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THE ACADEMIC ACHIEVEMENT OF NON-TRADITIONAL MALE AND FEMALE STUDENTS

The University of Oklahoma ED.D. 1981

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE ACADEMIC ACHIEVEMENT OF NON-TRADITIONAL MALE AND FEMALE STUDENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF EDUCATION

BY

BETTE STEPHENS LEONE

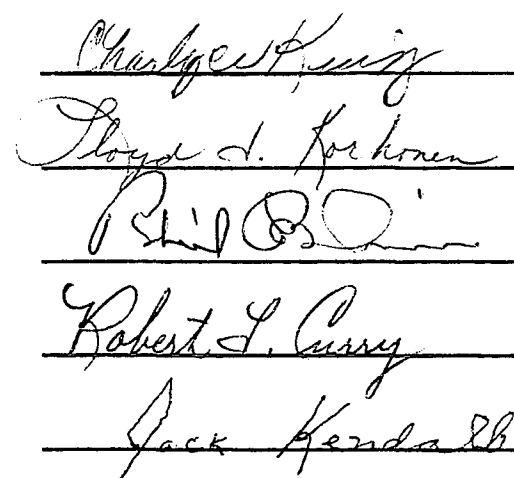
Norman, Oklahoma

1981

THE ACADEMIC ACHIEVEMENT OF

NON-TRADITIONAL MALE AND FEMALE STUDENTS

APPROVED BY



DISSERTATION COMMITTEE

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THE ACADEMIC ACHIEVEMENT OF NON-TRADITIONAL MALE AND FEMALE STUDENTS

CHAPTER I

INTRODUCTION

American colleges and universities have always enrolled a number of adults who have sought academic degrees through part-time or extension programs, and the interest in degree-oriented postsecondary programs for older students grew dramatically in the decade of the 1970s. The search for new opportunities and options by adult men and especially women has led to the development of programs specifically designed to serve the non-traditional students. In addition, increasing emphasis on academic credentials for access to many types of jobs requires individuals to pursue academic degree or certificate programs. In most cases, the adult student must have maturity, motivation and ability to continue his/her education while continuing full-time employment or home-making responsibilities.

The urban American junior college is the type of higher educational institution providing access to the greatest number of adults as they continue their education. This changing pattern of attendance has been especially significant in the period of 1975 through 1980 as the number of adult students has increased vastly.

Although the size of the traditionally-aged student population is beginning to decrease, older Americans are returning to school as never before. Half of all Americans 25 years or older, almost 60 million adults, learned one or more topics in the past year, according to a recent College Board study.[1]

A study by Stephan and Wheeler made an attempt to identify why the would-be learners had not continued educational studies in their adulthood and found internal factors as the prime obstacles. The adult questions his/her ability to learn and compete with younger students and remembers distasteful past experiences with school.[2]

Some differences of opinion continue regarding the most productive years of learning for male and female students. Studies of learning by E. L. Thorndike and his associates concluded that based on the performance of

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[1]Nancy Brocklehurst, "Reinventing the Future," The College Board Review No. 114 (Winter, 1979-80), pp. 18-19.

[2]William Stephan and Joseph Wheeler, "Facts and Figures," Adult Leadership 18 (December, 1969), p. 172.

people from 14 to 50 years old in various tasks such as learning to write with the non-practiced hand, to translate a message into code, to acquire an artificial language, to memorize poetry, to perform disagreeable tasks, and many others showed that the age of a person is not a very significant factor in regard to learning--that all men can learn.

> In general, nobody under 45 should restrain himself from trying to learn something because of a belief or fear that he is too old to be able to learn. Teachers of adults of age 25 to 45 should expect them to learn at nearly the same rate and in nearly the same manner as they would have learned the same thing at 15 or 20.[3]

Thorndike made three general observations about adult learning:

1. The most advantageous period for learning is between 20 and 25 years of age.

2. There is a decline in capacity for learning from this period to about 42 years of approximately one percent per year.

3. The influence of intellect upon the curve of ability to learn in relation to age is slight. The most able man and the ordinary man show very nearly the same curve.[4]

In a somewhat related but contradictory study, David Wechsler, who developed the Wechsler-Bellevue Intelligence Scale, interpreted his collection of test data as evidence

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[3]E. L. Thorndike, Adult Learning (New York: The MacMillan Company, 1928).

[4]J. R. Kidd, "Intellectual Capacities," How Adults Learn (New York: Association Press).

that intelligence was at its maximum on or near the twentieth year; however, from this point, it declined steadily. Revised information indicated that the total score of the timed and untimed subtest increases steadily from the teens to about age 35 years.[5]

Bradbury (1964) conducted a more complex study of gender and constancy of intelligence. At Tels Institute, the Stanford-Binet was administered for the first time either in pre-school periods or at the adolescent level. Twenty-five years later, both the original test and the Wechsler Adult Intelligence Scale were given. The males showed significantly more IQ gain from adolescence to adulthood than did the females. Both males and females increased in abstract reasoning and vocabulary but decreased in rote memory and practical reasoning. The correlations between pre-school IQs and adult IQs were .59 for women and .64 for men. The correlations for adolescent IQs with adult IQs were considerably higher: .85 for women and .80 for men. On the average, there was an increase of about 11 IQ points from adolescence to adulthood.[6]

In the future, most working adults will hold six to eight jobs in a lifetime. These adults turn to education to

---

[5]David Wechsler, The Measurement of Adult Intelligence (Baltimore: Williams and Wilkins Company, rev. ed., 1955).

[6]K. P. Bradbury, "Intelligence At Adulthood: A Twenty-Five Year Followup," Journal of Educational Psychology, 1962, 53, 1-14.

aid them in moving into a new job, in adapting to a changing job, in performing better in a present job, or in advancing careers. Many people no longer consider a career just a job, but consider it a way of life. Educational institutions are responding with more career-oriented courses or counseling; but also industries, unions, and corporations are working to provide more employee training.[7]

A. T. Welford summarizes results from a large number of studies of job performances:

> It appears that the older subjects' performance tends to be slower and more deliberate than those of the younger age but, subsequently, more accurate. Although speed may decrease among older people, this deficiency is often more than offset by gains in quality and accuracy.[8]

In appraising the results of any studies conducted with a time limit, one needs to have precise information about the intensity of motivation, a clear statement about attitudes and fear of failure, and a measurement of visual acuity, auditory acuity and reaction time.

Statement of the Problem

The problem researched in this study was a comparison of academic achievement of the non-traditional male and female students in selected urban two-year colleges. More

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[7]U.S. Bureau of the Census, Social Indicators, 1976, (Washington, D.C.: U. S. Department of Commerce, 1977).

[8]A. T. Welford, Skill and Age: An Experimental Approach (London: Oxford University Press for the Nuffield Foundation, 1951).

specifically, were there significant differences in academic achievement of the non-traditional male and female students in selected categories?

The secondary purpose was to examine the distribution of the non-traditional male and female students in designated academic program areas.

Purpose of the Study

The purpose of this study was two-fold: first, to compare the achievement level of male and female students by selected age categories and, second, to ascertain a difference in academic achievement levels by age categories.

More specifically, the purpose of the study was to investigate the present trend of academic achievement among non-traditional male and female students attending selected urban junior colleges in Oklahoma County during the fall semesters of the 1978, 1979, and 1980 academic years.

Lunneborg emphasizes the need for reliable information on academic characteristics of the older student for guidance purposes.[9] This need was further emphasized by a study of adult students at Pennsylvania State University.[10]

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[9]Patricia Lunneborg, Doris Olch and Virginia deWolf, "Prediction of College Performance in Older Students," Journal of Counseling Psychology 21, (May, 1974), p. 215.

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

The study established that of the adult students within the sample, 58 percent responded that they felt some urgency in obtaining assistance to assess their interests and abilities. Relating to this area of a need for adult information for guidance purposes, Wrenn states that it is unethical to admit students without regard for their chances of succeeding. "Before two-year colleges can answer questions on prognosis of success, more attention must be devoted to research and evaluation."[11]

Definition of Terms

The following definitions were presented in order to prevent multiple interpretations of terms:

Non-Traditional Student - This term referred to those students older than 25 years who were attending the two junior colleges during the time the study was conducted.

Gender - This is the term which referred to male or female students included in the study.

Age Categories - The age groupings were 26 to 35, 36 to 45, 46 to 55, and 56 and over in which the non-traditional students were categorized.

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[11]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. 251-252.

Student Achievement - For the purpose of this study, "student achievement" was described as the grade-point averages (GPAs) of the non-traditional student enrolled in selected junior colleges during the fall semesters of the 1978-79, 1979-80, and 1980-81 academic years.

Junior Colleges - This term described an urban two-year postsecondary institution with a comprehensive transfer and career-oriented curriculum.

HEGIS - This code identifies fields of study in higher education (Higher Education General Informational Survey).

Field of Study - These were categories of study by academic divisions which were in five divisions: (1) Business, (2) Engineering and Science, (3) Humanities, (4) Social Science, and (5) Health Occupations.

Hypotheses

In an effort to answer questions posed earlier, certain hypotheses were tested. Statistical procedures were applied to test the following hypotheses:

Ho_1 There will be no signficant difference in the academic achievement of the non-traditional male and female students.

Ho_2 There will be no significant difference in the academic achievement of the non-traditional male and female students when comparisons were made of like gender in different age categories.

Limitations

This study was limited to those students over 25 years of age completing academic credit courses during the fall semesters of the 1978-79, 1979-80, and 1980-81 academic years in public two-year colleges located in the urban Oklahoma City area.

No attempt was made to distinguish the part-time and full-time students.

Assumption

One basic assumption of this study was that students who attended the two urban two-year colleges during the fall semesters of the 1978 through 1980 academic years were typical of students who attended other urban two-year colleges for the purpose of generalizing the conclusions drawn from the study to other adult enrollments and achievement patterns in other postsecondary institutions.

Data Analysis

All data considered were collected from computer-based permanent records on each student. The data were analyzed by comparing the mean GPAs of male and female students at four age levels for three successive years.

Data were analyzed by using a two-way analysis of variance testing statistics to make the comparisons and test the stated hypotheses.

Organization of the Study

The results of the study were presented in dissertation format according to the guidelines established by the Dissertation Committee. Chapter I includes an introduction of the study, purpose of the study, definition of terms, hypotheses, limitations, assumption, data analysis and the organization of the study.

Chapter II presents a review of the literature concerning the general characteristics, enrollment characteristics and academic achievements of adults attending the urban two-year colleges.

Chapter III contains a description data collection and analysis procedures that were utilized.

Chapter IV contains an analysis of the data collected along with a discussion of the findings.

Chapter V presents a summary of the entire study, conclusions drawn from the results of Chapter IV for further research studies, and closing remarks.

CHAPTER II

REVIEW OF RELATED LITERATURE

Non-Traditional Education

The university leaders who called for the reform of the American colleges represented a conservative position in that their frame of reference was the German university. These European-educated leaders were in contradiction to established American tradition. They advocated the concentration, at the university level, upon highly specialized instruction in the subject-matter disciplines and the encouragement of intensive research by university faculty members.

William Rainey Harper of the University of Chicago attempted to find a satisfactory compromise between the American four-year college tradition and the German ideal by establishing a lower division called a junior college at the University of Chicago in 1896.[1]

Before the concept of the junior college had been developed on university campuses, a number of private two-year colleges had been established. These colleges grew

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[1]Ibid, pp. 24-25.

out of the desire of various religious denominations to provide education for their young people which emphasized the tenets of their particular faiths.

Another force encouraging the development of the two-year college was the fact that many secondary school graduates were inadequately prepared for the demands of college study. The European concept of highly selective and limited enrollment in advanced study influenced American institutions to raise their academic requirements and to restrict admission to those students who fit the academic patterns and expectations of the times. They envisioned the shifting of the first two years of college study from the university campus to the high school, thus separating the freshman and sophomore years from the rest of the university program.

The development of public two-year colleges was sporadic at first, and many founded during the early twentieth century failed to survive.

The Great Depression and World War II were two events which led to the rapid acceleration of non-traditional education. Four-year colleges' educational programs were based upon restricted admissions and curricula designed to prepare students for professional occupations and scholarly pursuits. Such colleges were beyond the financial reach of a large number of potential students. The two-year college filled this void. During this period, four-year institutions were extending off-campus studies through extension centers and branches.

During the last sixty years, the organization, purposes, programs, and financing have changed. The two-year college is the outgrowth of a philosophy of education which maintains that:

> The American way of life holds that all human beings are supreme, hence of equal moral worth and are, therefore, entitled to equal opportunities to develop to their fullest capacities.
>
> This purpose is consistent with the ideal concept as stated by Gleazer: the two-year college is a functioning segment of a community; and its mission centers around the education of the young, the continuing education of older citizens, and the general improvement of the community through beneficial and appropriate educational and cultural services.[2]

Thus, the comprehensive two-year college is an organization of and for the people it serves.

Non-Traditional Education Provided by Urban Junior Colleges

One of the striking characteristics of American higher education is its diversity. Direct comparisons among institutions, state plans of higher education, or various types of two-year colleges are nearly impossible.

The two-year college is probably more diverse in defined functions, programs, clientele, and philosophical bases than any other educational institutions in existence.

Fields, in his analysis of community and junior colleges, identified five fundamental characteristics which

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[2]Blocker, pp. 27-28.

he thought clearly established the uniqueness of this institution:

1. Democratic - low tuition and other costs; non-selective admission policies; geographically and socially accessible; and popularized education for the largest number of people.

2. Comprehensive - a wide range of students with widely varying abilities, aptitudes, and interests; a comprehensive curriculum to meet the broad needs of such students.

3. Community-centered - locally supported and controlled; local resources utilized for educational purposes; a community service improving the general level of the community.

4. Dedicated to life-long education - educational programs for individuals of all ages and educational needs.

5. Adaptable - to individual differences among students, differences in communities, and the changing needs of society.[3]

Thus, the comprehensive two-year college is an organization of and for the people it serves. Its services are not confined to the traditional functions of the four-year college but include activities which contribute to the general upgrading of society as a whole. It provides ser-

---

[3]Blocker, pp. 35-36.

vices which are not available through the high school or through other institutions of higher education.

Clark points out that the two-year college must remain fluid in its educational objectives, programs, and administrative organizations in order to respond effectively to new conditions and demands within the framework of the immediate community as well as within the larger environment.[4] The college must be cognizant of the values of society and of the implications these values have among its immediate clientele.

Values are of importance to the college because they are the central beliefs of individuals and society which set the general limits of thought and behavior. Williams has defined them as "modes of organizing conduct-meaningful, affectively-invested principles that guide human action." There is a strong overlap and interdependence between group and individual values and certain societal values the two-year college must keep in mind.[5]

The American culture is marked by a stress upon personal success. This means that the individual is expected to achieve occupational competence and recognition.

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[4]Burton R. Clark, Adult Education in Transition: A Study of Institutional Insecurity (Berkley, California, University of California Press, 1958).

[5]Robin M. Williams, American Society: A Sociological Interpretation (New York: Alfred A. Knopf, Inc., 1951).

Students look upon postsecondary school education as a tool for the development of skills and knowledge in an occupation providing material and status rewards.

Americans also have a strong orientation toward work and activity in which they seek to dominate the environment rather than place importance upon intellectual pursuits of no immediate value.

Other values influencing the college are moral orientation, humanitarian attitudes, material comfort, and external conformity. They are translated into the interaction between the community and the college campus, with definite influence on the behavior of the administrators, faculty, and students toward curriculum.[6]

As a whole, the nation's population is growing older. Citizens 65 years of age and older comprised about 11.7 percent of the total population in 1970; by 1995, that age group will comprise about 13.3 percent of the total. The growth of that population segment will have a significant impact on higher education during the next two decades, as colleges seek to develop programs geared to meet the needs of older adults in the fields of nutrition, social services, health care, legal services, recreation, and many other areas.[7]

---

[6]Erich Fromm, The Sane Society (New York: Holt, Rinehart & Winston, Inc., 1955), pp. 103-30.

[7]1980 Fact Book, American Council on Education.

A recent survey indicated that the population factor will have the greatest impact on higher education. As a result of an incipient drop in the population group between 18 and 24 years of age, a decline in enrollment in that age group will be experienced. However, the optimists do not project a decline in total enrollments, but actually a rise. This will be a result of an increase in the population group 25 to 44 years of age. Moreover, the concept of lifelong learning will grow as employers pay their workers to seek further education and governments extend student assistance benefits to include part-time students.[8]

Part-time enrollments in the two-year college currently outnumber full-time enrollments. The present increase in non-traditional student enrollments plays an important role in this trend toward increasing part-time enrollments. Parker believes 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.[9]

A growing number of part-time students are enrolled in evening classes. Very little has been written on this

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[8]Oklahoma Higher Education, Planning for the 80's.

[9]Garland G. Parker, "Enrollments in American Two-Year Colleges, 1977-78," Intellect 106 (April 1978), pp. 621-625.

topic; but in many urban two-year colleges, the evening enrollment is greater than the day. Many of these individuals attending during the evening do so on a part-time basis, although there are also full-time evening students. With an increasing evening enrollment, many urban colleges are duplicating their day services and curricula in the evening to accommodate the evening student.

Many older adult students have not defined clear educational and vocational goals and are usually vulnerable to interrelated financial, academic, and personal pressures; their guidance needs are particularly crucial. For other students, junior college is somewhat of a distributing center where important educational and career decisions are made before students either move into immediate employment or continue their education at a senior college. According to the Carnegie Commission, for each student who moves from a junior to a senior college, there are two who move directly into the world of work. For some, these outcomes seem to be educational short circuits, while for others they are the result of redirection through effective counseling while in college.

It is particularly important for all students to recognize that whether they choose a transfer, general education, or occupational program, the ultimate objective is preparation for living.

If students are to choose wisely among different programs and curricula leading to a great variety of future careers, they must be assisted in identifying their abilities and aptitudes, in assessing their deficiencies and their potentials, and in defining their aspirations.[10]

It is estimated that 35 percent of the students who enter the open-door college lack the basic skills required for college study.[11] Necessarily, efforts to remedy these learning deficiencies exist in all segments of the comprehensive two-year college. In fact, there appears to be more concern about and more experimentation with developmental education than with any other component of the junior college.

The comprehensive purpose of the two-year college is to provide a program for all citizens. It provides opportunities to young and older students to increase their occupational skills, to launch an academic career, to enrich the quality of their personal lives, and generally to multiply their educational options and their facility to choose wisely among them. It offers these opportunities to more Americans in more areas of life and in more diverse age levels than any other segment of higher education.[12]

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[10]T. R. McConnell, Junior College Student Personnel Programs -- What They Are and What They Should Be, American Association of Junior Colleges, (Washington, D.C., 1977).

[11]Ibid.

[12]Carnegie Commission on Higher Education (June, 1970) p. 51.

Female Students in Higher Education

The position of women throughout the history of the human race has been primarily one of dependency for reasons that were fundamental to nearly every social and economic structure devised to sustain human existence. For the vast majority of women, the roles of daughter, wife and mother resulted in an inescapable dependence on men. Only recently have domestic economic pressure, mass production and modern technology, legislation, education, and awareness through media allowed women, in significant numbers, to assume a degree of independence.

While many women have achieved a degree of economic independence, stereotyped behavior, based on long-standing traditions, myths, and prejudices, has relegated the majority of women to low-paying, low-status jobs and has continued to minimize their contributions to many spheres of modern society.

One of the most damaging and inhibiting stereotypes that the majority of women have accepted is that mathematical computation is a male pursuit, that there are mathematic aptitudes which only men are able to develop, and that women will never need mathematical skills.

Even as recently as the late nineteenth century, women were considered inferior to men because they were thought to have smaller brains. Since their wombs were supposed to draw energy from their brains, it was thought

that they diverted needed strength from their primary function, childbearing, if they attempted intellectual pursuits. While this assumption has not been substantiated, an abundant and equally absurd collection of stereotypes continues to work against the woman who seeks equal opportunity in education and the professions.[13]

In 1979, Senator Edward Kennedy noted, as he introduced legislation designed to maximize the potential contribution of women in scientific and technical fields:

> The proportion of women earning doctoral degrees in science is no greater in 1979 than it was in the 1920s.
>
> Only one-tenth of one percent of engineers are women. Only two percent of physicists are women. Only five percent of chemists are women.
>
> Women seeking scientific and technical careers are experiencing unemployment rates three to five times higher than those of their male colleagues.
>
> Those women who are employed in scientific and technological careers earn less than men in every field, at every degree level, at every level of experience, and in every employment setting.[14]

It has long been recognized that the education and training that women receive must change if these kinds of

---

[13]Educational Testing Service, "Women in Search of Equality," 1979, pp. 3-5.

[14]S. 568, Women in Science and Technology Equal Opportunity Act was introduced on March 7, 1979, and referred to the Committee on Human Resources. (Congressional Record, March 7, 1979, p. S2198.) Hearings on the bill were held in March 1980.

statistics are to improve in the future. Women must shift their attention toward courses that help prepare them for professional or technical positions. They must also consider vocational training programs that will prepare them for more skilled, higher paying occupations.

Actual work patterns are changing so that women have more continuous work roles throughout their lifetimes. Several economic factors support this phenomenon. With the divorce rate approaching 50 percent, there are now 6.2 million single-parent families headed by women, with 34 percent having incomes below poverty threshold. In 1974, the median income of families headed by women was $5,114; the comparable figure for families headed by men was $10,930.[15] In 1978, a record one in seven families was headed by a woman. The proportion of these families who live in poverty, one in three, far outnumbers the proportion of husband-wife families in poverty, one in eighteen.[16]

We have considered the working divorced woman heading a family, but what of the woman supplementing the family income? It is no longer discretionary but mandatory that both spouses work in the average household. Therefore,

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[15]Helen Astin, Nancy Suniewick, and Susan Dwelk, Women: A Bibliography on Their Education and Careers (New York: Behavioral Publications, 1974), p. 17.

[16]Report of the Joint Economic Committee, U.S. Congress, Report No. 96-51, (Washington, D.C., 1979), p. 3.

women are enrolling in colleges and universities in record numbers to prepare themselves for working careers.

For the first time in the history of American higher education, in 1979 more women than men were enrolled in the colleges and universities of the United States. Women accounted for 50.7 percent of all enrollments in 1979 as compared with 49.9 percent one year earlier. Women outnumbered men by much greater percentages among Blacks and American Indians than in the majority student population. Both Asians and Hispanics have a high male-to-female ratio at present, which brings the overall minority race ratio back much closer to the ratio for white students than would otherwise be the case.[17] During the past five years, the number of women enrolled in Oklahoma's state system colleges and universities increased by 44.7 percent, as compared with an increase of only 5.3 percent for men.

Continuing education programs have helped make colleges and universities more accessible to adult women through offering opportunities for part-time independent study on both the graduate and undergraduate levels, by flexible course scheduling, liberal transfer of credits, and the availability of counseling, workshops, and special services.[18]

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[17]National Center for Education Statistics, "Early Release, 80-B02."

[18]Bunting, "The Radcliffe Institute," pp. 279-86.

The fact that changes are indeed taking place can be attributed, at least in part, to numerous intensive efforts of higher education at the local, state, and national levels to combat sex stereotyping/socialization, to interest female students in a wider variety of careers than women have typically been involved in and to encourage them to enter the education and training programs most appropriate to their interests and needs.

Currently, women comprise over 50 percent of high school graduates and 43 percent of the college graduates but only 15 percent of the individuals holding doctorates and 27 percent of the college faculty members.[19] The "higher the fewer" is the pattern across fields, professions, degrees, and institutions.

Female Students in Junior Colleges

Adult women students are often discussed separately in the literature concerning adults in the junior college. Women students can generally be categorized by marital status 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

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[19]Frazier and Sadker, Sexism in School and Society, pp. 38-43.

to upgrade their position in the work world. Married women attend the two-year 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 better parents, 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.[20]

These non-traditional female students are showing an increased awareness to utilize education as a stepping stone into the mainstream of society. It must be added that those women who return to school at 30 or 50 are likely to be more dedicated, highly achieving students, both with the benefit of life experience and more consistent motivation.[21] In fact, motivational levels are often so high as to create negative attitudes by these adults toward faculty, younger students, and administrators.

Older students often demand adherence to published course descriptions, feeling cheated if topics they "paid" for are not covered. These students often set high standards for themselves in specific courses and reject

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[20]Blocker, pp. 126-127.

[21]Pamela Roelfs, "Teaching and Counseling Older College Students," Findings, I (1975), pp. 5-9.

"capricious or immature behavior by instructors and bureaucratic procedures and requirements by the administration."[22]

The bulk of the literature pertaining to research in academic achievement agrees that these adults perform at a higher level than the traditional-age student, but they are reported as bringing 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 a part of the guidance procedure.[23]

These students have little or no interest in extra-curricular activities, athletics, and other non-classroom activities. Their interests are focused on the completion of college courses required for graduation or to achieve a specific vocational goal.

Although these adults may not participate in college functions, they are, for the most part, intimately related to the community through social or vocational activities. They absorb its conventional attitudes and concepts of the value of a college education.

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[22]Blocker, p. 124.

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

Many of the students who attend the junior college do not have the advantage of previous conditioning which encourages perception of education as a high-level value. This means that the two-year college has the additional problem and responsibility of developing this value, which serves as the foundation for successful academic achievement. This assumption underlies admission requirements, course content, and teaching techniques.[24]

Age as a Factor in Higher Education

The junior college serves two distinct populations. The first are high school graduates who enter college immediately or shortly after graduation. The second population consists of those individuals who are not the traditional college-age student. Much has been written about the traditional college-age student, but research with the older adult presents many unique problems.

One of the most productive research psychologists in this area, Botwinick, has found middle-aged people to be frequently excessively cautious, quite rigid in behavior, and at times overly suspicious. Obviously, this is not bad but at times becomes an insurmountable hurdle when one wants simply to study the people as they come in all walks of life and not just the deviants. The inability to find enough people to study has frequently stopped many a good

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[24]Blocker, p. 112.

research design or study problem when concerned with adults.[25]

Another problem found in attempting research with the older adult is the experimenters' age bias. Dr. Wilma Donahue made this statement before an American Psychological Association Conference:

> We should stop lumping all older people together. Perhaps the reason the older group (50 and above or 65 and over) is so frequently lumped together, is because it is the young people who do the studies. Their perception of the differences between 50 and 60 years of age isn't as clear to them as it will be when they are grown older too.[26]

Williams notes that most of the instruments we have were designed for either deviant population or for children. What may measure children's behavior, and do so quite adequately, may seem absolutely childish and silly to an adult. Measurement techniques are a reason for invalid results and a difficult problem to handle with middle-age subjects.

One result of this technique difficulty is that children and adolescents frequently measure higher than adults simply because a child or adolescent's tool is being used to measure. Why not turn the tables? Use a good adult technique, such as filling out one's income tax,

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[25] J. Botwinick, "Research Problems and Concepts in the Study of Aging," The Gerontologist, 1964, pp. 121-129.

[26] J. E. Anderson, Psychological Aspects of Aging, Washington, D.C. (American Psychological Association, 1966).

conducting a meeting of 200 people or making critical decisions while driving an automobile to measure how well children can do? The answer is obvious. Adults are smarter and will measure better than children because an adult technique has now been used to measure children's ability.[27]

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. This was expressed in the old saying, "You can't teach an old dog new tricks." 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 individuals, but greater verbal ability which extends into their 70s and 80s. The third major point of discussion is that continued education significantly retards

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[27]D. B. Bromley, The Psychology of Human Aging (Baltimore: Penguin, 1966).

intellectual decline.[28] Some recent studies have shown an actual increase in measured IQ until the late forties.[29]

In a study considering these three tenets of adult learning ability in which an attempt was made to develop adult guidance information, Lunneborg, Olch, 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 adults.[30]

Despite some negative effects 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 GPA. He concluded that in predicting

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[28]Lunneborg, pp. 215-216.

[29]Howard Y. McCluskey, "The Coming of Age of Lifelong Learning," Journal of Research and Development (Summer 1974), p. 99.

[30]Lunneborg, p. 220.

academic success for adults, their higher level of motivation and larger pool of prior experience must be considered.[31] In a similar study of 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.[32]

In summary, the following generalizations can be made from the review of the literature and serve as a basis for the study:

1. The reviewed literature on research in adult academic achievement indicates that further research is needed concerning the non-traditional student performance in the learning setting.

2. Adult educational opportunities are emerging as an important option for meaningful activities for older Americans.

3. The junior colleges have taken the lead in adult education opportunities for older adults. Research concerning those who are participating in educational programs at these two junior colleges can provide valuable information

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

[32]William Stephan and Joseph Wheeler, "Facts and Figures," Adult Leadership, 18 (December 1969), p. 172.

for improvement of programs as well as for institutions desiring to initiate programs.

The reviewed literature provides a base for the current research. Chapter III describes the population and sample, the data collection, and the data analysis procedure.

CHAPTER III

METHODOLGY

The present study was an attempt to determine any differences between the achievement level of male and female students by selected age categories and, in addition, to ascertain a difference in academic achievement levels by age categories.

This chapter contains the description of population and samples, data collection procedure, and data analysis procedure. Each of these areas of methodology is contained in the following sections.

Description of the Population and Sample

The sample drawn for this was a part of the student population at Oscar Rose Junior College and South Oklahoma City Junior College. The two-year comprehensive colleges are located within the metropolitan Oklahoma City area. They are a part of the Oklahoma State System of Higher Education and draw approximately ninety percent of their students from Oklahoma County.

Oscar Rose Junior College and South Oklahoma City Junior College are both open-admission institutions. 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) they are eighteen years of age or older, (b) they have been out of high school for twelve months, (c) their high school class has graduated, and (d) they achieve 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 admission measuring device.

As defined by the Oklahoma State Regents for Higher Education, these two colleges serve 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 experiences 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 environments of the community.

As a result of their variety of functions and their open-admission policy, the colleges have a wide variance in student characteristics. For the purposes of this study, a sample of these students was selected. The sample consisted of those non-traditional students who completed credit coursework during the fall semesters of 1978, 1979, and 1980. No attempt was made to control the variables concerning background education or experience.

The students considered in this reporting were admitted through one of the conditions previously stated in the admission policy. This type of admission is significant in its contrast to the required admission standards of the Oklahoma universities.

A required ACT score is used to satisfy the requirements for university admission in Oklahoma, whereas the junior colleges use the ACT score for counseling purposes

only. This is not to indicate that all junior college admissions are below the university requirements.

The following chapter includes reports of the admission status and ACT score grouping. Also, a reporting was made of enrollments in major areas of studies according to age categories. This data is presented to detect trends developing through the years as the non-traditional student enrollment continued to increase on the junior college campuses.

Data Collection Procedure

All data considered were collected from computer-based permanent records. The two colleges have been collecting and recording data in this format since 1977. The variables considered and designated as a description of student characteristics are as follows:

Non-Traditional Student: A non-traditional student was any student past the age of 25 returning to college.

Gender: All students were separated into either male or female categories for the comparative study.

Field of Study: The colleges categorized their programs of study by academic divisions. The five divisions were (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/her major.

GPA: The GPA variable is defined as the grade point average earned during the fall semesters of 1978, 1979, and 1980 and not the cumulative grade point. GPAs are computed on the 4.0 scale with A = 4.0, B = 3.0, C = 2.0, D = 1.0, and F = 0.

Age: All students were separated into four age groups which remained constant throughout the study, and a comparison with age groups was made. The groups were:

26 to 35 - young adults
36 to 45 - mature adults
46 to 55 - middle-age adults
56 and over - older adults

Data Analysis Procedure

The purpose of this study was to compare the academic achievement level of male and female students in two public urban junior colleges and to explore the possibility of relationships between achievement and the student's age. According to Lehmann and Mehrens' system, this type of research is casual-comparative research.[1] 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

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

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.[2] In this study, the ex post facto design seemed desirable.

This study observed the changing attendance patterns and academic achievements of adults attending the junior college and compared gender and age of the non-traditional age college student. The state 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.

The design in the study was a repeated measures design with three independent variables being considered: age categories, achievement categories (A, B, C, D, and F) and gender (male and female). The dependent measure of academic achievement was grade-point average (GPA) which is based on a 4-point system, with 4.0 being the highest and 0.0 being the lowest.

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

The seven original achievement categories were as follows:

1. ≥ 3.5 (highest)
2. 3.0 - 3.4
3. 2.5 - 2.9
4. 2.0 - 2.4
5. 1.5 - 1.9
6. 1.0 - 1.4
7. $\leq .09$ (lowest)

However, it was necessary to condense some of the lower achievement categories because of the low numbers. Categories 5 and 6 had almost no numbers and were combined with category 7 for simplicity and to add credibility to the results. Category numbers were then changed to letters as follows:

≥ 3.5 = A
3.0 - 3.4 = B
2.5 - 2.9 = C
2.0 - 2.4 = D
≤ 1.5 = F

These categories were established for the purposes of the present study only and were not intended to approximate the normal curve procedures sometimes used in establishing grades in a similar grading system.

In order to test the first null hypothesis, it was further stated as five sub-hypotheses; and each of these was tested. Numbers of non-traditional students in each achievement category for each were converted to percentages. This linear transformation of the numbers made it possible to compare the percentages from one year to the next. Percentages were then considered raw data, and comparisons

were made between the mean percentages of males and females in each achievement category over the three-year period.

The second null hypothesis was tested in approximately the same way as the first. The second null hypothesis was restated in five sub-hypotheses, according to achievement categories; and each of these was tested. Numbers of students in each achievement category at each age level were converted to percentages. Percentages were then considered raw data, and comparisons were made between the males' and females' mean percentages over the four age levels.

The statistical analysis of data collected follows in Chapter IV. This chapter reports the results of measured comparisons of male and female academic achievement levels.

CHAPTER IV

ANALYSIS OF DATA

The sample drawn for this study was adult students over the age of 25 who constituted a major percentage of the total student population at Oscar Rose Junior College and South Oklahoma City Junior College in the fall semesters of 1978, 1979, and 1980. The sample consisted of those students who completed credit coursework during the fall semesters of the three stated years.

Grade-point averages of over twenty-six thousand non-traditional junior college students were analyzed to determine if there were differences between males' and females' academic achievement at five levels of achievement in four age categories.

In addition, secondary analyses were performed by comparing male and female enrollment patterns on the variables of race, marital status, ACT score groupings, admission status, class level and Higher Education General Informational Survey (HEGIS) groupings.

Two general null hypotheses, which were later reduced to ten sub-hypotheses, were tested in the study. All null

hypotheses were related to the academic achievement of males and females in various age categories. This chapter contains the results of testing the hypotheses in addition to secondary findings.

Testing the First Null Hypothesis

The first null hypothesis tested had been stated earlier as follows:

Ho_1 There will be no significant difference in the academic achievement of the non-traditional male and female students.

In order to test the first null hypothesis, it was necessary to further reduce the general null hypothesis to five specific null hypotheses as follows:

Ho_{1a} There is no significant difference in the percentage of male and female non-traditional students who achieved at the A level during the three-year time period.

Ho_{1b} There is no significant difference in the percentage of male and female non-traditional students who achieved at the B level during the three-year time period.

Ho_{1c} There is no significant difference in the percentage of male and female non-traditional students who achieved at the C level during the three-year time period.

Ho_{1d} There is no significant difference in the percentage of male and female non-traditional students who achieved at the D level during the three-year time period.

Ho_{1f} There is no significant difference in the percentage of male and female

non-traditional students who achieved at the F level during the three-year time period.

In order to test the first null hypothesis, it was necessary to compare the percentages of males and females within the five achievement categories over the three academic years considered. The percentages for each group by year are presented in Table 1.

A comparison of the two groups' achievement percentages at each achievement level was accomplished by using a t-test to compare the mean percentages at the five achievement levels. The means and standard deviations of the percentages are presented in Table 2 along with the calculated t-values and significance levels.

The results presented in Table 2 show that there was a significant difference between the percentages of males and females who achieved at the A level during the three-year period. A significantly higher percentage of females achieved at the A level than did the males ($t = 5.236$; $df = 2$; $P < .05$).

There was no significant difference between the percentage of males and females who achieved at the B and F levels. Therefore, these two null hypotheses could not be rejected.

Significant differences were also noted in the results of testing hypotheses Ho_{1c} and Ho_{1d}.

Table 1

PERCENTAGES OF MALE AND FEMALES WITHIN THE FIVE ACHIEVEMENT CATEGORIES DURING THE THREE ACADEMIC YEARS CONSIDERED

Achievement Categories	Academic Years					
	1978		1979		1980	
	Male	Female	Male	Female	Male	Female
$\geq$ 3.5 (A)	22.94	33.49	25.10	36.12	29.53	38.04
3.0-3.4 (B)	26.74	28.80	23.48	25.98	24.35	24.05
2.5-2.9 (C)	13.80	6.64	10.31	5.83	10.61	6.19
2.0-2.4 (D)	12.29	7.40	11.62	7.95	10.89	8.06
$\leq$ 1.5 (F)	24.23	23.67	29.49	24.12	24.62	24.66
Percent Totals	100.00	100.00	100.00	100.00	100.00	100.00

Table 2

MEANS AND STANDARD DEVIATIONS OF PERCENTAGES USED IN COMPARING ACHIEVEMENT LEVELS FOR MALE AND FEMALE PARTICIPANTS' THREE ACADEMIC YEARS

Achievement Categories		Males	Females	Calculated t Value	Significance Level
$\geq$ 3.5 (A)	Means	25.857	35.883	t = 5.236	P < .05
	S.D.'s	3.360	2.284		
3.0-3.4 (B)	Means	24.857	26.277	t = 1.030	P > .05
	S.D.'s	1.688	2.389		
2.5-2.9 (C)	Means	11.503	6.220	t = 5.476	P < .05
	S.D.'s	2.005	0.406		
2.0-2.4 (D)	Means	11.600	7.803	t = 10.268	P < .01
	S.D.'s	0.700	0.354		
$\leq$ 1.5 (F)	Means	26.113	24.150	t = 1.401	P > .05
	S.D.'s	2.931	0.496		

In both cases, there was a significantly higher percentage of males than females who scored in the C achievement category ($t = 5.476$; $df = 2$; $P < .05$) and the D achievement category ($t = 10.268$; $df = 2$; $P < .01$). These two null hypotheses were rejected.

Testing the Second Null Hypothesis

The second null hypothesis tested had been stated earlier as follows:

Ho_2 There will be no significant difference in the academic achievement of the non-traditional male and female students when comparisons are made of like gender in different age categories.

In order to test the second null hypothesis, it was necessary to further reduce the general null hypothesis to four specific null hypotheses as follows:

Ho_{2a} There is no significant difference in the percentage of male and female non-traditional students who achieved at the A level over all four age categories.

Ho_{2b} There is no significant difference in the percentage of male and female non-traditional students who achieved at the B level over all four age categories.

Ho_{2c} There is no significant difference in the percentage of male and female non-traditional students who achieved at the C level over all four age categories.

Ho_{2d} There is no significant difference in the percentage of male and female non-traditional students who achieved at the D level over all four age categories.

Ho_{2f} There is no significant difference in the percentage of male and female non-traditional students who achieved at the F level over all four age categories.

Data concerning the second null hypothesis are presented in Table 3. This table shows the percentage of non-traditional students in each achievement category at each age level. The percentages at each achievement level were considered raw data, and means were compared for the male and female participants. The results are presented in Table 4.

The data presented in Table 4 show that the results of testing the first hypothesis were significant. There was a signficantly higher percentage of females than males who achieved at the A level at all age categories ($t = 3.208$; $df = 3$; $P < .05$).

There were no significant differences noted in the results of the remaining four sub-hypotheses.

Table 3

PERCENTAGE OF MALES AND FEMALES WITHIN THE FIVE ACHIEVEMENT CATEGORIES OVER THE FOUR AGE LEVELS CONSIDERED

Achievement Categories	Age Levels							
	26-35 Yrs.		36-45 Yrs.		46-55 Yrs.		56 Yrs.	
	Male	Female	Male	Female	Male	Female	Male	Female
≥ 3.5 (A)	23.12	34.00	32.52	40.02	30.25	39.19	28.01	31.13
3.0-3.4 (B)	24.18	25.59	25.77	26.35	26.17	26.61	28.01	31.13
2.5-2.9 (C)	13.23	7.04	8.47	5.63	9.55	4.46	5.03	3.46
2.0-2.4 (D)	12.83	7.90	9.47	7.28	9.01	8.29	8.25	8.42
≤ 1.5 (F)	26.64	25.47	23.77	20.72	25.02	21.45	30.40	25.86
TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4

MEANS AND STANDARD DEVIATIONS OF PERCENTAGES USED IN COMPARING ACHIEVEMENT LEVELS FOR MALE AND FEMALE PARTICIPANTS IN ALL FOUR AGE CATEGORIES

Achievement Categories		Males	Females	Calculated t Value	Significance Level
$\geq$ 3.5 (A)	Means	28.475	36.085	t = 3.208	P $<$.05
	S. D.'s	4.017	4.244		
3.0-3.4 (B)	Means	26.033	27.420	t = 1.081	P $>$.05
	S. D.'s	1.574	2.511		
2.5-2.9 (C)	Means	9.145	5.148	t = 2.561	P $>$.05
	S. D.'s	3.259	1.542		
2.0-2.4 (D)	Means	9.890	7.973	t = 2.121	P $>$.05
	S. D.'s	2.024	0.512		
$\leq$ 1.5 (F)	Means	26.458	23.375	t = 1.815	P $>$.05
	S. D.'s	2.879	2.666		

Secondary Findings

Additional data were analyzed in an attempt to further explain the results attained in testing the hypotheses. Data concerning the participants' race, marital status, ACT score groupings, admission status, class level, and HEGIS groupings were examined to determine any possible trends over the three-year period (1978-1980) during which the study was conducted. Results of the secondary findings are presented in the following sections.

Racial Distribution of Participants

The male and female participants' racial distribution by age categories are presented in Tables 5, 6, and 7. Examination of these data show that the most obvious increase during the three-year period has been among white (non-Hispanic) females. Total numbers increased from 3,507 in 1978 to 3,984 in 1979 and reached 4,407 in 1980. There was a notable and continual decrease among Black females; numbers decreased from 504 in 1978 to 431 in 1979 and reached a low of 378 in 1980.

The greatest percentage of increase by age category was noted among 26-35 year old females. They were the only group at any age level who showed constant increase. The age category of >56 years showed the greatest percentage of increase over the three-year period.

TABLE 5

MALE AND FEMALE NON-TRADITIONAL STUDENTS' RACIAL DISTRIBUTION
BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
RACE	m	f	m	f	m	f	m	f	M	F	TOTALS
Non-Res-Alien	362	101	24	23	5	9	5	3	396	136	532
Black-Non-Hisp.	321	346	86	120	50	27	11	11	468	504	972
Am.-Ind-Alaskan	101	110	26	44	11	27	3	5	141	186	327
Asian-Pac.-Is.	51	22	4	12	3	7	0	0	58	41	99
Hispanic	53	35	12	13	9	7	1	0	75	55	130
White-Non-Hisp.	2,042	2,029	558	867	323	440	120	171	3,043	3,507	6,550
TOTALS	2,930	2,643	710	1,079	401	517	140	190	4,181	4,429	8,610

TABLE 6

MALE AND FEMALE NON-TRADITIONAL STUDENTS' RACIAL DISTRIBUTION
BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
RACE	m	f	m	f	m	f	m	f	M	F	TOTALS
Non-Res-Alien	205	37	5	1	0	0	6	0	216	38	254
Black-Non-Hisp.	267	294	63	93	38	32	12	12	380	431	811
Am.-Ind-Alaskan	99	102	30	49	8	33	4	9	141	193	334
Asian-Pac.-Is.	43	19	7	9	2	8	1	1	53	37	90
Hispanic	46	22	16	19	7	5	1	2	70	48	118
White-Non-Hisp.	1,995	2,239	635	1,006	488	524	230	215	3,348	3,984	7,332
TOTALS	2,655	2,713	756	1,177	543	602	254	239	4,208	4,731	8,939

TABLE 7

MALE AND FEMALE NON-TRADITIONAL STUDENTS' RACIAL DISTRIBUTION
BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
RACE	m	f	m	f	m	f	m	f	M	F	TOTALS
Non-Res-Alian	178	38	3	2	0	1	0	1	181	42	223
Black-Non-Hisp.	271	244	71	95	27	29	15	10	384	378	762
Am.-Ind-Alaskan	75	114	19	36	13	14	5	8	112	172	284
Asian-Pac.-Is.	69	55	20	17	5	7	4	1	98	80	178
Hispanic	42	31	16	21	6	7	1	1	65	60	125
White-Non-Hisp.	2,039	2,502	613	1,144	304	548	163	213	3,119	4,407	7,526
TOTALS	2,674	2,984	742	1,315	355	606	188	234	3,959	5,139	9,098

Non-Traditional Students' Marital Status

Participants' marital status by age category for each year are presented in Tables 8, 9, and 10. A comparison of the data in these tables showed there was a decreasing number of single persons enrolled each year. This was primarily due to a decrease in the number of single males. The number of married females increased significantly each year during the three-year period.

Females in the age category 36-45 years showed the greatest amount of increase during the three-year period. This was also the age category which showed the greatest increase during the time period considered.

Non-Traditional Students' ACT Score Groupings

Participants' ACT scores were compared by age category for the three-year period. ACT score groupings are shown in Tables 11, 12, and 13. The results presented in Tables 11, 12, and 13 could not be interpreted in a meaningful way because the number who actually had taken the ACT test represented less than two percent of the total group. It would be meaningless to try to generalize to the entire population from such a small sample. It should be noted, however, that the number who had actually taken the ACT test decreased from 312 in 1978 to a low of 70 in 1980.

TABLE 8

MALE AND FEMALE NON-TRADITIONAL STUDENTS' MARITAL STATUS BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND
Marital Status	m	f	m	f	m	f	m	f	M	F	TOTALS
Not Married	1,082	1,069	124	319	37	161	15	76	1,258	1,625	2,883
Married	1,623	1,484	523	712	321	330	93	80	2,560	2,606	5,166
Not Reported	225	90	63	48	43	26	32	36	363	200	563
TOTALS	2,930	2,643	710	1,079	401	517	140	192	4,181	4,431	8,612

TABLE 9

MALE AND FEMALE NON-TRADITIONAL STUDENTS' MARITAL STATUS BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

Marital Status	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND TOTALS
	m	f	m	f	m	f	m	f	M	F	
Not Married	957	999	94	303	36	158	22	89	1,109	1,549	2,658
Married	1,479	1,582	576	804	436	398	144	94	2,635	2,878	5,513
Not Reported	219	132	86	70	71	46	88	56	464	304	768
TOTALS	2,655	2,713	756	1,177	543	602	254	239	4,208	4,731	8,939

TABLE 10

MALE AND FEMALE NON-TRADITIONAL STUDENTS' MARITAL STATUS BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

Marital Status	AGE CATEGORIES								Totals		GRAND TOTALS
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.				
	m	f	m	f	m	f	m	f	M	F	
Not Married	871	1,044	90	323	29	158	15	85	1,005	1,610	2,615
Married	1,311	1,678	500	820	246	359	67	88	2,124	2,945	5,069
Not Reported	492	262	152	172	80	89	106	61	830	584	1,414
TOTALS	2,674	2,984	742	1,315	355	606	188	234	3,959	5,139	9,098

TABLE 11

MALE AND FEMALE NON-TRADITIONAL STUDENTS' ACT SCORE GROUPINGS BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
ACT Scores	m	f	m	f	m	f	m	f	M	F	TOTALS
00-15	40	61	4	22	11	5	0	1	55	89	144
16-20	32	36	7	16	4	4	1	1	44	57	101
21++	28	20	3	7	3	5	0	1	34	33	67
TOTALS	100	117	14	45	18	14	1	3	133	179	312

TABLE 12

MALE AND FEMALE NON-TRADITONAL STUDENTS' ACT SCORE GROUPINGS BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

	AGE CATEGORIES										
ACT Scores	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND TOTALS
	m	f	m	f	m	f	m	f	M	F	
00-15	12	26	2	11	4	3	0	1	18	41	59
16-20	13	12	6	10	2	0	0	1	21	23	44
21++	9	13	2	2	1	4	0	1	12	20	32
TOTALS	34	51	10	23	7	7	0	3	51	84	135

TABLE 13

MALE AND FEMALE NON-TRADITIONAL STUDENTS' ACT SCORE GROUPINGS BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
ACT Scores	m	f	m	f	m	f	m	f	M	F	TOTALS
00-15	6	18	1	5	2	1	0	1	9	25	34
16-20	5	6	2	4	1	2	0	0	8	12	20
21++	5	8	0	0	0	1	0	2	5	11	16
TOTALS	16	32	3	9	3	4	0	3	22	48	70

Non-Traditional Students' Admission Status

The non-traditional students' admission was studied from two perspectives--admission resulting from a General Educational Development (GED) certificate and admission through non-GED channels. The non-GED admissions included high school diplomas and open-door admission policies. Data related to the numbers who were admitted by both procedures are presented in Tables 14, 15, and 16. The data presented in Tables 14, 15, and 16 showed that females in the non-GED group made the most significant gains over the three-year period. The greatest increase was noted in the 26-35 years age group of females. The greatest percentage of increase in any age group was noted at the 36-45 years age category (13.71 percent).

Non-Traditional Students' Class Level Distribution

Male and female participants were compared by three class levels (Freshman, Sophomore, and Unclassified) in four age categories. Trends shown in class level of participants are presented in Tables 17, 18, and 19. The data presented in Tables 17, 18, and 19 showed that the number of freshmen females made the most dramatic increase each year. Numbers increased from 3,367 in 1978 to 3,750 in 1979 and up to 3,922 in 1980. The number of unclassified students also increased over the three-year period.

The unclassified class level increased from 339 in 1978 to 446 in 1979 to 619 in 1980. The largest age

TABLE 14

MALE AND FEMALE NON-TRADITIONAL STUDENTS' ADMISSION STATUS BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND
Admission Status	m	f	m	f	m	f	m	f	M	F	TOTALS
GED Admit	110	81	43	49	68	20	9	5	230	155	385
Non-GED	2,820	2,562	667	1,030	333	497	131	187	3,951	4,276	8,227
TOTALS	2,930	2,643	710	1,079	401	517	140	192	4,181	4,431	8,612

TABLE 15

MALE AND FEMALE NON-TRADITIONAL STUDENTS' ADMISSION STATUS BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND
Admission Status	m	f	m	f	m	f	m	f	M	F	TOTALS
GED-Admit	75	59	45	33	56	23	13	4	189	119	308
Non-GED	2,580	2,654	711	1,144	487	579	241	235	4,019	4,612	8,631
TOTALS	2,655	2,713	756	1,177	543	602	254	239	4,208	4,731	8,939

TABLE 16

MALE AND FEMALE NON-TRADITIONAL STUDENTS' ADMISSION STATUS BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

Admission Status	AGE CATEGORIES								Totals		GRAND TOTALS
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.				
	m	f	m	f	m	f	m	f	M	F	
GED-Admit	54	62	27	34	16	20	4	5	101	121	222
Non-GED	2,620	2,922	715	1,281	339	586	184	229	3,858	5,018	8,876
TOTALS	2,674	2,984	742	1,315	355	606	188	234	3,959	5,139	9,098

TABLE 17

MALE AND FEMALE NON-TRADITIONAL STUDENTS' CLASS LEVEL BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

CLASS LEVEL	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND TOTALS
	m	f	m	f	m	f	m	f	M	F	
Freshman	1,867	1,989	451	824	199	401	91	153	2,608	3,367	5,975
Sophomore	953	569	214	219	170	98	38	37	1,375	923	2,298
Unclassified-UG	110	85	45	36	32	18	11	2	198	141	339
TOTALS	2,930	2,643	710	1,079	401	517	140	192	4,181	4,431	8,612

TABLE 18

MALE AND FEMALE NON-TRADITIONAL STUDENTS' CLASS LEVEL BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

CLASS LEVEL	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		GRAND TOTALS
	m	f	m	f	m	f	m	f	M	F	
Freshman	1,819	2,144	489	925	307	478	202	203	2,817	3,750	6,567
Sophomore	715	490	185	220	155	105	28	28	1,083	843	1,926
Unclassified-UG	121	79	82	32	81	19	24	8	308	138	446
TOTALS	2,655	2,713	756	1,177	543	602	254	239	4,208	4,731	8,939

TABLE 19

MALE AND FEMALE NON-TRADITIONAL STUDENTS' CLASS LEVEL BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

CLASS LEVEL	AGE CATEGORIES										GRAND TOTALS
	26-35 yrs.		36-45 yrs.		46-55 yrs.		≥ 56 yrs.		Totals		
	m	f	m	f	m	f	m	f	M	F	
Freshman	1,721	2,258	490	993	210	471	160	200	2,581	3,922	6,503
Sophomore	758	541	176	247	114	101	15	24	1,063	913	1,976
Unclassified-UG	195	185	76	75	31	34	13	10	315	304	619
TOTALS	2,674	2,984	742	1,315	355	606	188	234	3,959	5,139	9,098

category in this classification for the three reported years was the 26 to 35 year old male and female students.

The amount of student increase can be accounted for almost totally by the numbers of females in the 26 to 35 years and 36 to 45 years age categories. Females in the 36 to 45 years age category showed the highest numbers of increase each year of the three-year time period.

Non-Traditional Students' HEGIS Groupings

The male and female students' choice of majors (HEGIS groupings) were compared for the three-year time period. The distribution of career choices within the four age categories in 22 different HEGIS groupings are presented in Tables 20, 21, and 22.

A comparison of the males' and females' career patterns, without respect to age, showed that females had a continual enrollment increase in seven areas: (1) Education, (2) Fine Arts, (3) Foreign Language, (4) Home Economics, (5) Psychology, (6) Social Science, and (7) "Other." Females showed enrollment decreases each year in the area of Math.

Male participants showed continual increases in five areas: (1) Fine Arts, (2) Letters, (3) Math, (4) Physical Science, and (5) Psychology. Male participants showed enrollment decreases each year in the areas of (1) Biological Science, (2) Health, and (3) "Other."

TABLE 20

MALE AND FEMALE NON-TRADITIONAL STUDENTS' HEGIS GROUPINGS
BY AGE CATEGORY DURING THE 1978 ACADEMIC YEAR

HEGIS GROUPINGS	AGE CATEGORIES										GRAND TOTALS
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		
	m	f	m	f	m	f	m	f	M	F	
400 Biological Science	69	166	10	45	4	15	1	3	84	229	313
500 Business	252	212	74	83	29	34	6	15	361	344	705
600 Communication	7	29	0	10	0	6	0	3	7	48	55
700 Computer Science	0	0	0	0	0	0	0	0	0	0	0
800 Education	27	28	9	12	6	12	7	2	49	54	103
900 Engineering	69	24	11	13	1	5	0	3	81	45	126
1000 Fine Arts	67	71	18	39	11	36	7	17	103	163	266
1100 Foreign Language	40	19	18	3	10	7	7	1	75	30	105
1200 Health	15	3	2	0	2	0	0	0	19	3	22
1300 Home Economics	0	12	1	11	0	1	0	0	1	24	25
1400 Law	0	0	0	0	0	0	0	0	0	0	0
1500 Letters	25	166	5	72	4	28	3	11	37	277	314
1600 Library Science	0	0	0	0	0	0	0	0	0	0	0
1700 Math	37	39	12	15	4	6	1	2	54	62	116
1800 Military Science	0	0	0	0	0	0	0	0	0	0	0
1900 Physical Science	49	35	12	9	2	4	3	0	66	48	114
2000 Psychology	45	75	14	25	4	10	2	2	65	112	177
2100 Public Affairs	0	0	0	0	0	0	0	0	0	0	0
2200 Social Science	65	24	15	17	5	13	0	3	85	57	142
2300 Theology	0	0	0	0	0	0	0	0	0	0	0
2900 Inter. Disciplinary Studies	8	10	1	4	0	1	1	1	10	16	26
Other	2,155	1,712	508	721	319	339	102	129	3,084	2,901	5,985
TOTALS	2,930	2,625	710	1,079	401	517	140	192	4,181	4,413	8,594

TABLE 21

MALE AND FEMALE NON-TRADITIONAL STUDENTS' HEGIS GROUPINGS
BY AGE CATEGORY DURING THE 1979 ACADEMIC YEAR

HEGIS GROUPINGS	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND TOTALS
	m	f	m	f	m	f	m	f	M	F	
400 Biological Science	47	92	2	34	1	11	2	3	52	140	192
500 Business	205	6	55	119	27	46	8	13	295	184	479
600 Communication	20	252	5	5	2	4	2	1	29	262	291
700 Computer Science	0	25	0	0	0	0	0	0	0	25	25
800 Education	45	0	12	40	11	13	1	8	69	61	130
900 Engineering	294	72	30	6	6	0	15	0	345	78	423
1000 Fine Arts	79	58	27	46	15	48	11	23	132	175	307
1100 Foreign Language	6	52	9	11	9	10	7	7	31	80	111
1200 Health	8	3	0	0	0	0	0	0	8	3	11
1300 Home Economics	4	3	0	23	0	9	0	3	4	38	42
1400 Law	0	65	0	0	0	0	0	0	0	65	65
1500 Letters	29	23	11	25	4	16	6	10	50	64	114
1600 Library Science	0	26	0	0	0	0	0	0	0	26	26
1700 Math	38	25	16	8	2	6	0	3	56	42	98
1800 Military Science	0	0	0	0	0	0	0	0	0	0	0
1900 Physical Science	65	46	17	9	2	3	3	1	87	59	146
2000 Psychology	96	145	20	60	8	47	10	15	134	267	401
2100 Public Affairs	28	20	6	2	1	2	20	3	55	27	82
2200 Social Science	154	93	30	46	33	20	19	10	236	169	405
2300 Theology	0	0	0	0	0	0	0	0	0	0	0
2900 Inter. Disciplinary Studies	9	8	3	2	3	3	2	0	17	13	30
Other	1,528	1,705	523	741	419	364	143	138	2,613	2,948	5,561
TOTALS	2,655	2,719	766	1,177	543	596	249	238	4,213	4,726	8,939

TABLE 22

MALE AND FEMALE NON-TRADITIONAL STUDENTS' HEGIS GROUPINGS
BY AGE CATEGORY DURING THE 1980 ACADEMIC YEAR

HEGIS GROUPINGS	AGE CATEGORIES										
	26-35 yrs.		36-45 yrs.		46-55 yrs.		> 56 yrs.		Totals		GRAND
	m	f	m	f	m	f	m	f	M	F	TOTALS
400 Biological Science	50	116	7	33	2	7	2	2	61	158	219
500 Business	234	127	75	165	36	82	13	20	358	394	752
600 Communication	12	20	1	5	0	2	2	2	15	29	44
700 Computer Science	0	0	0	0	0	0	0	0	0	0	0
800 Education	35	73	8	35	4	13	1	3	48	124	172
900 Engineering	321	42	39	14	13	2	2	2	375	60	435
1000 Fine Arts	82	114	15	63	6	42	9	27	112	246	358
1100 Foreign Language	21	40	11	14	6	11	6	8	44	75	119
1200 Health	3	4	0	1	0	0	0	0	3	5	8
1300 Home Economics	7	65	1	43	0	9	0	6	8	123	131
1400 Law	0	0	0	0	0	0	0	0	0	0	0
1500 Letters	29	54	18	33	6	19	13	14	66	120	186
1600 Library Science	0	0	0	0	0	0	0	0	0	0	0
1700 Math	50	26	4	7	4	3	4	2	62	38	100
1800 Military Science	0	0	0	0	0	0	0	0	0	0	0
1900 Physical Science	73	35	13	9	6	1	1	1	95	46	141
2000 Psychology	108	174	35	77	14	36	18	11	175	298	473
2100 Public Affairs	20	20	4	4	4	0	5	1	33	25	58
2200 Social Science	135	86	29	46	17	20	16	10	197	162	359
2300 Theology	0	0	0	0	0	0	0	0	0	0	0
2900 Inter. Disciplinary Studies	3	5	0	3	0	0	0	0	3	8	11
Other	1,491	1,783	482	763	236	359	96	125	2,305	3,030	5,335
TOTALS	2,674	2,824	742	1,315	354	605	188	234	3,948	4,953	8,901

In general, the continued rise in student enrollment could be accounted for by females in the 26 to 35 years and 36 to 45 years age categories who were enrolled in Education, Home Economics, and Psychology.

Summary of Results

Two general null hypotheses, which were later restated into five sub-hypotheses, were tested in the study. The following results were derived.

As a result of testing the first five sub-hypotheses, it was noted that a significantly higher percentage of females than males achieved at the A level during the three-year period considered.

There was a significantly higher percentage of males than females who achieved at the D and F levels during that same time period.

There were no significant differences between the percentages of males and females who achieved at the B and C levels during the time period considered.

As a result of testing the second five sub-hypotheses, it was observed that a significantly higher percentage of females than males achieved within the A category at all four age levels considered.

There were no significant differences between the male and female achievement percentages at the four other age levels.

Secondary findings indicated that a possible trend was developing in the female enrollment. In the total non-traditional male and female enrollment, there were approximately 350 more females than males in 1978. In 1979, there were approximately 650 more females than males enrolled and a continual increase to 1,200 more females than males in 1980. The only other indication reflected was a decline in non-resident aliens from 532 in 1978 to 223 in the 1980 academic year.

Marital status of the non-traditional male and female student reported from the 1978 to 1980 academic years indicated only one notable change. During 1978, only 563 of the more than 8,600 total students in the study did not report a marital status. This number increased to 1,414 for the 1980 academic year. The number not reporting marital status increased each year.

The number of reported ACT scores for age 26 and above was extremely limited and seemed to indicate most of these students were not required to take the ACT when they finished high school.

There was a slight decrease in the number of non-traditional students who were admitted using the GED examination. The number decreased from 385 in 1978 to 222 in 1980. The number of non-GED enrollments increased from 8,227 in 1978 to 8,876 in 1980.

The non-traditional students categorized by age reflected a change from 339 unclassified students in 1978 to 619 in the 1980 academic year.

The HEGIS groupings indicated the non-traditional student selected Business, Engineering, Letters, Psychology, and Social Studies to be the most prevalent areas of study. The area of Engineering showed the greatest change with the 126 students enrolled in 1978 increasing to 435 in the 1980 academic year.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The design of this study was to examine certain characteristics of non-traditional college students for the purpose of utilizing such data in future curricula and administrative planning. The basic research question was: Were there significant differences in academic achievement of the non-traditional male and female students? Non-traditional students were defined as students attending college on a full- or part-time basis and who were over 25 years of age.

In an effort to answer the original research question, two hypotheses were tested:

Ho_1 There will be no significant difference in the academic achievement of the non-traditional male and female students.

Ho_2 There will be no significant difference in the academic achievement of the non-traditional male and female students when comparisons are made of like gender in different age categories.

The sample drawn for this study was a part of the student population at Oscar Rose Junior College and South

Oklahoma City Junior College. These two colleges are two-year comprehensive colleges located within the metropolitan Oklahoma City area. The two institutions have an open-admissions policy which accounts for the large amount of variability within the student population. The sample consisted of those students who enrolled in credit course-work during the fall semesters of the 1978-79, 1979-80, and 1980-81 academic years. The average student age for these three years was 27.9 for the 26,649 student sampling.

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

26 to 35	-	young adults
36 to 45	-	mature adults
46 to 55	-	middle-age adults
56 and over	-	older adults

Also, remaining constant throughout the study were five achievement categories. These categories were:

1. $\geq$ 3.5 = A
2. 3.0 - 3.4 = B
3. 2.5 - 2.9 = C
4. 2.0 - 2.4 = D
5. $\leq$ 1.5 = F

In order to test the first null hypothesis, it was necessary to further reduce the general null hypothesis to five specific null hypotheses. It was necessary to compare the percentages of males and females within the five achievement categories over the three academic years. A t-test was

used to compare the two groups' achievement percentages at each achievement level.

For the second null hypothesis, it was necessary to reduce the general null hypothesis to four specific null hypotheses. The percentages of non-traditional students in each achievement category were considered raw data, and means were compared for the male and female participants.

Conclusions

(1) The results of testing the first null hypothesis led to the conclusion that a significantly higher percentage of non-traditional female students achieved in the ≥ 3.5 achievement category when compared with the non-traditional male student.

(2) The results of testing the first null hypothesis led to the conclusion that there was no significant difference between the percentage of males and females who achieved in the 3.0-3.4 and ≤ 1.5 achievement categories.

(3) The results of testing the first null hypothesis also led to the conclusion that there was a significantly higher percentage of males than females who scored in the 2.5-2.9 achievement categories and the 2.0-2.4 achievement categories.

(4) The results of testing the second null hypothesis led to the conclusion that there was a significantly higher percentage of females than males who achieved in the ≥ 3.5 achievement level in all age categories.

(5) The results of testing the second null hypothesis also led to the conclusion that there were no significant differences between the percentage of males and females who achieved in the 3.0-3.4, 2.5-2.9, 2.0-2.4, and $\leq$1.5 achievement levels in any of the four age categories.

Additional data were analyzed in an attempt to explain the results attained in testing the hypotheses. Data concerning the participants' race, marital status, ACT score groupings, admission status, class level, and HEGIS groupings were examined to determine any possible trends over the three-year period (1978-1980) during which the study was conducted. Secondary findings are presented in the following sections:

(1) The male and female participants' racial distribution by age categories showed that the greatest percentage of increase during the three-year period was among white (non-Hispanic) females. There was a notable and continual decrease among Black females. The greatest percentage of increase by age category was the 26 to 35 year old females. The age category of $\geq$56 years showed the greatest percentage of increase over the three-year period.

(2) Participants' marital status by age category for each year showed there was a decreasing number of single persons enrolled each year. The number of married females increased significantly each year during the three-year period.

(3) The results of the ACT score groupings could not be interpreted in a meaningful way. The number of students who actually had taken the ACT test represented less than two percent of the total group. It would be meaningless to generalize to the entire population from such a small sample.

(4) The non-traditional students' admission was studied from two perspectives. The data showed that females in the non-GED group made the most significant gains over the three-year period. The greatest increase was noted in the 26 to 35 year old age group of females. The greatest percentage of increase in any age group was the 36 to 45 year old age category, which showed the highest numbers of increase each year of the three-year time period.

(5) Non-traditional male and female students were compared by three class levels in four age categories. The data indicated that the number of freshmen females made the most dramatic increase each year.

The fact that 26,000 individuals were participants in this study indicated that a large number of non-traditional students were attending the two colleges in the 1978-80 academic years. The traditional lower-division student population is predicted to decline in the decade of the 1980s. However, that decrease coincides with an increase in the number of individuals over 25. The urban two-year

colleges may be insulated from major enrollment declines by the fact that they are serving large numbers of non-traditional students.

(6) The male and female participants' choice of majors (HEGIS groupings) were compared for the three-year time period. This comparison showed females with a continual enrollment increase in seven areas: (1) Education, (2) Fine Arts, (3) Foreign Language, (4) Home Economics, (5) Psychology, (6) Social Science, and (7) "Other." Females showed enrollment decreases each year in the area of Math. The male students showed a continual enrollment increase in (1) Fine Arts, (2) Letters, (3) Math, (4) Physical Science, and (5) Psychology. Males showed enrollment decreases each year in (1) Biological Science, (2) Health, and (3) "Other."

Recommendations

(1) Since research in the area of adult education is in a developmental stage as compared with more traditional areas of educational research, a recommendation is made for the continuation of collecting and analyzing data concerning the adult learner. Future researchers should experiment with additional variables in a continuing effort to determine measurable differences related to age and learning. It is now and will continue to be important for administrators, counselors, and teachers of adults to remain

aware of the special needs and characteristics of adult students.

(2) The field of postexperience higher education is still in an experimental stage, and there are many questions about its effectiveness. The following developments are of major importance and are specific areas recommended for research: a system of indices and criteria for comparing different forms and methods that take into account the diverse nature of participants; methods for motivating independent study among specialists not attending organized courses; models of prospective specialties and determination of permanent and changing areas of knowledge necessary to each; and methods of planning postexperience programs.

(3) It is recommended that a systematic program be developed to reorient children and youth to a conception of learning as a lifelong process. Teachers should teach youth so they leave formal schooling with (a) an insatiable curiosity, (b) a mastery of the tools of learning, and (c) a commitment to continue learning through the rest of their life span.

(4) A curriculum of adult education should continually be refined to provide for the sequential development of the knowledge, understanding, skills, attitudes, and values required to maintain one's effectiveness in a changing social order.

(5) The number of leaders and teachers of adults should be increased and provided the specific knowledge and skills required to help adults learn.

(6) Community agencies of adult education, especially schools and colleges, should upgrade the standards of professional competence required of those guiding adult learning and employ personnel with these competencies.

(7) A special responsibility is placed on the universities to expand the resources available for research and advanced professional training in adult education.

(8) There should be a national commitment to provide the resources and moral support necessary for the development of lifelong learning as an integral element of the American way of life.

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