# A COMPARISON OF WOMEN IN ENGINEERING TECHNOLOGY AND OTHER MAJOR FIELDS OF STUDY AT OKLAHOMA STATE UNIVERSITY ON PATTERNS OF INTEREST, SCHOLASTIC APTITUDE AND DEMOGRAPHY

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# CHAPTER I

## INTRODUCTION

The education of women in technical careers has been given little concern until recent years. Several legislative acts such as The Employment Opportunity Act of 1972, PL 92-261, and Title IX of The Education Amendments of 1972, PL 92-318, as well as the overall women's movement, during the last five years, have increased the awareness of the lack of women in scientific and engineering areas (40). The Engineering Joint Council reported the number of engineering degrees awarded to women had risen from approximately 0.6 percent of all engineering degrees conferred in the mid-sixties to approximately 2.3 percent in 1975 (1). The need for more active recruitment of women into technical education programs and the increased demand for women with technical education experiences now makes it appropriate to plan specifically for increasing the supply of technically trained women.

Even though there is an increasing number of women entering engineering educational programs, the number is relatively low. The demand for women in technical fields by industrial concerns has increased much more rapidly than the overall graduation rates of the educational institutions.

If educational institutions are going to be held responsible for the recruitment and education of women in the engineering and technology fields, the schools must actively increase their efforts in the recruit-

ment and counseling of women students. The recruitment and advisement of women in technical programs needs to be based upon appropriate information. The recruitment and advisement effort, based on such factors as student characteristics, career characteristics and women students' needs, should provide women with information regarding academic fields of study, career paths and opportunities. If women students were properly informed about the career opportunities and the academic programs that lead into an engineering and technical career, it seems likely that enrollment and graduation trends of women in these types of programs would further increase and help meet the present and projected needs.

## Statement of the Problem

The problem with which this study dealt was the lack of information regarding certain characteristics of women students in the School of Technology at Oklahoma State University (OSU) and how those characteristics compared with the characteristics of women students in other major fields of study at OSU. A descriptive profile of the women's characteristics by academic major fields of study should provide usable information for high shcool counselors, college recruiters and counselors, parents, and others in helping women plan their academic and career goals.

## Purpose of the Study

This study sought to determine similarities and differences between women students in the School of Technology and those of Engineering, Business, Home Economics and all other academic majors at Oklahoma State University (OSU) as to interests, scholastic aptitude, and certain demo-

graphic variables. (See Appendix A.)

In addition, the study sought to determine whether characteristics of freshmen women differ from those of women in more advanced classes within selected fields of study.

The study resulted in a descriptive profile of women students in Technology at OSU, which should be useful in the advisement of these students and in the recruitment of additional women. Specific recommendations were made with respect to these processes.

The descriptive profile also served as baseline data against which which future changes may be measured and it suggested questions to be answered in future studies.

Finally, the study was intended as a model or guide which could be followed by other institutions seeking to assess their own technology programs in relation to women students.

## Research Questions

To achieve the purpose of this study the following research questions were answered:

1. What are the patterns of interest variables, scholastic aptitude and demographic characteristics of women enrolled in Oklahoma State University's (OSU) School of Technology?
2. What are the patterns of interest variables, scholastic aptitude and demographic characteristics of women enrolled in OSU's College of Engineering?
3. What are the patterns of interest variables, scholastic aptitudes and demographic characteristics of women enrolled in selected programs in the College of Business at OSU?

4. What are the patterns of interest variables, scholastic aptitudes and demographic characteristics of women enrolled in selected programs in the College of Home Economics at OSU?
5. What are the patterns of interest variables, scholastic aptitudes and demographic characteristics of women enrolled in other programs at OSU?
6. Are there differences in patterns of interest variables, scholastic aptitude and demographic characteristics between women enrolled in Technology, Engineering, Business, Home Economics and other programs at OSU?
7. Do the freshmen women students in the areas of Technology, Engineering, Business, Home Economics and other academic programs have characteristics similar to the non-freshmen women students majoring in each of the respective areas?

## Need for the Study

The increased demand for technically trained manpower continues to increase as a result of the present economic conditions and the projected economic needs of our nation. Women make up one segment of the total work force which has virtually been untapped in technical fields. This untapped work force coupled with the increased need for women workers make information on women students in Technology of vital importance.

Since the passage of the equal rights laws (11) and the Educational Act and Amendments of 1972, PL 92-318 prohibiting sex discrimination in education, more emphasis has been placed on the recruitment and education of women in fields once dominated by men (40). Although the numbers of

women enrolling in scientific and engineering educational programs has increased, the present demand for technically trained women still exceeds the number of women who are enrolling in technology programs.

The need for information that will be gathered by this study is great. According to Davis (15),

> Although skilled at recruiting, we have proceeded in spite of the lack of substantive information about women in engineering. For example, a high school counselor who is helping young women make vocational choices not only needs knowledge of the job market, but also of the types of individuals who are satisfied with and successful in engineering. Several studies have provided information about the characteristics of men in technical fields, but these do not automatically apply to women (p. 25).

This study provides specific information describing women specifically in Engineering Technology as well as other selected academic fields and then compared the characteristics of the women students in the different academic fields of study. The results of the study provides information needed by individuals responsible for helping women plan their academic careers and occupational goals.

# CHAPTER II

## REVIEW OF LITERATURE

The purpose of this study was to determine characteristics of women students in the School of Technology and other major fields of study at Oklahoma State University and to make comparisons among the characteristics of the women students by their major fields of study. The resulting descriptive profiles of the women's characteristics by academic major fields of study should provide usable information for high school counselors, college recruiters, parents and others in helping women plan their academic and career goals. The review of the literature has been divided into four categories in order to show a need for the study and a logical approach to the solution of the problem. The four categories are (1) Equal Rights/Need for Technically Trained Women, (2) Women in Technical Fields/Non-Traditional Roles, (3) Recruiting/Counseling, and (4) Academic Choice and Career Orientation.

### Equal Rights/Need for Technically Trained Women

Legislation at both the Federal and the State levels has been enacted which assures women of non-discrimination in employment, equal pay for equal work, and sex discrimination in education. There are many other civil rights and nondiscrimination acts, laws, amendments, and executive orders but these laws and orders are not strong enough within themselves to produce the results often stated. One such example is the

education of women in fields of study once far removed from most women. Although Title IX of the Educational Amendments of 1972, PL 92-318 prohibits sex discrimination in education, the educational engineering school have only seen the number of women enrolled in engineering rise from approximately 0.6 percent in the mid-sixties to 2.3 percent in 1975 (20). If educational opportunities for women are going to be equal to the opportunities for men, it appears that more must be done than writing legislation. Emphasis needs to be placed on factors which still limit the opportunities guaranteed to women.

## Technically Trained Women

The present and future demand for technically trained manpower is a result of the present economic conditions and the future projected economic needs of our nation. If this manpower requirement is to be met, it must be assumed there are individuals who have the capability of mastering the technical skills and have the desires to enter a technical curriculum designed to provide them with the needed technical skills.

Engineering enrollment trends through the late 1960's and early 1970's show the white male as meeting most of the manpower requirements for engineering and technology (12). If the demand continues to increase, either more white males will be needed to fill the increased manpower requirement or other sources of potential manpower should be explored. Women, along with members of ethnic minority groups make up the majority of the present untapped labor pool (14). The increased emphasis on women moving into non-traditional areas, such as engineering and providing a portion of the needed manpower is starting to be recognized. In 1975, the Engineering Manpower Commission pointed out the proportion of women

among engineering graduates was over 100 times greater than it was in the 1950's (40). Although the percentage growth looks desirable, the total number of women in the engineering labor pool was still very small. Women are presently in a transition period of education, a period where more educational opportunities are available than ever before.

Women, in order to successfully move into non-traditional areas of study, such as Engineering and Technology, must be accepted by the labor market upon graduation. Durchholz (20, p. 292) stated, "It is almost impossible to pick up an engineering journal or periodical without finding some article describing the almost limitless opportunities for women engineers". The Engineering Manpower Commission also emphasized this by reporting the salary offers of 1975 engineering graduates. The average salary offer to women B.S. engineering graduates was $1,144 per month, compared to $1,109 offered to male engineering graduates (40, p. 346).

According to Alden (3) the need for more women in Engineering and Technology was not based totally on a numbers game. He says no profession, in a modern technological society, can afford to exclude half the population because of sex discrimination. The engineering and technology profession needs the individual talents of women, and women can add additional strength and breadth to the profession.

## Women in Technical Fields/Non-Traditional Roles

Academic ability, parental support and socio-economic background of women engineering freshmen were compared to male engineering freshmen of The University of Cincinnati by Durchholz in 1975-76 (20). Her study showed women engineering freshmen to be just as well prepared or better prepared for engineering programs as the males in the sample. The women

in her study showed parental support and approval of their career choice with the father probably serving as the career model. The womens' socio-economic background was also higher than the men as measured by family income and father's educational level.

Two studies have been conducted at Oklahoma State University which deal with engineering students and technology students. Both of these studies were done prior to Oklahoma State University adding a bachelor of science degree in technology and having an appreciable enrollment of women students. Both of these studies, Miller (32) in 1966 and Bradshaw (7) in 1968 identified characteristics of men enrolled in technology and men enrolled in engineering and provided a basis for additional research in related areas, i.e., B.S. technology majors, B.S. engineering majors; women technology majors and women engineering majors. The research effort that has been done on technology majors, in general, and women technology majors was limited. As Davis (15, p. 25) pointed out, "Information about women in technology majors is almost nonexistent".

As demand for women in technology fields increases (20, p. 292) and as the recruitment of women in technical programs continues to increase there is a need for additional information which will assist educational institutions in the recruitment, retention, placement, and program development for women students. The information could further assist counselors, parents and young women to learn more about women in technical and engineering programs which may aid them in making a career decision.

Feldman and Newcomb (22) stated that students in different academic programs do have distinctive characteristics in spite of many individual differences. They found some characteristics, such as demographic back-

ground, were noticeable before the student chooses a major field. Other characteristics become more pronounced following a student's experiences in the major. Various studies reported by Feldman and Newcomb (22, p. 193) showed the fields of education and engineering were overchosen by students of lower socio-economic status while the backgrounds of students entering business were inconsistent. Men tend to overchoose such fields as engineering, prelaw and business while women overchoose education, humanities, social, and biological science areas. The individuals enrolled in different curricula do as a whole show distinctive characteristics even though each field of study does not have a unique type of student. According to Feldman and Newcomb's review of the literature there were differences between freshmen and seniors, with a trend of students moving out of engineering, medicine and dentistry and into such areas as education, social sciences and business (22, p. 38).

A study reported by the Engineering Manpower Commission of The Engineers Joint Council, entitled "What's Different About Engineering Students?", was based on data collected from high school seniors, class of 1972, in the state of Indiana by the Purdue University Office of Manpower Studies (2). The survey obtained 51,600 responses of which 2,000 gave engineering as their vocational choice and 1200 indicated a plan to become technicians. A breakdown of these respondents by sex showed a ratio of male to female of 70:30 for technicians and 97:3 for engineers. One observation reported in this study was students desiring to become high school teachers seem to have a much clearer focus on the relationship between their high school curriculum and their college aspirations. The statistics from this study suggest that some students

choosing engineering and technology may not know, or at least are confused, as to the difference between the work of engineers and technicians.

The Alden study reported a profile of the students choosing Engineering and Technology as follows:

A. Grade Point - Students planning on going into engineering had a high school grade point centered between B and C while those students choosing technology were C students.

B. Choice of School - The students choosing engineering and technology were most likely to choose the school they were going to attend on the basis of the type of academic program the school had.

C. Family Background - Those students', choosing a technology program, parents tended to have a lower level of education than the senior students who planned to major in an engineering program. Technicians were more likely to have parents in the skilled worker category while engineering students' parents come from professional and technical backgrounds.

D. Career Decisions - Those students choosing engineering tend to become interested in engineering over a wide range of ages while those choosing technology tend to become interested near the end of high school. Also reported by the study was the fact that no factors other than family influence stands out strongly affecting the career choice of those students who reported to be going on to pursue an engineering or technology degree.

E. Important Reasons for Choosing a Career - Engineers and technicians were somewhat similar in their reasons for choosing one career field over the other. In rank order, for the engineering students were (1) activities on the job, (2) money, (3) outdoor work and (4) prestige. Money was rated very high by prospective engineers and technology students but not by students planning to become high school teachers (2).

Women have been identified as one group underrepresented as scientists and engineers by Wilburn (45). Another study by Hewitt and Goldman (25) showed there was little doubt that college women major in science much less frequently than college men. Their study also reported that major field of study was correlated more with mathematical ability than with verbal skills. One hidden cause of major field choice, according to Hewitt and Goldman (25, p. 52) was sex. College males scored higher on test of mathematical abilities and major more in science than females. The higher mathematical ability of males was one reason why there was greater male representation in scientific majors. Hewitt and Goldman concluded from the findings of their study that young women should be encouraged to study more mathematics in high school. The increased mathematical ability of young women would give them a greater freedom of choices in pursuing a scientific career.

Almquist and Angrist (4) concluded from their study that women with more exposure to working women and to various work experiences, part-time and summer jobs, were more likely to engage in a typical career. Valentine, Ellinger, and Williams (42) reported similar findings. They reported women in masculine occupations had a higher percentage of work-

ing mothers compared to women in traditionally feminine occupations. Working mothers seemed to be an influence on their children, both male and female, in developing a more liberal perception of the female role.

Many factors may go into a woman's decision to select one career over another but Brown (8) stated that choices that lead to choosing a technical career must be made early in life - during grade school or early high school. Whitesel (44) agreed with the early decision regarding career decisions. She stressed the importance of early career decisions stating that women during their college years were unlikely to make career decisions because of the pressures of traditional, dependent femininity which often conflict with and override achievement interest. Burks (10) showed that young students in the middle school years were in the process of determining their course sequences which would lead them toward or away from the engineering and scientific professions. The presentation of encouragement and information about engineering in junior high school should mean that more girls will consider this option (10, p. 15).

While the above reported literature showed a need for women in non-traditional fields such as engineering and pointed out the apparent need for information at an early age to help young students plan their career paths there were also negative aspects of women in non-traditional roles. Dresselhaus (19) reported her personal views on women enrolled in engineering education. She stated that women often found they were the only woman in the class which led to additional pressures and anxieties. The fact that women were in the minority, a minority sometimes of one, often causes the women to feel high visable, with excessive attention focused on them. McEwen (30) reported that a survey

of the literature on counseling showed a predominant theme of discriminatory attitudes and patterns toward women. Valentine, Ellinger and Williams (42) also reported the role conflicts that often developed between family and careers for women. Davis (15) reported in her study some commonly held stereotypes of women in science and engineering. Two such stereotypes were; women in non-traditional roles were often considered "masculine" and were often considered to reject marriage and family roles.

## Recruiting/Counseling

The increased need for women in engineering and technology coupled with the increased numbers of women enrolling in such programs leads into the areas of the recruiting effort and the counseling of women students. Corcoran and Burke (14) stated that expanded recruitment programs do not guarantee higher enrollments. They believed that when women were being recruited for non-traditional academic fields many ingrained stereotypes held by the public and employers must be overcome before women could be successfully recruited into the various programs. For the recruitment of students into technology programs Corcoran and Burke (14) suggest the following:

1. Recruitment efforts should be directed at five levels of individuals in the following priority:
   a. Students in the last year of junior high or first year of high school.
   b. Adults who have been out of school and want to return.
   c. Students about to leave high school.
   d. Students in elementary school.
   e. Students in other post-secondary programs who are about to drop out or are considering dropping out.
2. Recruiters should try to reach those in the adult popula-

tion who might not typically consider technical careers, i.e., women and ethnic minorities.

3. Recruiters should make entrance requirements to technical programs clear to students early in their high school careers so that they know what courses they must take in high school.

4. A variety of recruitment materials should be used such as brochures, personal interviews, and direct mailings.

5. Technical programs should maintain their recruitment effort on a continuous basis (14, p. 54).

Frohreich (24) and Kaufman (29) both agreed that activities and interests by universities to attract more women and to increase the enrollment of women students in technical fields had increased in the past several years. The types of activities being used to recruit women were the development of new printed materials and promotional materials, scholarship programs for women, academic year conferences and summer programs, and high school visitations. Schools were also adding on campus special programs in such fields as engineering to help retain women, once they had enrolled. These activities aimed at retention included programs providing social support, special advising, role models, making financial aid available, and providing staff time and know how to handle special needs the women may have.

One can conclude from the literature that the recruitment effort should not be totally student or individual oriented. Reading the findings of a study made by The Guidance Committee of Engineers' Council for Professional Development (21), also supported by Kaufman's (28) research as well as others, show role models and the women student's family were influences in her choosing an engineering career. The women students' parents were much more important for women than men in their choice of colleges. High school teachers also had a higher rate

of influence on the student choosing engineering than the high school counselors.

Transfer students, students transferring from one institution to another or from one field of study to engineering or technology, make up another group of women students who should not be overlooked in the total recruitment effort. Cooper's (13) Recruitment Questionnaire Report, that was compiled for Oklahoma State University's School of Technology in 1975, showed transfer students were more interested on what things they would study in a technical program and what a graduate does upon graduation than job opportunities and starting salaries. Present students in OSU's School of Technology played an important influencing factor for other students on campus who transferred into a technical program, according to Cooper's (13) findings. Kaufman (28) stated,

> greater efforts at recruiting capable women from other fields and from community colleges would appear to hold much promise as a major source of new talent that could more than make up for those women who leave engineering (p. 22).

Counseling of women students who were considering a career in a non-traditional field or had already made their career decision was also important according to the data presented in the literature. Dresselhaus (19), a woman Ph.D. Electrical Engineer and faculty member at Massachusetts Institute of Technology (M.I.T.) has conducted a freshman level seminar-type course for women at M.I.T. The seminar was designed to acquaint women students with the engineering profession and to provide women with basic shop skills and laboratory practices. The women in the seminar tend to have less experience in shop skills and laboratory practices than males in the freshman class. Dresselhaus (19) also found that with dealing with the women in the seminar,

> . . that providing one-on-one career counseling conferences with the individual students has a very beneficial effect on both their psychological and technical needs. Women in engineering and other fields of study, where they were in the minority, tend to find themselves in positions of greater stress than women in liberal art fields who were following more traditional paths of education (p. 33).

Effective counseling and successful role models often provided the necessary encouragement the women students needed to continue in a non-traditional career.

Medalen (31) found in a study conducted at the University of North Dakota that few high school counselors or teachers knew enough about engineering to act as good counselors, and few engineers could tell a high school student what engineers do. Medalen reported that young women who were engineers, students, or alumni actively involved in engineering made very good counselors in helping women to obtain a better role model of a female engineer. The University of North Dakota had one other significant finding reported by Medalen. Academic advisors from other colleges were being asked by their female advisees what courses they should take to leave the doors open for a career in engineering. Because of the women students' interest more academic advisors were becoming more knowledgeable on the engineering program.

Hawley (26) summarizes the counseling role for women as follows:

> Counselors who are sensitive to what is happening to women today can help them sort through the confusion of changing values and life styles to find a variety of ways to express and define what it means to be female. Whether the client finally chooses a traditionally sanctioned life style or one that fits the most radical model of the women's liberation movement, it is important that she have the opportunity to examine counsciously many models of femininity (p. 308).

## Academic Choice/Career Orientation

The factors by which individuals made their academic choice of educational programs which provided the formal training usually necessary for the individuals to move into and through a career were not well defined. Many variables, some which were measureable and many which were probably unmeasureable, combine for the individuals and reflected on their decisions and career patterns.

The many factors which aid an individual in making academic choices and career decisions were being studied by many researchers in order to help provide the individual with better understandings and insights into various careers. For women to move into non-traditional academic majors and careers Fox (23, p. 351) stated, "girls must develop interests in these career areas at an early age so they do not self-select themselves out of mathematics and science courses in high school". Burks (10) also stated these same feelings, the presentation of information about engineering in the junior high or middle school years should provide more young women with the facts before out-dated attitudes begin to influence them preventing their full exploration of fields in technical areas such as engineering and technology. During this age group the school science fairs were not dominated by boys and girls did not differ from boys in their reported liking of mathematics. Brown (8, p. 4) stated, "choices leading to a technical career must be made very early in life - in late grade school or early high school". Whitesel's (44) study has shown the women had many frustrations in transitions into and out of work during their lives and it was important for

women to have made early commitments to a career. These commitments if made before the high school years could help women in adjusting to the demands placed on them as they continued working toward these career objectives.

The literature seemed to agree that academic career choices were being formed both directly and indirectly for women at early stages in their development. Women who did not pursue the math and science courses through high school have made careers in scientific and engineering more difficult than women who have taken these types of courses. The studies suggested early orientation for the students, in their various careers, in order to provide more educational opportunities.

Academic choice and career orientation for women were influenced by several other measurable factors. Parental support, professional role models and peer counseling were factors which also influenced women in their choice of engineering and technical careers. Several studies such as Brown (8), Davis (15) and Medalen (31) all reported the significance of a successful woman with which young women could identify. Parents and or boyfriends support of their choice of a non-traditional field of study was significant for the women who graduated from technical programs. The availability of peers who were also faced with the same problems often provided the female students the needed support and encouragement not to drop out of a technical program.

Peer counseling could be a vital aspect in the retention of women students and in helping women students make the decision to enroll in a technical major. The Oklahoma State Regents for Higher Education have adopted a Revised State Plan for Compliance with Title VI of the Civil Rights Act. This state plan pointed out the significance of peer counsel-

ing, "the peer counselor is to provide a successful model for the students and act as a buffer between the bureaucratic necessities of an institution and the inexperience of students encountering these necessities" (47, p. 2).

A woman's decision to enter a non-traditional field is not without conflicts. According to Hawley (26) when a male was in the process of career selection it is usually independent of mate selection but a female in choosing a career, particularly following an unconventional path, takes into consideration her potential mate. Most women were striving toward two goals (1) a career and (2) marriage, according to Hawley (26). Davis (15) concluded from her study that some commonly held stereotypes of women in science and engineering were not true. Davis (15) found the women in her study were not masculine or narrow in their outlooks. Reported in Davis' (15) study was the fact that the women had broad interests and planned to combine marriage, family and career responsibilities. Women in engineering and science did not avoid social relationships but valued social relationships as much as any group of college women.

## Summary

The review of literature reveals a lack of usable information regarding women students in engineering technology programs and how their characteristics compare to women in other academic majors. The literature has shown characteristics of women in engineering and science curriculums and occupations but fails to further divide the areas of study to specific curriculums. The literature not only shows a need for more women in technical programs, but it also points out some of

the stereotypes in training programs and jobs women face. The literature also shows the need for early career decisions to be made by women, and points out the advantage of parental support and peer counseling and the advantages of role models, but the literature is lacking on specific data about women enrolled in various academic majors. Data concerning women in various academic programs, if available, appears to offer additional information which could be used to help women make more accurate academic and career decisions.

# CHAPTER III

# METHODOLOGY

The purpose of this study was to compare women students in the School of Technology and other fields of study at Oklahoma State University on patterns of interest, scholastic aptitude and demography. To accomplish this purpose it was necessary to select the respondents, design and develop the questionnaire, collect the data and analyze the results. This chapter was divided into three sections to further develop the rationale necessary to meet the purpose of the study.

## The Population

Women students enrolled at Oklahoma State University during the Spring 1977-78 semester were organized into two major divisions, freshmen and non-freshmen. These two divisions were divided into five groups according to academic areas. The academic areas were selected to compare women students in Technology with women students in Engineering, Business, Home Economics, and Other. The other group consisted of all academic areas not specified by the first four groups. The basis for selecting the academic programs was the mathematical requirement or option in their respective degree plans. Two different colleges, Business and Home Economics, plus Engineering were selected to be compared with Technology. This basis for selection allowed a comparison of women students across academic lines in programs which were mathematically

based. The academic programs selected for this study were:

1. Technology
2. Engineering
3. Business
4. Home Economics
5. Other

Selected major fields of study were chosen from the first four categories based on the mathematical options of the programs. All undergraduate technology and engineering programs were included in the major classification categories. In the College of Business, only those programs having a mathematical calculus option, Math 2713 or 2265, for their degree requirements were considered. In the College of Home Economics those curricula having a math requirement were included in the major classification category. The other category was composed of all undergraduate women students not encompassed by the academic codes of the first four categories. (See Appendix A for a complete listing of the academic areas included in this study.) Excluded from the first four major classifications categories were programs primarily engaged in education, such as Business Education, Distributive Education and Elementary Education.

The population consisted of all undergraduate women students enrolled at Oklahoma State University during the Spring semester, 1977-78. A sample was drawn from the two major categories; (a) freshmen women students and (b) non-freshmen students. The sample was stratified by the academic major classifications (five areas) with equal samples taken from each classification for both groups, freshmen and non-freshmen.

The questionnaire was mailed out to 40 randomly selected women in each of the five categories for both the freshmen and non-freshmen women. In some groups there were less than 40 women, in those groups a questionnaire was sent to each woman. A random sample of 20 questionnaires was drawn from the returned questionnaires in each of the five groups for both freshmen and non-freshmen. If their were less than 20 questionnaires returned for a group, all the returned questionnaires of that group were used. A second questionnaire was mailed to those who failed to return the first questionnaire. The second questionnaire had a colored identifier attached to the letter of introduction. The identifier stressed the importance of the women's response to the study. Other selected data, on each student was obtained through information available from the Office of the Registrar at Oklahoma State University.

## Design of the Questionnaire

The questionnaire was designed during the review of literature and relied on the questionnaires of many studies to develop the final questionnaire. The questionnaire was designed to provide measures of interest, major fields choice factors and demographic characteristics for each of the women in the study. While many studies aided in the questionnaire's design a few studies should be specifically cited. The American Freshman: National Norms for Fall, 1978 (5) represents one significant report whose questionnaire influenced the design of the questionnaire used in this study. The survey instrument, used by the American Freshman study was called The Student Information Form (SIF). The SIF provided initial input information on students entering college as first-time, full-time freshmen. The form has been revised annually

since it was initiated in 1966. The format of the SIF was adopted for this study as well as some of the actual questions. The second major study used in designing the questionnaire for this study was Rosenberg's (37) Occupations and Values. This instrument attempts to categorize people into occupational value complexes which he describes as self-expression oriented, people-oriented and extrinsic-reward oriented. The third major scale that was incorporated into this questionnaire was the North-Hatt Prestige Scale. This sclae was used to classify the occupations of the respondents' mothers and fathers. A modified occupational rating scale is given in Appendix B while the final questionnaire is given in Appendix C.

The questionnaire was reviewed by OSU's Affirmative Action Officer as to its content and structuring. The Director of Student Personnel for the School of Technology was also consulted along with a statistian before the final questionnaire was constructed.

## Data Analysis and Statistical Procedures

Equal samples (20 women's responses) were used for each group which allowed comparisons to be made among the groups. The data was summarized for each of the groups and then comparisons made between the women in Technology and the women in the other categories.

Frequency analysis and percentage distribution were used to report the descriptive section of the questionnaire. Analysis of variance was used for comparison of mean difference on A.C.T. scores.

Chi-square test was used for comparison of interest variables between women in Technology and women in the other academic majors. The .05 level was chosen as the minimum level at which the results would be

considered significant.

The North-Hatt Prestige Scale was reported by frequency analysis and percentage distribution for each of the groups. The Occupational and Values scale were reported by frequency and weighted averages. Scoring required summation of weighted responses; first choice = 4, second = 3, high = 2, medium = 1 and low = 0.

# CHAPTER IV

## PRESENTATION AND ANALYSIS OF THE DATA

This chapter is devoted to presenting and analyzing the data collected in this study as it applies to the purpose of the study as stated in Chapter I. This chapter is divided into three sections. The first section deals with the questionnaire and the return rate of the groups surveyed. The second section considers the appropriate data needed to answer the first six research questions. The third section is devoted to the seventh research question which deals with the freshmen women students and how their characteristics compare with the non-freshmen women students.

### Return Rate of the Questionnaires

The questionnaire was administered by mail to a total of 350 women students enrolled at Oklahoma State University during the Spring, 1978 semester. The return rates for each group are presented in Table I. The total return rate was 74 percent for delivered questionnaires with 12 questionnaires being returned because of bad addresses and nine questionnaires from the non-freshmen group were returned after the cut-off date. The majority of the questionnaires were returned completed with very little data missing. The freshmen students had more trouble, as a group, with the questionnaire than did the non-freshmen. The freshmen's returned questionnaires had more missing data, unanswered

TABLE I

RETURN RATE OF QUESTIONNAIRES MAILED OUT

| | Freshmen | | | Non-Freshmen | | |
|---|---|---|---|---|---|---|
| Academic Programs | N Mailed | N-Return | % | N Mailed | N-Return | % |
| Technology | 12 | 9 | 75 | 39 | 28 | 72 |
| Engineering | 40 | 30 | 75 | 40 | 28 | 70 |
| Business | 40 | 33 | 83 | 40 | 27 | 68 |
| Home Economics | 19 | 16 | 84 | 40 | 28 | 70 |
| Other | 40 | 27 | 68 | 40 | 26 | 65 |
| Total | 151 | 114 | 75 | 199 | 137 | 69 |

Non-deliverable questionnaires - 12
Returns after cut-off date - 9 non-freshmen

questions, and incomplete questions than the non-freshmen questionnaires. Several students, both freshmen and non-freshmen, did not answer the family income questions, with some stating they did not know or that it was considered confidential in nature. The other question which gave the respondents the most difficulty was the last question in which the respondents were asked to rank occupational values as high, medium, or low and then to rank order their high responses. Most students had no problem, but a few failed to go back and rank order their high responses or they ranked all the responses.

The high return rate was achieved by a follow up letter and questionnaire to those not returning the first mailed out questionnaire. The

Registrar's office provided SAT scores to complete the data collected for this study. The Registrar's records were incomplete regarding SAT scores. The Registrar's office had SAT scores for most entering freshmen students, but the data was incomplete for the non-freshmen students and for transfer students.

## Analysis of the Research Questions

This study sought to determine similarities and differences between women students in the School of Technology and those in selected other fields of study at Oklahoma State University (OSU) as to interest, scholastic aptitude and certain demographic variables. To achieve this part of the total purpose, as presented in Chapter I, it was necessary to answer the first six research questions also presented in the first chapter. Question one through five dealt with the identification of selected characteristics of women students in five different academic programs at OSU during the Spring, 1978, semester. Question one stated below is identical to the next four questions except School of Technology is replaced by each of the other academic areas surveyed: Engineering, Business, Home Economics and Others.

(1) What are the patterns of interest variables, scholastic aptitude and demographic characteristics of women enrolled in Oklahoma State University's (OSU) School of Technology?

Question six dealt with the comparison of the women's responses for five different academic programs to determine similarities and differences between the groups. The results of the first six questions are presented in Tables II thru XXIV. The data is presented by three classifications: (1) Demographic, (2) Scholastic Aptitude, and (3) Interest.

Demographic:

Presented in Table II are data showing a comparison of mothers' and fathers' occupations based on the North-Hatt Prestige Scale. (See Appendix B). Housewives were considered a separate category for this study. The working mothers' occupations fell within the medium prestige type jobs except for the mothers of home economics majors which were in the low prestige category of jobs. The fathers' occupations are also in the medium prestige type of jobs except for the fathers of the business majors whose average occupation was in the high prestige job category. The engineering students show the highest percentage of mothers working in the home while Technology has the highest percentage of mothers working outside the home. Valentine, Ellinger and Williams (42) reported that women in masculine occupations had a higher percentage of working mothers. The data presented in the Alden study (2) indicated technicians were more likely to have parents in the skilled worker category while engineering students' parents come from professional and technical backgrounds.

The parents of engineering and technology students have higher levels of formal education than those of the other three groups as indicated in Table III. The Alden study (2) reported the educational level of students choosing a technology program was lower than the educational level of the parents whose children choose an engineering curriculum. The data in Table III agree with the Alden study. The parents of women in Engineering have a combined educational value of 5.20 compared to 5.00 for the parents of student enrolled in Technology. A 5.0 represents some college while a 6.0 represents a college degree. Technology students also have the highest

TABLE II

PRESTIGE CATEGORIES OF MOTHERS' AND FATHERS' OCCUPATIONS FOR NON-FRESHMEN WOMEN

| Prestige Scale* | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Very High (89-100) | 0 | 0 | 2 | 11 | 0 | 0 | 1 | 5 | 0 | 0 | 4 | 25 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| High (78-88) | 6 | 46 | 7 | 37 | 4 | 50 | 7 | 37 | 1 | 50 | 5 | 31 | 2 | 25 | 4 | 24 | 1 | 9 | 7 | 39 |
| Medium (65-77) | 2 | 15 | 7 | 37 | 3 | 38 | 9 | 47 | 8 | 40 | 7 | 44 | 5 | 63 | 11 | 65 | 8 | 73 | 9 | 50 |
| Low (55-64) | 5 | 38 | 0 | - | 1 | 13 | 2 | 11 | 0 | 0 | 0 | 0 | 1 | 13 | 1 | 6 | 1 | 9 | 1 | 6 |
| Very Low (1-54) | 0 | 0 | 3 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 1 | 6 |
| Total | 13 | | 19 | | 8 | | 19 | | 9 | | 16 | | 8 | | 17 | | 11 | | 18 | |
| Housewife | 7 | 35 | - | - | 12 | 60 | - | - | 11 | 55 | - | - | 11 | 58 | - | - | 9 | 45 | - | - |
| No Answer | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 4 | 20 | 1 | 5 | 3 | 15 | 0 | 0 | 2 | 10 |
| Average (Working Parents) | 69 | - | 75 | - | 73 | - | 75 | - | 67 | - | 78 | - | 47 | - | 73 | - | 67 | - | 73 | - |

*Based upon the North-Hatt Prestige Scale

## TABLE III

## PARENTAL EDUCATIONAL LEVELS OF NON-FRESHMEN WOMEN

| Educational Level | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mother | | Father | | Mother | | Father | | Mother | | Father | | Mother | | Father | | Mother | | Father | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Grammar School or less | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 5 | 1 | 5 | 2 | 10 | 1 | 5 | 1 | 5 |
| Some High School | 1 | 5 | 4 | 20 | 1 | 5 | 0 | 0 | 1 | 5 | 3 | 15 | 2 | 10 | 1 | 5 | 0 | 0 | 0 | 0 |
| High School Grad. | 5 | 25 | 1 | 5 | 3 | 15 | 1 | 5 | 7 | 35 | 5 | 25 | 6 | 30 | 2 | 10 | 10 | 50 | 5 | 26 |
| Post Secondary School (Non-College) | 5 | 15 | 2 | 10 | 5 | 25 | 2 | 10 | 1 | 5 | 0 | 0 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 16 |
| Some College | 4 | 20 | 3 | 15 | 8 | 40 | 4 | 20 | 6 | 30 | 1 | 5 | 4 | 20 | 4 | 20 | 3 | 15 | 2 | 11 |
| College Degree | 3 | 15 | 2 | 10 | 1 | 5 | 8 | 40 | 4 | 20 | 6 | 30 | 3 | 15 | 4 | 20 | 2 | 10 | 2 | 11 |
| Some Graduate School | 0 | 0 | 1 | 5 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 1 | 2 | 11 |
| Graduate or Professional Degree | 2 | 10 | 7 | 35 | 2 | 10 | 5 | 25 | 0 | 0 | 4 | 20 | 1 | 5 | 3 | 15 | 0 | 0 | 4 | 21 |
| Missing Data | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Average | 4.55 | | 5.45 | | 4.50 | | 5.90 | | 4.10 | | 4.75 | | 4.05 | | 4.85 | | 3.85 | | 5.05 | |

| | N | % | N | % | N | % | N | % | N | % |
|---|---|---|---|---|---|---|---|---|---|---|
| Mothers Ed. > Fathers | 6 | 30 | 2 | 10 | 4 | 20 | 4 | 20 | 0 | 0 |
| Mothers = Fathers | 2 | 10 | 6 | 30 | 5 | 25 | 5 | 25 | 8 | 42 |
| Mothers < Fathers | 12 | 60 | 12 | 60 | 11 | 55 | 11 | 55 | 11 | 58 |

percentage (30%) of mothers whose educational level is greater than the fathers' educational level. Parents' total income is shown in Table IV. The weighted averages show the business group to have the highest average incomes while the other group has the lowest average income. Fifty percent or more of the parents of women in Technology, Business and Home Economics have incomes of $25,000 or more while less than 50 percent of the parents of women in Engineering and all others have parents earning $25,000 or more.

The make-up of the family unit is shown in Table V. Technology students have the greatest number of brothers and sisters with an average of 3.10. Engineering has the smallest number of brothers and sisters with an average of 2.40. The average number of children for all five groups is 2.65.

Presented in Table VI are data showing the rank order of how the women fit in the family unit as either the oldest or the youngest member of the family. Forty-five percent of the women in Technology are the oldest child with Engineering ranking second with 40 percent. Forty percent of the women in Business are the youngest child while Technology, Engineering and Home Economics all have 30 percent of their students being the youngest child.

Presented in Table VII are the educational expenses that each group expected to obtain from nine sources. Forty percent of technology students received no income from their parents compared to 35 percent of the other group, 20 percent of home economics, 15 percent of engineering, and five percent of business students. Engineering women students receive more grants or scholarships than the other four groups, with 65 percent re-

## TABLE IV

## PARENTS' TOTAL YEARLY INCOME FOR NON-FRESHMEN WOMEN

| Income Levels | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| 1. Less than $3000 | | | | | | | | | 1 | 5 |
| 2. $3,000- 3,999 | 1 | 5 | | | | | 1 | 6 | 1 | 5 |
| 3. 4,000- 5,999 | | | 1 | 5 | | | | | | |
| 4. 6,000- 7,999 | 1 | 5 | | | | | | | 1 | 5 |
| 5. 8,000- 9,999 | 2 | 10 | 1 | 5 | 1 | 6 | 1 | 6 | 1 | 5 |
| 6. 10,000-12,499 | 1 | 5 | 2 | 11 | | | 1 | 6 | | |
| 7. 12,500-14,999 | | | 1 | 5 | 1 | 6 | | | 2 | 11 |
| 8. 15,500-19,999 | 3 | 15 | 2 | 11 | 2 | 11 | 1 | 6 | 3 | 16 |
| 9. 20,000-24,999 | 2 | 10 | 4 | 21 | 3 | 17 | 2 | 13 | 3 | 16 |
| 10. 25,000-29,999 | 1 | 5 | 1 | 5 | 3 | 17 | 4 | 25 | 3 | 16 |
| 11. 30,000-34,999 | 3 | 15 | 2 | 11 | 2 | 11 | 2 | 13 | 1 | 5 |
| 12. 35,000-39,999 | 3 | 15 | 3 | 16 | 1 | 6 | | | | |
| 13. 40,000-49,999 | | | 1 | 5 | 2 | 11 | 2 | 13 | 1 | 5 |
| 14. 50,000 or more | 3 | 15 | 1 | 5 | 3 | 17 | 2 | 13 | 2 | 11 |
| Missing Data | 0 | | 1 | | 2 | | 4 | | 1 | |
| Weighted Aver. (Rank) | 9.25 (3) | | 9.16 (4) | | 10.39 (1) | | 9.69 (2) | | 7.63 (5) | |

TABLE V

FAMILY UNIT OF NON-FRESHMEN WOMEN

| Family Make-Up | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| Brothers & Sisters | 9 | 45 | 9 | 45 | 9 | 45 | 11 | 55 | 8 | 40 |
| Sisters Only | 6 | 30 | 7 | 35 | 5 | 25 | 4 | 20 | 7 | 35 |
| Brothers Only | 5 | 25 | 4 | 20 | 6 | 30 | 4 | 20 | 4 | 20 |
| Only Child | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 5 |
| Average | 3.10 (1) | | 2.40 (5) | | 2.45 (3) | | 2.85 (2) | | 2.45 (3) | |
| Population Mean n = 100 | 2.65 | | | | | | | | | |

TABLE VI

OLDEST OR YOUNGEST FAMILY MEMBER
OF NON-FRESHMEN WOMEN

| Oldest | | | | Youngest | | | |
|---|---|---|---|---|---|---|---|
| Rank | Academic Area | N | % | Rank | Academic Area | N | % |
| 1 | Technology | 9 | 45 | 1 | Business | 8 | 40 |
| 2 | Engineering | 8 | 40 | 2 | Technology | 6 | 30 |
| 3 | Business | 7 | 35 | 2 | Engineering | 6 | 30 |
| 4 | Other | 6 | 30 | 2 | Home Economics | 6 | 30 |
| 5 | Home Economics | 5 | 25 | 5 | Other | 5 | 25 |

TABLE VII

SOURCES OF EDUCATIONAL INCOME
FOR NON-FRESHMEN WOMEN

| Source of Income | Technology $ | | | Engineering $ | | | Business $ | | | Home Economics $ | | | Other $ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over |
| Parental | 40 | 35 | 25 | 15 | 45 | 40 | 5 | 10 | 85 | 20 | 30 | 50 | 35 | 15 | 50 |
| Grants | 55 | 30 | 15 | 35 | 50 | 15 | 65 | 20 | 15 | 65 | 15 | 20 | 65 | 15 | 20 |
| Loans | 75 | 10 | 15 | 85 | 15 | 0 | 100 | 0 | 0 | 90 | 0 | 10 | 70 | 20 | 10 |
| Full-time Work | 90 | 10 | 0 | 95 | 0 | 5 | 90 | 5 | 5 | 95 | 0 | 5 | 95 | 0 | 5 |
| Part-time Work | 35 | 55 | 10 | 25 | 55 | 20 | 60 | 30 | 10 | 50 | 45 | 5 | 40 | 50 | 10 |
| Savings | 50 | 45 | 5 | 55 | 35 | 10 | 55 | 35 | 10 | 50 | 45 | 5 | 75 | 25 | 0 |
| Spouse | 85 | 0 | 15 | 95 | 0 | 5 | 100 | 0 | 0 | 85 | 5 | 10 | 90 | 5 | 5 |
| G.I. Benefits | 95 | 0 | 5 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 95 | 0 | 5 |
| Other | 85 | 10 | 5 | 95 | 0 | 5 | 95 | 0 | 5 | 95 | 0 | 5 | 90 | 0 | 5 |

Note: All values are given in percentages

ceiving some kind of financial aid. Engineering (75%) and technology (65%) women obtain part of their educational expenses through part-time work. Savings are used by all groups to help finance their education but only 25 percent of the other group rely on their savings. Spouse and G.I. benefits are not major contributors to the educational expenses of the women students.

The marital status of the women students in the study is given in Table VIII. Business has the largest percentage (95) of single women students and the other group has the lowest percentage (70). The married group is just the inverse, with 25 percent of the other group being married and none of the Business women being married.

The women students were asked to rate one of eight different academic areas as the most demanding. The results are reported in Table IX. Engineering was rated the most demanding by 63 percent of all the women students and business was rated as most demanding by 13 percent. Only one percent rated education as the most demanding academic area.

Table X shows the results of the highest degrees the women students planned to obtain. As noted in Table X 80 percent of the women in the other academic area planned to obtain only the Bachelors degree while 70 percent of the engineering women planned to obtain the Masters degrees.

Brown (8) stated choices that lead to choosing a technical career must be made early in life, during grade school or early high school. Fox (23) agrees with the early age career decisions for women to move into non-traditional academic majors. The Alden (2) study reports students choosing Engineering tend to become interested in Engineering over a wide range of ages while those choosing Technology tend to become interested near the end of high school. The data presented in Table XI

TABLE VIII

MARITAL STATUS OF NON-FRESHMEN WOMEN

| | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| Status | N | % | N | % | N | % | N | % | N | % |
| Single | 15 | 75 | 18 | 90 | 19 | 95 | 15 | 80 | 14 | 70 |
| Married | 3 | 15 | 2 | 10 | 0 | 0 | 4 | 20 | 5 | 25 |
| Divorced | 2 | 10 | 0 | 0 | 1 | 5 | 0 | 0 | 1 | 5 |
| Seperated | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Missing Data | 0 | | 0 | | 0 | | 1 | | 0 | |

TABLE IX

CONSIDERED THE MOST DEMANDING ACADEMIC AREA
BY ALL NON-FRESHMEN WOMEN

| | | Non-Freshmen | | Freshmen | |
|---|---|---|---|---|---|
| | Rank* | N=100 | % | N=81 | % |
| 1. | Engineering | 63 | 63 | 49 | 60 |
| 2. | Business | 13 | 13 | 13 | 16 |
| 3. | Biological Sc. | 9 | 9 | 5 | 6 |
| 4. | Technology | 8 | 8 | 6 | 7 |
| 5. | Home Economics | 4 | 4 | 5 | 6 |
| 6. | Education | 1 | 1 | 2 | 2 |
| 7. | Art | 0 | 0 | 1 | 1 |
| | Missing Data | 2 | 2 | | |

* All women combined

TABLE X

HIGHEST DEGREE EXPECTED BY NON-FRESHMEN WOMEN

| Degree | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| Associate | 2 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bachelor | 12 | 60 | 6 | 30 | 13 | 65 | 12 | 60 | 16 | 80 |
| Masters | 4 | 20 | 14 | 70 | 7 | 35 | 4 | 20 | 2 | 10 |
| Doctorate | 2 | 10 | 0 | 0 | 0 | 0 | 4 | 20 | 1 | 5 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *1 | 5 |

* Missing Data

TABLE XI

FIRST REALIZED AN INTEREST IN PRESENT CAREER
BY NON-FRESHMEN WOMEN

| First Degree | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| Grade School | 2 | 10 | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 10 |
| Junior High | 1 | 5 | 1 | 5 | 2 | 10 | 0 | 0 | 2 | 10 |
| High School | 5 | 25 | 17 | 85 | 10 | 50 | 8 | 40 | 7 | 35 |
| Freshman Year | 4 | 20 | 1 | 5 | 3 | 15 | 4 | 20 | 3 | 15 |
| Sophomore Year | 6 | 30 | 1 | 5 | 4 | 20 | 4 | 20 | 6 | 30 |
| Other | 2 | 10 | 0 | 0 | 1 | 5 | 3 | 15 | 0 | 0 |

are not supportive of the literature. Engineering women tend to make their career decisions during high school (85%) while 50 percent of those majoring in Technology did not show an interest in Technology until they reached college.

## Scholastic Aptitude

The scholastic aptitude of the women students in the various academic majors is based on the women's Scholastic Aptitude Test (SAT) scores obtained from the Registrar's office, their average high school grade point and how well they believed their high school prepared them in various academic skills. Two other factors were also examined in regard to their academic considerations; (1) did they transfer from another college or university to OSU and (2) have they changed majors since enrolling at OSU.

Presented in Table XII are the mean values for each academic group of women students on each of the SAT areas plus the composite score. Engineering women students have the highest average score in each of the SAT classifications. Business students rank second in each classification except the natural science area where technology students have a slightly higher average. The other students rank last in each of the SAT classifications.

The Analysis of Variance procedure data for the SAT scores among the five different academic groups are given in Table XIII. The F ratios for each of the SAT classifications are shown to be significant at the .05 level. The t-test was then used to determine which specific means differ significantly (.05) from each other. These t values are shown in Table XIV. The only significantly (.05) different means are between

TABLE XII

SAT SCORE MEANS FOR NON-FRESHMEN WOMEN

| Academic Group | N | SAT Subject Area | | | | |
|---|---|---|---|---|---|---|
| | | English | Math | Social Science | Natural Science | Composite |
| Technology | 8 | 19.25 | 20.25 | 20.63 | 22.63 | 21.00 |
| Engineering | 13 | 24.15 | 28.69 | 26.46 | 28.46 | 27.08 |
| Business | 13 | 23.54 | 23.38 | 21.31 | 21.85 | 22.62 |
| Home Economics | 10 | 20.70 | 22.20 | 19.30 | 21.40 | 21.00 |
| Other | 12 | 20.00 | 17.33 | 18.00 | 19.92 | 19.00 |

TABLE XIII

ANALYSIS OF SAT SCORES AMONG ALL FIVE GROUPS

| Variable | Degree of Freedom | Sum of Sources | F Value | PR > F |
|---|---|---|---|---|
| English | 4 | 214.316 | 3.39 | 0.0156 |
| Math | 4 | 868.941 | 5.59 | 0.0008 |
| Social Science | 4 | 520.579 | 3.18 | 0.0208 |
| Natural Science | 4 | 545.885 | 5.16 | 0.0014 |
| Composite | 4 | 458.857 | 5.83 | 0.0012 |

TABLE XIV

T-TEST FOR SAT SCORES FOR NON-FRESHMEN WOMEN

| Variable | Groups | N | Mean | Standard Deviation | Standard Error | T | D.F. | Prob > /T/ |
|---|---|---|---|---|---|---|---|---|
| Math | Engineering | 13 | 28.692 | 3.705 | 1.028 | 4.478 | 23 | 0.0002 |
| | Other | 12 | 17.333 | 8.305 | 2.397 | | | |

the engineering women students and the other women students on the SAT math score.

The Alden (2) study reported students planning on going into Engineering had a high school grade point centered between B and C while students planning on choosing technology were C students. The data presented in Table XV shows women students in engineering and technology programs indicate they have a higher average grade in high school. One hundred percent of the women students in Engineering and Business have a B or better average high school grade while 95 percent of home economics and 90 percent of technology women students are B or better. Only 75 percent of the other students maintained a B or better high school grade average.

When asked to rate how well they felt their high school prepared them in eight different areas only a few areas have 50 percent or more or the women in each category in agreement. Table XVI presents the data showing the areas of preparation in high school which have a majority of the women's responses. Dresselhaus' (19) study of freshmen women students in Engineering, at Massachusetts Institute of Technology, showed these women had less shop skills and laboratory practices than the freshmen male students. Fifty percent of the technology non-freshmen women students reported they were poorly trained in vocational skills in high school. Sixty percent of the engineering women students regarded the vocational skills area as not applicable to their high school program.

The recruitment effort of students into Technology and Engineering should not overlook transfer students, either between institution or those changing majors at the same institution, according to the literature. Kaufman (28) stated that transfer women students are a possible

TABLE XV

AVERAGE HIGH SCHOOL GRADES
FOR NON-FRESHMEN WOMEN

| Academic Area | A | | B | | C | | B or Better |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | % |
| Technology | 9 | 45 | 9 | 45 | 2 | 10 | 90 |
| Engineering | 19 | 95 | 1 | 5 | 0 | 0 | 100 |
| Business | 12 | 60 | 8 | 40 | 0 | 0 | 100 |
| Home Economics | 11 | 55 | 8 | 40 | 1 | 5 | 95 |
| Other | 2 | 10 | 13 | 65 | 2 | 10 | 90 |

TABLE XVI

NON-FRESHMEN WOMEN'S RATINGS OF FIFTY PERCENT
OR MORE ON HIGH SCHOOL PREPARATION

| Areas of Preparation | Very Well | Fairly Well | Poorly | Not Applicable |
|---|---|---|---|---|
| Math Skills | Engineering-60%<br>Business-50% | | | |
| Reading & Comp. | Business-75% | Technology-60%<br>Home Economics-70% | | |
| Foreign Lang. | | Technology-70%<br>Other-55% | | |
| History & Social Science | | All Groups*<br>T-60, E-60, B-50<br>H.E.-70, O-60% | | |
| Vocational Skills | | | Technology-50%<br>Other-55% | Engineering-60% |
| Music | | | | |
| Physical Fitness | | Home Economics-50%<br>Business-50% | | |

*T=Technology, E=Engineering, B=Business, H.E.=Home Economics and O=Other

major source of new talent in Engineering. Table XVII presents the data on the transfer from another college or university to OSU and the change of majors since enrolling at OSU for the women students in the five different academic areas. Technology women lead both lists. Forty-five percent of technology women transferred from another college or university and 50 percent had changed majors since enrolling at OSU. At least 30 percent of the women students for all groups have transferred to OSU and at least 30 percent of the women in each group have changed majors at OSU.

## Interest

The interest variables for the women students are based on four questions. These questions sought to find influencing factors as to why the women choose to attend OSU, why they choose the academic program they are in, what are their personal values and attitudes on a variety of subject matters and their ranking on Rosenberg's Occupational Value scale. (See Appendix B)

Presented in Table XVIII are data showing the results of the women's responses by academic area to 11 different questions regarding possible reasons that influenced them to attend OSU. The data presented shows the percentage of each group which indicated the reason was not important to their decision to attend OSU. Only a few categories had over 50 percent of the women in an academic area who considered the reason important. These categories are listed in Table XIX. The Alden (2) study showed students choosing Engineering and Technology were most likely to choose the school they were to attend on the basis of the type of academic program the school had. The data in this study show 45 percent of the

TABLE XVII

TRANSFER AND ACADEMIC MAJOR CHANGES
OF NON-FRESHMEN WOMEN

| Academic Area* | Transferred to OSU | | Changed Majors at OSU | |
|---|---|---|---|---|
| | N | % | N | % |
| Technology | 9 | 45 | 10 | 50 |
| Engineering | 6 | 30 | 6 | 30 |
| Business | 6 | 30 | 8 | 40 |
| Home Economics | 8 | 40 | 9 | 45 |
| Other | 6 | 30 | 10 | 50 |

*Total for each academic area = 20

TABLE XVIII

REASONS CONSIDERED NOT IMPORTANT BY
NON-FRESHMEN WOMEN TO ATTEND OSU

| Reasons | Not Important | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Technology | | Engineering | | Business | | Home Economics | | Other | |
| | N | % | N | % | N | % | N | % | N | % |
| Relatives | 12 | 63 | 10 | 50 | 7 | 35 | 12 | 60 | 10 | 50 |
| Teacher | 12 | 60 | 15 | 75 | 14 | 70 | 16 | 80 | 15 | 75 |
| Academic Reputation | 2 | 10 | 1 | 5 | 1 | 5 | 5 | 25 | 3 | 15 |
| Financial Assistance | 10 | 50 | 8 | 40 | 12 | 60 | 15 | 79 | 14 | 70 |
| OSU Former Student | 7 | 35 | 5 | 25 | 6 | 30 | 7 | 35 | 10 | 50 |
| Special Educational Programs | 9 | 45 | 14 | 70 | 17 | 85 | 15 | 79 | 11 | 55 |
| Low Tuition | 10 | 50 | 7 | 35 | 11 | 55 | 8 | 40 | 9 | 45 |
| Guidance Counselor | 16 | 84 | 17 | 85 | 16 | 80 | 17 | 85 | 19 | 95 |
| Live at Home | 17 | 85 | 19 | 95 | 19 | 95 | 17 | 85 | 18 | 90 |
| A Friend | 11 | 55 | 10 | 50 | 10 | 50 | 13 | 65 | 12 | 60 |
| University Representative | 15 | 75 | 13 | 65 | 13 | 65 | 17 | 85 | 15 | 75 |

TABLE XIX

NON-FRESHMEN WOMEN'S RATINGS OF FIFTY PERCENT OR MORE ON INFLUENCES TO ATTEND OSU

| Influence | Academic Area | Somewhat Important | | Very Important | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Relatives | Business | 10 | 50 | | |
| OSU's Academic Reputation | Technology | | | 11 | 55 |
| OSU's Academic Reputation | Engineering | | | 12 | 60 |
| OSU's Academic Reputation | Business | | | 12 | 60 |
| OSU's Academic Reputation | Other | | | 11 | 55 |
| OSU's Former Student | Engineering | 11 | 55 | | |
| Low Tuition | Other | 10 | 50 | | |

women students in Technology and 70 percent of the women students in Engineering when asked to respond to the question, "This university offers special educational program", said it was not important in influencing them to attend OSU. However, 90 percent from Technology and 95 percent from Engineering said the academic reputation of OSU was an influencing factor.

The women's responses to factors which had some influence on them in their choice of academic major programs are given in Table XX. The table shows the combined totals of the "Some" and "Very Much" influence categories. Two categories did not receive 50 percent of the women rating them as an influencing factor. These two are high school guidance counselors and husbands or boyfriends occupational level. Durchholz (20) reported that freshmen women engineering students had parental support and approval. The women's mothers are an influencing factor in the choice of an academic major for all five classification of women students according to the data presented in Table XX. Fifty or more of the women's fathers were influencing factors for the women in Technology, Business and Engineering. Professional role models and peers were factors which influenced women in their choice of engineering and technical careers according to studies by Brown (8), Davis (15) and Medalen (31). Engineering women students (50%) in this study rate peers as an influencing factor. The women students in Business (60%), Engineering (55%) and Home Economics (50%) rate professionals as an influencing factor. The literature also indicates that boyfriends support was also an influencing factor on those women who graduated from technical programs. Husband's or boyfriend's occupational area are not a major influence on women students enrolled in the School of Technology according to the data

TABLE XX

MAJOR INFLUENCING FACTOR FOR NON-FRESHMEN WOMEN
IN CHOICE OF AN ACADEMIC MAJOR

| Influencing Factors | Technology | Engineering | Business | Home Economics | Other |
|---|---|---|---|---|---|
| | %* | % | % | % | % |
| Father | 60 | 85 | 75 | -- | -- |
| Mother | 55 | 75 | 65 | 75 | 50 |
| Subject Matter | 75 | 100 | 100 | 95 | 90 |
| Job Opportunities | 95 | 100 | 100 | 90 | 85 |
| Starting Salaries | 95 | 95 | 85 | 75 | 60 |
| Husband's or Boyfriend's Occupational Level | -- | -- | -- | -- | -- |
| Peers | -- | 50 | -- | -- | -- |
| High School Guidance Counselors | -- | -- | -- | -- | -- |
| College Counselor | 72 | -- | -- | -- | -- |
| High School Teacher | 95 | -- | -- | -- | -- |
| College Faculty | 75 | -- | 50 | -- | -- |
| Professionals | -- | 55 | 60 | 50 | -- |

*Percentages represent the sum of the "Some" and "Very Much" influence categories of the questionnaire.

presented in Table XX. Presented in Table XXI are data that show the sex of the person who influenced the women in their choice of an academic program. Female high school teachers have an influence on more of the women than do male high school teachers. The professional people who have an influence on the women students are predominantly males, except for the women whose academic major is Home Economics.

Presented in Table XXII are the data showing the combined percents of agreement and disagreement on nine personal values and attitude questions. A chi-square test was conducted on each question among the five academic classes of women students. The .05 level of significance was used and the chi-square value was not significant for any of the nine questions. The chi-square values are given in Table XXIII.

Rosenberg's Occupational Value Scale (37) is used to rank the women of each academic major on three occupational value-orientations. The rankings are given in Table XXIV. The engineering women students rank first in the "self-expression oriented" value complex and the "extrinsic-reward-oriented" value complex. Home Economics rank first in the "people-oriented" value complex. The women in Engineering and Technology rank higher in the "extrinsic-reward-oriented" value complex than the engineering group in Rosenberg (37, p. 19) original study.

The final research question asked, "Do the freshmen women students in the areas of Technology, Engineering, Business and Home Economics have characteristics similar to the non-freshmen women students majoring in each of the respective areas?" The findings of this question are presented in Table XXIV thru Table XL given below.

TABLE XXI

SEX OF PERSON WHO HAD AN INFLUENCE ON NON-FRESHMEN WOMEN'S CHOICE OF AN ACADEMIC MAJOR

| Influencing Factor | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | | N | | N | | N | | N | |
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| Peers | 3 | 6 | 6 | 5 | 2 | 3 | 2 | 5 | 3 | 6 |
| High School Guidance Counselors | 7 | 5 | 4 | 7 | 2 | 0 | 0 | 1 | 3 | 0 |
| College Counselors | 14 | 2 | 2 | 8 | 2 | 3 | 2 | 2 | 4 | 3 |
| High School Teacher | 4 | 6 | 6 | 8 | 3 | 2 | 1 | 4 | 2 | 5 |
| College Faculty | 13 | 2 | 6 | 2 | 7 | 2 | 1 | 5 | 3 | 3 |
| Professionals | 8 | 1 | 10 | 3 | 9 | 1 | 1 | 8 | 5 | 5 |

TABLE XXII

PERCENT OF AGREEMENT OR DISAGREEMENT FOR NON-FRESHMEN WOMEN ON THEIR PERSONAL VALUES AND ATTITUDES

| Values and Attitudes | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | | % | | % | | % | | % | |
| | Disagree | Agree | Disagree | Agree | Disagree | Agree | Disagree | Agree | Disagree | Agree |
| Discourage Energy Consumption | 5 | 95 | 30 | 70 | 35 | 65 | 15 | 85 | 15 | 85 |
| Confined to Home & Family | 70 | 30 | 95 | 5 | 85 | 15 | 90 | 10 | 95 | 5 |
| Use Talents Outside The Home | 25 | 75 | 20 | 80 | 40 | 60 | 25 | 75 | 20 | 80 |
| Legalization of Marijuana | 65 | 35 | 75 | 25 | 85 | 15 | 65 | 35 | 65 | 35 |
| Lose Identity Derive Status from Husband | 45 | 55 | 25 | 75 | 47 | 53 | 30 | 70 | 21 | 79 |
| Women's Image & Mass Media Over-emphasizing Beauty | 55 | 45 | 20 | 80 | 50 | 50 | 35 | 65 | 25 | 75 |
| Too Much Concern for the Rights of Criminals | 32 | 68 | 25 | 75 | 50 | 50 | 30 | 70 | 35 | 65 |
| Women Athletics Equal Support | 5 | 95 | 5 | 95 | 0 | 100 | 15 | 85 | 10 | 90 |
| Working Mothers Not as Good of Mother | 80 | 20 | 70 | 30 | 50 | 50 | 85 | 15 | 65 | 35 |

TABLE XXIII

CHI-SQUARE ANALYSIS OF PERSONAL VALUES AND ATTITUDES VRS. ACADEMIC MAJORS FOR NON-FRESHMEN WOMEN

| Values & Attitudes | Chi-Square | d.f. | Prob. |
|---|---|---|---|
| Energy Consumption (Discourage) | 9.837 | 12 | 0.6302 |
| Confined to Home & Family | 16.775 | 12 | 0.1582 |
| Use Talents Outside the Home | 12.027 | 12 | 0.4435 |
| Legalization of Marijuana | 11.825 | 12 | 0.4599 |
| Lose Identity Derive Status from Husband | 13.411 | 12 | 0.3399 |
| Women's Image & Mass Media Over-emphasizing Beauty | 17.034 | 12 | 0.1483 |
| Too Much Concern For the Rights of Criminals | 14.191 | 12 | 0.2887 |
| Womens Athletics/ Equal Rights | 11.703 | 12 | 0.4698 |
| Working Mothers Not as Good of Mother | 17.100 | 12 | 0.1459 |

TABLE XXIV

ACADEMIC AREAS RANKED ACCORDING TO WEIGHTED AVERAGE SCORES ON ROSENBERG'S THREE VALUE COMPLEXES FOR NON-FRESHMEN WOMEN

| Academic Area Ranked | Weighted Average on "People-Oriented" Values | Academic Area Ranked | Weighted Averages on "Self-Expression-Oriented" Values | Academic Area Ranked | Weighted Averages on "Extrinsic-Reward Oriented" Values |
|---|---|---|---|---|---|
| 1. Home Economics | 4.80 | 1. Engineering | 5.05 | 1. Engineering | 2.80 |
| 2. Other | 4.75 | 2. Business | 4.60 | 2. Technology | 2.75 |
| 3. Business | 4.05 | 3. Other | 4.55 | 3. Business | 2.70 |
| 4. Technology | 3.65 | 4. Technology | 4.00 | 4. Home Economics | 2.20 |
| 5. Engineering | 3.05 | 5. Home Economics | 3.90 | 5. Other | 2.10 |

## Freshmen Women Students

The data on the comparison of the freshmen women students to the student above the freshmen level will be presented by the three major classification of data; Demographic characteristics, Scholastic aptitude and Interest.

## Demographic Comparisons

Table XXV presents the data showing the prestige categories of mothers' and fathers' occupations for the fershmen and non-freshmen women students by academic majors. The parents of the freshmen women in Home Economics have a higher average value on the prestige scale than the non-freshmen home economics women's parents. The mothers' occupation rose from an average value of 47 for the non-freshmen women's mothers to an average value of 70 for the freshmen women's mothers. The fathers' occupation changed from a prestige scale value of 73 for non-freshmen to 80 for freshmen women students in Home Economics. Using the prestige categories of Very High (89-100), High (78-88), Medium Low (65-77) and Very Low (1-54) and the data presented in Table XXV, four of the 10 categories change an occupational level when the freshmen women are compared to the non-freshmen women. The mothers' occupation of freshmen women students are two levels above the non-freshmen women's mothers' occupations in Home Economics. The freshmen technology students' fathers' occupation presitge category is one level above the non-freshmen technology fathers' occupational level. The fathers of the freshmen business students occupational prestige category decreased one level from the non-freshmen business fathers' occupations. The home

TABLE XXV

PRESTIGE CATEGORIES OF MOTHERS' AND FATHERS' OCCUPATIONS
FRESHMEN VRS. NON-FRESHMEN (MEAN VALUES)*

| Academic Classification | Mothers' Occupation | | | | Fathers' Occupation | | | |
|---|---|---|---|---|---|---|---|---|
| | Freshmen | | Non-Freshmen | | Freshmen | | Non-Freshmen | |
| | N | $\overline{X}$ | N | $\overline{X}$ | N | Value | N | $\overline{X}$ |
| Technology | 5 | 73 | 20 | 69 | 8 | 78 | 20 | 75 |
| Engineering | 13 | 71 | 20 | 73 | 18 | 77 | 20 | 75 |
| Business | 11 | 69 | 20 | 67 | 16 | 75 | 20 | 78 |
| Home Economics | 8 | 70 | 20 | 47 | 12 | 80 | 20 | 73 |
| Other | 10 | 69 | 20 | 67 | 18 | 75 | 20 | 73 |

* Based on the North-Hatt Prestige Scale

TABLE XXVI

MEAN COMPARISONS OF PARENTS' EDUCATIONAL LEVELS*

| Academic Classification | Mothers' Educational Level | | | | Fathers' Educational Level | | | |
|---|---|---|---|---|---|---|---|---|
| | Freshmen | | Non-Freshmen | | Freshmen | | Non-Freshmen | |
| | N | $\bar{X}$ | N | $\bar{X}$ | N | $\bar{X}$ | N | $\bar{X}$ |
| Technology | 9 | 3.67 | 20 | 4.55 | 9 | 5.0 | 20 | 5.45 |
| Engineering | 19 | 4.89 | 20 | 4.50 | 19 | 5.84 | 20 | 5.90 |
| Business | 19 | 4.11 | 20 | 4.10 | 19 | 5.26 | 20 | 4.75 |
| Home Economics | 14 | 4.43 | 20 | 4.05 | 14 | 5.57 | 20 | 4.85 |
| Other | 20 | 4.05 | 20 | 3.85 | 20 | 5.10 | 20 | 5.05 |

* Note: 3.0 = High School Graduate
4.0 = Post Secondary School/Non-college
5.0 = Some College
6.0 = College Degree (B.S. or B.A., 4 year)
7.0 = Some Graduate School

economics freshmen women students' fathers' occupations are up one division on the prestige scale over the non-freshmen home economics group.

Comparisons of parents' educational levels for the freshmen and non-freshmen are shown in Table XXVI. The largest changes are in technology students' mothers' educational level, business students' fathers' education and home economics students' fathers' education.

The family unit size, number of brothers and sisters, is less for each group except Business which shows an increase of 3.27 percent. The comparisons of family unit size, between freshmen and non-freshmen within the same academic major, are shown in Table XXVII.

Presented in Table XXVIII are the data showing the comparisons of how the women students fit into the family unit as either the oldest or youngest member of the family. Business shows a 20 percent difference on the women being the youngest member of the family. Forty percent of the non-freshmen women in Business were the youngest member of the family while of the second semester freshmen women in Business only 20 percent were the youngest member of their family.

Educational expenses for the freshmen women students are shown by precentages for each academic classification in Table XXIX. The freshmen data is also compared to the non-freshmen data presented in Table VII by means of those values which have a change in percent of 25. To illustrate the comparison of the freshmen technology students 11 percent said they receive none of their educational expenses from their parents, Table XXVIII. The non-freshmen technology women students' data, Table VII, has 40 percent not receiving any aid from their parents. The change between these two values, 11 minus 40, gives a difference of -29. The

TABLE XXVII

COMPARISON OF THE AVERAGE NUMBER OF BROTHERS AND SISTERS BETWEEN FRESHMEN AND NON-FRESHMEN WOMEN

| | Avg. No. of Brothers & Sisters | | % |
|---|---|---|---|
| Academic Classification | Freshmen | Non-Freshmen | Difference* |
| Technology | 2.44 | 3.10 | +21% |
| Engineering | 2.25 | 2.40 | + 6% |
| Business | 2.53 | 2.45 | - 3% |
| Home Economics | 1.67 | 2.85 | +41% |
| Other | 2.25 | 2.45 | + 8% |

* % Difference = $\frac{\text{(Non-Freshmen) - (Freshmen)}}{\text{(Non-Freshmen)}}$

TABLE XXVIII

COMPARISON OF OLDEST OR YOUNGEST FAMILY MEMBER

| Academic Area | Freshmen | | Non-Freshmen | | % Change * | |
|---|---|---|---|---|---|---|
| | Oldest | Youngest | Oldest | Youngest | Oldest | Youngest |
| | % | % | % | % | | |
| Technology | 33 | 33 | 45 | 30 | +12 | - 3 |
| Engineering | 35 | 30 | 40 | 30 | + 5 | 0 |
| Business | 30 | 20 | 35 | 40 | + 5 | +20 |
| Home Economics | 38 | 31 | 25 | 30 | -13 | - 1 |
| Other | 15 | 35 | 30 | 25 | +15 | -10 |

% Change = Non-Freshmen - Freshmen

## TABLE XXIX

## SOURCES OF EDUCATIONAL INCOME FOR FRESHMEN WOMEN

| | Technology | | | Engineering | | | Business | | | Home Economics | | | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source of | N = 9 | $ | | N = 20 | $ | | N = 20 | $ | | N = 16 | $ | | | $ | |
| Income | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over | None | 1 to 999 | 1000 and over |
| Parents | 11- | 22 | 67+ | 20 | 30 | 50 | 20 | 10 | 70 | 13 | 31 | 56 | 10- | 20 | 70 |
| Grants | 7? | 22 | 0 | 30 | 40 | 30 | 60 | 35 | 5 | 56 | 31 | 13 | 55 | 40+ | 5 |
| Loans | 100+ | 0 | 0 | 80 | 15 | 5 | 80 | 5 | 15 | 75 | 19 | 6 | 90 | 10 | 0 |
| Full-time Work | 78 | 11 | 11 | 95 | 0 | 5 | 95 | 0 | 5 | 94 | 6 | 0 | 100 | 0 | 0 |
| Part-time Work | 67+ | 22- | 11 | 55+ | 35 | 10 | 75 | 25 | 0 | 31 | 63 | 6 | 60 | 35 | 5 |
| Savings | 67+ | 11- | 22 | 50 | 35 | 15 | 50 | 35 | 15 | 56 | 44 | 0 | 45- | 40 | 15 |
| Spouse | 78 | 22 | 0 | 100 | 0 | 0 | 90 | 5 | 5 | 100 | 0 | 0 | 100 | 0 | 0 |
| G.I. Benefits | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 |
| Other | 78 | 11 | 11 | 100 | 0 | 0 | 95 | 5 | 5 | 88 | 13 | 0 | 100 | 0 | 0 |

Note: All values are given in percentages. A negative sign (-) following a number indicates that value is lower by at least 25 than the non-freshmen value given in Table VII. A positive sign (+) indicates the freshmen values is at least 25 above the non-freshmen value. The plus and minus values were determined by taking the percents of the freshmen value minus the non-freshmen value.

difference being greater than 25 and its direction, as indicated by the sign, are also shown in Table XXIX. Technology freshmen women students are obtaining more of their educational expenses from their parents, they have less number of loans and less are using savings to help meet their college expenses than the non-freshmen women in Technology. Part-time jobs are helping more of the engineering non-freshmen women students to meet their educational expenses compared to their freshmen counterpart. The other group of freshmen women are receiving more help from their parents and are using more savings than the non-freshmen women in the other category to meet their educational expenses. The business and home economics data for the freshmen and non-freshmen are very comparable according to the data presented in Table VII and Table XXIX.

Ninety-three percent of the freshmen women in all five academic categories are single compared to 80 percent of all non-freshmen women students in the five academic categories. Presented in Table XXX are the data showing a comparison of the marital status of the freshmen verse the non-freshmen women students.

The freshmen women when asked which of eight academic areas they believed to be the most demanding listed Engineering as the most demanding (60%) and Education the least demanding (2%). The rank ordered data for the composite scores on the most demanding academic area for the freshmen women compared to the non-freshmen women students are presented in Table IX.

Presented in Table XXXI are data comparing the highest degree the women students plan to obtain. The freshmen and non-freshmen women students in Technology have approximately the same percentages for each

TABLE XXX

COMPARISON OF MARITAL STATUS

| Status | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | | Composite | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Single | 7 | 18 | 15 | 75 | 19 | 95 | 18 | 90 | 17 | 89 | 19 | 95 | 14 | 93 | 15 | 80 | 20 | 100 | 14 | 70 | 77 | 93 | 81 | 82 |
| Married | 2 | 22 | 3 | 15 | 0 | 0 | 2 | 10 | 2 | 11 | 0 | 0 | 1 | 7 | 4 | 20 | 0 | 0 | 5 | 25 | 5 | 6 | 14 | 14 |
| Divorced | 0 | 0 | 2 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 4 | 4 |
| Seperated | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |

of the various degrees. The engineering freshmen women students have a higher percentage seeking the Bachelors degree and less striving for the Masters degree than the non-freshmen women students in Engineering. Business and home economics women when compared, freshmen to non-freshmen, show little difference between the educational aspirations of the women in each of the academic categories. The other academic group shows more of its freshmen women students have set their goals above the Bachelors degree level when the freshmen are compared to the non-freshmen. A comparison of freshmen women to non-freshmen women based on their responses to when they first became interested in the career they are now pursuing is shown in Table XXXII. There is a trend, in each of the five categories, for the freshmen women students to decide their major field of study earlier than non-freshmen women students.

## Scholastic Aptitude Comparisons

The mean Scholastic Aptitude Test scores comparing the freshmen women in each of the academic categories with the non-freshmen women students are presented in Table XXXIII. The composite scores for the freshmen women in Technology, Home Economics and the other academic area are all higher than the non-freshmen women students' composite score in each of the respective areas.

Presented in Table XXXIV are data showing a comparison of the average high school grades between the freshmen and non-freshmen women for each of the five academic groups. Ninety percent or more of all the women students in each of the five academic categories have a B or better high school grade average. A lower percentage of engineering freshmen women had an A grade average than the non-freshmen women engineering

TABLE XXXI

COMPARISON OF HIGHEST DEGREE SOUGHT

| Degree | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Associate | 0 | 0 | 2 | 10 | 1 | 5 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| Bachelor | 6 | 67 | 12 | 60 | 9 | 45 | 6 | 30 | 11 | 58 | 13 | 65 | 9 | 60 | 12 | 60 | 11 | 55 | 16 | 80 |
| Masters | 2 | 22 | 4 | 20 | 7 | 35 | 14 | 70 | 6 | 32 | 7 | 35 | 6 | 40 | 4 | 20 | 6 | 30 | 2 | 10 |
| Doctorate | 0 | 0 | 2 | 10 | 2 | 10 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 4 | 20 | 2 | 10 | 1 | 5 |
| Other | 1 | 11 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Total | 9 | 100 | 20 | 100 | 20 | 100 | 20 | 100 | 19 | 100 | 20 | 100 | 15 | 100 | 20 | 100 | 20 | 100 | 20 | 100 |

TABLE XXXII

COMPARISON OF FIRST BECOMING INTERESTED IN PRESENT CAREER

| | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| First | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | |
| Decide | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Grade School | 1 | 11 | 2 | 10 | 1 | 5 | 0 | 0 | 1 | 5 | 0 | 0 | 1 | 6 | 1 | 5 | 2 | 10 | 2 | 10 |
| Junior High | 0 | 0 | 1 | 5 | 6 | 30 | 1 | 5 | 2 | 10 | 2 | 10 | 1 | 6 | 0 | 0 | 1 | 5 | 2 | 10 |
| High School | 4 | 44 | 5 | 25 | 11 | 55 | 17 | 85 | 14 | 70 | 10 | 50 | 11 | 69 | 8 | 40 | 13 | 65 | 7 | 35 |
| Freshman Year | 2 | 22 | 4 | 20 | 1 | 5 | 1 | 5 | 2 | 10 | 3 | 15 | 3 | 19 | 4 | 20 | 3 | 15 | 3 | 15 |
| Sophomore Year | 0 | 0 | 6 | 30 | 0 | 0 | 1 | 5 | 0 | 0 | 4 | 20 | 0 | 0 | 4 | 20 | 0 | 0 | 6 | 30 |
| Other | 2 | 22 | 2 | 10 | 1 | 5 | 0 | 0 | 1 | 5 | 1 | 5 | 0 | 0 | 3 | 15 | 1 | 5 | 0 | 0 |
| Total | 9 | 100 | 20 | 100 | 20 | 100 | 20 | 100 | 20 | 100 | 20 | 100 | 16 | 100 | 20 | 100 | 20 | 100 | 20 | 100 |

TABLE XXXIII

COMPARISON OF SAT SCORE MEANS

| Academic Group | N | English | Math | Social Science | Natural Science | Composite |
|---|---|---|---|---|---|---|
| Technology | | | | | | |
| Freshmen | 7 | 22.00 | 21.71 | 23.29 | 24.71 | 23.00 |
| Non-Freshmen | 8 | 19.25 | 20.25 | 20.63 | 22.63 | 21.00 |
| Engineering | | | | | | |
| Freshmen | 19 | 22.89 | 27.05 | 24.58 | 27.26 | 25.63 |
| Non-Freshmen | 13 | 24.15 | 28.69 | 26.46 | 28.46 | 27.08 |
| Business | | | | | | |
| Freshmen | 18 | 20.61 | 19.83 | 19.06 | 21.00 | 20.28 |
| Non-Freshmen | 13 | 23.54 | 23.38 | 21.31 | 21.85 | 22.62 |
| Home Economics | | | | | | |
| Freshmen | 15 | 20.40 | 18.20 | 21.20 | 23.80 | 21.07 |
| Non-Freshmen | 10 | 20.70 | 22.20 | 19.30 | 21.40 | 21.00 |
| Other | | | | | | |
| Freshmen | 19 | 20.21 | 17.32 | 20.05 | 23.11 | 20.16 |
| Non-Freshmen | 12 | 20.00 | 17.33 | 18.00 | 19.92 | 19.00 |

TABLE XXXIV

COMPARISON OF AVERAGE HIGH SCHOOL GRADES

| Academic Major | A | | B | | C | | B or Better |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | % |
| Technology | | | | | | | |
| Freshmen | 5 | 56 | 4 | 44 | 0 | 0 | 100 |
| Non-Freshmen | 9 | 45 | 9 | 45 | 2 | 10 | 90 |
| Engineering | | | | | | | |
| Freshmen | 14 | 70 | 5 | 25 | 5 | 5 | 95 |
| Non-Freshmen | 19 | 95 | 1 | 5 | 0 | 0 | 100 |
| Business | | | | | | | |
| Freshmen | 10 | 50 | 10 | 50 | 0 | 0 | 100 |
| Non-Freshmen | 12 | 60 | 8 | 40 | 0 | 0 | 100 |
| Home Economics | | | | | | | |
| Freshmen | 9 | 56 | 6 | 38 | 1 | 6 | 94 |
| Non-Freshmen | 11 | 55 | 8 | 40 | 1 | 5 | 95 |
| Other | | | | | | | |
| Freshmen | 10 | 50 | 9 | 45 | 1 | 5 | 95 |
| Non-Freshmen | 2 | 10 | 13 | 65 | 2 | 10 | 90 |

TABLE XXXV

COMPARISON OF WOMEN'S RATINGS OF FIFTY PERCENT OR MORE ON HIGH SCHOOL PREPARATION

| Areas of Preparation | Very Well | | Fairly Well | | Poorly | | Not Applicable | |
|---|---|---|---|---|---|---|---|---|
| | Freshmen % | Non Freshmen % | Freshmen % | Non Freshmen % | Freshmen % | Non Freshmen % | Freshmen % | Non Freshmen % |
| Math Skills | E-70 | E-60<br>B-50 | B-50<br>O-50 | | | | | |
| Read & Comp. | HE-56 | B-75 | T-66<br>E-55 | T-60<br>HE-70 | | | | |
| Foreign Language | | | | | | | | |
| Science | | | B-55<br>O-56 | T-70<br>O-55 | | | | |
| History & Social Science | T-56 | | E-60<br>B-60<br>HE-69 | T-60<br>E-60<br>B-50<br>HE-70<br>O-60 | | | | |
| Vocational Skills | | | T-55 | | O-55 | T-50<br>O-55 | E-55 | E-60 |
| Music | T-55 | | | | | | | |
| Physical Fitness | B-53 | | | HE-50<br>B-50 | | | | |

Note: Comparisons are made for only those categories which had 50 percent or more of the students in agreement. T = Technology, E = Engineering, B = Business, HE = Home Economics and O = Other.

student while the other category has a larger proportion of the freshmen students having an A high school grade average.

Fifty percent of the non-freshmen women technology students feel their high school prepared them "Poorly" in vocational skills. The freshmen women students, 55 percent, in the same academic area, felt they are trained "Fairly Well" in vocational skills at the high school level. Table XXXV presentes data showing other comparisons between freshmen and non-freshmen on high school preparation in eight different skill areas.

The freshmen women's responses to the question, "Did you transfer from another college or university to OSU?" shows one woman from each of the academic categories, except Engineering, had transferred to OSU. All 20 of the engineering freshmen women students had started at OSU. A larger number of the freshmen women students have changed majors since enrolling at OSU. Data concerning the number of women who have changed majors and how they compare to their non-freshmen counterparts are shown in Table XXXVI.

Why do the women students attend OSU? The data presented in Table XXXVII shows comparison figures between freshmen and non-freshmen women students for each academic area on this question. The data presented in Table XXXVII shows the percent of women who considered the reason "Not Important". Three of the 11 reasons presented in Table XXXVII have low percentages for the majority of classifications. These are the academic reputation of the university, former OSU students and lower tuition. The lower percentage rating indicates the reason is more of an influence to a greater percent of the women students in the respective categories.

Presented in Table XXXVIII are data showing which of the reasons 50 percent or more of the women in each of the academic areas rated as

TABLE XXXVI

COMPARISON OF CHANGES IN ACADEMIC MAJOR

| Academic Area | Freshmen N | Freshmen % | Non-Freshmen N | Non-Freshmen % |
|---|---|---|---|---|
| Technology | 3 | 33 | 10 | 50 |
| Engineering | 3 | 15 | 6 | 30 |
| Business | 3 | 15 | 8 | 40 |
| Home Economics | 1 | 6 | 9 | 45 |
| Other | 2 | 10 | 10 | 50 |

TABLE XXXVII

COMPARISON OF REASONS CONSIDERED NOT IMPORTANT FOR ATTENDING OSU

| Reasons | Not Important | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Technology | | | | Engineering | | | | Business | | | | Home Economics | | | | Other | | | |
| | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | | Freshmen | | Non Freshmen | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Relatives | 6 | 67 | 12 | 63 | 8 | 40 | 10 | 50 | 12 | 60 | 7 | 35 | 11 | 69 | 12 | 60 | 12 | 60 | 10 | 50 |
| Teacher | 8 | 89 | 12* | 60 | 11 | 55 | 15 | 75 | 17 | 85 | 14 | 70 | 11 | 69 | 16 | 80 | 13 | 65 | 15 | 75 |
| Academic Reputation | 1 | 13 | 2 | 10 | 0 | 0 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 6 | 5 | 25 | 0 | 0 | 3 | 15 |
| Financial Assistance | 7 | 88 | 10 | 50 | 8 | 40 | 8 | 40 | 11 | 55 | 12 | 60 | 11 | 69 | 15 | 79 | 12 | 60 | 14 | 20 |
| OSU Former Student | 5 | 56 | 7 | 35 | 4 | 20 | 5 | 25 | 8 | 40 | 6 | 30 | 7 | 44 | 7 | 35 | 4 | 20 | 10 | 50 |
| Special Educational Programs | 6 | 63 | 9 | 45 | 8 | 40 | 14 | 70 | 10 | 50 | 17 | 85 | 8 | 50 | 15 | 79 | 12 | 60 | 11 | 55 |
| Low Tuition | 3 | 33 | 10 | 50 | 6 | 30 | 7 | 35 | 7 | 35 | 11 | 55 | 7 | 44 | 8 | 40 | 10 | 50 | 9 | 45 |
| Guidance Counselor | 7 | 88 | 16 | 84 | 16 | 80 | 17 | 85 | 15 | 75 | 16 | 80 | 14 | 88 | 17 | 85 | 12 | 60 | 19 | 95 |
| Live at Home | 6 | 75 | 17 | 85 | 19 | 95 | 19 | 95 | 17 | 85 | 19 | 95 | 16 | 100 | 17 | 85 | 19 | 95 | 18 | 90 |
| A Friend | 6 | 75 | 11 | 55 | 14 | 70 | 10 | 50 | 10 | 50 | 10 | 50 | 9 | 56 | 13 | 65 | 8 | 40 | 12 | 60 |
| University Representative | 8 | 100 | 15 | 75 | 15 | 75 | 13 | 65 | 13 | 65 | 13 | 65 | 12 | 75 | 17 | 85 | 16 | 80 | 15 | 75 |

* The total number of respondents for each group on each question may vary depending upon missing data.

TABLE XXXVIII

INFLUENCES OF FIFTY PERCENT OR GREATER
ON FRESHMEN WOMEN TO ATTEND OSU

| Influence | Academic Area(s) | Somewhat Important | | Very Important | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Academic Reputation | Technology | | | 4 | 50 |
| | Engineering | | | 13 | 65 |
| | Business | | | 12 | 60 |
| | Home Economics | | | 13 | 85 |
| | Other | | | 14 | 60 |
| OSU Former Student | Engineering | 12 | 60 | | |
| | Business | 10 | 56 | | |
| | Other | 10 | 50 | | |
| Low Tuition | Engineering | 11 | 55 | | |

TABLE XXXIX

COMPARISON OF MAJOR INFLUENCING FACTORS, FIFTY PERCENT OR GREATER, ON CHOICE OF ACADEMIC MAJOR

| | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| Influencing Factors | Freshmen | Non Freshmen | Freshmen | Non Freshmen | Freshmen | Non Freshmen | Freshmen | Non Freshmen | Freshmen | Non Freshmen |
| Father | 56 | 60 | 55 | 85 | -- | 75 | 50 | -- | -- | -- |
| Mother | 56 | 55 | 50 | 75 | 60 | 65 | 56 | 75 | -- | 50 |
| Subject Matter | 89 | 79 | 85 | 100 | 89 | 100 | 94 | 95 | 100 | 90 |
| Job Opportunities | 89 | 95 | 100 | 100 | 100 | 100 | 100 | 90 | 95 | 85 |
| Starting Salaries | 89 | 95 | 90 | 95 | 90 | 85 | 94 | 75 | 80 | 60 |
| Husband's or Boyfriend's Occupational Level | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Peers | -- | -- | -- | 50 | -- | -- | -- | -- | -- | -- |
| High School Guidance Counselor | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| College Counselor | -- | 72 | -- | -- | -- | -- | -- | -- | -- | -- |
| High School Teacher | -- | 95 | 65 | -- | 53 | -- | -- | -- | -- | -- |
| College Faculty | -- | 75 | -- | -- | -- | 50 | -- | -- | -- | -- |
| Professionals | -- | -- | 60 | 55 | 58 | 60 | 63 | 50 | 50 | -- |

Percentages represent the sum of the "Some" and "Very Much" influence categories of the questionnaire.

"Somewhat Important" or "Important". Similar data for the non-freshmen women students in each of the academic areas is presented in Table XIX. The academic reputation of the university is shown to be a very important factor which influences the women students, both freshmen and non-freshmen, to attend OSU. The data presented in these two tables also shows that former students are more influential on the freshmen women than the influence former students have on the non-freshmen women students.

A comparison of major influencing factors, which may have influenced the women on their choice of academic majors, between freshmen and non-freshmen women students by academic majors, are presented in Table XXXIX. Parents serve as an influencing factor for over 50 percent of all the women in Technology and Engineering. A smaller percentage of the freshmen women are influenced by their parents in Technology and Engineering as compared to the non-freshmen women in these two academic categories.

Personal values and attitudes are compared between the freshmen and non-freshmen women students for each of the five different academic majors in Table XL. The value in parentheses indicated the degree of difference between the freshmen women and non-freshmen women and the sign indicates the direction of change. A positive sign shows more of the freshmen women disagree with the value or attitude than non-freshmen women. A negative sign shows the opposite effect or less of the freshmen disagree with the value or attitude than the non-freshmen. The largest change in Table XL is a -40 for the women in Business on the value of women having the responsibility to put their talents to work outside the home. The freshmen women agree 100 percent with this value while only 60 percent of the non-freshmen women in Business agree. While there is a 40 percent shift, still over one-half of both the freshmen and non-freshmen

## TABLE XL

## COMPARISON OF AGREEMENT OR DISAGREEMENT ON PERSONAL VALUES & ATTITUDES

| | F* | Technology | | Engineering | | Business | | Home Economics | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | or | % | | % | | % | | % | | % | |
| Values and Attitudes | NF | Disagree | Agree | Disagree | Agree | Disagree | Agree | Disagree | Agree | Disagree | Agree |
| Energy Consumption (Discourage) | F | 11 (+6) | 89 | 10 (-20) | 90 | 25 (-10) | 75 | 25 (+10) | 75 | 20 (+5) | 80 |
| | NF | 5 | 95 | 30 | 70 | 35 | 65 | 15 | 85 | 15 | 85 |
| Confined to Home & Family | F | 89 (+19) | 11 | 95 (0) | 5 | 85 (0) | 15 | 94 (+4) | 6 | 70 (-25) | 30 |
| | NF | 70 | 30 | 95 | 5 | 85 | 15 | 90 | 10 | 95 | 5 |
| Use of Talents Outside the Home | F | 22 (-3) | 78 | 20 (0) | 80 | 0 (-40) | 100 | 6 (-19) | 94 | 5 (-15) | 95 |
| | NF | 25 | 75 | 20 | 80 | 40 | 60 | 25 | 75 | 20 | 80 |
| Legalization of Marijuana | F | 44 (-21) | 56 | 70 (-5) | 30 | 79 (-6) | 21 | 73 (+8) | 27 | 65 (0) | 35 |
| | NF | 65 | 35 | 75 | 25 | 85 | 15 | 65 | 35 | 65 | 35 |
| Lose Identity-Derive Status from Husband | F | 44 (-1) | 56 | 35 (+10) | 65 | 40 (-7) | 60 | 25 (-5) | 75 | 45 (+24) | 55 |
| | NF | 45 | 55 | 25 | 75 | 47 | 53 | 30 | 70 | 21 | 79 |
| Women's Image & Mass Media Over-emphasizing Beauty | F | 33 (-22) | 67 | 35 (+15) | 65 | 40 (-10) | 60 | 44 (+9) | 56 | 30 (+5) | 70 |
| | NF | 55 | 45 | 20 | 80 | 50 | 50 | 35 | 65 | 25 | 75 |
| Too Much Concern for The Rights of Criminals | F | 22 (-10) | 78 | 35 (+10) | 65 | 30 (-20) | 70 | 31 (+1) | 73 | 45 (+10) | 55 |
| | NF | 32 | 68 | 25 | 75 | 50 | 50 | 30 | 70 | 35 | 65 |
| Women Athletics Equal Rights | F | 11 (+6) | 95 | 5 (0) | 95 | 10 (+10) | 90 | 25 (+10) | 75 | 5 (-5) | 95 |
| | NF | 5 | 95 | 5 | 95 | 0 | 100 | 15 | 85 | 10 | 90 |
| Working Mothers Not as Good of Mothers | F | 67 (-13) | 33 | 90 (+20) | 10 | 45 (-5) | 55 | 63 (0) | 38 | 80 (+15) | 20 |
| | NF | 80 | 20 | 70 | 30 | 50 | 50 | 85 | 15 | 65 | 35 |

* F = Freshmen
NF = Non-Freshmen

** ( ) equals change between F and NF
( ) = F-NF

TABLE XLI

COMPARISON OF WEIGHTED AVERAGES ON ROSENBERG'S THREE VALUE COMPLEXES

| Academic Area | Weighted Averages on "People-Oriented" Values | (Rank) | Weighted Averages on "Self-Expression-Oriented" Values | (Rank) | Weighted Averages on "Extrinsic-Reward Oriented" Values | (Rank) |
|---|---|---|---|---|---|---|
| Technology | | | | | | |
| Freshmen | 1.78 | (5) | 4.78 | (1) | 1.56 | (5) |
| Non-Freshmen | 3.65 | (4) | 4.00 | (4) | 2.75 | (2) |
| Engineering | | | | | | |
| Freshmen | 3.90 | (3) | 4.45 | (3) | 1.70 | (4) |
| Non-Freshmen | 3.05 | (5) | 5.05 | (1) | 2.80 | (1) |
| Business | | | | | | |
| Freshmen | 3.15 | (4) | 3.90 | (5) | 3.55 | (1) |
| Non-Freshmen | 4.05 | (3) | 4.60 | (2) | 2.70 | (3) |
| Home Economics | | | | | | |
| Freshmen | 4.06 | (2) | 4.50 | (2) | 2.25 | (3) |
| Non-Freshmen | 4.80 | (1) | 3.90 | (5) | 2.20 | (4) |
| Other | | | | | | |
| Freshmen | 4.25 | (1) | 4.34 | (4) | 2.30 | (2) |
| Non-Freshmen | 4.75 | (2) | 4.55 | (3) | 2.10 | (5) |

women in Business agree with the value.

Comparisons of the freshmen women to the non-freshmen women are made for Rosenberg's Three Value Complex in Table XLI. The rank ordered data show the most graphical differences. Freshmen women in Technology rank first on the "self-expression oriented" values while the non-freshmen women in Technology rank next to last or fourth. Engineering non-freshmen women rank first on the "extrinsic-reward oriented" values but the freshmen women rank fourth. Technology non-freshmen women students rank second on the "extrinsic-reward oriented" values while the freshmen women in Technology rank last or fifth. Engineering and technology non-freshmen women students' "extrinsic-reward oriented" values are reverse of the freshmen women students values on this value scale.

An open ended question was asked in regard to what methods you would use to help recruit other women students to enter the program that you are now in. The freshmen women and the non-freshmen women's responses were very similar. The major difference between these two groups' responses was the scopr of the response. Freshmen women students' responses were much more narrow in scope than the non-freshmen women students' responses. The freshmen response indicated the opportunities in a particular field should be stressed to women students in high school who are making their career decision. The non-freshmen women's responses suggest the opportunities of the many different majors be brought to the high school students' attention. The non-freshmen ideas on recruiting were more universal, what are the options at OSU, while the freshmen were looking at the options within their academic major. Table XLII presents data which the women indicate they would use in recruiting other women students.

TABLE XLII

COMPARISON OF RECRUITMENT FACTORS

| Recruitment Factors | Freshmen N | Non-Freshmen N |
|---|---|---|
| Stress the Opportunities Available Number of Jobs, Salary, Advantages | 32 | 49 |
| Having Recruits Meet with OSU Students in the Major | 13 | 27 |
| Visit High Schools & Junior Colleges | 6 | 15 |
| Explain the Program - Provide More Information | 20 | 27 |
| Provide Special Interest Programs | 2 | 10 |
| Show the Benefits of College | 1 | 6 |
| Provide Campus Tours | 2 | 2 |
| Publicize the Program | 2 | 8 |
| Stress the Changing Role of Women | 0 | 11 |
| Stress the Academic Reputation of OSU | 0 | 4 |
| Show the Possibilities of Family & Career | 0 | 3 |

# CHAPTER V

# SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

## Summary

The purpose of this study was to determine similarities and differences between women students in The School of Technology and those in Engineering, Business, Home Economics and Others at Oklahoma State University (OSU) as to interests, scholastic aptitude, and selected demographic variables. The study also sought to determine whether characteristics of freshmen women differed from those of women in more advanced classes within the selected fields of study. This purpose was accomplished by developing seven research questions and then designing a questionnaire to collect the necessary data from the participants of this study. The Registrar's Office as OSU also provided additional information necessary to meet the purpose of this study.

The questionnaire was completed and returned by 114 freshmen women and 137 non-freshmen women students enrolled during the Spring semester, 1978, in one of five different academic areas at OSU. The students' mailing addresses and SAT scores were obtained through the Registrar's Office which provided this data and made it possible for a questionnaire to be mailed to each of the 350 women who were selected to take part in the study.

The data presented in Chapter IV can be classified into four areas, demographic characteristics, scholastic aptitude characteristics, and general interest variables for the non-freshmen students. The fourth area is a comparison of the freshmen students to the non-freshmen students on each of the first three categories. The data presented is summarized as follows:

Demographic Characteristics

The North-Hatt Prestige Scale (Appendix B) for occupations reveals mothers' and fathers' occupations, for the non-freshmen women students in Technology, Engineering and Other, are in the same prestige level of occupations. The fathers' occupational prestige category for non-freshmen women students in Business and Home Economics are at a higher level than the mothers' occupations for these two academic groups. Technology had the largest percentage of working mothers.

The non-freshmen women students' fathers have a higher average education level than the students' mothers for all five of the academic areas. The fathers of the women students in Engineering have the highest average educational level while the mothers of the technology students have the highest average educational level.

The non-freshmen women students in Business come from the families which have the highest yearly income, slightly over the $25,000 to $29,999 income bracket. Home Economics, Technology and Engineering all have average family incomes in the $20,000 to $24,999 income bracket. The family income of the other group is considerably lower with an average family income in the $12,500 to $14,999 income bracket.

The average number of brothers and sisters for all five groups is

2.65. Technology and Home Economics are above the average while the other three groups are below the average value. Technology also has the largest percentage of their non-freshmen women students being the oldest child in the family. Business has the largest percentage of its non-freshmen women students being the youngest member of their family.

Parents provide part of the monies necessary to meet the students' financial needs for 60 percent or more of all the non-freshmen women students. Engineering non-freshmen women students receive more of their educational expenses from grants and scholarships than the other four academic groups. Sixty-five percent of the non-freshmen women engineering students receive some kind of educational grant or scholarship.

Loans, while not a major source of financing an education, provide 30 percent of the women in the other category and 25 percent of the women in Technology part of their financing. Full-time work is not a major contributing factor in meeting the majority of women's educational expenses. Part-time work is a major contributing factor for women in Engineering, Technology and Other. Over 50 percent of each of these categories of women help to finance their education by working part-time.

Approximately one-half of all the groups, except the other group, use their savings to help meet their yearly educational expenses. Only one-fourth of the other group uses savings as a means to offset their educational expenses. Spouses, G.I. Benefits and all other contributing factors provide little monies for the non-freshmen women in all five categories.

Technology and the other category of non-freshmen women meet their yearly educational expenses mainly from two areas, parents and part-time work. Engineering non-freshmen women rely on parents, grants, and part-

time employment. Business and home economics non-freshmen women students rely on their parents to meet their educational expenses.

Thirty percent of the non-freshmen women in the other category are or have been married while 25 percent of the technology women fall within this category. Ten percent and five percent of the non-freshmen women in Engineering and Business are or have been married.

When asked what academic areas they consider the most demanding, 63 percent of all the women consider Engineering to be the most demanding. Business is ranked the most demanding by 13 percent, Technology by eight percent and Home Economics by four percent.

Seventy percent of the non-freshmen women in Engineering have their goal set on a Masters degree while the majority of women in the other four academic areas were content on obtaining the Bachelors degree.

Fifty percent of the non-freshmen women in Technology first became interested in their present career once they were in college. The majority of other four academic groups first decided an interest in their careers before entering college.

## Scholastic Aptitude

An analysis of variance conducted on the Scholastic Aptitude Test (SAT) scores among all five groups shows there to be a significant difference. A t-test between each two groups on each SAT score shows between engineering non-freshmen women and the other group of non-freshmen women had a probability of 0.0002. The engineering group of women have the highest SAT score on each of the six SAT categories with a composite score of 27.08. Business non-freshmen women rank second with a composite value of 22.62. Technology and home economics non-freshmen women had an

average composite value of 21.00. The other category composite value is 19.00.

Ninety percent of the non-freshmen women students in each of the five academic categories have a B or better high school grade average. Ninety-five percent of the non-freshmen women engineering students have an A high school grade average. The average grades in high school are high but there was not too much consistancy on how well the high school prepared the women in the various academic skill areas. Foreign language, vocational skills and music did not have the majority of the women in any of the five academic areas indicating they were well prepared by their high schools.

One-third of all the non-freshmen women students in each of the five academic areas have transferred to OSU from another college or university. The highest transfer rate is seen in Technology with 45 percent of the non-freshmen women students transferring into OSU. Once at OSU there is a large percentage of women changing majors. Two areas, Technology and Other, have as high as 50 percent major change and the lowest percent of major change is seen by the non-freshmen women students in Engineering, with a 30 percent rate.

The women were asked to rate 11 different reasons as to what importance they had on influencing them to attend OSU. One of those 11 reasons standout for all of the five academic areas; the reputation of the university. The other 10 reasons have varying degrees of influence for each one of the academic areas but none as strong an influence as the reputation of OSU.

Starting salaries, job opportunities, and the subject matter are all major influencing factors for the non-freshmen women students in each of

the five academic groups. The father has more of an influence than the mother for the non-freshmen women students in Technology, Engineering and Business. College counselors, high school teachers, and college faculty are also major influencing factors for the non-freshmen women students in Technology.

The women were asked to rate their personal values and attitudes, from disagree strongly to agree strongly, for nine different questions. A chi-square analysis reveals no significant difference among the five academic areas for each of the questions.

Rosenberg's Occupational Value (37) scale was used to rate the non-freshmen women in each of the academic classifications. Engineering, business and technology non-freshmen women have their highest weighted average scores on the "Self-Expression Oriented" values. Home Economics and the other category have their highest weighted average scores on the "People-Oriented" values.

## Freshmen Women Compared to Non-Freshmen Women Students

The comparison based on the North-Hatt prestige scale of parents' occupations between freshmen and non-freshmen women students by academic classification shows four of the 10 categories having changed occupational levels. Home Economics freshmen women's mothers' occupational level increased from very low on the prestige scale to a medium occupational level.

Technology freshmen mothers' education is 0.88 below the non-freshmen technology students' mothers' educational level. The business freshmen students' fathers' average educational level increased by a half point.

Home Economics students' fathers' educational levels are seperated by .72 points, with the freshmen's fathers having a higher educational level.

The family size, number of brothers and sisters, decreased for all the freshmen academic groups except Business. The business freshmen women students were up three percent over the non-freshmen women students in terms of family size.

A lower number of the freshmen women, as compared to the non-freshmen women, in all categories except Home Economics were the oldest member of the family. As far as the youngest member of the family, three of the five freshmen student academic groups had slightly more of their group being the youngest member as compared to the non-freshmen women students. Engineering and Business show a decrease for the freshmen women students being the youngest member of the family.

Educational expenses when compared between the freshmen and non-freshmen women students, for each of the academic areas, shows both groups receiving parental support for their education. Freshmen women students have less percentage of educational loans. Less number of the freshmen women in Engineering and Technology are working part-time to help meet their educational expenses.

The majority of all the women in both the freshmen group and the non-freshmen group in each of the academic areas are single. The composite values show 93 percent of all the freshmen women are single compared to 82 percent of all the non-freshmen women.

The freshmen women as a total group have their goals set slightly higher in terms of the highest degree they plan to obtain than the non-freshmen women students. One of the largest differences is for the women

in Engineering. Seventy percent of the non-freshmen women are seeking the Masters degree while only 35 percent of the freshmen indicate they are planning to obtain a Masters degree in Engineering.

Comparing the freshmen and the non-freshmen women students on when they first became interested in the career they are now pursuing, shows a trend to make career decisions at an earlier age. Thirty percent of the engineering freshmen choose Engineering during junior high school or middle school while only five percent of the non-freshmen engineering students made their decision this early in their careers.

Comparisons on Scholastic Aptitude

The composite SAT scores between freshmen and non-freshmen women students for each of the academic classifications show only slight variations. Technology, home economics, and the other academic classifications of freshmen women students have a higher composite SAT score than the non-freshmen women students for each of their respective academic classification.

The majority of women, both freshmen and non-freshmen, in all five academic classifications have a B or better high school grade average. The high school preparation in eight different subject areas, for the freshmen and non-freshmen, shows freshmen believe they are a little better prepared overall than the non-freshmen women students.

The longer you have been in college the more likely you are to have changed academic majors. The non-freshmen women engineering students have the lowest percentage who have changed their academic major with 30 percent. Technology and other non-freshmen women students have the highest percentage of women who have changed their academic major at 50

percent. Technology freshmen women students also lead the list of academic major changes with 33 percent.

The freshmen women students when compared to the non-freshmen women students attend OSU for the same major reasons. The academic reputation of OSU, former OSU students and low tuition are major reasons why the women are attending OSU. Sixty percent of all engineering women, both freshmen and non-freshmen, are receiving some type of financial assistance to attend OSU.

Major influencing factors which influence the non-freshmen women students in their choice of an academic major area generally influence the freshmen women students. College counselors, high school teachers and college faculty were major influencing factors for the non-freshmen technology women students but not for the freshmen technology women students. Professionals whom the women students have met were influencing factors.for all the women in Engineering, Business and Home Economics and for the freshmen women in the other category. Professionals were not major influencing factors for the freshmen and non-freshmen technology women students.

The women's responses to nine different questions concerning personal values and attitude have changes as high as 40 percent. Sixty percent of the non-freshmen women students agree with the statement that women have a responsibility to put their talents to work outside the home. One hundred percent of the freshmen women students agree with this statement.

Twenty-one percent more of the freshmen women students in Technology favor the legalization of marijuana than the non-freshmen women students in Technology.

Rosenberg's (37) Occupational Value Scale shows all the women, both

freshmen and non-freshmen, except the non-freshmen women in Home Economics and Other, have their highest weighted average value on the "Self-Expression-Oriented" value scale. The lowest weighted average score is found for all women, except freshmen women business students, on the "Extrinsic-Reward Oriented" value scale.

The freshmen women students are in general agreement with the non-freshmen women students on factors which should be stressed when recruiting women students for the various academic programs. The three major recruitment factors should be (1) to stress the opportunities available, (2) have the high school students meet with OSU students in their academic major and (3) provide materials that explain all aspects of the academic major the student is considering.

## Conclusions

The data summarized in the first section of this chapter and reported in detail in Chapter IV are used as the basis from which the following conclusions are drawn. These conclusions are drawn from the data in order to answer the seven research questions in Chapter 1.

1. Technology Women - The following profile was developed from the data to show the typical characteristics of non-freshmen women students enrolled at OSU. The percentage shown in the brackets () indicate the percent of women in the same category having the same characteristics.

   A woman student who is enrolled in the School of Technology at Oklahoma State University comes from a family which has an average annual income between $20,000 and $24,999. She has approximately three brothers and sisters and is probably either

the youngest (30%) member of the family or the oldest child (45%) in the family. Her father's occupation can be classified as a medium prestige category job such as faming, owner of a small business, technician or county agent. There is a 65 percent chance that her mother is also employed and her occupation is in the medium prestige category of occupations. Her father has some college hours, and there is a 50 percent chance he has a college degree. Her mother has completed high school and 25 percent of the mothers of women enrolled in Technology have a college degree.

The woman who is enrolled in the School of Technology helps to finance her own education by part-time work (65%) and her parents also help her to meet her educational expenses (60%).

She is single (75%), plans to obtain a Bachelor of Science degree (60%) and may have a desire to work toward a graduate degree (30%). There is a 50/50 chance that she has transferred into Technology from some other academic major on the OSU campus, and a good probability (45%) that she has attended another university or college before coming to OSU. She decided to come to OSU based on three major influencing factors; (1) the academic reputation of OSU (90%), (2) a former OSU student influencing her (65%), and (3) the special educational programs offered by OSU (55%).

The job opportunities (95%) and the starting salaries (95%) for women in a technology major were contributing factors for her in choosing a technology major. She was also influenced

by her parents (58%), her interpretation of the subject matter (75%), her college teachers (75%) and college counselors (72%). A female high school teacher also provided her information and influenced her decision to pursue a technical major.

The woman in a technology major has values similar to women in other academic majors across the OSU campus. She is more likely to agree that energy consumption should be discouraged by the federal government (95%) than to disagree. She agrees that women athletics should be supported equally to men athletics (95%). She takes the middle of the road, agree (55%)/disagree (45%), on the idea that a woman looses her own identity when she has to derive her own status from her husband's. The woman in Technology disagrees that activities of married women are best confined to the home and family (70%). She feels marijuana should not be legalized (65%) and she disagrees (80%) with the statement that a woman who works full-time cannot possibly be as good a mother to her grade school children as one who stays home.

She ranks the highest in "Self-Expression Oriented" values such as creativity and originality and second in "People-Oriented" values. Although she has her lowest value on "Extrinsic-Reward Oriented" values, money and prestige, her attitudes and value toward money and prestige are higher than all other women except those enrolled in Engineering.

The woman enrolled in OSU's School of Technology has a high school grade average of B or better (90%) and has a composite SAT score of 21.00. Her SAT math score is 20.25.

2. Engineering Women - The following profile was developed from the data to show the typical characteristics of non-freshmen women students enrolled at OSU in the College of Engineering. The percentages shown in the brackets, (), indicate the percentage of the women having the same characteristics.

A woman student who is enrolled at Oklahoma State University in the College of Engineering comes from a family which has an average annual income between $20,000 and $24,999. She has between two and three brothers and sisters (2.4) and is probably the youngest (30%) member of the family or the oldest child (40%) in the family. Her father's occupation can be classified as a medium prestige category job such as farming, owner of a small business, technician or county agent. There is a 60% chance that her mother does not work outside of the home. Her father has a college degree (70%) and her mother has completed high school. Fifteen percent of the mothers of women enrolled in Engineering have a college degree.

The woman who is enrolled in the College of Engineering helps to finance her own education by part-time work (75%). She is likely to have some type of scholarship or grant (65%) and her parents also help her to meet her educational expenses (85%).

She is single (90%) and plans to obtain a Masters degree (70%). There is a 30 percent chance she has transferred into Engineering from some other academic major on the OSU campus, and a 30 percent chance that she has attended another university or college before coming to OSU. She decided to come to OSU based on four

major influencing factors; (1) the academic reputation of OSU (95%), (2) a former OSU student influencing her, (3) the financial aids available at OSU (60%) and (4) the low tuition rates (65%).

The job opportunities (100%) and the starting salaries (95%) for women in an engineering major were contributing factors for her in choosing an engineering major. She was also influenced by her parents (80%), her interpretation of the subject matter in Engineering (100%), her peers (50%) and professionals she has met (55%).

The woman in an engineering major has values similar to women in other academic majors across the OSU campus. She is more likely to agree that energy consumption should be discouraged by the federal government (70%) than to disagree. She agrees that women athletics should be equally supported to men athletics (95%). She also is in agreement with the statement that women have a responsibility to put their talents to work outside the home (80%). She disagrees (95%) with the statement, the activities of married women are best confined to the home and family. She feels marijuana should not be legalized (75%). She also disagrees (70%) with the statement that a woman who works full-time cannot possibly be as good a mother to her grade school children as one who stays home.

She ranks the highest in "Self-Expression Oriented" values such as creativity and originality. Her second highest ranking is in "People-Oriented" values. Her lowest ranking is on the "Extrinsic-Reward Oriented" values, money and prestige. When

compared to women in the other academic categories on these three classifications of values, she ranks first on the "Self-Expression Oriented" values and first on the "Extrinsic-Reward Oriented" values. On the "People-Oriented" value scales she ranks last among the other four academic categories of women students.

The woman enrolled in OSU's College of Engineering has a high school grade average of an A (95%) and has a composite SAT score of 27.08. Her SAT math score is 27.78.

3. Business Women - The following profile was developed from the data to show typical characteristics of non-freshmen women students enrolled at OSU in the College of Business. The percentages shown in the brackets, (), indicate the percent of women having the same characteristics.

A woman student who is enrolled in the College of Business at Oklahoma State University comes from a family which has an average annual income between $25,000 to $29,999. Her family's income level is higher than the family income level of the women students in the College of Engineering, Technology and Home Economics. She has between two and three brothers and sisters (2.45) and has a 40 percent chance of being the youngest child in the family and a 35 percent chance of being the oldest child. Her father's occupation can be classified as a high prestige category job such as a teacher, an army officer, an accountant, or a banker. There is only a 45 percent chance that her mother is employed. Her father has taken some type of training after high school and there is a 50 percent chance

that he has obtained a college degree. Her mother has also taken some post secondary education other than college and 20 percent of the mothers of women enrolled in the College of Business have a college degree.

The woman who is enrolled in the College of Business receives the majority of her educational finances from her parents (95%). She is single (95%), plans to obtain a Bachelors degree (65%) and may have a desire to work toward a graduate degree (35%). There is a 40 percent chance that she has transferred into her present academic major from some other major field of study on the OSU campus, and a 30 percent chance that she has sttended another university or college before coming to OSU. She decided to come to OSU based on three major influencing factors; (1) the academic reputation of OSU (75%), (2) a former OSU student influencing her (65%) and (3) the low tuition rate (60%). The job opportunities (100%) and the subject matter of her academic major (100%) were contributing factors for her in choosing a business major. She was also influenced by her parents (70%), the starting salary (85%) the college faculty (50%) and professionals she has known (60%).

The woman in a business major has values similar to women in other academic majors across the OSU campus. She is more likely to agree that energy consumption should be discouraged by the federal government (65%) than to disagree. She agrees that women athletics should be supported equally to men athletics (100%). She takes the middle of the road, agree 53%/disagree 47%, on the idea that a woman looses her own identity when she

has to derive her own status from her husband. She is also divided on the question concerning the rights of criminals in the courts (50/50). She feels marijuana should not be legalized (85%) and she disagrees (85%) with the statement that a woman who works full-time cannot possibly be as good a mother to her grade school children as one who stays home. She ranks the highest in "Self-Expression Oriented" values such as creativity and originality, and second in "People-Oriented" values. She places her lowest values on "Extrinsic-Reward Oriented" values, money and prestige.

The woman enrolled in OSU's College of Business has a high school grade average of B or better (100%) with a 60 percent chance of having an A grade average. Her composite SAT score is 22.62 with a math score of 23.38.

4. Home Economics Women - The following profile was developed from the data showing the typical characteristics of non-freshmen women students enrolled at OSU. The percentage shown in the brackets, (), indicate the percent of women having the same characteristics.

   A woman student enrolled in the College of Home Economics at Oklahoma State University comes from a family which has an average annual income between $20,000 to $24,999. She has between two and three brothers and sisters (2.85) and has a 30 percent chance of being the youngest member of the family and a 25 percent chance of being the oldest child. Her father's occupation can be classified as a medium prestige category job such as farming, owning a small business, technician or county

agent. There is only a 42% chance her mother is employed. Her mother's occupation if employed is probably of a lower prestige category job than her father's. Her father has some post-secondary education other than college and there is a 40% chance he has a college degree. There is a 20 percent chance her mother has a college degree but her mother has some type of training beyond high school.

The woman who is enrolled in the College of Home Economics helps to finance her own education by part-time work (50%), her savings (50%) and her parents also help her to meet her educational expenses (80%).

She is single (80%), plans to obtain a Bachelors degree (60%), and may have the desire to work toward a graduate degree (40%). There is a 45 percent chance that she has transferred into her present academic major in Home Economics from some other academic major on the OSU campus. There is a 40 percent chance that she has attended another university or college before coming to OSU. She decided to come to OSU based on three major influencing factors; (1) the academic reputation of OSU (75%), (2) a former OSU student influencing her (65%) and (3) the low tuition rates at OSU (60%).

The job opportunities (90%) and the subject matter (95%) of her academic major were contributing factors for her in choosing a home economics major. She was also influenced by her mother (75%), the starting salaries (75%) and female professionals she has known (50%).

The woman in a home economics major has values similar to women

in other academic majors across the OSU campus. She is more likely to agree that energy consumption should be discouraged by the federal government (85%) than to disagree. She agrees that women athletics should be equally supported to men athletics (90%). She believes women have lost their own identity when they have to derive their only status from their husband's (79%). The woman in Home Economics disagrees that activities of married women are best confined to the home and family (95%). She feels marijuana should not be legalized (65%) and she disagrees (65%) with the statement that a woman who works full-time cannot possibly be as good a mother to her grade school children as one who stays home.

She ranks the highest in "People-Oriented" values and second in "Self-Expression Oriented" values. Her attitudes and values toward people ranks higher than the women in the other academic majors. Her "Self-Expression Oriented" values are the lowest among the women in all the other academic majors.

The woman enrolled in OSU's College of Home Economics has a high school grade average of B or better (95%) and has a composite SAT score of 21.00 with a math score of 22.20.

5. Other Women - The following profile was developed from the data to show the typical characteristics of non-freshmen women students enrolled at OSU. The percentages shown in the brackets, (), indicate the percent of women in the same category, having the same characteristics.

   A woman student who is enrolled in one of the other majors at Oklahoma State University comes from a family which has an

annual average income between $12,500 to $14,999. She has between two and three brothers and sisters (2.45) with a 30 percent chance of being the oldest child and a 25 percent chance of being the youngest child in the family.

Her father's occupation can be classified as a medium prestige category job such as farming, owner of a small business, technician or county agent. There is a 55 percent chance that her mother is also employed and her occupation is in the medium prestige category of occupation. Her father has some college hours with a 43 percent chance that he has a college degree. Her mohter has completed high school and 40 percent of the mothers of women enrolled in the other category have completed a college degree.

The woman who is enrolled in one of the other academic majors helps to finance her own education by part-time work (60%) and her parents also help her to meet her educational expenses (65%). She is single (70%), plans to obtain a Bachelors degree (80%) and may have a desire to work towards a graduate degree (15%). There is a 50/50 chance that she has transferred academic majors while at OSU and a 30 percent chance she has attended another university or college before coming to OSU. She decided to come to OSU based on four major influencing factors; (1) the academic reputation of OSU (85%), (2) a former OSU student influencing her (50%), (3) her relatives (50%) and (4) the low tuition rate at OSU (55%).

The job opportunities (85%) and her interpretation of the subject matter (90%) were contributing factors for her in

choosing her present academic major. She was also influenced by her mother (50%) and the starting salaries of jobs in her academic major (60%).

The woman in the other academic majors has values similar to the women in Business, Home Economics, Engineering and Technology. She is more likely to agree that energy consumption should be discouraged by the federal government (85%) than to disagree. She agrees that women athletics should be equally supported to men athletics (90%). She agrees that a woman looses her own identity when she has to derive her own status from her husband's (79%). The woman in one of the other academic majors disagrees that activities of married women are best confined to the home and family (95%). She feels marijuana should not be legalized (65%) and she disagrees (65%) with the statement that a woman who works full-time cannot possible be as good a mother to her grade school children as one who stays home.

She ranks the highest in "People-Oriented" values and second in "Self-Expression Oriented" values. Her weighted average score for the "Extrinsic-Reward Oriented" values are the lowest of all the women.

The woman enrolled in one of the other academic majors has a high school grade average of B or better (90%) and a composite SAT score of 19. Her SAT math score is 17.33.

6. Fieldman and Newcomb (22) stated that students in different academic programs do have distinctive characteristics in spite of many individual differences. The data of this study show differences and similarities between the women enrolled in

Technology, Engineering, Business, Home Economics, and other programs at OSU can be identified. While the data is generally not significantly different at the .05 level, the trends in the data show differences between the various programs. The similarities of the data, for the women on various questions, would appear helpful in eliminating some of the stereo-types that have been associated with women in the various academic programs.

7. The freshmen women students in the areas of Technology, Engineering, Business and Others also have characteristics similar to the non-freshmen women students majoring in each of the same areas.

   A comparison made between the freshmen and non-freshmen women students for each academic area shows differences and similarities between the two groups. When the two groups are compared based upon the total data, they are quite similar. One trend that should be considered when comparing the freshmen data to the non-freshmen data is that a large percentage of the non-freshmen women students have changed their major at least once at OSU. There is the possibility the freshmen women now in a particular academic major will change their major before they graduate.

   The freshmen women's comments to how they would recruit women into their academic major showed less scope than the non-freshmen women students. The freshmen women's comments on recruitment activities were very specific in terms of their academic major while the non-freshmen women's comments followed the same lines of recruitment activities except they were broader in scope.

The freshmen women might point out the advantages and opportunities in Accounting while non-freshmen women would point out the advantages and opportunities for women majoring in Business.

## Implications

This section presents the subjective implications related to the study. The implications were made by the researcher after gathering the data, analyzing the data, and from observations and experience of working in a technology program.

The major implications which can be made from this study are related to the recruitment and advisement of women students. The study provides baseline data from which a young woman considering one of the four academic areas considered in this study can compare her background with women in one of the programs and with freshmen women just starting in one of the programs. The data should help her in making her decision as to which academic major or majors she might wish to further investigate.

Three or four items are shown in the study to be major factors for the women in choosing an academic major. It is this type of information which should be used in a recruitment effort to help provide information which women really use in making their decisions. The women want to know about the opportunities of a particular major or job cluster. They want to know what are the job opportunities, what types of starting salaries are available, and what kinds of materials and subject matter does the major cover. The women also want to know more about the university. The academic reputation of the university is a major

influencing factor. A college student enrolled in one of the educational programs could serve as a very good recruitment tool. Such a college student could provide first hand information she has acquired while studying in her major at OSU. She would be able to provide information on the academic program and provide information about such things as study time, work loads, and other benefits or attending college.

Recruitment information should not be designed only for the prospective student, but for other persons of influence. This study shows parents have an influence on their daughters' choice of an academic major. Fathers have more of an influence on their daughters who have chosen an engineering or technology program while mothers play a large role for the women in Business, Home Economics and other academic majors. A portion of the recruitment effort should be designed for the parents.

The study also identifies other implications which should be considered, although probably not as significant as the recruitment.

The high return rate, 74 percent overall, may be attributed to the nature of the study. There seems to be considerable interest in the changing roles of women and the response to the study probably shows that women are willing to provide information which may help other women. The women's interest was also shown by the response rate to a questionnaire which was considered to be quite long.

The majority of non-freshmen women students in Engineering (70%) said they planned to obtain a Masters degree. This was a considerably higher percent than the women in the other academic areas. The implication should not be that women in Engineering have higher academic aspiration. What should be pointed out is the Masters degree in Engineering is considered the first professional degree and the majority of

women may be choosing the professional program.

The women in Technology made their decision to enter a technology program much later than women in the other academic program. This is partly due to the number of women transferring into Technology. Over 50 percent of the women in Technology had transferred from some other academic area. The interesting question seems to be: "Are the women in Technology that unsettled or are they not aware there is such a degree major as Technology?" Probably, the answer is both. While all the majors have at least 30 percent of their students who have changed majors this percent could probably be reduced if the women students were provided the right kinds of information at the right times in their career making decisions.

## Recommendations

The following recommendations are made in order to offer assistance to others who may wish to assess their own programs in relation to women students.

It is hoped that this study will serve as baseline data against which future changes may be measured. It is felt also this study could serve as a model or guide which may be followed by other institutions.

1. The data available on women students in Technology programs are very limited. It is recommended that similar studies, of this kind, be conducted at other schools which have technology programs in order to help provide additional baseline data.
2. Data collection and return rates are always a concern with a mail-out questionnaire. It is recommended that data be collected in a class or group meeting of the women students

to ensure complete coverage and to help answer any troublesome questions that might arise.

3. Raw data and analyzed data have little value if the results are not made public. It is recommended that after the data has been analyzed that a fact sheet or profile sheet be compiled and made a part of the school's recruitment effort.
4. The researcher would recommend a few minor changes in the questionnaire. Question two, which deals with how well one's high school had prepared you in several areas, could be eliminated with loss of very little usable information. The students should be asked to write down their present academic major. There were a few questionnaires which had responses indicating a major other than that recorded by the Registrar's office as the student's major. Questions nine and 10 should have an added statement to obtain the parent's last occupation if he or she is retired or deceased. Question seven dealing with the families' income, $15,500 should be changed to $15,000. Question 12, the neither response could be removed. This is implied by the first two answers in question 12. The other response on question 17 would provide more information if it was an open ended response.
5. It is recommended that special programs be established for women in Technology, similar to the programs established for women in Engineering. These programs could be in the form of a student organization for women, women seminars, summer institutes or specialized program conducted by the school for its women students.

6. It is recommended the results of this study be used with caution. The advisement of a woman to enter a particular field of study based only on the findings of this study would probably be an injustice to the woman. While the findings of this study may be helpful they should not be considered absolute.

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# APPENDIX A

## ACADEMIC PROGRAMS BY MAJOR CLASSIFICATION

| I. ENGINEERING TECHNOLOGY | MAJOR CODE |
|---|---|
| Aeronautical | 4221 |
| Construction Management (Building Option) | 4242 |
| Construction Management (Heavy Option) | 4243 |
| Electrical Power | 4251 |
| Electronics | 4261 |
| Fire Protection and Safety | 4281 |
| General | 4302 |
| Mechanical Design | 4321 |
| Mechanical Power | 4341 |
| Petroleum | 4361 |
| Radiation and Nuclear | 4381 |
| **II. ENGINEERING** | |
| Agricultural Engineering | 4041 |
| Chemical Engineering (Pre-Medical) | 4102 |
| Chemical Engineering (Pre-Professional) | 4101 |
| Civil Engineering | 4121 |
| Electrical Engineering | 4141 |
| General Engineering | 4161 |
| Industrial Engineering and Management | 4181 |
| Mechanical Engineering | 4201 |
| Aerospace | 4202 |
| Pre-Medical | 4203 |
| **III. BUSINESS** | |
| Accounting | 2021 |
| Economics | 2081 |
| Finance | 2141 |
| Finance (Insurance Option) | 2142 |
| Management | 2181 |
| Management Science and Computer | 2182 |
| Management (International Management Option) | 2184 |
| Management (Personnel Management Option) | 2183 |
| Marketing | 2201 |
| Organizational Administration (Business Administration Option) | 2221 |
| Organizational Administration (Information Processing Option) | 2222 |
| Organizational Administration (Public Administration Option) | 2223 |
| **IV. HOME ECONOMICS** | |
| Food, Nutrition and Institutional Administration | 5043 |
| Hotel and Restaurant Administration | 5161 |

V. OTHER

All other women above the freshman level not listed in the previous categories.

# APPENDIX B

## NORTH-HATT PRESTIGE SCALE

## MODIFIED OCCUPATIONAL RATINGS[1]

| Occupation | Score |
|---|---|
| President of U.S. | 96 |
| U.S. Supreme Court Justice | 96 |
| Physician | 93 |
| State Governor | 93 |
| Veterinarian | 93 |
| Cabinet Member in the Federal Government | 92 |
| Diplomat in the U.S. Foreign Service | 92 |
| Mayor of a Large City | 90 |
| Astronaut | 89 |
| College Professor | 89 |
| Scientist | 89 |
| Something in Science | 89 |
| United States Representative in Congress | 89 |
| Banker | 88 |
| Government Scientist | 88 |
| Admiral | 87 |
| County Judge | 87 |

[1]Original scale by Paul K. Hatt and C. C. North in Delbert C. Miller, Handbook of Research Design and Social Measurements. New York: David McKay Co., Inc., 1964, pp. 108-110.

| Occupation | Score |
|---|---|
| Head of a Department in a State Government | 87 |
| Minister | 87 |
| Architect | 86 |
| Chemist | 86 |
| Dentist | 86 |
| Lawyer | 86 |
| Member of the Board of Directors of a Large Corporation | 86 |
| Nuclear Physicist | 86 |
| Priest | 86 |
| Psychologist | 85 |
| Civil Engineer | 84 |
| Electrical Engineer | 84 |
| Engineer | 84 |
| Air Force Pilot | 83 |
| Airline Pilot | 83 |
| Artist | 83 |
| Artist Who Paints Pictures That Are Exhibited in Galleries | 83 |
| Professional Baseball Player | 83 |
| Anthropologist | 82 |
| Owner of Factory That Employs About 100 People | 82 |
| Sociologist | 82 |
| Accountant for a Large Business | 81 |
| Biologist | 81 |
| Geologist | 81 |
| Musician in a Symphony Orchestra | 81 |
| Professional Business | 81 |

| Occupation | Score |
|---|---|
| Talented Pianist | 81 |
| Army Officer | 80 |
| Captain in the Regular Army | 80 |
| Coast Guard | 80 |
| Dramatics | 80 |
| Fashion Designer | 80 |
| Building Contractor | 79 |
| Counselor in Large School | 79 |
| Dancing Teacher | 79 |
| Economist | 79 |
| Forest Ranger | 79 |
| Public Relations | 79 |
| Home Economist | 79 |
| Physical Therapist | 79 |
| Jet Engineer | 79 |
| Job Analyst | 79 |
| Pharmacist | 79 |
| Registered Nurse | 79 |
| Agronomist | 78 |
| Commercial Art | 78 |
| Choral Director | 78 |
| Professional Worker | 78 |
| Public School Teacher | 78 |
| Teacher | 78 |
| Teacher and Counselor | 78 |
| Vocational Teacher | 78 |

| Occupation | Score |
|---|---|
| County Agricultural Agent | 77 |
| Railroad Engineer | 77 |
| Farm Owner and Operator | 76 |
| Official of an International Labor Union | 75 |
| Radio Announcer | 75 |
| Newspaper Columnist | 74 |
| Owner-operator of a Printing Shop | 74 |
| Computer Programmer | 73 |
| Drafting | 73 |
| Electronics | 73 |
| Electrician | 73 |
| Federal Government Agriculturist | 73 |
| Lab Technician | 73 |
| Librarian | 73 |
| Peace Corps | 73 |
| Technician | 73 |
| Skilled Craftsman | 73 |
| Undertaker | 72 |
| Mortician | 72 |
| Reporter on a Daily Newspaper | 71 |
| Buyer | 69 |
| General Business | 69 |
| Government Job | 69 |
| Interior Decorator | 69 |
| Manager of a Small Store in a City | 69 |
| Owner of a Machine Shop | 69 |

| Occupation | Score |
|---|---|
| Owner of a Small Business | 69 |
| Auctioneer | 68 |
| Bookkeeper | 68 |
| Dairy Farm | 68 |
| Farming | 68 |
| Key Punch Operator | 68 |
| Language Interpreter | 68 |
| Insurance Agent | 68 |
| Office Job | 68 |
| Merchandise and Secretary | 68 |
| Tenant Farmer--One Who Owns Livestock and Machinery and Manages the Farm | 68 |
| Traveling Salesman for a Wholesale Concern | 68 |
| Secretary | 68 |
| Typist | 68 |
| Playground Director | 67 |
| Policeman | 67 |
| Railroad Conductor | 67 |
| Mail Carrier | 66 |
| Carpenter | 65 |
| Painter | 65 |
| Aircraft Mechanic | 63 |
| Automobile Repairman | 63 |
| Auto Parts | 63 |
| Diesel Engineer | 63 |
| Diesel Mechanic | 63 |
| Plumber | 63 |

| Occupation | Score |
|---|---|
| Car Mechanic | 62 |
| Garage Mechanic | 62 |
| Local Official of a Labor Union | 62 |
| Mechanical Work | 62 |
| Owner-operator of a Lunch Stand | 62 |
| Skilled Laborer | 62 |
| Army Skilled Man | 60 |
| Assembly Line | 60 |
| Corporal in the Regular Army | 60 |
| Factory Worker | 60 |
| Machine Operator in a Factory | 60 |
| Welder | 60 |
| Airline Stewardness | 59 |
| Barber | 59 |
| Beautician | 59 |
| Hair Dresser | 59 |
| Model | 59 |
| Practical Nurse | 59 |
| Work in Hospital | 59 |
| Clerk in a Store | 58 |
| Seamstress | 58 |
| Streetcar Motorman | 58 |
| Fisherman Who Owns His Own Boat | 58 |
| Culinary Arts | 54 |
| Milk Routeman | 54 |
| Race Car Driver | 54 |

| Occupation | Score |
|---|---|
| Restaurant Cook | 54 |
| Truck Driver | 54 |
| Hunting Guide | 53 |
| Lumberjack | 53 |
| Filling Station Attendant | 52 |
| Singer in a Night Club | 52 |
| Singer and Comedian | 52 |
| Singer | 52 |
| Tinker Field Worker | 51 |
| Construction | 51 |
| Babysitting | 50 |
| Ditch Digger | 50 |
| Farmhand | 50 |
| Oil Field | 50 |
| Coal Miner | 49 |
| Taxi Driver | 49 |
| Railroad Section Hand | 48 |
| Restaurant Waiter | 48 |
| Dock Worker | 47 |
| Night Watchman | 47 |
| Clothes Presser in a Laundry | 46 |
| Soda Fountain Clerk | 45 |
| Bartender | 44 |
| Janitor | 44 |
| Sharecropper--One Who Owns no Livestock or Equipment and Does Not Manage Farm | 40 |
| Garbage Collector | 35 |

| Occupation | Score |
| --- | --- |
| Street Sweeper | 34 |
| Shoe Shiner | 33 |
| Housewife | 01 |

# APPENDIX C

# WOMEN'S INFORMATION SURVEY

Oklahoma State University

SCHOOL OF TECHNOLOGY

STILLWATER, OKLAHOMA 74074
INDUSTRIAL BUILDING 101
405 624-5638

March 17, 1978

Ms. Mary Snavely
207 Crutchfield Hall
CAMPUS

Dear Ms. Snavely:

You have been selected as one of the women on the OSU campus to participate in a research project. The project is designed to achieve a better understanding of how you and other women students selected an academic major and what factors might be used to recruit and advise other women concerning their choice of an academic major.

The study requires that you complete and return the following questionnaire. A campus pre-addressed envelope is attached to the back of the questionnaire to facilitate the return of the questionnaire. Because your response is needed for this study, I would appreciate receiving the questionnaire back within the week, but take more time if your schedule demands. It is important to the study to obtain your response.

Thank you,

Neal Willison

Neal Willison
Assistant Professor
207 Crutchfield Hall
Oklahoma State University

NAW:ms

Attachment

# WOMEN'S INFORMATION SURVEY

The information requested on this form is being collected as part of a study on women in higher education at Oklahoma State University. Your voluntary participation in this research is being solicited in order to achieve a better understanding of how women students select an academic major and how women students can be better recruited and advised. Identifying information, in case a follow-up is needed, has been coded on the questionnaire but your responses will be held in the strictest professional confidence. No data will be reported in such a manner that you could be identified.

1. What was your average grade in high school? (Mark One)

   A or A+ . . () B+ . . . () B- . . . () C . . . ()

   A- . . . . () B . . . () C+ . . . () D . . . ()

2. How well did you feel that your high school prepared you in the following areas: (Mark One in Each Line)

| | Very Well | Fairly Well | Poorly | Not Applicable |
|---|---|---|---|---|
| Mathematical Skills . . . . . | () | () | () | () |
| Reading and Composition . . . . . | () | () | () | () |
| Foreign Languages . . . . . | () | () | () | () |
| Science . . . . . | () | () | () | () |
| History, Social Science . . . . . | () | () | () | () |
| Vocational Skills . . . . . | () | () | () | () |
| Music and Artistic Skills . . . . | () | () | () | () |
| Physical Fitness . . . . . | () | () | () | () |

3. Did you transfer from another college or university to O.S.U.?

   No . . . () Yes . . . () If yes, from where_____.
   Name of College

4. Have you changed academic majors since enrolling at O.S.U.?

   No . . . () Yes . . . () If yes, from what major did you transfer to your present major? _____

5. How much of this year's educational expenses (room, board, tuition, and fees) do you expect to obtain from each of the sources listed below? (Mark one answer to each possible source)

| | None | $1-$499 | $500-$999 | $1,000-$1,999 | $2,000-$4,000 | Over $4,000 |
|---|---|---|---|---|---|---|
| Parental, or family aid, or gifts . . . | () | () | () | () | () | () |
| Grants or Scholarships . . . . . | () | () | () | () | () | () |
| Loans . . . . . | () | () | () | () | () | () |
| Full-time Work . . . . . | () | () | () | () | () | () |
| Part-time Work . . . . . | () | () | () | () | () | () |
| Savings . . . . . | () | () | () | () | () | () |
| Spouse . . . . . | () | () | () | () | () | () |
| G.I. Benefits . . . . . | () | () | () | () | () | () |
| Other . . . . . | () | () | () | () | () | () |

6. Are You: (Mark One) Single . . . . () Divorced . . . ()
Married . . . () Separated . . ()

7. What is your best estimate of your parents' total income last year? Consider annual income from all sources before taxes. (Mark One)

| | | | |
|---|---|---|---|
| Less than $3,000 . . . | () | $15,500-19,999 . . . | () |
| $3,000-3,999 . . . . . | () | $20,000-24,999 . . . | () |
| $4,000-5,999 . . . . . | () | $25,000-29,999 . . . | () |
| $6,000-7,999 . . . . . | () | $30,000-34,999 . . . | () |
| $8,000-9,999 . . . . . | () | $35,000-39,999 . . . | () |
| $10,000-12,499 . . . . | () | $40,000-49,999 . . . | () |
| $12,500-14,999 . . . . | () | $50,000-or more . . | () |

8. What is the highest level of formal education obtained by your parents? (Mark one in each column)

| | Mother | Father |
|---|---|---|
| Grammar School or less (6 years or less). . | () | () |
| Some High School (7 to 11 years). . . . . | () | () |
| High School Graduate (12 years) . . . . . | () | () |
| Post Secondary School or other than college (Business school, Adult Vocational-Tech Program). . . . . | () | () |
| Some College (1 to 3 years) . . . . . | () | () |
| College Degree (B.S. or B.A., 4 years) . . | () | () |
| Some Graduate School . . . . . | () | () |
| Graduate or Professional Degree . . . . . | () | () |

9. What is your mother's current occupation? _____

How many years has she been in this occupation?

Less than 5 . . . () 11 - 20 . . . ()
6 - 10 . . . . . () Over 20 . . . ()

10. What is your father's current occupation? _____

How many years has he been in this occupation?

Less than 5 . . . () 11 - 20 . . . ()
6 - 10 . . . . . () Over 20 . . . ()

11. How many brothers do you have? _____ Sisters? _____

12. Are you the oldest child in the family? _____ Youngest? _____
Yes/No Yes/No

Neither? _____
Yes/No

13. What is the highest college degree you plan to obtain?

Associate Degree . . . . () Masters Degree . . . . () Other _____
Bachelor Degree . . . . () Doctorate Degree . . . () Specify

14. Which one of the following academic areas do you believe to be the most demanding? (Mark Only One)

| | | | |
|---|---|---|---|
| Education . . . . . | () | Engineering . . . . . | () |
| Art . . . . . | () | Home Economics . . . . . | () |
| Business . . . . . | () | Technology . . . . . | () |
| Agricultural . . . . . | () | Biological Science . . . . | () |

15. Below are some reasons that might have influenced you to attend this particular university. Please indicate the importance of each reason in your decision to attend O.S.U.

(Mark only one answer for each possible reason)

(N) Not Important
(S) Somewhat Important
(V) Very Important

| | N | S | V |
|---|---|---|---|
| A. My relatives wanted me to come here | () | () | () |
| B. A teacher advised me. | () | () | () |
| C. This university has a very good academic reputation. | () | () | () |
| D. I was offered financial assistance. | () | () | () |
| E. Someone who had attended OSU before advised me. | () | () | () |
| F. This university offers special educational programs. | () | () | () |
| G. This university has low tuition | () | () | () |
| H. My guidance counselor advised me. | () | () | () |
| I. I wanted to live at home. | () | () | () |
| J. A friend suggested attending OSU. | () | () | () |
| K. A univeristy representative recruited me. | () | () | () |

16. Below are some factors which may have influenced you in your choice of an academic major program. Please indicate the influence each of the following factors had on your choice of academic majors. For the second group of factors also indicate if the person(s) influencing you were male or female.

(Mark only one response for each possible reason)

(N) No Influence
(S) Some Influence
(V) Very Much Influence

| | | N | S | V | Female | Male |
|---|---|---|---|---|---|---|
| I. | A. My father | () | () | () | | |
| | B. My mother | () | () | () | | |
| | C. My interpretation of the subject matter. | () | () | () | | |
| | D. The number of job opportunities | () | () | () | | |
| | E. The possible starting salaries. | () | () | () | | |
| | F. Husband's or boyfriend's occupational area. | () | () | () | | |
| II. | G. My peers. | () | () | () | () | () |
| | H. My high school guidance counselor | () | () | () | () | () |
| | I. A college counselor or student personnel director. | () | () | () | () | () |
| | J. A high school teacher | () | () | () | () | () |
| | K. A college faculty member. | () | () | () | () | () |
| | L. Other professional I have met | () | () | () | () | () |

17. Thinking back, when did you first decide that you might be interested in the career you are now pursuing? (Mark One)

Grade School . . . . . ()
Junior High or Middle School . ()
High School . . . . . ()
Freshman College Year . . . ()
Sophomore College Year. . . ()
Other . . . . . ()

18. The following questions deal with your personal values and attitudes. Consider the level at which you agree or disagree to each of the questions and indicate your answer by marking one of the responses for each question.

(Mark One in Each Line)

| | Disagree Strongly | Disagree Somewhat | Agree Somewhat | Agree Strongly |
|---|---|---|---|---|
| 1. The federal government should do more to discourage energy consupmtion | () | () | () | () |
| 2. The activities of married women are best confined to the home and family | () | () | () | () |
| 3. Women have a responsibility to put their talents to work outside the home | () | () | () | () |
| 4. Marijuana should be legalized | () | () | () | () |
| 5. Women have lost their own identity when they have to derive their only status from their husbands | () | () | () | () |
| 6. Women's image in the mass media overly emphasizes beauty, fashions, or homemaking values | () | () | () | () |
| 7. There is too much concern in the courts for the rights of criminals | () | () | () | () |
| 8. Women athletics should be supported equally to men athletics | () | () | () | () |
| 9. A woman who works full-time cannot possibly be as good a mother to her grade school children as one who stays home | () | () | () | () |

19. What age do you consider the ideal age to marry?

| | | | |
|---|---|---|---|
| Under 20 | () | 27-30 | () |
| 20-23 | () | Over 30 | () |
| 24-26 | () | Not Applicable | () |

20. The following 10 questions deal with occupational values. Consider to what extent a job or career would have to satisfy each of these requirements before you would consider it ideal. Mark one for each line.

| | | High | Medium | Low |
|---|---|---|---|---|
| 1. Provide an opportunity to use my special abilities or aptitudes | ___ | () | () | () |
| 2. Provide me with a chance to earn a good deal of money | ___ | () | () | () |
| 3. Permit me to be creative and original | ___ | () | () | () |
| 4. Give me social status and prestige | ___ | () | () | () |
| 5. Give me an opportunity to work with people rather than things | ___ | () | () | () |
| 6. Enable me to look forward to a stable, secure future | ___ | () | () | () |
| 7. Leave me relatively free of supervision by others | ___ | () | () | () |
| 8. Give me a chance to exercise leadership | ___ | () | () | () |
| 9. Provide me with adventure | ___ | () | () | () |
| 10. Give me an opportunity to be helpful to others | ___ | () | () | () |

Now please go back and look at the requirements you rated high. Rank them in order of the most important to least important. Let the number 1 be the most important with 2 being the next important and so on. Do not rank the medium and low responses. Do the ranking on the blanks near the "High" column.

If you were asked to help recruit other women students to enter the program that you are now in, what method or methods would you use? _____

_____

_____

_____

Thank you for completing the questionnaire. Please use the attached self-addressed campus mail envelope to return the questionnaire. Leave the envelope and questionnaire with any secretary on campus and ask her to place it in the campus mail.

Neal Willison
Assistant Professor
207 Crutchfield Hall

VITA[2]

Neal Allen Willison

Candidate for the Degree of

Doctor of Education

Thesis: A COMPARISON OF WOMEN IN ENGINEERING TECHNOLOGY AND OTHER MAJOR FIELDS OF STUDY AT OKLAHOMA STATE UNIVERSITY ON PATTERNS OF INTEREST, SCHOLASTIC APTITUDE AND DEMOGRAPHY

Major Field: Higher Education

Biographical:

Personal Data: Born in Stillwater, Oklahoma, June 30, 1948, the son of Mr. and Mrs. James D. Willison.

Education: Attended and graduated from high school at Ponca City, Oklahoma, in 1966; received an Associate of Science Degree from Oklahoma State University with a major in Electronic Technology in May, 1969, and a Bachelor of Science Degree from Oklahoma State University with a major in Technical Education in January, 1970; received the Master of Science Degree from Oklahoma State University in May, 1971; completed requirements for Doctor of Education degree from Oklahoma State University in July, 1978.

Professional Experience: A Data Analysist at Oklahoma State University, 1970-71; Manpower Internship, 1970-71, Assistant Professor of Electronics, Oklahoma State University, Stillwater, Oklahoma, 1971-present. Partner in Electronic Educational Systems designing hardware and software for education.