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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

SIMILARITIES AND DIFFERENCES BETWEEN MALE AND FEMALE DOCTORAL CANDIDATES IN REGARD TO BIOGRAPHICAL DATA, DIMORPHICAL DATA AND MOTIVATION FOR ENTERING THE DOCTORAL PROGRAM

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF EDUCATION

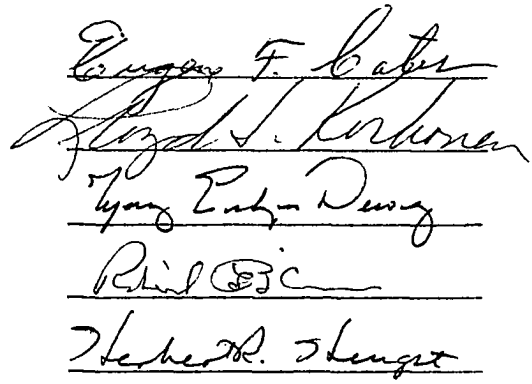
BY

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July, 1977

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APPROVED BY:



DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Graduate education in the United States is now 100 years old. In America the recognition of women in the doctoral program began in 1877 at the University of Boston when a Doctor of Philosophy degree was conferred on a woman (Hutchinson, 1929). According to Mitchell and Alciatore (1970), the first doctorate in Oklahoma was granted to a woman by the University of Oklahoma in 1929.

The American Council on Education (1959) reported that the number of women earning doctoral degrees has fluctuated greatly since 1890, when women received about 6% of the degrees conferred. The proportion of all doctoral degrees earned by women between 1910 and 1940 rose from 12% to 16%. By the end of World War II, one-fifth of the doctoral degrees were earned by women, according to the American Council on Education (1959). The Chronicle of Higher Education (1977), reported that the number of women receiving doctorates increased 59% in the five year period between 1970 and 1975. A Department of Health, Education, and Welfare study (Roark, 1977) showed that women received 21% of the doctorates in 1975, only 1% higher than the number of women receiving doctorates at the end of World War II.

The number of doctorates earned by women has increased, but the number of men earning the doctorate has also increased. The proportion of degrees earned by women has remained almost unchanged.

Lewis (1968), a psychologist interested in the efficient use of human resources, says that women represent the largest area of waste. Lewis believed that:

> Every person - regardless of race, social class, or sex - should have the opportunity to develop goals in accordance with his abilities and to work toward those goals, unhampered by the restrictions of outmoded social traditions. (p. vii)

Need for the Study

Graduate education, like public school education, must be accountable to the tax payer as well as to graduate students enrolled in their programs. Several questions have been raised recently about graduate education. Because of the waste of intelligence, a pressing question is why women are so under-represented in graduate school population. There are other questions regarding female graduate students that also need answers. Some of the questions are: (1) Why is there a smaller proportion of women students than men attending graduate school fulltime, (2) Why are women viewed as less committed scholars, and (3) Why is the attrition rate of women in advanced training so high.

There are no simple answers to the complex issues

involved in why women have failed to earn as many academic degrees as men. In order for institutions offering advanced degrees to better serve graduate students, faculty members, department chairpersons, and deans need to know the characteristics of their students and factors that motivated them to enter advanced graduate programs. While this study was interested in both genders of doctoral students, special attention was given to the female advanced graduate student and ways in which she was similar to and/or different from the male doctoral student.

Statement of the Problem

It was the intention of this study to compare female graduate students, because they have advanced to the doctoral level of education, and male graduate students on selected criteria. More specifically, the study was intended to show how male and female doctoral students at the University of Oklahoma, enrolled during the academic year of 1976-77, differed in regard to biographical data, dimorphical data, and motivation for entering a doctoral program.

Hypotheses Tested in the Study

The following six null hypohteses were tested for significance at the .05 level.

Ho_1 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between

male and female candidates' median age.

Ho_2 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between the male and the female candidates' marital status.

Ho_3 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between male and female candidates' parental educational level.

Ho_4 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between male and female candidates' parental annual income.

Ho_5 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between the number of male and the number of female candidates at the University of Oklahoma who purposefully planned to secure a doctoral degree.

Ho_6 There are no statistically significant differences on the University of Oklahoma Graduate Student Questionnaire between the number of male and the number of female candidates who enter into the doctoral program by chance at the University of Oklahoma.

In addition to the six hypotheses, the researcher investigated ancillary research questions related to minority races (Black, American Indian, Oriental, and Other). These were not hypothesized since testing had not been done between races, therefore, the lack of theoretical framework would not allow these questions to be tested as hypotheses (Good, 1973). The particular information used in making ancillary comparisons was taken from the same

University of Oklahoma Graduate Student Questionnaires used to collect information about the stated hypotheses. The particular areas chosen for making ancillary comparisons were those which had shown some implications from previous studies.

(1) Minority and Caucasian candidates' median age

(2) Minority and Caucasian candidates' marital status

(3) Minority and Caucasian candidates' parents' educational level

(4) Minority and Caucasian candidates' parents' annual income

(5) Minority and Caucasian candidates' motivation (drift or purposeful) for entering the doctoral program

Delimitations of the Study

Certain delimitations were necessary in order for this study to be possible. The four most important delimitations were as follows:

(1) The sample of students for this study was accepted into the doctoral degree programs at the University of Oklahoma.

(2) All students were currently enrolled at the University of Oklahoma in a doctoral program as either parttime or fulltime students during the 1976-77 academic year.

(3) The information collected was limited to responses taken from the University of Oklahoma Graduate Student Questionnaire as shown in Appendix B.

(4) Questions contained on the data collection instrument were limited to areas being

investigated in the present study.

Definition of Terms

To eliminate possible misinterpretations of the discussions that follow, working definitions were established. These definitions are not meant to be universal definitions but only as the terms were used in this study.

(1) Advanced Graduate Work: This word applies to the course work taken for completion of requirements either of the Ed.D. program or the Ph.D. program. It implies that the person has been admitted to do work leading to a doctoral degree.

(2) Doctorate: A person who has received either the degree of Doctor of Education (Ed.D.) or Doctor of Philosophy (Ph.D.).

(3) Advanced Graudate Students: Those persons who have been admitted to the Graduate College to do work leading to a doctoral degree.

(4) Biographical Data: Personal information concerning age, race, marital status, and number and ages of children.

(5) Dimorphic Data: Dimorphics is the study of differences between male and female occupational segregation (Strober, 1976). In this study dimorphical data included father's, mother's, and spouse's annual income and father's, mother's, and spouse's occupation.

(6) Motivation: The participants' incentive to pursue a doctoral degree. In the present study, participants' motivation for entering the doctoral program was classified as either "drift" or "purposeful".

(7) Drift Motivation: The incidental or chance progress toward the doctoral degree program as a result of taking course work beyond the Master's Degree.

(8) Purposeful Motivation: The intentional or deliberate progression toward a doctoral degree as a result of taking courses beyond the Master's Degree.

CHAPTER II

REVIEW OF LITERATURE

Given certain assumptions about the distribution of the sexes in higher education, there is a shortage of women in academia. Bernard (1974) stated that "There have never been very many educated women in any area in the labor force, let alone in academia" (p. 56). The high dropout rates of women in school beyond the Bachelor's Degree level reflects this situation.

The number of girls who graduated from high school according to the 1970 census was 1,882,427, while the number of boys graduating from high school was 1,623,663. The number of women who graduated from college with a baccalaureate degree in 1970 was 589,853 while the number of men was 550,832. The number of males completing five or more years of college in 1970 was 3,686,646 while the corresponding number of women was 1,669,057. The high attrition rate of women from high school through college and masters' programs explain in part, the lack of women eligible for the doctoral program. The Radcliffe Committee on Graduate Education for Women (1956), the National Manpower Council (1957), and the President's Commission on the Status of Women (1963) all agree that academically talented girls are not as likely as equally talented young men to

complete the undergraduate degree.

Heist (1962) reported that the attraction to a vocation, social activities, and marriage are reasons given by women for quitting school. Bernard (1974) stated that many women choose marriage and even though marriage does not preclude college as it once did, most young women who marry drop out. Interesting job possibilities are an attraction to the college student, as well as the baccalaureate graduate. Bernard (1974) felt that the attraction of an interesting job and the pull of marriage are understandable reasons why only a small portion of women who complete college continue their education. In addition to Heist's (1962) observations, Bernard (1974) also found that if a family had to make a choice between sending a son or a daughter to college, it was usually the son who was sent.

Marriage and the Graduate Student

Of women who achieve the baccalaureate degree and decide to enter graduate school, most do not see an education and/or a career as a substitute for marriage. In a survey of 231 dating couples enrolled in college, Peplau, Rubin, and Hill (1976) found that 96% of the men and women surveyed expected to marry. Like undergraduate women, the unmarried female graduate students hope to marry. Graduate women want husbands who are their equals, if not superiors who can be "looked up to" (Bernard, 1974, *p.* 211). Married

women graduate students are more likely to be married to spouses who have also had graduate training (Leslie, 1976).

According to Bernard (1974), many women are more able than the fellow students they marry and women willingly subordinate their own degree programs to those of their husbands. Horner (1969) calls this phenomenon, "motive to avoid success" (p. 38). Horner says that, consciously or unconsciously, girls equate intellectual achievement with a loss of femininity. The findings of Lewis in 1968 agree with Horner's proposition. He found that many intelligent girls felt that too much education would hurt their chances of getting married.

This so-called marriage gradient complicates the situation even more. Bernard (1974) says this is the tendency of men to marry women a little below themselves in both ability and social position. Therefore, some of the talented young women who Bernard calls the "cream of the crop" (p. 211) choose not to marry rather than to keep on "intellectually stooping" (p. 211) all of their lives so as to not appear intellectually "taller" (p. 211) than their husbands.

A study of graduate students reported by Davis (1962) pointed to a strong nonmarriage orientation among some women graduate students. This study showed that 71% of the women were single compared to 5% of the men. The proportion married declined with age. Davis (1962) concluded

that possibly graduate school attracted women who chose not to marry, but it was also possible that those who did marry, quit school.

The findings of Lewis (1968) concur with those of Davis. Lewis states that the proportion of single women does increase with an increase in education. This situation has been changing since World War II (Lewis, 1968). Lewis also says that about 90% of women college graduates do marry.

Lewis (1968) reported that Glick and Carter found validity in the reasons why there are more unmarried women in graduate school. The unmarried woman must hold a job; and if she is a college graduate, she is likely to be in a profession; therefore, job advancement may require further education. The unmarried woman has a greater opportunity for advanced study due to the lack of responsibility of a husband and/or children, according to the study. Glick and Carter, according to Lewis (1968), felt that the increased education of the unmarried woman may be a result rather than a cause of their unmarried status.

Women who have strong career goals may not find marriage and family compatible with advanced graduate education or with advancement in a career. In this modern age, more than ever before, according to Lewis (1968), women are more free to decide to remain single. Centra (1975) found that women were less likely to marry and more likely to be divorced. According to Centra (1975), dual

responsibilities for a good many women doctorates contributed to a divorce rate that was much higher than for men.

Of the women doctorates, Centra (1975) found that one in four marriages resulted in divorce compared to one in ten for men. Nearly 40% of the women who were married at the beginning of their doctoral studies divorced (Centra, 1975). Centra's study pointed out that women frequently commented about the "frustrations of dealing with a family and a career" (p. 61). The women in Centra's study who did remarry were more likely to find husbands more supportive of their careers and with more education than their first husbands. Often, the men who remarried also chose women who had more education than their first wives (Centra, 1975).

Bardwick (1971) said that the priority of marriage is reversed among men and women. A top priority for men is the pursuit of their vocational commitment, while women are more interested in the creation and the maintenance of a marriage relationship (Bardwick, 1971). Married women students, according to Anderson, Bowman, and Tinto (1975) are under great pressure because of marital and academic demands to dropout. Anderson et al. (1972) found that if these women did remain in school, they were less likely to participate in the "anticipatory or informal socialization that are important facets of graduate student life" (p. 170). Feldman (1975) said that about three-fourths of the

married female graduate students are only enrolled on a parttime basis. Married men, on the other hand, felt little conflict between the roles of spouse and graduate student and, according to Anderson et al. (1975) were the best-adjusted of all graduate students.

The most committed and active graduate students, according to Anderson et al. (1975) are the divorced and separated women, because they become "fully immersed in the student role" (p. 170) even though 70% of these women have children. Feldman (1975) agreed, and went on to say that divorced women are more committed to graduate study than their single or married female counterparts. Divorce, on the other hand, is a source of strain for men, "who lose a supportive relationship" (Anderson et al., 1975, p. 170).

Decision to Enter Graduate School

A significant fact about the decision to go on to the doctorate has to do with when it was made. Berelson (1960) found that 5% made the decision at the end of the Master's program. Mitchell and Alciatore (1970), in a study of over 200 women who had received doctorates in Oklahoma, found 17 years to be the median time lapse from the bachelor's degree to the doctorate. The national median, according to Mitchell and Alciatore, is 11.2 years for women and 7.9 years for men. Gropper and Fitzpatrick (1959) and Berelson (1960) also reported that women were slower than men in

arriving at the decision to get the doctorate.

"Going ahead for the doctorate" seems to be much less the result of a decision and more the result of a "drift" (p. 147) especially for women, according to Berelson (1960). Heiss (1970) said that students drift or fail to "hone toward a goal" (p. 179) by accumulating credits or even high grade-point averages but fail to integrate the credits into a major area. Gropper and Fitzpatrick (1959) and Berelson (1960) reported that women were more likely than men to have made the drift decision to go to advanced graduate school.

Gropper and Fitzpatrick (1959) and Berelson (1960) felt that a woman's decision to enter graduate school appeared to be influenced by the kinds of academic experiences she had at school and that even the choice of field was strongly influenced by faculty contact. Bernard (1974) reported a study of 48 women who were working for the doctorate in which 27% of these women reported that high school and college teachers had been primary influences in their decisions to go on. Tidball (1974) concurred and perceived that role models for women students are a critical ingredient of a college environment. Bardwick (1971) stated that teachers were more influential on those women from lower socioeconomic levels and that families were more influential among those from higher socioeconomic levels. According to Bardwick, the University of Michigan told their

married female faculty members that part of their contribution to the department was the fact that they were married, had children, and were successful professionally and could therefore serve as role models for female students.

Mitchell and Alciatore (1970) found that the academic women in their study met "far more" (p. 535) encouragement than discouragement from professors. Feldman (1974), on the other hand, reported that the higher dropout rate of graduate women than graduate men was probably related to self-image and the relationship with professors. Feldman maintained that academic women were given less encouragement than men; therefore, their self-images and performances suffered, resulting in emotional strain and a threat to the completion of the program.

Almost 75% of the women in the Mitchell and Alciatore (1970) study received some encouragement from their mothers in setting their educational goals for the doctorate. Less than 25% of the women studied were motivated by a mentor or role model. The Mitchell and Alciatore (1970) study revealed that the original idea to study for the doctorate was arrived at by the woman herself in more than half of the cases.

Janeway (1975) seems to agree, as she stated that many women students, particularly the older students, get themselves on campus "under their own steam" (p. 17). Both the Mitchell and Alciatore (1970) study and a study by Bernard

(1974) said that friends, employers, and husbands were influential in the woman's decision to go for the doctorate. When asked by Durchholz and O'Connor (1975) why they went back to college, the largest percentage of women (35%) said it was to prepare for employment. Thirty percent of these women said they were returning to fulfill a need or desire for education or achievement, 25% replied to facilitate personal growth, 4% returned to promote independence, and 4% for stimulation. Durchholz and O'Connor summarize their findings by saying women are not just "getting older" (p 241), but are determined to get a better education.

Dimorphical Background of Graduate Students

The background and social origin of graduate students have become more heterogeneous since the beginning of advanced graduate education (Berelson, 1960). Berelson found that recent receipients of the doctorate came from a wide range of social backgrounds most often represented by the 27% of the fathers with professional and executive jobs, while the occupational background least represented was the unskilled with 6%. Thirty-two percent of fathers had less than a high school education while 26% had a college education or more (Berelson, 1960). The educational background of fathers least represented in Berelson's study were the 4% of fathers who had a foreign education or other education.

Lewis (1968) reported a study by Hewer and Neubeck and

a study by Berdie in which female college students tended to come from families in which fathers were employed in an upper-level occupation. Bernard (1974) submitted that the social class background of undergraduate women who planned to continue education on the graduate level is generally higher than that of men as measured by fathers' income or occupations. Gropper and Fitzpatrick (1959) found when they compared the proportion of men and women with different class backgrounds who planned to enter graduate school, the relationship between the father's income and advanced education plans was not significant for the females.

Davis, as reported in Bernard (1974), said that high status families value and can afford higher education for all their children, but lower status families value and can afford it for children who "need it and that is more often a son than the daughter" (p. 288). Berelson (1960) felt that graduate school was a giant step in the career mobility of young people from lower-middle-class homes. According to Berelson (1960), "it is hard to overstate the importance of graduate school to students of high talent but low origin" (p. 134).

Financing Graduate School Education

The economics of advanced graduate study pose about the same problems for women and for men. Stipends are

available to both men and women, but Bernard (1974) reported that women are less likely to apply for them. Davis (1962) found that 18% of the men and 41% of the women going on to graduate study did not apply for stipends. Lewis (1968) found that women seemed to be overlooked in the awarding of fellowships to graduate students. Bernard (1974); however, pointed out that women received academic awards and fellowships in about the same proportion as they applied or were nominated for them.

The academic married women have a somewhat different economic pattern in that they have a higher ratio of support from husbands' jobs. Davis (1962) said that women can afford to go to graduate school only if their husbands can support the entire family, whether or not there is a child. Davis felt that graduate training for men is an important investment, but that graduate training of women is an "economic luxury" (p. 43).

In a random sample of 245 women who were continuing their education, Durchholz and O'Connor asked what their husbands' attitudes were to their return to college. The respondents' replies showed that 76% of the husbands had favorable or very favorable attitudes. But how many women who wished to return to college did not do so because of their husbands' opposition? Fortunately, women can now make loans on their own when a husband does not consent to share his income for his wife's continued education.

As Durchholz and O'Connor point out, a woman is no longer forced to "spend her life in an economic childhood" (p. 241).

For the married man, the decision to invest in doctoral study involves the problem of keeping his family well and happy on a subsistence budget for several years, reported Heiss (1970). The married man must also realize that there will be a detachment from his wife at critical times. For the single male student, Heiss said, the decision to study for the doctorate may mean cutting off a normal social life and the postponement of marriage and perhaps the extension of the period during which he is dependent upon his parents.

Berelson (1960) found that among married students, most had children, at least when they finished the program. The family, not just the student, needed to be supported. This fact has required the addition of dependency allowances to many of the financial assistance programs available for students in advanced graduate study. Berelson went on to say that married men are frequently supported by their working wives.

CHAPTER III

METHODS AND PROCEDURES

This study investigated the differences between male and female candidates' reasons for entering the doctoral programs at the University of Oklahoma during the 1976-77 academic year. A questionnaire was developed which was administered to a stratified-random sampling of 125 males and 125 females enrolled in doctoral programs offered by the University of Oklahoma. The survey questionnaire collected information on biographical data, dimorphical data, and reasons for entering the doctoral program.

The procedures used in the study were divided as follows: (1) Pre-Survey Procedures, (2) Survey Procedures, and (3) Data Analysis Procedures.

PRE-SURVEY PROCEDURES

The pre-survey procedures consisted of all those tasks which the researcher completed before the actual collection of data began. The most important of these tasks are described in the following sections.

Choice of Research Design

The first step in the pre-survey procedures was the selection of a research design. In this instance the term "research design" is being used to imply the overall format

to be used in conducting the study. The procedural design selected for this study was one listed by Stanley and Campbell (1973) as a quasi-experimental design based on the sampling of participants from a finite population. They define a quasi-experimental design as . . .

> A study which occurs in a social setting in which the researcher can determine 'when' and 'whom' will participate but the independent variables have already acted and are not controlled by the researcher at the time they occur (p. 34).

A depiction of the research design is shown in Figure 1.

Sampling Design

Another pre-survey procedure was the selection of the participants for the survey. A stratified-random selection of 125 male and 125 female participants was made from the six program areas of Arts and Sciences, Business Administration, Education, Engineering, Fine Arts, and Information Processing and Computer Science shown in Table 1. Stratification along program areas assured a proportionate sampling of participants.

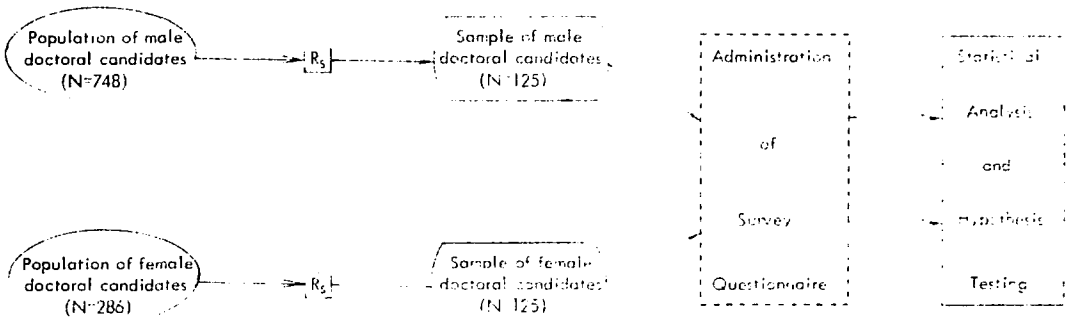
Survey Questionnaire

The questionnaire was developed by determining the categories or types of information sought and then asking the kinds of questions needed under each category. A copy of the University of Oklahoma Graduate Student Questionnaire is presented in Appendix A.

The areas or types of questions were classified as

FIGURE 1

RESEARCH DESIGN USED IN THE STUDY



R_s = Stratified-Random Sampling

TABLE 1

THE POPULATIONS AND SAMPLES OF STUDY PARTICIPANTS BY GENDER ENROLLED IN SELECTED DOCTORAL PROGRAMS AT THE UNIVERSITY OF OKLAHOMA

Area of Graduate Study	Total Population of Candidates	number of males in the sample	number of females in the sample
Arts and Sciences	495	53	53
Business Administration	50	2	2
Education	304	50	56
Engineering	111	10	7
Fine Arts	57	8	5
Information Processing and Computer Science	17	2	2
TOTALS	1,034	125	125

*Source: Office of the Registrar, the University of Oklahoma.

biographical, dimorphical, and motivational. The questions included the following information.

Biographical areas were as follows:

(1) Age

(2) Sex

(3) Marital Status

(4) Numbers and ages of children

(5) Number and ages of siblings

Dimorphical areas were as follows:

(1) Educational levels of parents

(2) Occupation of parents

(3) Income level of parents

(4) Occupation of spouse

(5) Educational level of spouse

(6) Primary source of finance for education

Motivational areas were as follows:

(1) Reasons for entering graduate school

  (a) Drift

  (b) Purposeful

(2) Grade point average in graduate school (Master's work)

(3) Reasons for choosing the University of Oklahoma

Questions concerning these areas were developed into questionnaire items.

Questionnaire Reliability

Reliability of the data collection instrument was established by administering the questionnaire to fifty doctoral candidates at three week intervals. A Pearson Product-Moment correlation was used to compare the participants' responses. The test-retest reliability of instrument was determined to be $r = 0.914$.

The content validity of the questionnaire was established by the consensual or jury method. Copies of the questionnaire were distributed to four faculty members at Cameron University. Each member was asked to determine whether the questions being asked would, in fact, solicit the kind of information needed to test the hypotheses. Faculty members were further asked to make an appropriateness rating of each questionnaire item on a 9-point continuum. Appropriateness ratings ranged from 7.88 to 8.29. The appropriateness ratings were related to candidates' responses to these same items during the pilot study. The concurrent validity of the questionnaire was determined to be significant beyond the .001 level; $r = 0.730$; $df = 48$, $p < .001$.

The four faculty members were also asked to make suggestions as to the changes they desired in question format, content, or arrangement. They suggested that more questions be asked in some areas and that the questionnaire format be changed. These suggestions were incorporated into

the questionnaire development for the final draft which is presented in Appendix B.

Conduct of Pilot Study

A pilot study was conducted by the researcher in order to better prepare for the research project. The primary purposes of the pilot study were to identify and correct any problems in the following areas:

(1) The sampling of participants

(2) The data collection instrument

(3) Conducting a mail-out survey

(4) Coding and analysis of the data collected with the instrument

(5) interpretation of the results obtained from the statistical analysis

Methods Used to Conduct the Pilot Study

In the pilot study the researcher conducted a mail survey. Copies of the data collection instrument, a self-addressed, stamped envelope, and a cover letter were mailed to 75 male and 75 female garduate students chosen for the pilot study. Participants for the survey were stratified randomly selected from the program areas of Arts and Services, Education, and Engineering as shown in Table 2. Copies of the cover letter and data collection instrument are presented in Appendices C and D. Data from the questionnaires were used to test the hypothesis to determine if

there were any differences between the number of male and female candidates who drifted into the doctoral programs at the University of Oklahoma and the number of males and females who purposefully entered these programs.

Results of the Pilot Study

Forty-eight males and forty-three females acted as subjects in the pilot study as shown in Table 2. Respondents made ratings of sixteen reasons for entering the doctoral programs - 8 drift reasons and 8 more purposeful reasons. Student's t-test was used to compare the males' and females' ratings of the drift reasons (Table 3). The greatest mean difference between the males' and females' ratings was observed on reason number 12; "My family, spouse, friends or others encouraged me to enter the doctoral program." Females gave this item a mean rating of 3.238, while males showed a mean rating of 2.188. Differences between the two groups' mean ratings were not significant ($p > .05$). Mean differences on all other items showed that the male candidates' fathers had significantly higher annual income than female candidates' fathers, but there was no significant difference between their parents' annual income or educational levels. Male and female respondents showed no differences in age, race, marital status, or birth order.

TABLE 2

PARTICIPANTS BY GENDER AND ACADEMIC AREA WHO WERE RANDOMLY SELECTED FOR THE PILOT STUDY

Area of Graduate Study	Total Population of Candidates	number of males in the pilot study	number of respondents	number of females in the pilot study	number of respondents
Arts and Sciences	495	39	25	30	15
Education	304	21	16	41	27
Engineering	111	15	7	4	1
TOTALS	910	75	48*	75	43*

*Nine males' replies and seven females' replies were returned too late to be included in the pilot study. Seventeen questionnaires were returned undeliverable.

TABLE 3

MALES' AND FEMALES' COMPOSITE RATINGS OF THE REASONS GIVEN FOR ENTERING THE DOCTORAL PROGRAM

Reason Number	Reasoning for Entering the Doctoral Program		Females' Composite Ratings	Males' Composite Ratings
*1.	Boredom with present education		2.769	2.319
2.	Job advancement		3.286	3.196
3.	Job entry		2.881	3.255
4.	Job opportunities		4.857	3.714
5.	Salary opportunities		3.415	3.458
*6.	Convenience at the time		2.795	3.213
*7.	Urging from major professor		2.550	2.462
*8.	Too far along to quit		3.100	2.644
*9.	Change in marital status		1.325	1.444
10.	Love for academic atmosphere		3.167	3.152
11.	Employed by research program		1.390	1.816
*12.	Urging from friends, family, etc.		3.238	2.188
13.	Planned to as undergraduate		2.585	2.688
14.	Interest in doctoral level subjects		3.220	3.087
*15.	Financial benefits, grants, etc.		1.900	2.435
*16.	Nothing else to do at the time		1.359	1.822
Purposeful Reasons		Mean	2.740	2.315
		Standard Deviation	0.915	0.655
*Gravitational Reasons		Mean	2.380	2.315
		Standard Deviation	0.755	0.530

TABLE 4

SUMMARY OF DIMORPHIC DATA CONCERNING
THE MALES' AND FEMALES' PARENTS

	FEMALES	MALES
Father's Educational Level	$\bar{X}$ = 13.03 years S = 3.61	$\bar{X}$ = 13.66 years S = 3.46
Mother's Educational Level	$\bar{X}$ = 13.48 years S = 3.24	$\bar{X}$ = 13.18 years S = 2.94
Father's Annual Income	< $ 3,000 = 4 $3,000 - $ 6,000 = 7 $6,000 - $ 9,000 = 7 $9,000 - $13,000 = 13 > $13,000 = 3	< $ 3,000 = 2 $3,000 - $ 6,000 = 7 $6,000 - $ 9,000 = 7 $9,000 - $13,000 = 8 > $13,000 = 22
Mother's Annual Income	< $ 3,000 = 13 $3,000 - $ 6,000 = 3 $6,000 - $ 9,000 = 2 $9,000 - $13,000 = 6 > $13,000 = 4	< $ 3,000 = 16 $3,000 - $ 6,000 = 7 $6,000 - $ 9,000 = 9 $9,000 - $13,000 = 3 > $13,000 = 1

TABLE 1

SUMMARY OF MALE AND FEMALE PARTICIPANTS' PERSONAL DATA

	FEMALES	MALES
AGE	Range 23-62 years X = 35.22 years S = 8.91	Range 22-52 years X = 33.09 years S = 7.55
BIRTH ORDER	1st Born = 25 2nd Born = 8 3rd Born = 3 4th Born = 4 5th Born = 1 6th Born = 1 7th Born = 0	1st Born = 22 2nd Born = 12 3rd Born = 5 4th Born = 2 5th Born = 1 6th Born = 5 7th Born = 1
RACE	Caucasian = 34 Black = 6 Indian = 2 Oriental = 1 Latin Am. = 0	Caucasian = 38 Black = 4 Indian = 2 Oriental = 2 Latin Am. = 2
MARITAL STATUS	Single = 4 Married = 29 Divorced = 6 Widowed = 1	Single = 8 Married = 36 Divorced = 3 Widowed = 1

SURVEY PROCEDURES

The following procedures were followed in conducting the mail survey.

Preliminary Mailing

Copies of the data collection instrument, a self-addressed, stamped envelope, and a cover letter were mailed to the 250 graduate students chosen for the study. The preliminary mailing was done at the end of the week in order to insure maximum responses from recipients as suggested by Hyman (1955).

Follow-Up Mailing

Seven days after the initial mailing, postcards were sent to the non-respondents to encourage the return of the completed questionnaire.

Second Mailing

Two weeks (14 days) after the preliminary mailing, a second mailing was made to those who had not responded to the preliminary mailing or the follow-up. The second mailing included a questionnaire, cover letter, and a self-addressed, stamped envelope.

The researcher made every effort to collect data from all those chosen for the study. In addition to the second mailing and follow-up postcard, several telephone calls were made to non-respondents. The number of respondents in

each area is presented in Table 6.

The data presented in Table 6 show that a total of 182 responses were received. This was a response rate of 72.8 percent.

DATA ANALYSIS PROCEDURES

Statistical Analysis

Several statistical techniques were employed in the analysis. After frequency counts were made, means and standard deviations were computed for the participants' age, sex, race, marital status, parents' income, parents' occupationa, parents' educational levels, and sources of financial support. Next, a composite importance ratings was computed for each reason for entering the doctoral program. The composite ratings were determined by frequencies accumulated at each rating point, and averaging the products. Male and female responses were compared as a means of testing the hypotheses.

Campbell and Stanley (1963) indicate that the analysis of variance testing statistic is the proper analysis procedure for quasi-experimental designs when the mean values of three or more groups are being compared. When two group means are being compared they recommend a t-test and frequency data should be compared by using a chi square test.

The following hypotheses were tested with a student's

TABLE 6

RESPONSE PATTERNS OF MALE AND FEMALE PARTICIPANTS
FROM THE SIX AREAS OF DOCTORAL STUDY

Area of Graduate Study	number of males selected for the sample	number of male responses	number of females selected for the sample	number of female responses
Arts and Sciences	53	43	53	40
Business Administration	2	1	2	2
Education	50	34	56	44
Engineering	10	7	7	3
Fine Arts	8	3	5	3
Information Processing and Computer Science	2	1	2	1
TOTALS	125	89	125	93

t-test for two independent sample means:

(1) Females' and males' ages (Ho_1)

(2) Mother's educational level (Ho_{3a})

(3) Father's educational level (Ho_{3b})

(4) Mother's annual income level (Ho_{4a})

(5) Father's annual income level (Ho_{4b})

(6) Ratings of purposeful reasons for entering programs (Ho_5)

(7) Ratings of gravitational reasons for entering programs (Ho_6)

All t-tests were preceded by an F-Maximum Test of Homogeneity of Variance to determine if the sample variances were statistically equal. This is a crucial assumption to the t-test (Bruning & Kintz, 1970).

Hypothesis number two, concerning the cnadidates' marital status, was tested by using a chi square test of frequencies (Kerlinger, 1973).

CHAPTER IV

RESULTS OF DATA ANALYSIS

In the present study, one-hundred eighty-two (N = 182) doctoral candidates from the University of Oklahoma responded to a Graduate Student Questionnaire in an attempt to determine whether there were any biographical, dimorphical, or preferential differences between the females' (N = 93) and males' (N = 89) reasons for entering the doctoral programs. The number of males and females responding to the questionnaire is shown in Table 6. Hypotheses were tested in regard to (1) differences in age, (2) marital status, (3) parents' educational level, (4) parents' income level and (5) reasons for entering the doctoral programs.

Secondary comparisons were made between the females' and males' responses in the following areas; (1) race, (2) number and ages of children, (3) spouse's educational and income level, (4) sources of financial support, (5) parents' and spouse's occupational levels, and (6) opinions of the doctoral program.

This chapter of the dissertation contains the results of all statistical analysis. A summary of the results is presented at the end of the chapter.

Preliminary Analysis

Questionnaires were mailed to 125 females and 125 males who had been randomly selected from a population of graduate students at the University of Oklahoma.

Ninety-three females (74.4%) and eighty-nine males (71.2%) responded to the questionnaire. This was an overall response rate of nearly seventy-three percent (72.8%).

The data were analyzed by calculating means and standard deviations for interval level data whenever possible, and frequency counts of responses were made when measurement was at the nominal level. Summary statistics for the biographical data section of the questionnaire are presented in Table 7.

Results of Testing the First Null Hypothesis

The first null hypothesis was stated in the following format:

Ho_1 There is no statistically significant differences between the male candidates' median age and the female candidates' median age as reported on the Oklahoma Graduate Student Questionnaire.

The first null hypothesis was tested by comparing the average ages reported by the male and female participants. The comparison was made with a t-test for two independent sample means. The means and standard deviations involved in the calculations and the statistical results are presented in Table 8.

TABLE 7

SUMMARY OF BIOGRAPHICAL DATA FOR MALE AND FEMALE PARTICIPANTS

		FEMALES (N = 93)		MALES (N = 89)
AGE	Range	24-58 yrs	Range	24-55 yrs
	$\bar{X}$	35.398 yrs	$\bar{X}$	34.637 yrs
	S	7.962 yrs	S	7.373 yrs
RACE	American Indian	2	American Indian	1
	Black	7	Black	3
	Caucasian	81	Caucasian	73
	Oriental	0	Oriental	3
	Other	3	Other	9
	Total . . .	93	Total . . .	89
MARITAL STATUS	Single	18	Single	17
	Married	48	Married	67
	Divorced	22	Divorced	4
	Widowed	3	Widowed	0
	Non-respondents	2	Non-respondents	1
	Total . . .	93	Total . . .	89
NUMBER OF CHILDREN	One child	15	One child	17
	Two children	19	Two children	19
	Three children	7	Three children	10
	Four children	4	Four children	6
	Five or more children	1	Five or more children	2
	No children reported	47	No children reported	34
	Total . . .	93	Total . . .	89
AGES OF CHILDREN	Range =	1-30 years	Range =	1-30 years
	$\bar{X}$ =	13.878 yrs	$\bar{X}$ =	11.233 yrs
	S =	7.214 yrs	S =	7.229 yrs

TABLE 8

RESULTS OF THE COMPARISON BETWEEN FEMALE AND MALE CANDIDATES' MEAN AGE

	Females (N = 91)	Males (N = 92)	Calculated t-Value	Significance Level
Mean Age	$\bar{X}$ = 35.308	$\bar{X}$ = 34.637		
			t = 0.602	p > .05
Standard Deviation	S = 7.662	S = 7.373		

The results presented in Table 8 show that there was not a significant difference between the average age of the male doctoral candidates and the average age of the female doctoral candidates ($t = 0.602$; $df=181$: $p > .05$). These results would not allow the researcher to reject the first null hypothesis.

Results of Testing Null Hypothesis Number Two

The second null hypothesis was stated in the following format:

> Ho_2 There is no statistically significant difference between the male doctoral candidates' marital status and the female candidates' marital status as reported on the Oklahoma Graduate Student Questionnaire.

The second null hypothesis was tested by comparing the numbers of males and females who reported their marital status as; (1) single, (2) married, (3) divorced, or (4) widowed. The comparison was made with a chi square test based on a contingency table. The frequencies reported by the two groups are shown in Table 7. The frequencies involved in the calculations and the results are presented in Table 9.

The results presented in Table 9 show that there was a significant difference between the male candidates' marital status and the female candidates' marital status ($X^2 = 14.20$; $df=3$: $p < .01$). These results allowed the

TABLE 9

A COMPARISON OF THE FEMALE AND MALE CANDIDATES' MARITAL STATUS

Marital Status	FEMALES (N = 93)		MALES (N = 89)	
	#	%	#	%
Single	18	20	17	19
Married	48	51	67	75
Divorced	22	24	4	5
Widowed	3	3	0	0
Marital Status not reported	2	2	1	1
Totals . . .	93	100	89	100

researcher to reject the second null hypothesis.

The data presented in Table 9 shows that there was a significantly greater number of the males who were married than the females.

Results of Testing the Third Null Hypothesis

The third null hypothesis had to be tested as two null hypothesis because two different comparisons had to be made. The two sub-hypotheses tested were stated as follows:

Ho_{3a} There is no statistically significant difference between the mother's educational level as reported by the female doctoral candidates and the mother's educational level as reported by the male doctoral candidates.

Ho_{3b} There is no statistically significant difference between the father's educational level as reported by the female doctoral candidates and the father's educational level as reported by the male doctoral candidates.

Both sub-hypotheses were tested by comparing the parents' educational levels reported by the two groups of doctoral candidates. A t-test for two independent sample means was used to make the comparisons.

A comparison of the mothers' educational levels showed a significant difference between the females' and males' responses ($t = 1.96$; $df=177$: $p < .05$). The mothers' educational levels reported by the females were significantly higher than the mothers' educational levels reported by

TABLE 10

SUMMARY OF EDUCATIONAL INFORMATION REPORTED BY MALE AND FEMALE PARTICIPANTS

EDUCATIONAL LEVEL	FEMALES			MALES		
	Mother	Father	Spouse	Mother	Father	Spouse
6th or less	1	5	-	8	11	-
9th	8	9	-	6	13	-
some High School	10	10	-	9	7	4
completed H.S.	13	16	-	23	13	5
Trade School	15	4	-	2	4	3
some college	21	20	6	18	15	16
college graduate	16	9	5	14	14	12
graduate school	2	3	7	4	4	10
advanced degree	6	17	37	3	7	18
Mean	13.66	13.55	17.36	12.78	12.59	15.71
Standard Deviation . . .	2.70	3.47	1.04	3.28	3.77	2.21

the male candidates.

A comparison of the fathers' educational levels showed no significant difference between the females' and males' responses ($t = 1.77$; $df=177$: $p > .05$). These results allowed the researcher to reject one part of hypothesis three.

Results of Testing the Fourth Null Hypothesis

The fourth null hypothesis had to be tested as two sub-hypotheses, since two different comparisons had to be made. The two sub-hypotheses were stated as follows:

Ho_{4a} There is no statistically significant difference between the mother's income level as reported by the female doctoral candidates and the mother's income level as reported by the male doctoral candidates.

Ho_{4b} There is no statistically significant difference between the father's income level as reported by the female doctoral candidates and the father's income level as reported by the male doctoral candidates.

Both sub-hypotheses were tested by comparing the parents' income levels reported by the two groups of doctoral candidates. A t-test for two independent sample means was used to compare the means shown in Table 11.

A comparison of the mothers' income levels showed no significant difference between the females' and males' responses ($t = 1.514$; $df=107$: $p > .05$). Sub-hypothesis Ho_{4a} could not be rejected.

A comparison of the fathers' income levels showed no significant difference between the females' and males' responses ($t = 0.334$; $df=107$: $p > .05$). Sub-hypothesis

TABLE 11

SUMMARY OF PARENTS' AND SPOUSES' INCOME LEVELS
AS REPORTED BY MALE AND FEMALE PARTICIPANTS

ANNUAL INCOME	FEMALES			MALES		
	Mother	Father	Spouse	Mother	Father	Spouse
Not gainfully employed	27	6	1	30	8	13
Less than $2,999	7	2	1	6	3	5
Between $3,000-$5,999	8	5	3	10	5	4
Between $6,000-$8,999	5	6	1	8	7	10
Between $9,000-$12,000	12	15	9	8	9	17
Above $15,000	14	35	40	6	34	8
Mean . . .	$ 9,025	$ 11,530	$ 12,629	$ 7,597	$ 11,307	$ 9,131
Standard Deviation . . .	4,519	3,468	2,874	4,113	3,846	3,795

Ho_{4b} could not be rejected. These results would not allow the researcher to reject either part of the fourth null hypothesis.

Results of Testing the Fifth Null Hypothesis

The fifth null hypothesis was restated and tested as follows:

> Ho_5 There are no statistically significant differences between the females' ratings of the purposeful reasons for entering the doctoral programs and the males' ratings of the purposeful reasons for entering the doctoral programs at the University of Oklahoma.

The fifth null hypothesis was tested by comparing the importance ratings made by female and male participants of the purposeful statements contained on the questionnaire. A t-test for two independent sample means was used to make the comparison. The purposeful statements, composite ratings, descriptive statistics, and results of the comparison are presented in Table 12.

The results presented in Table 12 show that there was a significant difference between the two groups' ratings of the purposeful statements ($t = 2.294$; $df=36$: $p < .05$). These results allowed the researcher to reject the fifth null hypothesis.

A visual comparison of the two groups' composite ratings shown in Table 12 indicates that the female candidates rated the purposeful reasons for entering the

TABLE 12

FEMALE AND MALE CANDIDATES' COMPOSITE RATINGS OF PURPOSEFUL REASONS FOR ENTERING THE DOCTORAL PROGRAM

	Questionnaire Statement	Females' Composite Ratings (N = 93)	Males' Composite Ratings (N = 89)
1.	I needed the degree for job advancement	3.862	3.597
2.	I needed the degree for job entry	3.586	3.302
3.	I wanted more job opportunities	4.163	3.702
4.	I wanted more salary opportunities	3.870	3.605
5.	I simply like the academic atmosphere aroung the university	3.412	3.026
6.	I am part of a research or training program that will result in my receiving a doctorate	2.583	3.107
7.	I had planned to get a doctorate even when I was in undergraduate school	3.116	2.378
8.	I was interested in the courses offered as part of the doctoral program	3.451	3.131
9.	I wanted to continue my intellectual growth	4.337	3.885
10.	I wanted to prepare for an academic career	4.120	3.564
11.	Achieving the doctorate will give me prestige	2.986	2.614
12.	After looking at more than one university, Oklahoma University seemed to offer the best program for me	3.115	2.850
13.	Other areas of my life are subordinate to achieving the doctorate	2.926	2.597
14.	My spouse is either in graduate school or already has a doctorate or professional degree	3.077	1.931
15.	My spouse strongly approves of my being in graduate school	3.875	3.443
16.	I am back in school after having dropped out to rear a family	2.931	2.296
17.	If others can get a doctorate, so can I	3.147	2.780
18.	I subscribe to more than one academic or professional journal	3.573	3.348
19.	Completing the doctoral program is a "must" for me	4.128	3.537
	MEAN RATINGS	3.487	3.089
	STANDARD DEVIATION	0.511	0.543
	$t = 2.294$; $df = 36$; $p < .05$		

doctoral program significantly higher than the male candidates.

Results of Testing the Sixth Null Hypothesis

The sixth null hypothesis was restated and tested as follows:

> Ho_6 There are no statistically significant differences between the females ratings of the gravitational reasons for entering the doctoral programs and the males' ratings of the gravitational reasons for entering the doctoral programs at the University of Oklahoma.

The sixth null hypothesis was tested by comparing the importance ratings made by female and male participants of the gravitational statements contained on the questionnaire. A t-test for two independent sample means was used to make the comparison. The gravitational statements, composite ratings, descriptive statistics, and results of the comparison are presented in Table 13.

The results presented in Table 13 show that there was no significant difference between the two groups' ratings of the gravitational statements ($t = 1.243$; $df=32$: $p > .05$). These results would not allow the researcher to reject the sixth null hypothesis.

A visual comparison of the two groups' composite ratings shown in Table 13 indicates that the female candidates rated the gravitational reasons for entering the doctoral programs slightly higher than the male candidates, but differences between the two groups' mean ratings were

TABLE 13

FEMALE AND MALE CANDIDATES' COMPOSITE RATINGS OF GRAVITATIONAL REASONS FOR ENTERING THE DOCTORAL PROGRAM

	Questionnaire Statement	Females' Composite Ratings (N = 93)	Males' Composite Ratings (N = 89)
1.	I was bored with my present level of educational attainment	3.258	2.825
2.	It was convenient for me to enter the doctoral program	3.413	3.200
3.	My major professor urged me to enter the doctoral program	3.281	2.887
4.	I was so far along as the result of other educational training, it was foolish of me not to continue toward a doctoral degree	3.427	3.297
5.	My marital status changed and I needed more educational training	3.000	2.474
6.	My family, spouse, friends, or others encouraged me to enter the doctoral program	3.095	2.658
7.	I took advantage of GI benefits, grants, scholarchips, etc.	3.531	3.558
8.	I did not have anything else to do at the time	2.395	2.229
9.	I am in graduate school to find myself	2.057	1.788
10.	Graduate school have me an opportunity to see if I really liked my particular field of study	2.310	2.295
11.	I am in graduate school because my spouse wants the prestige of my having a doctorate	1.625	1.719
12.	My undergraduate and master's grades were good, so I decided to enter the doctoral program	3.076	2.761
13.	My child(ren) encouraged me to enter the doctoral program	2.227	2.167
14.	Oklahoma University was the closest school to me offering a doctorate degree	4.07	3.281
15.	My child(ren) make fewer demands on my time now than previously	3.033	2.435
16.	Most of my friends have doctorates	2.083	1.780
17.	Faculty members in the Master's program seemed to feel that I was a serious student	3.650	3.308
	MEAN RATINGS	2.906	2.627
	STANDARD DEVIATION	0.697	0.584
	$t = 1.243$; $df = 32$; $p > .05$		

not significant.

Secondary Findings

Several secondary findings were made during the course of the study. These secondary findings were related to the areas; (1) areas of questionnaire responses which had not been hypothesized and (2) questionnaire responses made by the different races. Results of making these comparisons are presented in this section.

Racial Composition of Female and Male Participants

A comparison was made between the racial distributions of the female and male participants. A chi square analysis showed that there were significantly more non-white participants in the male group than in the female group ($X^2 = 8.252$; df = 3: $p < .05$).

Number and Ages of Children

A comparison was made between the average number of children reported by the female and male participants. Forty-six females and fifty-four males reported children. A comparison between the number of children reported was not significant ($t = 0.649$; df = 98: $p > .05$).

A comparison of the childrens' mean ages are shown in Table 7 showed that the female candidates' children were significantly older than the male candidates' children ($t = 2.670$; df = 212: $p < .01$).

Spouses' Educational Level

A comparison of the spouses' educational levels presented in Table 10 showed that the spouses' educational levels reported by female candidates was significantly higher than the spouses' educational levels reported by the male candidates ($t = 5.467$; $df = 121$: $p < .001$).

Spouses' Income Levels

A comparison of spouses' income levels as shown in Table 11 indicated that the spouses' income levels reported by the female candidates were significantly higher than the spouses' income levels reported by the male candidates ($t = 5.036$; $df = 96$: $p < .001$).

Sources of Financial Support

A secondary comparison was made between the participants' primary and secondary sources of financial support. The data presented in Table 14 show that a significantly greater number of the males depended on employment as their source of financial support than the females. On the other hand, a significantly greater number of the female candidates depended on their spouses' job as their source of financial support than the male candidates.

Parents' and Spouses' Occupational Levels

Comparisons were made between the parents' and spouses' occupational levels reported by the female and male

TABLE 14

SUMMARY OF FINANCIAL SUPPORT DATA REPORTED BY MALE AND FEMALE PARTICIPANTS

SOURCES OF FINANCIAL SUPPORT	FEMALES		MALES	
	Primary	Secondary	Primary	Secondary
1. Assistantship	28	8	24	13
2. Scholarship	1	4	1	4
3. Sabbatical leave	5	3	1	2
4. Loan from family or friends	2	7	5	4
5. Loan from government or institution	2	8	2	3
6. Grants	2	5	2	7
7. Savings and investments	6	13	2	15
8. Spouse's job	21	14	14	15
9. Employment	34	14	43	11
10. Donation	--	--	--	1
11. Other	1	4	8	8

candidates. Chi square comparisons were made between the numbers reported in the following occupational levels; (1) professional, (2) managerial, (3) skilled, and (4) unemployed. The numbers reported in each occupation are presented in Table 15.

A comparison of the occupational levels showed that there was no significant differences among the mothers' occupational levels as reported by the female and male candidates ($X^2 = 3.144$; df = 3: $p > .05$).

A comparison of the fathers' occupational levels reported by the female candidates and the fathers' occupational levels reported by the male candidates showed that significantly more of the females' fathers were employed at professional and managerial positions than the males' fathers ($X^2 = 8.205$; df = 3: $p < .05$).

A comparison of the spouses' occupational levels as reported by the female candidates and the spouses' occupational levels reported by the male candidates showed that significantly more of the females' spouses were employed as professionals than the males' spouses ($X^2 = 10.02$; df = 3: $p < .001$).

Preventive Factors

The reason given most often for not entering the doctoral programs sooner was "Lack of finances". Both groups gave this the highest preventive rating. (see Table 16)

TABLE 15

SUMMARY OF PARENTS' AND SPOUSES' OCCUPATIONAL LEVELS AS REPORTED BY MALE AND FEMALE PARTICIPANTS

Occupational Categories	FEMALES			MALES		
	Mother	Father	Spouse	Mother	Father	Spouse
1. College or university teacher, researcher, or administrator	2	7	16	1	2	6
2. Elementary or secondary school teacher or adm.	13	6	5	10	2	16
3. Physician		1	5		1	2
4. Other Professional	3	8	12	1	9	10
5. Manager, Administrator, semiprofessional	2	5	5	4	6	8
6. Owner, large business	1	9	1	--	2	--
7. Owner, small business	5	12	1	4	5	1
8. Other white collar: clerical or retail sales	6	5	3	8	7	4
9. Skilled wage worker	4	7	1	2	14	4
10. Armed forces	--	2	2	--	3	--
11. Semi- and unskilled wage worker, farm laborer	--	1	--	3	4	--
12. Farm Owner	2	6	--	2	6	--
13. Not gainfully employed	30	1	--	23	1	10
14. Retired	13	14	--	11	13	1
15. Other	6	3	6	12	3	7

TABLE 16

SUMMARY OF FEMALES' AND MALES' RESPONSES TO FACTORS WHICH TENDED TO PREVENT THEIR OBTAINING A DOCTORATE

	FEMALES			MALES		
	Yes	No	Maybe	Yes	No	Maybe
1. Lack of interest in a doctorate	17	65	10	21	59	9
2. Lack of finances	31	53	8	28	48	10
3. Interesting job	19	71	6	28	54	4
4. Was not sure of ability to do graduate work	9	75	7	18	65	7
5. Did not know if I could stand the emotional strain	10	68	13	10	71	7
6. Would you go straight through from baccalaureate to doctorate?	22	56	14	25	61	4
7. Would you still choose your present discipline for specialization?	58	16	20	57	21	12
8. Would you have entered the doctoral *program sooner*?	39	42	14	42	39	8
9. During the past year have you considered quitting the doctoral program for good?	26	59	13	30	54	5

Participants' responses to four questions about the doctoral program may be summarized as follows:

(1) Both groups felt that they would not go straight through from baccalaureate to doctorate.

(2) Both groups would choose the same area of study again.

(3) Males would enter the doctoral programs sooner, but females would not.

(4) Neither group had seriously considered quitting the doctoral program.

Summary of Results

Six null hypotheses were tested for significance at the .05 level. These results may be summarized as follows:

There was no significant difference between the female and male candidates' ages.

A significantly greater number of the male candidates were married than the female candidates.

The mother's educational levels reported by the female candidates was significantly higher than the mother's educational level reported by the male candidates, but there were no differences between the father's educational levels reported by the two groups.

There were no significant differences between the mother's and father's income levels reported by the female and male participants.

Female candidates made significantly higher ratings of purposeful reasons for entering the doctoral programs than

the males, but there were no differences between the two groups' ratings of gravitational reasons for entering the doctoral programs.

Results of comparing the female and male candidates' responses to secondary questions yielded the following results.

(1) There were significantly more non-whites among the male candidates than among the female candidates.

(2) Female candidates' children were significantly older than male candidates' children.

(3) The educational and income levels of the female candidates' spouses were significantly higher than those reported by the male candidates.

(4) Most male candidates received their financial support from employment, while most female candidates received their support from their spouse.

(5) Significantly more of the female participants' fathers and spouses were employed at the professional and managerial levels than the male participants' fathers and spouses.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

The purpose of this study was to compare female graduate students and male graduate students on selected criteria. More specifically, the study was intended to show how male and female doctoral students at the University of Oklahoma, enrolled during the academic year of 1976-77, differed in regard to biographical data, dimorphical data, and motivation for entering a doctoral program.

A questionnaire was developed which was administered to a stratified-random sampling of 125 males and 125 females enrolled in doctoral programs offered by the University of Oklahoma. The survey questionnaire collected biographical data, dimorphical data, and information on reasons for entering the doctoral program.

One-hundred eighty-two (N = 182) doctoral candidates responded to a Graduate Student Questionnaire. Responses were used in an attempt to determine whether there were any differences between the females' (N = 93) and males' (N = 89) reasons for entering the doctoral programs. Hypotheses were tested in regard to (1) differences in age, (2) marital status, (3) parents' educational level,

(4) parents' income level, and (5) reasons for entering the doctoral programs.

Secondary comparisons were made between the females' and males' responses in the following area; (1) race, (2) number and ages of children, (3) spouse's educational and income level, (4) sources of financial support, (5) parents' and spouse's occupational levels, and (6) opinions of the doctoral program.

The result of testing the six hypotheses showed that there were significantly more male candidates married than female; that the mother's educational level of female candidates was significantly higher than the mother's educational level of male candidates; and that female candidates were more purposeful than male candidates in reasons for entering the doctoral program. There was no significant difference between the female and male candidates' age, father's educational levels, parents' income levels or gravitational reasons for entering the doctoral program.

Results of secondary comparisons showed that there were significantly more non-white male candidates than female candidates; that the female candidates' children were older than the male candidates' children, that both the educational and income levels of female candidates' spouses' were significantly higher than male candidates', that most male candidates earned their financial support

while female candidates were supported by their spouses, and that significantly more female candidates' fathers and spouses were employed at the professional and managerial levels than the male candidates' fathers and spouses.

Results of opinions about the doctoral program were that neither the male nor the female candidates would go straight through the program from baccalaureate to doctorate, both genders would study the same area again, and that neither group seriously considered quitting the doctoral program. Male candidates, however, would enter the doctoral program sooner while the female candidates would not.

Conclusions

The conclusions presented in this section are based on stratified-randomly selected 1976-77 doctoral students' responses to the University of Oklahoma Graduate Student Questionnaire. Remarks concerning the results of testing the hypotheses and secondary comparisons are not intended to infer such findings to be typical of all doctoral students, but only the population from which the candidates were drawn.

The following conclusions were drawn about the females from this study:

(1) They were more likely to be divorced than the male candidate.

(2) Their mothers had higher educational levels than the mothers of the male candidates.

(3) Their children were older than the children of the male candidates.

(4) The educational and income levels of their spouses were higher than the educational and income levels of the male candidates' spouses.

(5) They were usually financially supported by their spouse.

(6) Their fathers and husbands were more likely to be employed at professional or managerial levels.

The typical female doctoral candidate was also more purposeful in her motivation to do work leading to a doctorate than the males. The above mentioned six factors played important roles in shaping the decisions the female students made when they decided to further their education at the doctorate level.

The following conclusions may be drawn about the male doctoral candidates.

(1) They were more likely to be married than the female candidate.

(2) More male candidates were non-white than were the female candidates.

(3) They provided their own financial support more often than did the female candidates.

(4) They would enter the doctoral program sooner than the female candidates if they had it to do again.

The male doctoral candidates were less purposeful than the females in their motivation to earn a doctorate. The four factors mentioned in the conclusions influenced the decision of the males to do work leading toward the

doctorate.

Other results of the study led to the following conclusions:

(1) The mean age of the male and female candidate was 35 years.

(2) The fathers of both genders attained similar educational levels.

(3) Parents' income levels were very similar for both groups of doctoral students.

(4) Neither the male candidates nor the female candidates would go straight through from bacculaureate to doctorate if they were to do it again.

(5) Both males and females would study in the same areas as chosen the first time they were starting over.

(6) Neither the female students nor the male students have seriously considered quitting the doctoral program.

Little or no differences were shown between the male/female candidates' responses in any of these six areas. These factors plus the others previously mentioned indicate that both male and female candidates are in the doctoral program for purposeful rather than gravitational or drift reasons.

Discussion

This study investigated similarities and differences between the male and female doctoral student on selected criteria. One self-report inventory with limited reliability and validity was used to collect data for this

study. More significant differences and similarities might have been found with the addition of personal interviews; notwithstanding a significant number of responses was obtained as 74.4% of the women and 71.2% of the men responded to the survey. Some findings of the study are in agreement with the work of other researchers and some are contradictory to the research of others.

According to Leslie (1976), married women graduate students are more likely to be married to spouses who have graduate training. The findings of this study concurred with Leslie's findings; married female candidates did have husbands with higher educational levels than did the male candidates reported for their wives. This finding also concides with results reported by Bernard (1974) who found that men tended to marry women below themselves in both position and ability.

Davis (1962), however, reported that 71% of the graduate women in his study were single compared to 51% of the men. A comparison of the female and male candidates' marital status in the present study showed that only 20% of the females and 19% of the males were single. Davis' conclusion that graduate school attracted women who chose not to marry or women who dropped out of school if they did marry does not seem to be supported by the results of the present study.

Centra (1975) found that women candidates were more

likely to be divorced than men candidates. Results of the present study concur with Centra. Twenty-four percent (24%) of the females were divorced compared with only 5% of the males. Anderson, Bowman and Tinto (1975) concluded that divorce was a source of strain for men who lose a supportive relationship. Anderson et al. (1975) concluded that the most committed and active graduate students in their study were divorced women. The women in the present study showed stronger purposeful reasons for being in graduate school than did the male students.

One of the major contradictions found in the present study was in the motivational reasons participants gave for entering doctoral programs. Berelson (1960), Gropper and Fitzpatrick (1959), and Heiss (1970) all found that women were more likely than men to have made the drift decision to work for a doctorate. Results of the present survey showed that women were significantly more purposeful in their decision to do doctoral work than were the men.

Mitchell and Alciatore (1970) found that 75% of the graduate women in their study received encouragement from their mothers. A comparison of the mothers' educational levels in the present study showed a significant difference between the females' and males' responses. The mothers' educational levels reported by the females were significantly higher than the mothers' educational levels reported by the male candidates. This suggests the influence

mothers have in helping their daughters set educational goals. The two groups fathers' educational levels were not significantly different in the present study.

Berelson (1960) found that graduate students had become more heterogeneous in background and social origin since the beginning of graduate education. In the present study a comparison of parents' income showed no significant differences for either the male or female candidates. Lewis (1968) reported that female students came from families in which fathers were employed at upper-level occupations. The present study concurred with Lewis' by finding that significantly more of the females' fathers were employed at professional and managerial positions than the males' fathers. Bernard (1974) also found that women who continued their education on the graduate level had fathers with higher incomes and occupational levels than did the men.

Davis (1962) found that married academic women had financial support from the husband's job. Those findings were supported by the results of the present study. A significant number of females depended on their spouses' jobs as their source of financial support. Men, on the other hand, depended more on self employment as their primary source of financial support.

Implications for Further Research

Several research possibilities became apparent while this study was being conducted. Some of these possibilities are enumerated in the following section.

The present study could be repeated using a different population. With this group personal interviews could also be added. It would be interesting to survey doctoral students at a number of different universities with comparisons being made individually and collectively.

The minority races were under represented in this study. Are the minority races working on advanced degrees in Oklahoma? If so, where are they going to school? Interesting results and cultural information might be obtained if the doctoral candidates of minority races were studied on a regional basis, individually, and collectively.

One further implication for research would be to conduct a longitudinal study of undergraduates who identify themselves as having an interest in working on an advanced degree. Results of such a study would give some indication of attitude changes and barriers experienced by persons who desired to work for the doctorate degree.

If the Oklahoma Graduate Student Questionnaire were to be used to collect information again, certain changes in the instrument might result in more accurate data. Some questions appeared to require a "yes" or "no" answer while a continuum rating was to be made. More specific

directions need to be given in regard to the parents' income and occupational status. The addition of a time element would clarify this question.

Recommendations

The findings of the study suggest that the Oklahoma Graduate Student Questionnaire could be a tool in counseling prospective doctoral students. Prospective students could be helped to examine their motives for wanting to further their education on the doctoral level. During the counseling process the prospective students perceptions of obtaining the doctoral degree could be clarified and major incompatabilities could be determined.

The Oklahoma Graduate Student Questionnaire is easy to administer and requires only a minimum amount of time for the student to complete. With the use of the questionnaire, comparative data could be collected annually. This cumulative data would build a base for trend analysis which would hopefully better serve the students.

This study was not undertaken in attempt to answer all the answers about who the doctoral students are and why they are in the doctoral program. Rather this study was an attempt to add to the body of knowledge regarding advanced graduate students and to stimulate further research in this area.

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APPENDIX A

COVER LETTER FOR DATA COLLECTION INSTRUMENT

March 3, 1977

Dear Fellow Doctoral Candidate:

Information on the possible differences between male and female candidates' reasons for entering the doctoral programs at the University of Oklahoma during the 1976-77 academic year is needed for a research study. At the present time no collection of such information has been made. It is felt that this information would be beneficial in program planning, to committee chairpersons, and to others interested in providing quality education.

The enclosed questionnaire will provide information of value to this research effort. You are one of the 250 randomly selected doctoral candidates who will receive this questionnaire. Your immediate reply will be appreciated and is necessary if this survey is to be of value.

A stamped, self-addressed envelope is enclosed for your reply. Please take a few minutes and complete this questionnaire today. If I can be of help to you, feel free to call me at 355-8090. Thank you for your assistance.

Sincerely yours,

Margie McMahan

Margie McMahan

APPENDIX B

UNIVERSITY OF OKLAHOMA GRADUATE STUDENT QUESTIONNAIRE

UNIVERSITY OF OKLAHOMA

GRADUATE STUDENT QUESTIONNAIRE

Directions: Fill in the blank or check ( ) the appropriate space.

Biographical Data

1. Age: _____

2. Sex: M_____ F_____

3. Race:

Am. Indian_____
Black_____
Caucasian_____
Oriental_____
Other_____

4. Marital Status:

Single_____
Married_____
Divorced_____
Widowed_____
Other_____

5. Number of Your Children:

None_____
One_____
Two_____
Three_____
Four_____
Five or more_____

6. Ages of Your Children:

Does not apply_____
Age_____
Age_____
Age_____
Age_____
Age_____

Dimorphical Data

Educational Level of Parents and Spouse:

7. What is the highest level of formal education reached by your mother, father, and spouse?

	Mother	Father	Spouse
6th grade or less	_____	_____	_____
9th grade	_____	_____	_____
Some high school	_____	_____	_____
Completed high school	_____	_____	_____
Attended post high school trade school	_____	_____	_____
Some college	_____	_____	_____
Graduated with a 4 year degree	_____	_____	_____

	Mother	Father	Spouse
[illegible] graduate or professional school			
[illegible] degree			

[illegible] tion of Parents and Spouse:

	Mother	Father	Spouse
College or university teacher, researcher, or administrator			
Elementary or secondary school teacher or administrator			
Physician			
Other professional			
Manager, administrator, semiprofessional			
Owner, large business			
Owner, small business			
Other white collar: clerical or retail sales			
Skilled wage worker			
Armed forces			
Semi- and unskilled wage worker, farm laborer			
Farm owner			
Not gainfully employed			
Retired			
Other_____			

9. Annual Income of Parents and Spouse:

	Mother	Father	Spouse
Not gainfully employed			
Less than $2,999			
Between $3,000 - $5,999			
Between $6,000 - $8,999			
Between $9,000 - $12,999			
Above $13,000			

10. Financial Support:

	Source	
	Primary	Secondary
Assistantship		
Scholarship		
Sabbatical leave		
Loan from family or friends		
Loan from government or institution		
Grants		
Savings and investments		
Spouse's job		
Employment		
Donation		
Other		

Motivational Reasons

Directions: Graduate students often give several reasons for having entered a doctoral program. Some of the reasons listed most often are presented below. Using the rating scales, show how each factor affected your decision to enter the doctoral program. Be sure to mark the scale after each statement.

5 = Extremely Important

4 = Important

3 = Average Importance

2 = Unimportant

1 = Almost No Importance

0 = Does Not Apply

1. I was bored with my present level of educational attainment. 5 4 3 2 1 0

2. I needed the degree for job advancement . . . 5 4 3 2 1 0

3. I needed the degree for job entry 5 4 3 2 1 0

4. I wanted more job opportunities 5 4 3 2 1 0

5. I wanted more salary opportunities. 5 4 3 2 1 0

6. It was convenient for me to enter the doctoral program 5 4 3 2 1 0

7. My major professor urged me to enter the doctoral program. 5 4 3 2 1 0

8. I was so far along as the result of other educational training, it was foolish of me not to continue toward a doctoral degree. . . 5 4 3 2 1 0

9. My marital status changed and I needed more educational training. 5 4 3 2 1 0

10. I simply like the academic atmosphere around the university. 5 4 3 2 1 0

11. I am part of a research or training program that will result in my receiving a doctorate. 5 4 3 2 1 0

12. My family, spouse, friends, or others encouraged me to enter the doctoral program 5 4 3 2 1 0

9.	I had planned to get a doctorate even when I was in undergraduate school	5 4 3 2 1 0
11.	I was interested in the courses offered as part of the doctoral program	5 4 3 2 1 0
12.	I took advantage of GI benefits, grants, scholarships, etc.	5 4 3 2 1 0
16.	I did not have anything else to do at the time	5 4 3 2 1 0
17.	I wanted to continue my intellectual growth	5 4 3 2 1 0
18.	I wanted to prepare for an academic career	5 4 3 2 1 0
19.	I am in graduate school to find myself	5 4 3 2 1 0
20.	Graduate school gave me an opportunity to see if I really liked my particular field of study	5 4 3 2 1 0
21.	I am in graduate school because my spouse wants the prestige of my having a doctorate	5 4 3 2 1 0
22.	Achieving the doctorate will give me prestige	5 4 3 2 1 0
23.	My undergraduate and master's grades were good, so I decided to enter the doctoral program	5 4 3 2 1 0
24.	My child(ren) encouraged me to enter the doctoral program	5 4 3 2 1 0
25.	Oklahoma University was the closest school to me offering a doctorate degree	5 4 3 2 1 0
26.	After looking at more than one university, Oklahoma University seemed to offer the best program for me	5 4 3 2 1 0
27.	My child(ren) make fewer demands on my time now than previously	5 4 3 2 1 0
28.	Other areas of my life are subordinate to achieving the doctorate	5 4 3 2 1 0
29.	Most of my friends have doctorates	5 4 3 2 1 0
30.	My spouse is either in graduate school or already has a doctorate or professional degree	5 4 3 2 1 0

31. My spouse strongly approves of my being in graduate school 5 4 3 2 1 0

32. Faculty members in the Master's program seemed to feel that I was a serious student . 5 4 3 2 1 0

33. I am back in school after having dropped out to rear a family. 5 4 3 2 1 0

34. If others can get a doctorate, so can I . . . 5 4 3 2 1 0

35. I subscribe to more than one academic or professional journal. 5 4 3 2 1 0

36. Completing the doctoral program is a "must" for me. 5 4 3 2 1 0

Mark one in each row.

Did any of the following prevent you from entering graduate school sooner?

		Yes	No	Maybe
37.	Lack of interest in a doctorate . . .	___	___	_____
38.	Lack of finances.	___	___	_____
39.	Interesting job	___	___	_____
40.	Was not sure of ability to do graduate work.	___	___	_____
41.	Did not know if I could stand the emotional strain.	___	___	_____

If you were beginning your academic training again:

42.	Would you go straight through from baccalaureate to doctorate?	___	___	_____
43.	Would you still choose your present discipline for specialization?. . . .	___	___	_____
44.	Would you have entered the doctoral program sooner?	___	___	_____
45.	During the past year have you considered quitting the doctoral program for good?	___	___	_____

APPENDIX C

COVER LETTER FOR PILOT STUDY

November 9, 1976

Dear Fellow Doctoral Candidate:

Information on the possible differences between male and female candidates' reasons for entering the doctoral programs at the University of Oklahoma during the 1976-77 academic year is needed for a research study. At the present time no collection of such information has been made. It is felt that this information would be beneficial to program planning, to committee chairpersons, and to others interested in providing quality education.

The enclosed questionnaire will provide information of value to this research effort. You are one of the 150 randomly selected doctoral candidates who will receive this questionnaire. Your immediate reply will be qppreciated and is necessary if this survey is to be of any value.

A stamped, self-addressed envelope is enclosed for your reply. Thank you for your assistance.

Sincerely yours,

Margie McMahan

Margie McMahan

P.S.
Feel free to call me at 355-8090 if I can be of assistance to you.

MM

APPENDIX D

DATA COLLECTION INSTRUMENT USED IN THE PILOT STUDY

THE UNIVERSITY OF OKLAHOMA

GRADUATE STUDENT INFORMATION QUESTIONNAIRE

1. Age:_____ 2. Sex: M F

3. Birth Order:

Circle the number that represents your birth order on the row that also indicates the number of siblings. Example: If you were child number 3 out of 4 children, circle the number 3 on the fourth row of numbers.

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6 +

4. Race:

_____Caucasian
_____Black
_____Am. Indian
_____Oriental
_____Other_____

5. Marital Status:

_____Single
_____Married
_____Divorced
_____Widowed
_____Other_____

6. Number and Ages of Your Children:

Age of 1st child_____ Age of 6th child_____
Age of 2nd child_____ Age of 7th child_____
Age of 3rd child_____ Age of 8th child_____
Age of 4th child_____ Age of 9th child_____
Age of 5th child_____ Age of 10th child_____

7. Father's Educational Level:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 18 +

8. Mother's Educational Level:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 18 +

9. Father's Occupation_____

10. Mother's Occupation_____

11. Father's Annual Income:

_____Less than $2,999

_____Between $3,000 - $5,999

_____Between $6,000 - $8,999

_____Between $9,000 - $12,999

_____Above $13,000

12. Mother's Annual Income:

_____Less than $2,999

_____Between $3,000 - $5,999

_____Between $6,000 - $8,999

_____Between $9,000 - $12,999

_____Above $13,000

13. Indicate the Amount of Financial Support You Receive From Each of the Following Sources:

a. Assistantships _____%

b. Scholarships _____%

c. Sabbatical Leave _____%

d. Loans _____%

e. Grants _____%

f. Savings & Investments _____%

g. Spouse _____%

h. Relatives _____%

i. Friends _____%

j. Employment _____%

k. Donations _____%

l. Other _____%

Directions: Graduate students often give several reasons for having entered a doctoral program. Some of the reasons listed most often are presented below. Using the rating continuum, show how important each factor was to your decision to enter the doctoral program. Be sure to mark the continuum after each statement.

5 = Extremely Important

4 = Important

3 = Average Importance

2 = Unimportant

1 = Almost No Importance

1. I was bored with my present level of educational attainment. 5 4 3 2 1
2. I needed the degree for job advancement 5 4 3 2 1
3. I needed the degree for job entry 5 4 3 2 1
4. I wanted more job opportunities 5 4 3 2 1
5. I wanted more salary opportunities. 5 4 3 2 1
6. It was convenient for me to enter the doctoral program 5 4 3 2 1
7. My major professor urged me to enter the doctoral program. 5 4 3 2 1
8. I was so far along as the result of other educational training, it was foolish of me not to continue toward a doctoral degree. . . . 5 4 3 2 1
9. My marital status changed and I needed more educational training. 5 4 3 2 1
10. I simply like the academic atmosphere around the university. 5 4 3 2 1
11. I am part of a research or training program that will result in my receiving a doctorate. . 5 4 3 2 1
12. My family, spouse, friends or others encouraged me to enter the doctoral program. 5 4 3 2 1
13. I had planned to get a doctorate even when I was in undergraduate school 5 4 3 2 1
14. I was interested in the courses offered as part of the doctoral program. 5 4 3 2 1
15. I took advantage of GI benefits, grants, scholarships, etc.. . . . . 5 4 3 2 1
16. I did not have anything else to do at the time. 5 4 3 2 1
17. Other (Specify)_____ 5 4 3 2 1

APPENDIX E

POST CARD SENT TO NON-RESPONDENTS

March 14, 1977

Dear Fellow Graduate Student,

On March 4 you were sent an Oklahoma University Graduate Student Information Questionnaire. If you have not returned the survey, please do so today. If you have already returned the questionnaire - thank you.

Sincerely yours,

Margie McMahan

APPENDIX F

FOLLOW-UP LETTER SENT TO NON-RESPONDENTS

March 21, 1977

Dear Fellow Doctoral Student,

Information on the possible differences between male and female candidates' reasons for entering the doctoral programs at the University of Oklahoma during 1976-77 academic year is needed for a research study. On March 3, 1977 you were sent a questionnaire and a stamped, self addressed envelope for your reply. On March 14, 1977 you were sent a card reminding you to return your survey. As of today, your questionnaire has not been received.

Enclosed is a copy of the University of Oklahoma Graduate Student Questionnaire and a stamped, self addressed return envelope. I realize that I am asking for your time, but won't you please return the completed survey today. If you have already returned the questionnaire - thank you.

Sincerely yours,

Margie McMahan

Margie McMahan