphasized the success of the two-year colleges in

serving this group and speculated that the two-year colleges would survive the

dwindling enrollments of college-age youth through the 1980's. In this report

there was shown a 3.5% increase in full-time enrollments showing a more signifi-

cant increase than found in the previous year. A strong full-time enrollment is

---

[55]Garland G. Parker, "Enrollments in American Two-Year Colleges, 1972-73," Intellect 101 (April 1973): 458-459.

[56]Garland G. Parker, "Enrollments in American Two-Year Colleges, 1973-74," Intellect 102 (April 1974): 461-462.

a stabilizing factor, and Parker saw this increase as important for long-term

planners, even though part-time students were in the majority. The actual

increase for part-time students in the 1973-74 academic year was 20.7% as

compared with 12.9% in 1972-73. Women still showed the largest gains.

Data has not been fully analyzed for the 1974-75 academic year, but most

two-year college administrators anticipate the current trend toward increased

part-time enrollments to continue.

In considering past projections of part-time enrollments, some obvious

miscalculations were found. In <u>Breaking the Access Barriers</u>,[57] Medsker and

Tillery found that until 1965 part-time students were gaining on the full-time

students on a percentage basis but that in 1966 there was a reversal in this

enrollment pattern and they stated that full-time enrollments would continue to

surpass part-time enrollments as part of a "consistent trend". This statement

was based on the fact that efforts during the late 1950's and earlier 1960's to

implement technological and manpower training programs in the community

college had attracted a large number of part-time enrollees, but that as these

programs were developed into associate degree programs they would then

attract more full-time than part-time students.

Since most funding of institutions is based on full-time equivalency

enrollments, the increase in part-time enrollments has serious implications

for planners. Glenny has directed part of a recent consultant's report to this

problem.[58] Stating that it takes two or three part-time students to equal

---

[57]Leland Medsker and Dale Tillery, <u>Breaking the Access Barriers</u> (New York: McGraw-Hill Book Co., 1971), pp. 18-20.

[58]Glenny, pp. 3-4.

one full-time student, Glenny goes on to explain that the mere, "counting of heads does not accurately reflect the impact of part-time enrollments on the number of courses offered, on productivity of degrees, or on the financing patterns..."

Another facet of part-time enrollments can be found in the increase in evening enrollments. Very little has been written on this topic, but in many urban community colleges, the evening enrollments outnumber those during the day. Many of the individuals attending during the evening do so on a part-time basis, although there are those full-time evening students. In most cases, however, the evening student is a full-time employee and a part-time student. With increasing evening enrollments, many urban community colleges are considering duplicate administrative and counseling staffs to accomodate the evening student.

Especially important for curriculum planners is the characteristic of enrollment by program. The training needs of the community often play an important role in determining these patterns for individuals enrolling in programs for which potential job markets are available. Bureau of Labor Statistics are utilized by planners to determine training needs. The Bureau estimates that for the 1968-80 period there will be an increase of 50% in the professional and technical areas, 35% increase in the clerical area, 30% in sales, 40% in service jobs, a 129% increase in the need for computer programmers and 183% in systems analysts.[59] The increased needs in these areas will be reflected in the job market, in program offerings by colleges, and in student enrollments in these areas.

---

[59]Parker, 1972-73, p. 460.

Two-year colleges distinguish between two basic types of programs

found within their curriculum. The first type, transfer, is comprised of

those programs which lend themselves toward transfer to a four-year insti-

tution. Career programs, as the second basic type is labeled, are programs

which Parker describes as a "collection of training programs" which have been

offered since at least the 1950's and which are becoming an ever-increasing

focus of the community college. He found that in 1973-74 43.6% of two-year

college students were enrolled in transfer programs while 56.4% were enrolled

in career programs.[60]

In a study by Blocker concerning motivations behind adult enrollments,

he found a strong vocational orientation. Of those adults studied, "75 percent

stated their objectives to be professional or vocational and 85 percent indicated

they were attending the college in order to obtain a better job. In addition, 43

percent implied dissatisfaction with their current employment."[61]

In another study assessing the adult's reason for participating in educa-

tional activities, Burgess found that seven factors identified accounted for

63 percent of the total variance. They were: "The Desire to Know; The Desire

to Reach a Personal Goal; The Desire to Reach a Social Goal; The Desire to Reach

a Religious Goal; The Desire to Take Part in Social Activity; The Desire to Escape;

and The Desire to Comply with Formal Requirements."[62] Burgess suggested that

people could take a course for a variety of reasons not predictable by its content.

---

[60]Parker, 1973-74, p. 469.

[61]Blocker, p. 125.

[62]Paul Burgess, "Reasons for Adult Participation in Group Educational
Activities," Adult Education 22 (Fall 1971):27.

Academic Achievement by Adults
Attending Community Colleges

The fact that adults can learn has been substantiated by research in

recent years, but some research early in this century showing a declining

learning ability at an early age seems to remain as a "truth" in the minds of

many individuals.[63] This misconception has made it difficult for many adults

to perceive themselves as learners and has made many educators skeptical of

the ability of adults to learn.

The literature on learning abilities describes three major findings relevant

to adult learning abilities. The first factor is that earlier cross-sectional research

showing an early decline in intellectual functioning has not been supported when

the same hypotheses are tested under longitudinal research conditions. Secondly,

older people have been found to have less quantitative ability than younger indi-

viduals, but greater verbal ability which extends into their 70's and 80's. The

third major point of discussion is that continued education significantly retards

intellectual decline.[64] Some very recent studies have shown an actual increase

in I.Q. until the late forties.[65]

In a study considering these three tenets of adult learning ability in which

an attempt was made to develop adult guidance information, Lunneborg, Olch,

---

[63]Orva Lee Ice, Jr., "An Analysis of the Academic Achievement of Adult
Undergraduate Students." (Ph.D. dissertation, Michigan State University, 1971),
pp. 5-14.

[64]Patricia W. Lunneborg, Doris R. Olch, and Virginia de Wolf, "Prediction
of College Performance in College Students," Journal of Counseling Psychology
21 (May 1974): 215-216.

[65]McClusky, p. 102.

and de Wolf suggest two main approaches when counseling with adults.

They accept the fact that adults can continue to learn but that they do have

some disadvantage in dealing with quantitative materials. Two alternatives

are then open to the adult: (1) become involved in learning situations where

quantitative skills are not necessary, or (2) take part in remedial activities

designed to upgrade quantitative skills. The option for remedial work opens

a larger number of educational alternatives for the adult.[66]

Knox and Sjogren report three implications concerning adult learners for

those involved in educational planning.

1. In general, the average older adult who is likely
   to show up at an adult education program is at
   least as intellectually able, and performs at least
   as well as the average younger participant.

2. Adults who continue to participate in educative
   activity learn more effectively than similar adults
   who do not.

3. Adults learned far more effectively at their own
   pace, and there were substantial differences in
   learning achievement related to intelligence and
   level of formal education.[67]

Sharon found a rise in knowledge in certain academic subjects and a

decline in knowledge in certain academic subjects associated with increasing

age. Individuals over age 40 scored highest on exams given in the Humanities

and Social Sciences, but scored lowest in the areas of Mathematics and Natural

Sciences.[68]

---

[66]Lunneborg, p. 220.

[67]Alan B. Knox and Douglas Sjogren, "Research on Adult Learning,"
Adult Education 15 (Spring 1965): 136.

[68]Amiel T. Sharon, "Adult Academic Achievement in Relation to Formal
Education and Age," Adult Education 21 (Summer 1971): 235-236.

Despite some negative aspects of increased age upon learning abilities, most research has found that adult students achieve higher grade point averages than younger students. In a study to determine if maturity was a variable which contributed to academic success, Hull found that his mature group, defined basically by age, achieved the highest cumulative G.P.A. He concluded that in predicting academic success for adults, their higher level of motivation and larger pool of prior experience must be considered.[69] In a similar study by Stephan and Wheeler, they found that the mature adult student achieved better grades than did the college-age student and that the older the age the higher the grade point. Students who were older than 40 had the highest level of academic performance.[70] Ryan[71] and Ice[72] both found that adults attending the community college attained higher G.P.A.'s.

All research has not concluded that adult students achieve higher grade points. In considering the performance of veteran and non-veteran adults with young students, Reed and Murphy could distinguish no significant differences among the three groups.[73] Reed and Murphy's research design is questionable for the purpose of drawing such conclusions. A report by the Syracuse University Research Institute noted that almost all studies made on veteran

---

[69]Dale Hull, "Maturity as a Variable in Predicting Academic Success." (Columbia, Mo.: ERIC Document Reproduction Service, ED 045 039, 1970) p. 2.

[70]Stephan and Wheeler, p. 200.

[71]John David Ryan, Jr., "A Comparison of the Academic Achievement of Adult and College-Age Junior College Full-Time, Day Students." (Ph. D. dissertation, Wayne State University, 1969), pp. 100-101.

[72]Ice, pp. 73-75.

[73]Jeffrey Reed and Michael Murphy, "Academic Performance of Mature Adults and Veterans," College and University 50 (Winter 1975): 136-142.

academic performance have concluded that the veteran earned higher grades than did the non-veteran. It also noted that married veterans achieved higher G.P.A.'s than single veterans.[74] Joanning also concluded from his research that present day veteran college students perform on a level equal to or superior to non-veterans.[75]

The bulk of the literature on research in adult academic achievement agrees that adults perform at a higher level than college-age youth, but adults bring a great deal of frustration to the learning setting. They are afraid they no longer have the ability to learn or may not be able to compete on an equal basis with younger students. Singer and Fuller concluded that early frustrations could be overcome if educators were direct and reassuring and provided adults with information on relevant research concerning their chances for success as part of the guidance procedure.[76]

---

[74]Story Moorefield, "The Remarkable G.I. Bill," American Education 10 (August 1974): 25.

[75]Harvey Joanning, "The Academic Performance of Vietnam Veteran College Students," Journal of College Student Personnel 16 (January 1975): 12.

[76]David Singer and James Fuller, "The Sleeping Giant," Adult Leadership 23 (June 1974): 42.

CHAPTER III

METHODOLOGY

Description of the Population and Sample

The sample drawn for this study is part of the student population at Oscar Rose Junior College. Oscar Rose Junior College is a two-year comprehensive college located within the metropolitan Oklahoma City area. The College is part of the state system for post-secondary education and is currently completing its fifth year of operation. The College draws the majority of its students from Midwest City and Del City, which are suburban areas located adjacent to the southern city limits of Oklahoma City and are considered its prime "service area." The remainder of the student population is drawn from Oklahoma City and surrounding geographic locations. Within a very short distance from the College is Tinker Air Force Base which employs over 22,000 civilian workers. As a side effect of its presence, the Base creates a large veteran population within the nearby community composed of those individuals who separate from the military and set up households in the immediate area.

Oscar Rose Junior College is an open admissions institution. The admission policy states that any student who (a) is a graduate of an accredited high school and (b) has participated in the American College Testing Program is eligible for admission. An individual who is not a high school graduate will be admitted if: (a) he is eighteen years of age or older, (b) he has been out of high school for

twelve months, (c) his high school class has graduated, and (d) he achieves

a satisfactory score on either the General Educational Development Test (GED)

or the American College Test (ACT). In the case of high school graduates,

ACT scores are used only as a counseling tool and not as an admissions mea-

suring device.

Oscar Rose Junior College, as defined by the State Regents for Higher

Education, serves ten basic institutional functions. These functions are:

1. To provide a comprehensive, two-year post-high
   school program of education.

2. To provide a general education to all students.

3. To provide two-year programs of education in the
   liberal arts and sciences.

4. To provide vocational and technical programs that
   will terminate at the end of two years or less and
   lead to employment in various job fields.

5. To provide programs in the liberal arts and pre-
   professional areas which will transfer to a four-year
   college.

6. To provide continuing education opportunities for
   adults in the community.

7. To provide a program of remedial education for adults
   and young people whose previous educational experi-
   ences have not fitted them to achieve at collegiate levels.

8. To provide guidance services.

9. To provide student activities.

10. To provide services to improve the cultural, economic
    and social environment of the community.

As a result of its variety of functions and its open admissions policy,

the College has a wide variety of students in attendance. For the purposes of

this study, a sample of these students was selected. The sample consists of

those students who completed credit coursework during the spring semester of 1975. That semester there was a total of 6,259 students enrolled; some will have withdrawn from classes prior to the completion of the semester and will be removed from certain statistical tests. The ratio of male to female students was 2:1, which is representative of other two-year urban institutions. The average student age was 28.1 years. Of the 6,259 students, 3,003 were veterans utilizing their G.I. educational benefits. This is a larger percentage of veteran students than is typical of most urban two-year institutions. For this reason and the additional concern of dwindling veteran enrollments and their impact on future curricular and administrative planning, veteran students were considered separately.

Data Collection Procedure

All data to be considered was collected from computer-based permanent records on each student. Several variables were considered and designated as a general category known as student characteristics. The following is a description of the treatment of each variable considered:

Veteran/Non-Veteran: A veteran student was any student enrolled and utilizing G.I. educational benefits.

Age: All students were separated into four age groups which remained constant throughout the study and compare with age groupings used by the U.S. Office of Education and other researchers. The groups were:

> 17-24 - college-age youth
>
> 25-34 - young adults
>
> 35-49 - mature adults
>
> 50 and over - older adults

The age for each student was determined as age in years at the completion of the semester.

Credit hours: Any reference to credit hours will refer to the number of semester hours completed during the spring semester of 1975.

G.P.A.: The G.P.A. variable is defined as the grade point average earned during the spring semester of 1975 and not the cumulative grade point. G.P.A.'s are computed on the 4.0 scale with A=4.0, B=3.0, C=2.0, D=1.0, and F=0.

Time of day enrolled: Each semester the students enrollment record is coded as to whether the student attends classes during the day (before 4 P.M.), during the evening (after 4 P.M.) or both.

Division: The College categorizes its programs of study by academic divisions. The five divisions are (1) Business, (2) Engineering/Science, (3) Humanities, (4) Social Sciences, and (5) Health Occupations. Each student, after declaring a major, is categorized into one of the five divisions on the basis of his major. Of the 6,259 students enrolled in the spring semester 1975, information regarding declared major was available on 5,691 of the students. Other student characteristics will be utilized in the analysis of data and will be defined at that time.

Data Analysis Procedure

The purpose of this study was to observe the enrollment patterns and academic success level of students in the community college and to explore the possibility of relationships between these patterns of enrollment, achievement

and the student age. According to Lehmann and Mehrens'[77] system, this type of research is casual-comparative research. In Kerlinger's system it is ex post facto research since there is no direct control of the variables. This type of research is often used when variables are not manipulable, which is one inherent limitation in ex post facto research. Another weakness lies in the fact that randomization of the sample is lost when one uses non-experimentally developed samples. Kerlinger concedes that in several fields, including education, it is often necessary to utilize the ex post facto design due to ethical and practical limitations in gathering data.[78]

In the case of this study, this design is desirable. The state of the art of higher/adult education is at a stage where a great deal of observational exploratory research is needed in an effort to build a foundation for future experimental research.

This study observed the enrollment patterns and academic achievements of adults attending the community college and compared these with the traditionally aged college student. Several hypotheses were tested statistically to determine whether: (1) a discrimination could be made among age groups on the basis of credit hour enrollment and G.P.A., (2) a discrimination could be made among enrollments by academic division on the basis of age, credit hour enrollment and G.P.A., and (3) a discrimination could be made between veteran and non-veteran

---

[77]Irvin J. Lehmann and William A. Mehrens, Educational Research: Readings in Focus (New York: Holt, Rinehart and Winston, Inc., 1971), p. 251.

[78]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1973), pp. 379-392.

students on the basis of age, G.P.A., and credit hour enrollment. These hypotheses were tested in the null form.

To ascertain whether a discrimination could be made, the statistical technique of Stepwise Discriminant Analysis was applied to three null hypotheses. This multivariate technique attempts to classify individuals into groups. The ex post facto application of this technique takes individuals whose group membership is already known and studies the relationships between certain variables and group association.

The Discriminant Analysis program progresses in a stepwise manner taking separately each variable available and treating it as a predictor variable. The variables are selected at each step on the basis of criteria established outside the program. As the program moves through the stepwise variable selection it determines the amount of variance accounted for by each variable, removing that portion which has been accounted for by previous variables considered. After completion of the stepwise analysis a formula, or linear combination, for group prediction is developed weighting each variable to represent its portion of the variance. The purpose of this weighted linear combination is to maximize the differences between groups.[79] For example, we can observe whether the G.P.A. and credit hour variables accurately predict membership in one of the age groups. The data provided by the program also allows us to determine what extent, if any, each variable plays in the discriminating function. This procedure gave us an opportunity to look at the statistical as well as the practical significance for

---

[79]Maurice M. Tatsouka, Selected Topics in Advanced Statistics: Discriminant Analysis (Champaign, Ill.: Institute for Personality and Ability Testing, 1970), p. 3.

curricular and administrative planners. Each null hypothesis was tested by the Stepwise Discriminant Analysis Program.[80]

In addition to the above data treatment, other techniques were used to observe enrollment patterns. Due to the fact that some student characteristics with which we are concerned are measured at the nominal level and there is an administrative need for practical data display, this data will be analyzed and presented in tabular or graphic form. This approach provides a breakdown of the following relationships:

1. Age groups and veteran/non-veteran status.

2. Age groups and credit hour enrollment categories.

3. Age groups and time of day enrolled.

4. Age groups and academic division.

5. Age groups and high school completion.

6. Age groups and sex.

7. Age groups and G.P.A.

8. Credit hour groups and G.P.A.

9. Time of day enrolled and G.P.A.

10. High school completion and G.P.A.

With regard to statistical significance, the .05 level of significance was established as the minimum level to be accepted.

---

[80]Norman H. Nie, Dale H. Bent, C. Haddin Hall, Statistical Package for the Social Sciences (New York: McGraw-Hill, Inc., 1975), pp. 434-467.

CHAPTER IV

ANALYSIS OF DATA

The problem for this study was to determine whether one could discriminate

between non-traditionally aged community college students and traditionally aged

community college students on the basis of several previously identified variables.

In addition, the differences between veteran and non-veteran students were ana-

lyzed. Three null hypotheses were stated and statistically tested. These null

hypotheses were:

$H_0 1$: No discrimination can be made among age
groups on the basis of the variables G.P.A.
and credit hour enrollment.

$H_0 2$: No discrimination can be made among
enrollments by academic division on the
basis of G.P.A., credit hour enrollment
and age.

$H_0 3$: No discrimination can be made between
veteran and non-veteran students on the
basis of age, G.P.A., and credit hour
enrollment.

A series of discriminant analyses were applied to the three null hypotheses.

The stepwise discriminant analysis program of the Statistical Package for the

Social Sciences was utilized. Discriminant analysis is a multivariate statistical

technique used to distinguish between two or more groups. In an attempt to

distinguish between groups, variables, or characteristics, on which the groups might be expected to differ are selected. These are considered the discriminating variables in the analysis. Mathematically, the discriminant analysis program analyzes each variable and determines what discriminating contribution it has. Then each variable is assigned a weighted value used in a linear combination, or equation, which is used to force the groups to be as statistically distinct as possible. This technique allows the user to discriminate between groups, or tell them apart mathematically. Once the variables have been analyzed and their weighted coefficients determined, a linear combination, or discriminant function is derived. This procedure is analogous to the procedure used in multiple regression analysis. After the discriminant functions have been calculated, the discriminant analysis program then proceeds with the research objectives of analysis and classification.

The analysis portion provides us with the results of statistical tests which quantify the discriminating powers of the variables considered. The discriminant function coefficients provide a weighted measure to identify the variables which are most or least effective in distinguishing among groups, and thereby identify each variable's contribution within the discriminant function.

The classification portion of the program is the final portion of the discriminant analysis and provides us with a measure of the discriminating powers of the variables with respect to the groups.

Using the original discriminant function coefficients, a new set of coefficients are derived which allow the program to predict group membership based on variable scores. In the case of the present study, we are most interested in knowing if the

variables selected can discriminate among groups. To reach a practical measure on this research question, the program classifies the original cases within each group and reports the number and percentage of cases and into which group each case was classified, or predicted. The overall percentage of correct classification gives us a measure of the practical significance of our discriminating variables.

One additional feature used in the discriminant analysis was the stepwise selection of variables. This procedure allows the program not only to develop the weighted coefficients for each variable, but to do it in a stepwise fashion selecting first the variable which best discriminates among groups. Variables are then selected or rejected on the basis of the ability to add to the discriminating power of the discriminant function.

For the purposes of this study, the first analysis was performed on the null hypothesis: No discrimination can be made among age groups on the basis of the variables G.P.A. and credit hour enrollment. Table 1 presents the descriptive data provided within the discriminant analysis output.

TABLE 1
MEAN AND STANDARD DEVIATIONS OF VARIABLES
BY AGE GROUPS WITH SAMPLE SIZE

| | | AGE GROUPS | | | | |
		17-24	25-34	35-49	50+	TOTAL
N		1958	1872	1046	168	5044
Credit Hours	$\overline{X}$	9.4040	8.0689	7.9465	7.5298	8.5438
	SD	4.3858	3.5176	3.5730	3.7303	3.9548
G.P.A.	$\overline{X}$	2.8232	2.9288	3.0592	3.1281	2.9211
	SD	0.8087	0.8465	0.7758	0.7934	0.8225

Based on the known size of each group, probabilities for each group membership were established as follows:

AGE GROUP	GROUP MEMBERSHIP PROBABILITY
17-24	.38
25-34	.38
35-49	.19
50+	.05

The program then selected the variable which best discriminated between groups. This was the G.P.A. variable, indicating that of the two variables available for selection, G.P.A. best discriminated among age groups. The second variable selected, and only additional variable available, was credit hour enrollment.

After the variables had both been analyzed as to their discriminating abilities, an F matrix was provided to observe differences in group means. Table 2 presents the F matrix.

TABLE 2
F MATRIX
DEGREES OF FREEDOM: 2,5039

AGE GROUPS	(1) 17-24	(2) 25-34	(3) 35-49
(2) 25-34	66.14240*		
(3) 35-49	79.51646*	9.06197	
(4) 50+	29.94664*	6.30910	1.40249

*Significant at the .05 level.

As indicated, there is a statistically significant difference among group means on the combined variables, G.P.A. and credit hour, among group 1 and groups 2, 3, and 4. However, no significant differences were found among group means for other group combinations.

As was earlier described, output from the discriminant analysis program provides the user with statistical test results on the discriminant functions which were derived. This provides a measure of the contribution of each variable, or the function derived. Table 3 presents this analysis.

TABLE 3
SUMMARY OF DATA ON DISCRIMINANT FUNCTIONS

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Previously Derived	Wilks' Lambda	Chi Square	DF
1	0.04486	89.15	0.207	0	0.9519	248.589	6*
2	0.00546	10.85	0.074	1	0.9946	27.438	2*

*Significant at the .001 level.

The eigenvalue is a measure of variance. We see that only a very small portion, 4.5% of the variance among groups is explained by the first discriminant function which was created based on G.P.A. The eigenvalue of the second function based on credit hour enrollment is even smaller; it explains only 0.5% additional variance. The total variance accounted for by both variables is only 5%. This indicates that only a very small portion of the variance among groups can be explained based on the variables considered. The

eigenvalue is converted into a relative percentage based on the functions contribution to the discriminating power. The first function provides 89.15% of the discriminating power, remembering however that this is 89.15% of only 5% of the total variance among groups. The second function accounts for only 10.85% of the small amount of variance.

To further assist the user in evaluating the power of the discriminating variables, a canonical correlation is provided for each function. Table 3 shows this correlation. When squared this correlation can be interpreted as the proportion of variance in the function which is accounted for by the groups. In this case the canonical correlation between function 1 and the groups was only .207 with 4.3% of the variance accounted for. For the second function, only .55% of the variance is accounted for.

A Wilks' lambda is calculated to determine the significance of the discriminating power of the variables as the functions are derived. As seen in Table 3, the Wilks' lambda for function 1 is very large, .9519. The larger the Wilks' lambda the less significant is the discriminating power. However, after converting the Wilks' lambda to a chi-square statistic we find the chi-square to be significant far beyond the .001 level. This significance could be expected with an N as large as that of this study: N=5044.

The Wilks' lambda increases when the second variable is added. This increase indicates an actual decrease in the discriminating power of the function, even though chi-square is once again significant beyond the .001 level.

The functions derived are standardized and provided in the program output.

TABLE 4
STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

VARIABLE	FUNCTION 1	FUNCTION 2
Credit Hour	0.80787	0.53682
G.P.A.	-0.55472	0.79712

These coefficients are those which are used in the linear combination, or equation, which attempts to distinguish between groups.

In addition, the classification function coefficients are provided. As described earlier, these are the coefficients which are used in developing a prediction, or classification, equation for each individual to assess the ability of the discriminant functions to correctly classify individuals on the basis of their variable scores. Table 5 presents these coefficients.

TABLE 5
CLASSIFICATION FUNCTION COEFFICIENTS

VARIABLE	AGE GROUP 17-24	25-34	35-49	50+
Credit Hour	0.58328	0.49370	0.48388	0.45544
G.P.A.	4.12412	4.30089	4.49882	4.60812
Constant	-8.56426	-8.29011	-8.80401	-8.92208

As seen in Table 5, the coefficients for both the variables and the constant are very similar on all groups. This factor will detract from the classification power considering the amount of variability within each group.

To allow us to observe the physical relationship of these groups, the centroids, or group means, are calculated and plotted. Table 6 presents the coefficients used in calculating the group mean. Figure 1 presents a plot of these centroids.

TABLE 6
GROUP CENTROIDS

GROUP	FUNCTION 1	FUNCTION 2
17-24	0.24173	0.02190
25-34	-0.10221	-0.05700
35-49	-0.21516	0.05275
50+	-0.34676	0.06297

The plot of group centroids shows a clustering of group means, indicating only small differences between group means. This factor would indicate a great amount of overlapping of individual cases between groups.

The final step within the program is to utilize the functions created and classify individuals into groups on the basis of the variable scores in relationship to the weighted coefficients. Table 7 presents the classification matrix derived after each individuals scores were used to predict the group membership, knowing their actual group membership.

FIGURE 1
PLOT OF GROUP CENTROIDS
AGE GROUPS
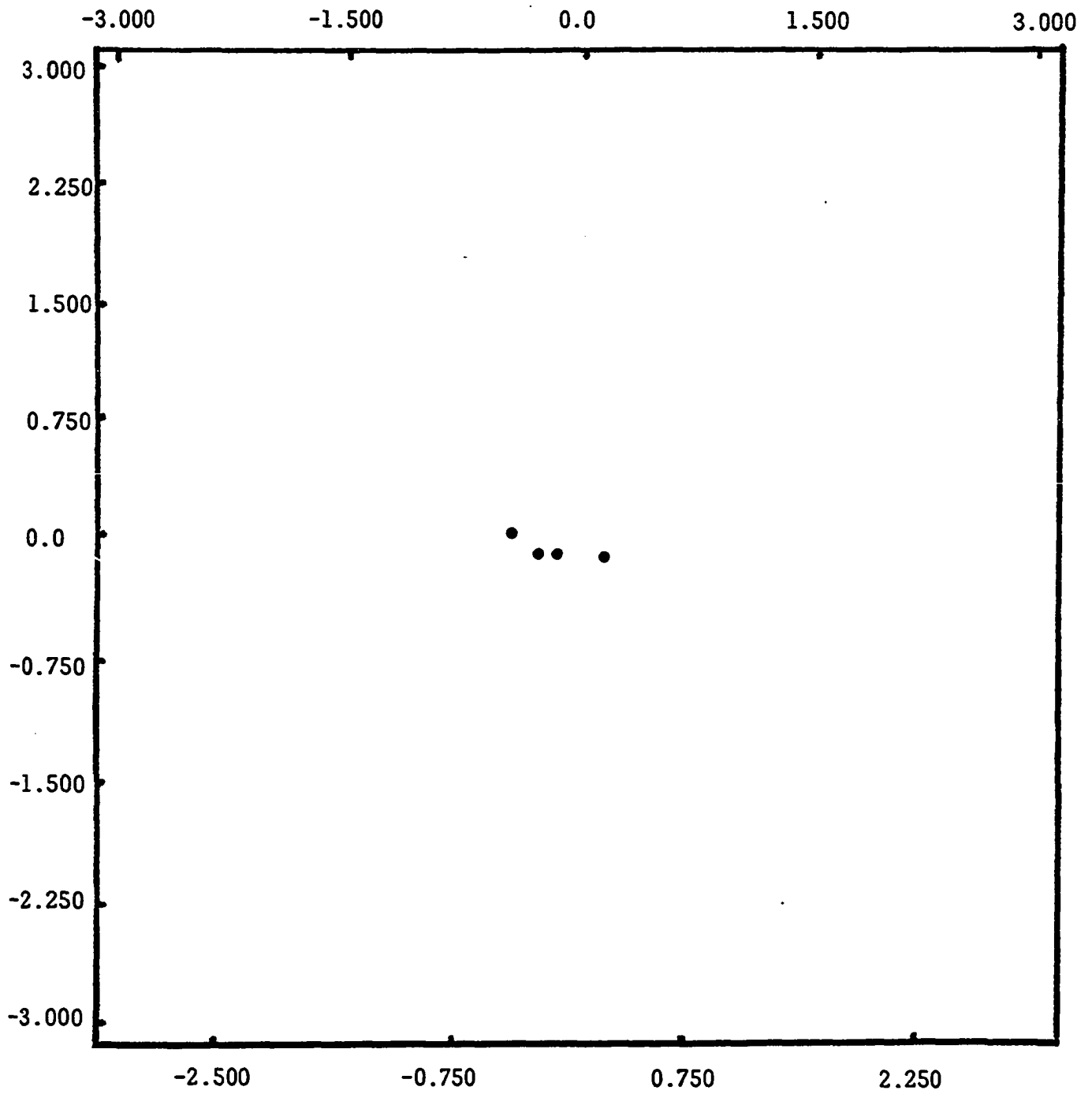
TABLE 7
CLASSIFICATION MATRIX
N=6259

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP			
		(1) 17-24	(2) 25-34	(3) 35-49	(4) 50+
(1) 17-24	2433	1150.	1283.	0.	0.
		47.3%	52.7%	0.0%	0.0%
(2) 25-34	2351	854.	1497.	0.	0.
		36.3%	63.7%	0.0%	0.0%
(3) 35-49	1169	449.	720.	0.	0.
		38.4%	61.6%	0.0%	0.0%
(4) 50+	193	72.	121.	0.	0.
		37.3%	62.7%	0.0%	0.0%
Age Unknown	113	25.	88.	0.	0.
		22.1%	77.9%	0.0%	0.0%

Percent of Grouped cases correctly classified: 43.07%

As indicated in Table 7, only 43.07% of the individuals, with group

membership known, were correctly classified into their same group. Practically

speaking, this classification percentage would not carry power sufficient

to say we could accurately discriminate among age groups. In actuality, the

majority of all individuals in all other groups looked like individuals in the 25-34

age group, using the variables G.P.A. and credit hour enrollment. The remainder

of individuals in each group looked like group 1, 17-24. No one in groups 3 and 4

was classified correctly. Many factors must be considered in interpreting the poor

discrimination among groups. First, the probability of membership was much

greater for groups 1 and 2, .38. Secondly, the means for all groups were so closely

clustered that overlap among the groups was such that a clear discrimination could not be made. The variables credit hour and G.P.A. are not sufficiently powerful to discriminate age groups. Practically speaking, no discrimination can be made.

The second null hypothesis tested was: No discrimination can be made among enrollments by academic division on the basis of G.P.A., credit hour enrollment and age. Table 8 presents the descriptive data provided within the discriminant analysis output.

TABLE 8
MEAN AND STANDARD DEVIATIONS OF VARIABLES
BY DIVISION WITH SAMPLE SIZE

.		Business	Engin./ Science	Humanities	Social Science	Health	Total
N		1770	983	481	1137	247	4618
(2)Age	$\overline{X}$	29.5970	25.7155	27.8981	28.3746	24.4549	28.0492
	SD	9.9855	7.9702	9.8688	9.3239	7.9173	9.4634
(3)Credit	$\overline{X}$	7.9921	8.9705	8.6133	8.7968	10.5101	8.5979
Hours	SD	2.6934	4.1561	4.0626	3.9220	4.1661	3.9625
(4)G.P.A.	$\overline{X}$	2.9444	2.9415	2.9824	2.8325	2.8327	2.9137
	SD	0.8578	0.7791	0.7990	0.8163	0.7900	0.8248

Based on the known size of each group, prior probabilities for group

membership were established as follows:

DIVISION	GROUP MEMBERSHIP PROBABILITY
Business	.40
Engin./Science	.20
Humanities	.10
Social Sciences	.25
Health	.05

The program then selected the variable which best discriminated among

groups. This was the variable age, indicating that of the three variables available

for selection, age best discriminated between Divisions. The second variable

selected was G.P.A. The third and final variable entered in the discriminant

analysis was credit hour enrollments.

After the variables had been analyzed as to their discriminating abilities,

an F matrix was provided to observe differences in group means. Table 9 presents

the F matrix.

TABLE 9
F MATRIX
DEGREES OF FREEDOM: 3,4611

DIVISIONS	Business	Engineering/ Science	Humanities	Social Sciences
(2) Engin/Science	52.43677*			
(3) Humanities	9.44693**	6.05324		
(4) Social Sciences	16.07137**	24.68483**	6.14643	
(5) Health	57.01141*	13.26087*	22.47522**	30.48084*

*Significant at the .01 level
**Significant at the .05 level

As indicated there is a statistically significant difference among group means based on the three variables, age, G.P.A., and credit hour enrollment, between group 1, Business, and all other groups. There is also a statistically significant difference in the group means among group 5, Health, and all other groups. In addition we find ststistically significant difference in group means between group 4, Social Science, and Engineering Science. No significant difference in group means were found between group 3, Humanities, and groups 2 and 4.

Table 10 presents those measures of the contribution of each variable to the functions.

TABLE 10
SUMMARY OF DATA ON DISCRIMINANT FUNCTIONS

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Previously Derived	Wilks' Lambda	Chi Square	DF
1	0.05752	81.52	0.233	0	0.9334	317.878	12*
2	0.00970	13.75	0.098	1	0.9871	59.898	6*
3	0.00334	4.73	0.058	2	0.9967	15.373	2*

*Significant at the .001 level.

We see that the eigenvalue is relatively small for the first function, and decreases with each additional function. The total variance accounted for by the three variables age, G.P.A., and credit hour enrollment is only 7%. The function derived from the variable age accounts for 81.52 relative percentage of the variance accounted for. The additional variables account for decreasing percentages.

The canonical correlation for function 1 is .233 with 5.4% of the variance among groups accounted for. For function 2 only 0.96% of the variance can be accounted for, and for function 3 only 0.34%. These are extremely low proportions, indicating that of the three variables, age discriminates best, but still only accounts for a small amount of disciminating power.

As in the first discriminant analysis, we find rather large non-significant Wilks' lambda which when converted to chi-square statistics are all significant beyond the .001 level. Once again it must be pointed out that statistical significance could be expected with this large sample size.

Table 11 presents the standardized functions to be used in the linear combination. Table 12 presents the classification function coefficients.

TABLE 11
STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

Variable	Function 1	Function 2	Function 3
Age	1.18514	-0.30330	-0.58131
Credit Hours	-0.74506	-0.31903	-0.85443
G.P.A.	0.00359	0.83303	-0.37923

Table 13 presents the coefficients used in calcualting the group means, or centroids. Figure 2 presents a plot of these centroids.

Talbe 14 presents the classification matrix derived after each individual's scores were used to predict their group membership, knowing their actual group membership.

TABLE 12
CLASSIFICATION FUNCTION COEFFICIENTS

Variable	Business	Engineering/ Science	Humanities	Social Sciences	Health
Age	2.90880	2.37747	2.63887	2.80609	2.17957
Credit Hours	0.58135	0.62872	0.61311	0.63185	0.72419
G.P.A.	3.93805	3.98668	4.02008	3.77594	3.83279
Constant	-11.06231	-10.63389	-11.04915	-10.81564	-10.81367

TABLE 13
GROUP CENTROIDS

Group	Function 1	Function 2	Function 3
Business	0.33591	0.02297	0.00770
Engin./Science	-0.38355	0.07830	0.06071
Humanities	-0.05159	0.08070	-0.01089
Social Sciences	0.03519	-0.11671	-0.04135
Health	-0.94216	-0.08678	-0.08948

FIGURE 2
PLOT OF GROUP CENTROIDS
ACADEMIC DIVISIONS
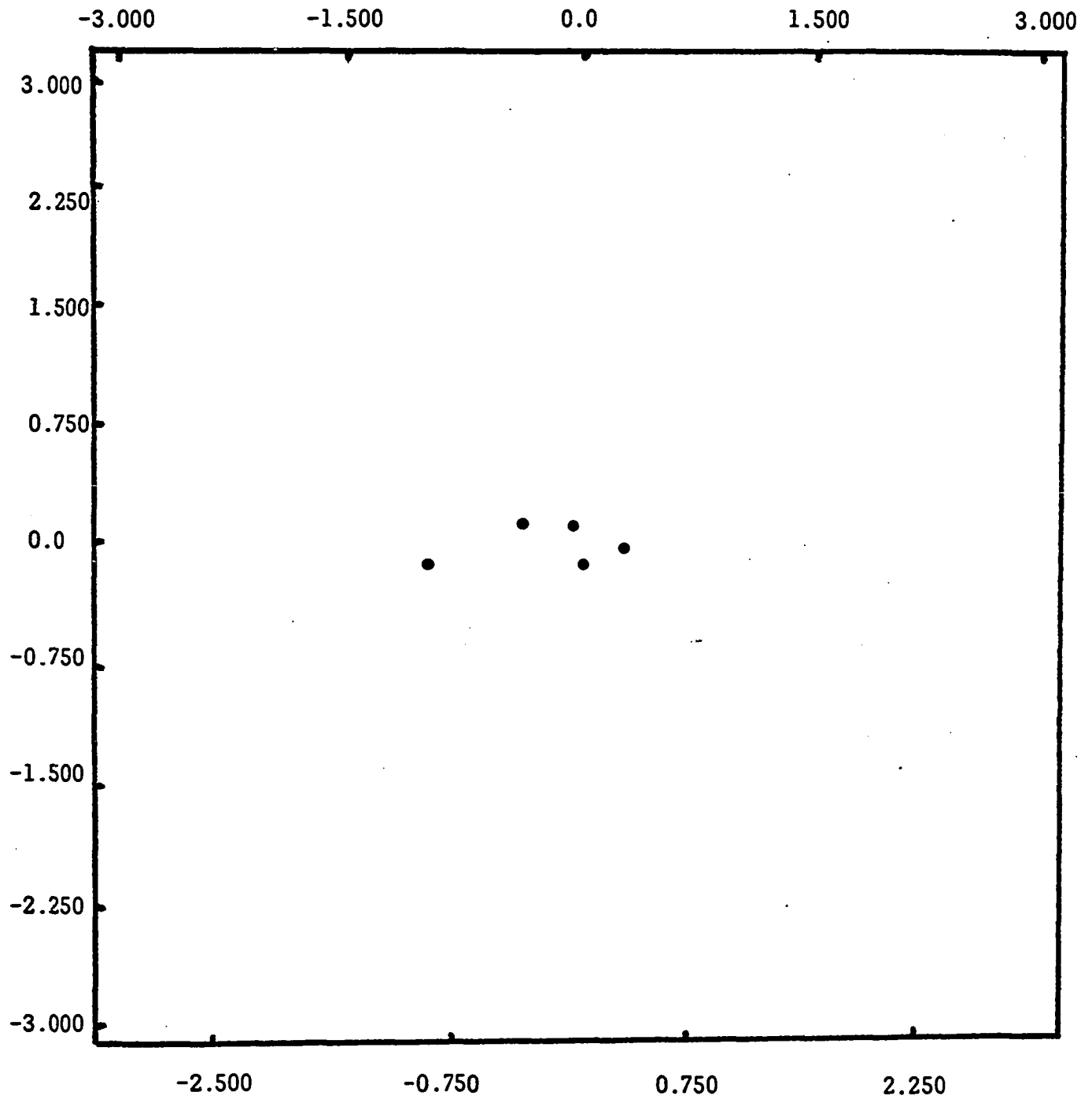
TABLE 14
CLASSIFICATION MATRIX
N=6259

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP				
		Business	Engin./ Science	Humanities	Social Sciences	Health
Business	2216	2121	64	0.	31	0.
		95.7%	2.9%	0.0%	1.4%	0.0%
Engin./Science	1188	1073	90	0.	25	0.
		90.3%	7.6%	0.0%	2.1%	0.0%
Humanities	579	536	32	0.	11	0.
		92.6%	5.5%	0.0%	1.9%	0.0%
Social Sciences	1431	1342	72	0.	17	0.
		93.8%	5.0%	0.0%	1.2%	0.0%
Health	277	222	34	0.	21	0.
		80.1%	12.3%	0.0%	7.6%	0.0%
Ungrouped Cases	568	559	4	0.	5	0.
		98.4%	0.7%	0.0%	0.9%	0.0%

Percent of grouped cases correctly classified: 39.15%

As indicated in Table 14, only 39.15% of the individuals, with group membership known, were correctly classified into their same group. The best classification was found for individuals in the Business division with 95.7% of those individuals correctly classified. However, in all divisions a comparably large percentage of individuals were also classified into the Business division. The remaining small percentage of individuals were classified as group 2 or 4. Once again certain factors must be considered in explaining the poor discrimination. The probability of membership in group 1, Business was .40. In addition,

the differences among group means, although significant, were small.

Considering the amount of variability within groups and the small amount of

variance accounted for by the discriminating variables, we would expect over-

lap between groups. The variables age, G.P.A. and credit hour enrollment are

not sufficiently powerful to discriminate divisions. Practically speaking, no

discrimination can be made.

In an effort to determine if differences existed between veteran and

non-veteran students, the following null hypothesis was tested: No discrimi-

nation can be made between veteran and non-veteran students on the basis of

age, G.P.A. and credit hour enrollment. The non-veteran group consisted of

3256 students; the veteran group consisted of 3003 students. Probabilities for

group membership were set at .50 for each group.

Variable age was first selected as the best discriminating variable. The

variable G.P.A. was next selected, followed by credit hour enrollment. Table 15

presents a summary of data on the contribution of the variables to the discriminant

function. Whereas in the two previous discriminant analyses presented, the

number of functions derived was equal to the number of variables, in this discrimi-

nant analysis only one function was derived. This was based on the limitation that

the maximum number of functions derived will always be one less than the number

of groups. In this case there were only two groups, and only one function was

derived. The eigenvalue indicates that 12.6% of the variance between the groups,

vereran and non-veteran, has been accounted for knowing the variables age, G.P.A.

and credit hour enrollment. Since only one function was derived, it alone accounts

for all the variance explained, or 100.0 relative percentage. The canonical correlation of 0.334 shows a moderate correlation between the variables and the groups. In this final discriminant analysis we find the lowest Wilks' lambda, indicating more discriminating power is available. The chi-square was significant far beyond the .001 level.

TABLE 15
SUMMARY OF DATA ON DISCRIMINANT FUNCTION

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Previously Derived	Wilks' Lambda	Chi Square	DF
1	0.12586	100.0	0.334	0	0.888	741.503	4*

*Significant at the .001 level

Table 16 presents the standardized discriminant function coefficients, and Table 17 presents the classification function coefficients.

TABLE 16
STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

Variable	Function 1
Age	0.53168
Credit Hours	0.35562
G.P.A.	-0.38549

TABLE 17
CLASSIFICATION FUNCTION COEFFICIENTS

VARIABLE	NON-VETERAN	VETERAN
Age	0.29140	0.36206
Credit Hour	0.17855	0.27452
G.P.A.	0.72336	0.35456
Constant	-6.41071	-8.10619

Table 18 presents the group centroids and Figure 3 presents a plot of these centroids.

TABLE 18
GROUP CENTROIDS

Group	Function 1
Non-Veteran	-0.18816
Veteran	0.20393

Table 19 presents the classification matrix derived after each individual's scores were used to predict their group membership, knowing the actual group membership.

FIGURE 3
PLOT OF GROUP CENTROIDS
VETERAN/NON-VETERAN
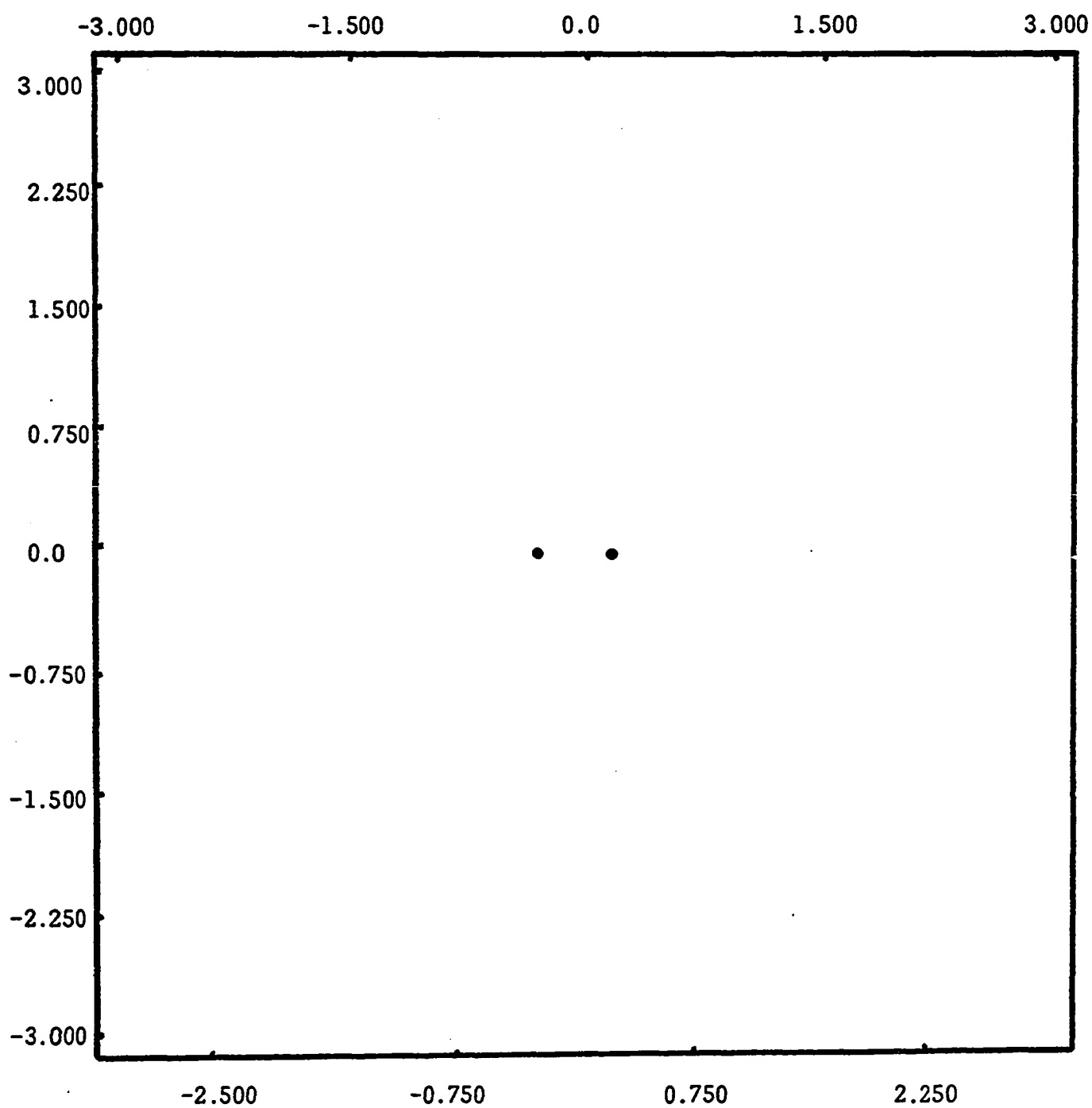
TABLE 19
CLASSIFICATION MATRIX
N=6259

| ACTUAL GROUP | NUMBER OF CASES | PREDICTED GROUP MEMBERSHIP | |
		Non-Veteran	Veteran
Non-Veteran	3256	2268	988
		69.7%	30.3%
Veteran	3003	1135	1868
		37.8%	62.2%

Percent of grouped cases correctly classified: 66.08%

As indicated in Table 19, 66.08% of the individuals, with group membership known, were classified correctly. Remembering, however, that the probability of group membership was .50, and observing the relatively low discriminating ability of the individual variables, we must conclude that a 66.08% overall classification is not sufficiently strong to insure practical significance. From an administrative point of view, we could not conclude that we could accurately discriminate between non-veteran and veteran students on the basis of the three variables age, credit hour enrollment and G.P.A.

In addition to the analysis through the Discriminant Analysis technique,

certain relationships between variables were observed through cross-tabulations.

The following tables express this data.

TABLE 20
ENROLLMENTS BY AGE GROUPS
(N=6259)

	AGE GROUPS					
	17-24	25-34	35-49	50+	Age Unknown	Total
Non-Veterans	1895	760	442	88	71	3256
Veterans	538	1591	727	105	42	3003
All Students	2433	2351	1169	193	113	6259

Table 20 presents the actual enrollments referenced by age. Within the total

population, the number of students enrolled is greatest in the youngest group and

then decreases within each increasing age group. This is also true of the non-

veteran group, with even heavier enrollments in the youngest group. Table 21

indicates that amongst non-veterans, 58.2% are within the 17-24 age group. Age

composition within the veteran group is not representative of the "total population."

The veteran group is generally an older group than the non-veteran group, with

53% of the veteran students falling within the 25-34 age group.

TABLE 21
PERCENTAGES OF ENROLLMENTS BY AGE GROUPS
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Non-Veterans	58.2	23.3	13.6	2.7	2.2	100.0%
Veterans	17.9	53.0	24.2	3.5	1.4	100.0%
All Students	38.9	37.6	18.7	3.1	1.8	100.0%

TABLE 22
WITHDRAWALS BY AGE GROUPS
(N=1136)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Non-Veterans	340	143	59	14	22	578
Veterans	135	336	64	11	12	558
All Students	475	479	123	25	34	1136

During the spring 1975 semester, 18.1% of the 6259 enrolled students withdrew from all classes. Table 22 presents the actual number of withdrawals by age groups. Non-veteran students comprise 50.9% of withdrawals, while veterans comprise 49.1%. This is representative of their actual numbers within the total student population.

TABLE 23
PERCENTAGES OF WITHDRAWALS WITHIN AGE GROUPS
(N=1136)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Non-Veterans	17.9	18.8	13.3	15.9	31.0	17.8
Veterans	25.1	21.1	8.8	10.5	28.6	18.6
All Students	19.5	20.4	10.5	13.0	30.1	18.1

Table 23 shows that within individual age groups, the highest percentages of withdrawals lies within the youngest two age groups, with smaller percentages of the two oldest age groups.

TABLE 24
PERCENTAGES OF TOTAL WITHDRAWALS
(N=1136)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Non-Veterans	58.8	24.7	10.2	2.4	3.8	100.0%
Veterans	24.2	60.2	10.5	2.0	2.2	100.0%
All Students	41.8	42.2	10.8	2.2	3.0	100.0%

Table 24 presents information indicating an over-representation of withdrawls within the 17-24 and 25-34 age group, and an under-representation within the 35-49 and 50 and over groups.

TABLE 25
SEX COMPOSITION BY AGE GROUPS
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Female	1038	512	369	68	91	2078
Male	1395	1839	800	125	22	4181

TABLE 26
· PERCENTAGE BY SEX AND AGE GROUPS
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Female	50.0	24.6	17.8	3.3	4.4	100.0%
Male	33.4	44.0	19.1	3.0	0.5	100.0%

TABLE 27
PERCENTAGE OF EACH SEX WITHIN AGE GROUPS
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
Female	42.7	21.8	31.6	35.2	80.5	33.2
Male	57.3	78.2	68.4	64.8	19.5	66.8
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 25 represents the number of females and males enrolled within each age group. Table 26 presents percentages by age group within each sex indicating that 50.0% of females enrolled are in the 17-24 age group. The single largest group of males enrolled is in the 25-34 age group. The total population is comprised of 66.8% male and 33.2% female as shown in Table 27. The 17-24 age group comes closest to representing equal distribution with 57.3% male and 42.7% female. The Chi Square test on Sex by Age was significant at the .01 level.

Table 28 presents the number of students in each age group who are enrolled in the three credit hour groups: 1-5 credit hours, 6-11 credit hours, and 12 or more credit hours. Table 29 shows that 45.8% of the total population of students are enrolled in 6-11 credit hours. The largest percentage of enrollments for non-veterans and veterans is also in the 6-11 credit hour group. When broken down by percentages within each age group, the three highest age groups continue to have a larger percentage of enrollments within the 6-11 credit hour group. Within the 17-24 age group, a slightly larger percentage of students are enrolled in 12 or more credit hours. When considering the non-veteran and veteran patterns, differences in credit hour patterns appear. Table 30 indicates a smaller percentage of enrollments in the 1-5 credit hour group. Within the non-veteran group, a decrease in the number of credit hours as age increases is more apparent. Within the veteran group, all age groups appear more similar in their credit hour enrollments.

Table 31 presents the actual enrollments by the time of day during which a student attends classes. Table 32 indicates that 52.2% of the total population enrolled during the evening, with 37.2% enrolled during the day, and 10.6% enrolled during the evening. The veterans show a high concentration of enrollments during the

TABLE 28
CREDIT HOURS COMPLETED BY AGE GROUPS
(N=5123)

CREDIT	AGE GROUPS					
HOURS	17-24	25-34	35-49	50+	Age Unknown	Total
			ALL STUDENTS			
1-5	389	359	241	52	30	1071
6-11	767	988	494	65	34	2348
12+	802	525	311	51	15	1704
Total	1958	1872	1046	168	79	5123
			NON-VETERANS			
1-5	343	224	186	47	24	824
6-11	596	279	155	23	20	1073
12+	616	114	42	4	5	781
Total	1555	617	383	74	49	2678
			VETERANS			
1-5	46	135	55	5	6	247
6-11	171	709	339	42	14	1275
12+	186	411	269	47	10	923
Total	403	1255	663	94	30	2445

TABLE 29
PERCENTAGE OF AGE GROUPS WITHIN CREDIT HOUR GROUPS
(N=5123)

CREDIT HOURS	AGE GROUPS					
	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
1-5	36.3	33.5	22.5	4.9	2.8	100.0%
6-11	32.7	42.1	21.0	2.8	1.4	100.0%
12+	47.1	30.8	18.2	3.0	0.9	100.0%
NON-VETERANS						
1-5	41.6	27.2	22.6	5.7	2.9	100.0%
6-11	55.6	26.0	14.4	2.1	1.9	100.0%
12+	78.9	14.6	5.4	0.5	0.6	100.0%
VETERAN						
1-5	18.6	54.7	22.3	2.0	2.4	100.0%
6-11	13.4	55.6	26.6	3.3	1.1	100.0%
12+	20.1	44.6	29.1	5.1	1.1	100.0%

TABLE 30
CREDIT HOURS COMPLETED BY PERCENTAGE WITHIN AGE GROUP
(N=5123)

| CREDIT HOURS | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
1-5	19.8	19.2	23.1	31.0	38.0	20.9
6-11	39.2	52.8	47.2	38.7	43.0	45.8
12+	41.0	28.0	29.7	30.3	19.0	33.3
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NON-VETERAN						
1-5	22.1	36.3	48.6	63.5	49.0	30.8
6-11	38.3	45.2	40.4	31.1	40.8	40.1
12+	39.6	18.5	11.0	5.4	10.2	29.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
VETERAN						
1-5	11.4	10.8	8.3	5.3	20.0	10.1
6-11	42.4	56.5	51.1	44.7	46.7	52.1
12+	46.2	32.7	40.6	50.0	33.3	37.8
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

evening (59.8%), while the non-veteran enrollments are more evenly distributed. When considering age groups within the total population, the majority of the 17-24 group attend during the day, but strong majorities of all other age groups attend during the evening. The non-veteran group is representative of the total population. This is basically true of the veteran group with the exception of percentage differences within the 17-24 age group. Table 33 indicates the largest percentage of evening students (44.7%) are 25-34, while the largest percentage of day students (56.0%) are 17-24. Basic differences can be seen among age group enrollments by the time of day the student attends classes.

TABLE 31
TIME OF DAY ENROLLED BY AGE
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
Day	1302	648	292	52	32	2326
Evening	885	1461	739	113	72	3270
Both	246	242	138	28	9	663
NON-VETERAN						
Day	1067	258	123	27	21	1496
Evening	646	433	291	58	45	1473
Both	182	69	28	3	5	287
VETERANS						
Day	235	390	169	25	11	830
Evening	239	1028	448	55	27	1797
Both	64	173	110	25	4	376

TABLE 32
TIME OF DAY ENROLLED BY PERCENTAGE WITHIN AGE GROUPS
(N=6259)

	17-24	25-34	35-49	50+	Age Unknown	Total
			AGE GROUPS			

ALL STUDENTS

	17-24	25-34	35-49	50+	Age Unknown	Total
Day	53.5	27.6	25.0	26.9	28.3	37.2
Evening	36.4	62.1	63.2	58.6	63.7	52.2
Both	10.1	10.3	11.8	14.5	8.0	10.6
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NON-VETERAN

	17-24	25-34	35-49	50+	Age Unknown	Total
Day	56.3	33.9	27.8	30.7	29.6	45.9
Evening	34.1	57.0	65.8	65.9	63.4	45.2
Both	9.6	9.1	6.3	3.4	7.0	8.8
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

VETERANS

	17-24	25-34	35-49	50+	Age Unknown	Total
Day	43.7	24.5	23.2	23.8	26.2	27.6
Evening	44.4	64.6	61.6	52.4	64.3	59.8
Both	11.9	10.9	15.1	23.8	9.5	12.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE 33
PERCENTAGE OF AGE GROUPS WITHIN TIME CATEGORIES
(N=6259)

| | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
			ALL STUDENTS			
Day	56.0	27.9	12.6	2.2	1.4	100.0%
Evening	27.1	44.7	22.6	3.5	2.2	100.0%
Both	37.2	36.5	20.8	4.2	1.4	100.0%
			NON-VETERANS			
Day	71.4	17.2	8.2	1.8	1.4	100.0%
Evening	43.9	29.4	19.8	3.9	3.0	100.0%
Both	63.4	24.0	9.8	1.0	1.7	100.0%
			VETERANS			
Day	28.4	47.0	20.4	3.0	1.3	100.0%
Evening	13.3	57.2	24.9	3.1	1.5	100.0%
Both	17.0	46.0	29.3	6.6	1.1	100.0%

TABLE 34
WITHDRAWALS BY TIME OF DAY ENROLLED
(N=1136)

	NON-VETERAN	VETERAN	TOTAL
Day	230	180	140
Evening	313	325	639
Both	34	53	87
Total	577	559	1136

WITHDRAWALS BY PERCENTAGE OF ACTUAL ENROLLMENT

	NON-VETERAN	VETERAN	TOTAL
Day	15.4	21.7	17.7
Evening	21.3	18:1	19.5
Both	11.8	14.1	13.1

Once again withdrawal patterns were analyzed, considering the time of day enrolled. Table 34 presents data showing a similar percentage of withdrawals during the day and evening as there are enrollments during these hours. Within the non-veteran group, a larger percentage of evening students withdrew. Within the veteran group, a larger percentage of day students withdrew.

The Chi Square test on age and time of day enrolled was significant at the .01 level. The contingency coefficient was .29 showing a moderately low relationship.

Table 35 presents the actual enrollments within each age group by the academic division in which the students are enrolled. The category labeled "Other" indicates students who have not yet declared a major area or on who data was not supplied as to major preference. Table 36 presents a breakdown of data by percentage within each age group. As indicated, the largest percentage of each age group is found in the Business Division, with the percentage increasing as the age increases. In the Engineering/Science Division, we find the percentage within each age group decreasing as age increases. The highest percentage by age group in the Humanities Division is in the 50 or over age group, with small percentage enrollments in other age groups. We see a similar percentage of each age group enrolled in the Social Sciences. Health Occupations is a small division with special admissions requirements and more rigorous time requirements. This division is dominated by the youngest group. Table 37 presents data on the percentage of age groups within each division. With overall enrollments heavier in younger age groups, we also find heavier concentration of enrollments by division falling within the younger groups. Overall, the Business Division accounts for the largest percentage of enrollments (35.4%). Enrollment patterns by division are relatively similar between non-veteran and veteran students.

A Chi Square test on enrollment by age and division was significant at the .01 level for non-veterans with a contingency coefficient of .30, showing a moderately low relationship. Chi Square for the veteran group was significant at the 0.001 level with only a low relationship shown by the .19 contingency coefficient.

TABLE 35
ENROLLMENT IN DIVISIONS BY AGE
(N=6259)

	AGE GROUPS					
DIVISION	17-24	25-34	35-49	50+	Age Unknown	Total

ALL STUDENTS

Business	719	873	510	82	32	2216
Eng./Sci.	608	405	144	15	16	1188
Humanities	255	202	88	31	3	579
Soc. Sci.	525	581	269	40	16	1431
Health	186	56	28	5	2	277
Other	140	234	130	20	44	568
Total	2433	2351	1169	193	113	6259

NON-VETERANS

Business	553	297	183	37	17	1087
Eng./Sci.	507	132	54	7	7	707
Humanities	198	63	48	18	2	329
Soc. Sci.	366	155	88	14	7	630
Health	162	37	22	0	2	223
Other	109	76	47	12	36	280
Total	1895	760	442	88	71	3256

VETERANS

Business	166	576	327	45	15	1129
Eng./Sci.	101	273	90	8	9	481
Humanities	57	139	40	13	1	250
Soc. Sci.	159	426	181	26	9	801
Health	24	19	6	5	0	54
Other	31	158	83	8	8	288
Total	538	1591	727	105	42	3003

TABLE 36
DIVISIONS BY PERCENTAGE WITHIN AGE GROUPS
(N=6259)

| DIVISION | AGE GROUPS | | | | | |
	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
Business	29.6	37.1	43.6	42.5	28.3	35.4
Eng./Sci.	25.0	17.2	12.3	7.8	14.2	19.0
Humanities	10.5	8.6	7.5	16.1	2.7	9.3
Soc. Sci.	21.6	24.7	23.0	20.7	14.2	22.9
Health	7.6	2.4	2.4	2.6	1.8	4.4
Other	5.8	10.0	11.1	10.4	38.9	9.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NON-VETERANS						
Business	29.2	39.1	41.4	42.0	23.9	33.4
Eng./Sci.	26.8	17.4	22.2	8.0	9.9	21.7
Humanities	10.5	8.3	10.9	20.5	2.8	10.1
Soc. Sci.	19.3	20.4	19.9	15.9	9.9	19.3
Health	8.6	4.9	5.0	0.0	2.8	6.8
Other	5.7	10.0	10.6	13.7	50.7	8.6
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
VETERANS						
Business	31.0	36.2	45.0	42.9	35.7	37.6
Eng./Sci.	18.9	17.2	12.4	7.6	21.4	16.0
Humanities	10.7	8.7	5.5	12.4	2.4	8.3
Soc. Sci.	29.2	26.8	24.9	24.8	21.4	26.7
Health	4.5	1.2	0.8	4.8	0.0	1.8
Other	5.8	10.0	11.4	7.6	19.0	9.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE 37
PERCENTAGE BY AGE GROUP WITHIN DIVISION
(N=6259)

			AGE GROUP			
DIVISION	17-24	25-34	35-49	50+	Age Unknown	Total

ALL STUDENTS

Business	32.4	39.4	23.0	3.7	1.4	100.0%
Eng./Sci.	51.2	34.1	12.1	1.3	1.3	100.0%
Humanities	44.0	34.9	15.2	5.4	0.5	100.0%
Soc. Sci.	36.7	40.6	18.8	2.8	1.1	100.0%
Health	67.1	20.2	10.1	1.8	0.7	100.0%
Other	24.6	41.2	22.9	3.5	7.7	100.0%

NON-VETERANS

Business	50.9	27.3	16.8	3.4	1.6	100.0%
Eng./Sci.	71.7	18.7	7.6	1.0	1.0	100.0%
Humanities	60.2	19.1	14.6	5.5	0.6	100.0%
Soc. Sci.	58.1	24.6	14.0	2.2	1.1	100.0%
Health	72.6	16.6	9.9	0.0	0.9	100.0%
Other	38.9	27.1	16.8	4.3	12.9	100.0%

VETERANS

Business	14.7	51.0	29.0	4.0	1.3	100.0%
Eng./Sci.	21.0	56.8	18.7	1.7	1.9	100.0%
Humanities	22.8	55.6	16.0	5.2	0.4	100.0%
Soc. Sci.	19.9	53.2	22.6	3.2	1.1	100.0%
Health	44.4	35.2	11.1	9.3	0.0	100.0%
Other	10.8	54.9	28.8	2.8	2.8	100.0%

TABLE 38
HIGH SCHOOL COMPLETION STATUS BY AGE GROUPS
(N=6259)

HIGH SCHOOL	AGE GROUPS					
STATUS	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
Not Completed	206	395	405	60	100	1166
Completed	2227	1956	764	133	13	5093
NON-VETERANS						
Not Completed	82	83	98	16	63	342
Completed	1813	677	344	72	8	2914
VETERANS						
Not Completed	124	312	307	44	37	824
Completed	414	1279	420	61	5	2179

Table 38 presents data on high school completion. The "Not Completed" category includes individuals who did not complete high school through traditional attendance. Students in this category may have completed high school through the General Equivalency Examination. Table 39 presents data by the percentages within age groups. Within the total population, we see that 18.6% did not complete high school. Within individual age groups, the smallest percentage of high school completions falls within the 35-49 age group. The largest percentage of completion is found within the 17-24 group. This data is similar for the non-veteran group, but the veteran group shows the highest rate of completion within the 25-34 age group.

TABLE 39

PERCENTAGES BY HIGH SCHOOL COMPLETION WITHIN AGE GROUPS

(N=6259)

HIGH SCHOOL STATUS	AGE GROUPS					
	17-24	25-34	35-49	50+	Age Unknown	Total
ALL STUDENTS						
Not Completed	8.5	16.8	34.6	31.1	88.5	18.6
Completed	91.5	83.2	65.4	68.9	11.5	81.4
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NON-VETERANS						
Not Completed	4.3	10.9	22.2	18.2	88.7	10.5
Completed	95.7	89.1	77.8	81.8	11.3	89.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
VETERANS						
Not Completed	23.0	19.6	42.2	41.9	88.1	27.4
Completed	77.0	80.4	57.8	58.1	11.9	72.6
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

When observing the total non-veteran population, we see that only 10.5% did not complete high school. This is a much smaller percentage than veteran non-completion, which was 27.4%

The Chi Square test on age and high school completion was significant at the .01 level for non-veterans with a moderate relationship shown by a contingency coefficient of .40. Within the veteran group, the Chi Square test was significant at the .01 level, with a lesser relationship shown with a .26 contingency coefficient.

TABLE 40
WITHDRAWALS BY HIGH SCHOOL STATUS
(N=1136)

	NOT COMPLETED	COMPLETED	TOTAL WITHDRAWALS
Non-Veteran	99	479	578
Veteran	181	377	558
All Students	280	856	1136

PERCENTAGE WITHDRAWALS BY HIGH SCHOOL STATUS

	NOT COMPLETED	COMPLETED	TOTAL WITHDRAWALS
Non-Veteran	17.1	82.9	100.0%
Veteran	32.4	67.6	100.0%
All Students	24.6	75.4	100.0%

Table 40 analyzes the relationship between enrollment withdrawals and high school completion. We find that students who did not complete high school are over-represented amongst the students who withdrew.

In addition to analyzing enrollment patterns, G.P.A. was analyzed on the basis of its relationship with several variables. Table 41 presents mean G.P.A.'s on the various age groups. The mean G.P.A. for all students was 2.922. The range of mean G.P.A.'s was relatively small:

2.823 - 3.128   Total Population

2.861 - 3.325   Non-Veteran

2.680 - 2.973   Veteran

The mean G.P.A. increases as the age increases with the 50 and over group achieving the highest mean G.P.A. The non-veteran achieved higher G.P.A.'s in all age

groups than the veteran. The standard deviations are moderately high indicating a large amount of variability within each group.

TABLE 41
MEAN G.P.A. BY AGE
(N=5123)

| | AGE GROUP | | | | |
	17-24	25-34	35-49	50+	All Ages
Non-Veteran	2.861	3.218	3.268	3.325	
Veteran	2.680	2.787	2.939	2.973	
All Students	2.823	2.929	3.059	3.128	2.922
STANDARD DEVIATIONS					
Non-Veteran	.806	.774	.758	.787	
Veteran	.802	.844	.758	.768	
All Students	.808	.846	.776	.793	.821

TABLE 42
MEAN G.P.A. BY CREDIT HOURS
(N=5123)

CREDIT HOURS	NON-VETERAN	VETERAN	ALL STUDENTS
1-5	3.139	2.459	2.982
6-11	2.943	2.737	2.831
12+	2.982	3.027	3.006
STANDARD DEVIATIONS			
1-5	.914	1.003	.977
6-11	.817	.819	.824
12+	.667	.697	.684

Table 42 presents mean G.P.A. by the number of credit hours enrolled. Very small differences exist in mean G.P.A. for the total population and non-veteran group, however amongst veterans G.P.A. increases with an increase in credit hours. The standard deviations indicate that variability is highest amongst those taking 1-5 credit hours and lowest amongst those enrolled in 12 or more hours.

TABLE 43
MEAN G.P.A. BY AGE AND CREDIT HOURS
(N=5123)

CREDIT HOURS	AGE GROUPS				
	17-24	25-34	35-49	50+	All Ages
1-5	2.856	2.997	3.103	3.237	2.981
6-11	2.693	2.834	3.020	2.981	2.831
12+	2.932	3.061	3.088	3.204	3.009
STANDARD DEVIATIONS					
1-5	.975	1.017	.936	.894	.977
6-11	.828	.842	.746	.780	.825
12+	.672	.691	.679	.679	.684

G.P.A. was also analyzed by credit hour and age. Table 43 presents the results of this cross-tabulation. When G.P.A. is examined on both variables, age and credit hour, we see that higher G.P.A.'s are achieved in the two older groups in all credit hour categories. The standard deviations show a decrease in variability with an increase in credit hours; however, variability shows no pattern when observed by age groups.

TABLE 44
MEAN G.P.A. BY AGE FOR NON-VETERANS AND VETERANS
(N=5123)

CREDIT HOURS	AGE GROUPS			
	17-24	25-34	35-49	50+
NON-VETERANS				
1-5	2.934	3.337	3.254	3.311
6-11	2.734	3.173	3.301	3.293
12+	2.942	3.095	3.204	3.677
VETERANS				
1-5	2.272	2.434	2.594	2.550
6-11	2.553	2.700	2.891	2.810
12+	2.898	3.052	3.069	3.164

Table 44 presents G.P.A. by credit hour and age for the non-veteran and veteran groups. G.P.A. is higher once again, for both the non-veteran and veteran groups, in the two older groups. However, mean G.P.A.'s amongst the non-veteran are slightly higher than the total population G.P.A.'s, while the veteran G.P.A. are significantly lower.

Table 45 analyzes G.P.A. as it relates to the time of day enrolled. The differences between groups are small with no definite relationship appearing. Evening G.P.A.'s are higher amongst the total population and non-veteran group with the veteran group achieving higher mean G.P.A. during the day. Variability appears similar for those attending during the day or evening, but is lower amongst those who attend during both the day and evening.

TABLE 45
MEAN G.P.A. BY TIME OF DAY ENROLLED
(N=5123)

	DAY	EVENING	BOTH
Non-Veteran	2.899	3.151	2.970
Veteran	2.833	2.779	2.970
All Students	2.876	2.943	2.970
STANDARD DEVIATIONS			
Non-Veteran	.805	.810	.775
Veteran	.792	.846	.708
All Students	.801	.850	.737

TABLE 46
MEAN G.P.A. BY HIGH SCHOOL COMPLETION
(N=5123)

	NOT COMPLETED	COMPLETED
Non-Veterans	2.958	3.020
Veterans	2.716	2.855
All Students	2.782	2.950
STANDARD DEVIATIONS		
Non-Veterans	.857	.810
Veterans	.812	.816
All Students	.831	.816

Table 46 presents mean G.P.A. by high school status. Individuals who completed high school receive a higher mean G.P.A. than those completing high school in all groups.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The design of this study was to examine certain characteristics of

non-traditionally aged community college students for the purpose of utilizing

such data in future curricular and administrative planning. The basic research

question was: How do enrollment patterns and academic achievements of adults

attending an urban two-year college compare with those of the traditionally aged

college student? College age students were defined as recent high school students

who had entered college immediately or shortly after high school, to continue their

education on a full- or part-time basis, and who are 17-24 years of age. Adult

students were defined as students attending the community college on a full- or

part-time basis who were at least 25 years of age. Students were examined by the

whole population as well as examined by group membership on the basis of whether

or not they had utilized veterans' educational benefits.

In an effort to answer the original research questions, three hypotheses

were tested:

$H_0 1$: No discrimination can be made among age groups
on the basis of the variables G.P.A. and credit
hour enrollment.

$H_0 2$: No discrimination can be made among enrollments by academic division on the basis of G.P.A., credit hour enrollment, and age.

$H_0 3$: No discrimination can be made between veteran and and non-veteran students on the basis of age, G.P.A., and credit hour enrollment.

The sample drawn for this study is part of the student population at Oscar Rose Junior College which is a two-year comprehensive college located within the metropolitan Oklahoma City area. Oscar Rose is an open admissions institution which accounts for the large amount of variability within the student population found there. The sample consists of those students who enrolled in credit coursework during the spring semester of 1975. The average student age was 28.1 years. Of the 6,259 students enrolled, 3,003 were veterans utilizing their G.I. educational benefits.

All students were separated into four age groups which remained constant throughout the study. The groups were:

17-24 - college-age youth

25-34 - young adults

35-49 - mature adults

50+ - older adults

To ascertain whether a discrimination could be made, the statistical technique of Stepwise Discriminant Analysis was applied to the three null hypotheses. This multi-variate technique attempted to classify individuals into groups. The ex post facto application of this technique took individuals whose group membership was already known and studied the relationship between certain variables and group association.

In addition to the above data treatment, other techniques were used to observe enrollment patterns. Due to the fact that certain characteristics were measured at the nominal level, this data was displayed in tabular form. The following breakdowns were examined:

1. Age groups and veteran/non-veteran status.

2. Age groups and credit hour enrollment categories.

3. Age groups and time of day enrolled.

4. Age groups and academic division.

5. Age groups and high school completion.

6. Age groups and sex.

7. Age groups and G.P.A.

8. Credit hour groups and G.P.A.

9. Time of day enrolled and G.P.A.

10. High school completion and G.P.A.

Findings

In actual head count, the largest percentage of students enrolled was greatest in the youngest group and then decreased with each increasing age group. The veteran group represented an older group than the non-veteran group. Those students over 25 represented 59.4% of the student enrollment. When considering those students who withdrew from all classes during the semester, we found an over-representation of withdrawals within the two youngest groups. Those students over 35 were under-represented.

It was found that there were far more males than females in the student population, with 66.8% of all students being male. Within the youngest group it appeared as if more females are now moving into higher education, since within that group the male percengage fell to only 57.3%.

When considering enrollment by credit hour it was determined that the largest number of students (45.8%) were enrolled in 6-11 credit hours. The part-time enrollments surpassed full-time enrollments with 66.7% of all students enrolled in less than 12 hours. Amongst the youngest group the largest percentage of students are enrolled in 12 or more hours. Credit hour enrollment decreased as age increased.

Although 52.5% of all students were enrolled during the evening, we found that the majority of 17-24 year old students attend during the day, indicating more interest among older students in participation during the evening.

In breakdowns by Academic Division it was determined that the largest percentage of each age group was enrolled in the Business Division with the percentage within each group increasing with age. Within the Humanities Division the highest percentage of enrollment within an age group was in the 50 or over group.

Data revealed that 18.6% of all students did not complete high school. The group with the highest percentage of completions was the 17-24 year olds with the lowest percentage of completions in the 35-49 age group. When considering non-veterans we observed that only 10.5% did not complete high school, while 27.4% of veterans did not complete. It was also determined that students who did not complete high school were over-represented amongst students who withdrew from all classes.

In analyzing G.P.A., the overall mean G.P.A. was 2.92. Within age groups the mean G.P.A. increased as age increased. The non-veteran achieved higher G.P.A.'s in all age groups than the veteran.

When G.P.A. was considered in relationship to credit hour enrollment, very small differences existed within the total population; however, amongst veterans G.P.A. increased as credit hours increased.

When G.P.A. was analyzed on the basis of age and credit hour, higher G.P.A.'s were achieved in the two older groups in all credit hour categories.

G.P.A. was highest within the group of students enrolled in the evening. G.P.A. was also highest within the group who completed high school.

To determine whether a discrimination could be made among the four age groups, a discriminant analysis was applied considering the variables credit hour enrollment and G.P.A. Of the two variables, G.P.A. best discriminated among groups. However, knowing these variables, we could only account for approximately 5% of the total variance among groups. With only 5% of the total variance explained, these variables did not have sufficient power to clearly discriminate among age groups.

The group means were also closely clustered and variability within the groups was relatively high. With these two factors in mind, it appears that the overlap among groups was such that no clear discrimination could be made.

The final step in the discriminant analysis was to classify individuals into the four age groups basing this classification on their actual variable scores and their respective weighted coefficients. When this technique was

applied to our sample we found that only 43.07% of the individuals were correctly classified into their actual age group. The majority of all individuals within all groups were classified into the 25-34 age group. The remainder of all individuals were classified into the 17-24 age group. No individuals were correctly classified into the age group 35-49 and 50+. The .38 probability of membership in groups 17-24 and 25-34 along with the variability within groups and the poor discriminating power of the criterion variables contributed to 57% of the individuals being misclassified.

Through the classification procedure we are able to assess the practical significance of the discrimination. In considering age groups we must conclude that for administrative or curriculum planning purposes, the variables G.P.A. and credit hour enrollment do not clearly discriminate among age groups.

A second discriminant analysis was applied to the five academic divisions. The variables considered were age, G.P.A. and credit hour enrollment. Of these variables age best discriminated between groups, with G.P.A. second and credit hour enrollment third. Once again the variables could only account for a small percentage of the total variance among groups. Knowing age we could only explain 5.8% of the variance. When G.P.A. and credit hour enrollment were added to the analysis, we could only explain a total of 7% of the variance. These variables did not have sufficient power to clearly discriminate among academic divisions.

The final step in the analysis was to classify individuals into the five academic divisions basing the classification on their variable scores and

their respective weighted coefficients. We found that only 39.15% of the
individuals were correctly classified into their actual academic division.
Extremely large percentages of all individuals within all groups were
misclassified into the Business Division. The .40 probability of member-
ship in that group was the highest of all groups. This must be considered
as one factor contributing to the poor discrimination among groups. The
poor discriminating abilities of the selected variables and the high variabil-
ity within groups also contibuted to the inability to discriminate.

In this attempt to discriminate among divisions, we must conclude
that practically speaking no discrimination can be made among academic
divisions considering the variables age, G.P.A. and credit hour enrollment.

Of the three discriminant analyses computed for this study, the best
discrimination found was between veteran and non-veteran students. The
percent of individuals correctly classified was 66.08. However, the proba-
bility of group membership was .50 for both groups. Therefore, the 66.08%
correct classification would not provide an administratively significant
discrimination.

Conclusions

The basic research question for this study was: How do enrollment
patterns and academic achievements of adults attending an urban two-year
college compare with those of the traditionally aged college student? The
following are conclusions based on the data collected in an effort to answer
the research question. The conclusions are based only on those students
enrolled at Oscar Rose Junior College during the spring semester of 1975.

Age: Undergraduate education has been thought by many to be an institution which served mainly the youth of our nation. It was found in our particular study that 59% of the students enrolled at Oscar Rose Junior College were 25 years of age or older. This alone is an indication of the necessity for research concerning the adult learner.

Credit Hour Enrollment: Although much has been written concerning the rise in part-time enrollments as it relates to the older student, we must conclude from our data that the rise in part-time enrollments is effected by all age groups. Although a larger percentage of 17-24 year olds are enrolled full-time, as compared with any other age group, 59% of even this youngest group are enrolled on a part-time basis.

Time of Day Enrolled: When attendance patterns were analyzed on the basis of time of day enrolled, we saw that the majority of traditionally aged college students still pursue their education as a day time activity. The vast majority of adult students attend in the evening. Since the majority of all students are adults, we also find that the majority of all students attend in the evening. With 52.2% of students enrolled in the evening, we find that Oscar Rose Junior College is similar to other community colleges, in that it is properly redirecting its administrative and student services from day-oriented activities toward evening-oriented activities.

Academic Divisions: It is important for curriculum planners to determine if patterns of enrollment for the adult student differ significantly. Based on data collected we see that the basic patterns are similar for all age groups. We must remember, however, that we are concluding only that when given the same

options of academic programs, all students, regardless of age, enroll in similar patterns. This does not say that if given the opportunity to choose which programs should be offered, different aged students would not select differently.

Withdrawals From Class: The student who withdraws from all classes is more likely to be one who is under 35 years of age, enrolled in the evening and who did not complete high school in a traditional fashion. Note that we say that this student is only more likely to be chacacterized in this manner. No clear cut pattern of withdrawal could be seen based on these variables alone. It could be said that the mature and older adult student was under-represented amongst those who withdrew, but since the reasons for withdrawing are extremely varied and since thier relationship with age has not been established, we cannot draw any substantial conclusions from the present data.

G.P.A.: Several characteristics were studied to determine how they, along with age, related to academic achievement. As has been found in most similar research, the G.P.A. increased as age increased. Although older students, in general, took fewer credit hours, even those taking full-time loads made higher G.P.A.'s than their younger counterpart. However, in considering G.P.A. we must remember that only small differences exist in group means for G.P.A. and that all G.P.A.'s were relatively high, with an overall mean of 2.92.

Veteran/Non-Veteran: As stated in the earlier part of this paper, much concern has been voiced about the effect on higher education enrollments

as the anticipated drop in veteran enrollments occurs. It was found that from the standpoint of curriculum planning, no significant differences existed between veterans and non-veterans in the enrollment characteristics measured. Although the number of students might change, we could not conclude from this study that the non-veteran student remaining would enroll with different patterns. When considering academic achievement, we did find that the veteran student achieved lower mean G.P.A.'s in all age groups. This is in direct contradiction to much of the research on veteran students which found that they achieved higher G.P.A.'s than their non-veteran counterpart.

Discriminant Analyses: The main conclusion reached from the three discriminant analyses would be that the variables selected (age, G.P.A. and credit hour enrollment) were not capable of detecting practical differences between age, academic division, or veteran/non-veteran groups.

Recommendations

Credit Hour Enrollment: It is recommended that state planners and local institutional representatives review those policies based on the traditional full-time student. As shown in this report and others, the part-time student is now predominant on the urban community college campus and policies which restrict their full development should be reviewed. In many cases the restriction of certain services to full-time students serves to discriminate against the part-time student.

<u>Time of Day Enrolled</u>: As indicated by data gathered during the course

of this study, the majority of students enrolled are attending classes

during the evening. Oscar Rose Junior College has faced the changing

focus of its student population and has extended many of its services

into the evening hours. However, many urban community colleges and

four-year institutions as well have not yet reacted to the needs of their

ever increasing numbers of evening students. All institutions should

observe their student populations and adjust services to provide access

to all students.

<u>Academic Divisions</u>: The community college should be capable of responding

to the needs of those individuals within its community who have educational

needs or desires. It is recommended that citizens' advisory councils and

student interest surveys should be utilized in an effort to assess needs and

interests and provide corresponding programs and activities.

<u>Age</u>: Since research in the area of adult education is in its infancy as

compared with more traditional areas of educational research, a recom-

mendation is made to continue to collect and analyze data concerning the

adult learner. Future researchers should experiment with additional

variables in a continuing effort to determine measurable differences as

they relate to age and learning. It is now and will continue to be impor-

tant for administrators, counselors and teachers of adults to remain aware

of the special needs and characteristics of adult students.

BIBLIOGRAPHY

Books

Blocker, Clyde E.; Plummer, Robert H.; and Richardson, Richard C.
    The Two-Year College: A Social Synthesis. Englewood
    Cliffs, N. J.: Prentice-Hall, Inc., 1965.

Carnegie Commission on Higher Education. The Open-Door Colleges.
    New York: McGraw-Hill Book Co., 1970.

_____. Less Time More Options. New York: McGraw-Hill Book Co.,
    1971.

_____. New Students and New Places. New York: McGraw-Hill Book
    Co., 1971.

_____. Toward a Learning Society. New York: McGraw-Hill Book Co.,
    1973.

_____. A Digest of Reports of the Carnegie Commission on Higher
    Education. New York: McGraw-Hill Book Co., 1974.

Cohen, Arthur M. Dateline '79: Heretical Concepts for the Community
    College. Beverly Hills: Glencoe Press, 1969.

Commission on Non-Traditional Study. Diversity by Design. San Francisco:
    Jossey-Bass Publishers, 1973.

Cross, K. Patricia. Beyond the Open Door. San Francisco: Jossey-Bass,
    Inc., 1971.

Dixon, W. J., ed. BMD: Biomedical Computer Programs. Berkeley:
    University of California Press, 1970.

Evan, N. Dean and Neagley, Ross L. Planning and Developing Innovative
    Community Colleges. Englewood Cliffs, N. J.: Prentice-Hall,
    Inc., 1973.

Fields, Ralph R. The Community College Movement. New York: McGraw-
    Hill Book Co., 1962.

Gleazer, Edmund J., Jr. Project Focus: A Forecast Study of Community
        Colleges. New York: McGraw-Hill Book Co., 1973.

Hesburgh, Theodore; Miller, Paul; and Wharton, Clifton. Patterns for
        Lifelong Learning. San Francisco, Jossey-Bass Publishers, 1973.

Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt,
        Rinehart and Winston, Inc., 1973.

Lehmann, Irvin J.; and Mehrens, William A. Educational Research:
        Readings in Focus. New York: Holt, Rinehart and Winston, 1971.

Medsker, Leland L. The Junior College: Progress and Prospect. New
        York: McGraw-Hill Book Co., 1960.

Medsker, Leland and Tillery, Dale. Breaking the Access Barriers. New
        York: McGraw-Hill Book Co., 1971.

Nie, Norman H.; Bent, Dale H.; Hull, C. Hadden. Statistical Package for
        the Social Sciences. New York: McGraw-Hill, Inc., 1975.

Tatsouka, Maurice M. Selected Topics in Advance Statistics: Discriminant
        Analysis. Champaign, Ill.: Institute for Personality and Ability
        Testing, 1970.

Thompson, Frances Coombs, ed. The New York Times Guide to Continuing
        Education in America. New York: Quadrangle Books, Inc., 1972.

White, Thurman. "Adults: From the Wings to Center Stage." In Higher
        Education for Everybody? pp. 173-182. Edited by W. Todd Furniss.
        Washington, D.C.: American Council on Education, 1971.

Journal Articles

Adams, Velma A. "Adult Education: Where the bread and action are." College
        Management 8(April 1973):9-14.

Brendzen, Richard. "Population Changes and Higher Education." Educational
        Record 55(Spring 1974):115-125.

Burgess, Paul. "Reasons for Adult Participation in Group Educational Activities."
        Adult Education 22(Fall 1971):3-29.

Comfort, Robert W. "Higher Adult Education Programming: A Model." Adult
        Leadership 23(May 1974):6-8t.

Davis, B. Glen. "Zero Population Growth: Effect on Adult Education." <u>Adult Leadership</u> 22 (January 1974): 245-246.

Dickinson, Gary. "Educational Variables and Participation in Adult Education: An Exploratory Study." <u>Adult Education</u> 22 (Fall 1971): 36-47.

Gleazer, Edmund J. "The Emerging Role of the Community Junior College." <u>Peabody Journal of Education</u> 48 (July 1971): 255-256.

Grote, James R. "Community College Adult and Continuing Education." <u>Adult Leadership</u> 23 (December 1974): 176t.

Harper, W. A. "The Community and Junior College: An Overview." <u>Peabody Journal of Education</u> 48 (July 1971): 257-261.

Joanning, Harvey. "The Academic Performance of Vietnam Veteran College Students." <u>Journal of College Student Personnel</u> 16 (January 1975): 10-13.

Kamp, Gene A. "Private Colleges Look Ahead." <u>Community and Junior College Journal</u> 45 (August 1974): 10-11.

Kaplan, Barbara. "Open Admissions: A Critique." <u>Liberal Education</u> 58 (May 1972): 210-221.

Knox, Alan B., and Sjogren, Douglas. "Research on Adult Learnings." <u>Adult Education</u> 15 (Spring 1965): 133-137.

Logsdon, James D. "Role of the Community College in Community Education." <u>Phi Delta Kappan</u> 54 (November 1972): 197-199.

Love, Andrea. "Veterans: The New Challenge." <u>Community and Junior College Journal</u> 44 (August 1973): 28-29.

Lunneborg, Patricia; Olch, Doris; and de Wolf, Virginia. "Prediction of College Performance in Older Students." <u>Journal of Counseling Psychology</u> 21 (May 1974): 215-221.

McClusky, Howard Y. "The Coming of Age of Lifelong Learning." <u>Journal of Research and Development</u> 7 (Summer 1974): 97-107.

Miller, Theresa M. "The Open Door versus the Revolutionary Door." <u>Journal of Higher Education</u> 43 (November 1972): 636-645.

Moorefield, Story. "The Remarkable G.I. Bill." <u>American Education</u> 10 (August 1974): 25.

Parker, Garland G. "Enrollments in American Two-Year Colleges, 1972-73." Intellect 101 (April 1973): 458-473.

Parker, Garland G. "Enrollments in American Two-Year Colleges, 1973-74." Intellect 102 (April 1974): 460-473.

Peter, Michael. "Effects of Open Admission on the Academic Adjustment of Vietnam Veterans." Journal of College Student Personnel 16 (January 1975): 14-16.

Reed, Jeffrey, and Murphy, Michael. "Academic Performance of Mature Adults and Veterans." College and University 50 (Winter 1975): 129-144.

Sharon, Amiel T. "Adult Academic Achievement in Relation to Formal Education and Age." Adult Education 21 (Summer 1971): 231-237.

Singer, David and Fuller, James. "The Sleeping Giant." Adult Leadership 23 (June 1974): 41-43.

Stephan, William, and Wheeler, Joseph. "Facts and Figures." Adult Leadership 18 (December 1969): 171-172t.

"The Community Junior College Encounters the Veteran." Community and Junior College Journal 43 (February 1973): 20-21.

Waters, Elinor. "The Other Generation Gap: Admissions Procedures for Adult Students." Journal of College Student Personnel 12 (November 1971): 464-466.

Williams, David Carlton. "Adult Weeds Today: The Fruits of Neglect." Adult Education 22 (Fall 1971): 57-60.

Williams, Gerald D. "Urgency and Types of Adult Counseling Needs Among Continuing Education Students." Journal of College Student Personnel 14 (November 1973): 501-506.

Other Sources

Glenny, Lyman A. State Planning Issues of the Next Decade: Numbers, Costs, Programs. Oklahoma City: Oklahoma State Regents for Higher Education, 1975.

Groenke, Glenn Russell. "The Relationship of the Entrance Examination Score to Grade Point Average of Junior College Freshmen When Classified by Age, Sex, and Curriculum." Ed. D. dissertation, Arizona State University, 1969.

Hull, Dale. "Maturity as a Variable in Predicting Academic Success."
        Columbia, Mo.: ERIC Document Reproduction Service,
        ED 045 039, 1970.

Ice, Orva Lee, Jr. "An Analysis of the Academic Achievement of Adult
        Undergraduate Students." Ph. D. dissertation, Michigan State
        University, 1971.

Ryan, John David, Jr. "A Comparison of the Academic Achievement of
        Adult and College-Age Junior College Full-Time, Day Students."
        Ph. D. dissertation, Wayne State University, 1969.