

BENEFIT ASSESSMENT OF THE DOCTORAL DEGREE  
IN EDUCATION  
FOR FEMALE VERSUS MALE GRADUATES OF VIRGINIA TECH

by

Donna Ann Ledbetter Bell

Dissertation submitted to the Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Counseling and Student Personnel

APPROVED:

---

David E. Hutchins, Co-Chairperson

---

Lou C. Talbutt, Co-Chairperson

---

Jim C. Fortune

---

Thomas C. Tillar, Jr.

---

Daniel E. Vogler

January 1986

Blacksburg, Virginia

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(Abstract)

The purpose of this study was to assess benefits of completing a doctoral degree in education for females versus males relative to expected benefits upon entry to Virginia Tech. Relationships between expected benefits, accrued benefits, and selected demographic data by gender were studied.

The basic design of the study involved a survey completed by 265 (90%) of the doctorate recipients between 1980-1984. Specific computational procedures utilized in data analyses included frequency distributions, percentages, and chi-square procedures. Results of the study indicated more similarities than differences for the female (87%) and male (93%) respondents. Median age at doctorate was 38.5 years. Most respondents (75.4%) were married. Approximately 62% respondents reported their career decision assumed equal or greater importance than spouses' career decisions. Most spouses (79.6%) were employed full-time. Most respondents (94.4%) were employed full-time. Respondents (74.9%) earned \$12,000-\$35,988 annually prior to entry into the doctoral program. Following the completion of the degree respondents (45.5%) earned \$24,000-\$35,988 in 1984. Research indicated some significant differences in expected versus accrued benefits by gender. Females expected significantly more opportunity

to use training or schooling and more autonomy and independence on the job following completion of the degree. Males perceived that they had accrued significantly more benefits relative to improved autonomy and independence at work, congeniality of work relationships, visibility for jobs at other institutions or organizations, and mechanical ability. The females and males expected the same 18 out of 20 most important benefits and perceived that they had accrued the same 18 out of 20 most important benefits relative to improved aspects of employment and intellectual qualities and skills. Relationships between the age at obtaining the doctorate and accrued benefits were found for the youngest age group (27-34) for four of 36 benefits: working conditions, congenial work relationships, public speaking ability and academic ability. Among respondents, 91.4% reported the doctoral degrees had a positive effect on career development. Respondents perceived personal benefits were primary. Professional and financial benefits were second and third, respectively. Ninety-one percent of the respondents reported it was worth the time, effort, and expense involved to complete the doctoral degree.

## ACKNOWLEDGEMENTS

The author gratefully acknowledges the encouragement, direction, counsel, patience, and sense of humor of each of her committee members: Dr. David E. Hutchins, Dr. Lou C. Talbutt, Dr. Jim C. Fortune, Dr. Thomas C. Tillar, Jr., and Dr. Daniel E. Vogler.

Completion of this study would have been impossible without the enthusiastic interest and support as well as the services provided by Dr. Roger A. Teekell, dean of the Graduate School; Dr. Robert M. Smith, dean of the College of Education; Dr. Gerald M. McLaughlin, associate director of Institutional Research and Analysis; and Mr. Tim G. Corbin, assistant director of the Office of Alumni Affairs during the period of research.

To the staff of the Virginia VIEW and especially  
and , the author expresses her sincere thanks for the educational opportunity and financial support provided through a graduate research assistantship.

Of special significance in the successful completion of this endeavor is the perennial influence of ,

and .  
Appreciation is extended to ,

, ,  
, ,  
, and

for their continual good humor and assistance throughout this venture.

For a special friend, \_\_\_\_\_, appreciation is expressed for her insightful suggestions and editorial expertise. Finally, to my parents, \_\_\_\_\_ and \_\_\_\_\_, thank you for 46 years of unconditional love and support.

Donna Ann Bell

**This dissertation is dedicated to my children**

**and**

**in appreciation of their selfless love and support during  
this endeavor**

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## CHAPTER I

### INTRODUCTION

In 1930, Hutchinson published the results of a study of the first (1877-1924) doctorates awarded to females ". . . in the hope that students and their advisors might find in the cumulative experience recorded a valuable basis on which to answer inquiries frequently made by those contemplating doctoral study" [cited in Smith, 1983, p. 1]. Thereafter, little research attention was focused on the female doctorate and its value until the Commission on the Status of Women, created by President John F. Kennedy in 1961, and the Office of Education began to express a need for studies about females to aid in the educational groundwork of all women for active participation in our society (Hill, 1970, p. 6).

Heist, in a conference on "Talented Women in the American College" sponsored by the United States Office of Education in 1964, indicated that research attention in education should focus on females who had completed graduate programs (Hill, 1970, p. 24). Toward the end of the 1960s and early 1970s and with the documented support of the Commission on the Status of Women, the United States Office of Education, the American Council on Education, and the mounting feminist movement, more studies related to female doctoral graduates were published. These studies, however, focused principally on the female graduate student (Withycombe-Brocato, 1969), factors that impacted on the female's use of the doctoral degree (Mitchell, 1969), sex discrimination, and early

role stereotyping and its subsequent reinforcements (Smith, 1983, p. 1). As late as 1980, there was still little research available concerning the highly educated female workers (Solomon & Ochsner, 1980, p. 145).

During the past five years (1980-1985), studies comparing the work status, employment level, and salaries of the 1970-1980 female and male doctoral graduates in various fields of study have become popular; but these studies generally conclude that female doctorate recipients, regardless of their field of study, are outdistanced by their male counterparts in the world of academia in terms of promotion, tenure, rank, publications, and salary (Ahren & Scott, 1981; DeWolf, 1980; Henn & Maxfield, 1983; Hullhorst, 1984; Smith, 1983; Solomon & Ochsner, 1980).

The recent research findings also conclude that female doctoral graduates have more difficulty than their male counterparts in obtaining a doctoral-level position in their fields of study after receiving the doctoral degree (DeWolf, 1980, p. 29); that more females than males perceive themselves to be underemployed (Hullhorst, 1984, p. 108); that female doctorates are more likely to be employed part-time than are males (Henn & Maxfield, 1983, p. 53); and that female doctoral graduates are two and one-half times more likely than their male counterparts to be involuntarily unemployed (Ahren & Scott, 1981, p. 43). Because none of these studies included 1981-1984 doctorate recipients, this study focused on the doctoral graduates between 1980 and 1984.

As recently as December 1984, Career Opportunities News reported that "women's jobs were paid less regardless of education, skills and expertise required" (Staff, 1984, "Comparable work and career choices," p. 3). In 1982, the Bureau of Labor Statistics and Women's Bureau, U.S. Department of Labor, reported that females with five years of college or more, earned little more than male high school graduates (cited in Staff, 1984, "An Overview"). Career Opportunities News concluded that while future legislative efforts, law suits, and the increased sophistication and education of females should eventually effect a reduction in the present wage gap, individuals currently making career choices should be made aware of the implications of the wage gap for the next decade (Staff, 1985, "Female and male faculty salaries: A wide gap," p. 5). It seemed imperative, then, that graduate institutions and prospective female graduate students be aware of the actual benefits of completing a doctoral degree program.

Unfortunately, recent research indicated that many graduate institutions are unaware of their students' career development or the benefits the students have derived from completing their graduate programs. For example, representatives of Career Opportunities News attended a Graduate Education Fair in late 1984 with one important question, "Does Graduate Education Pay Off?" They interviewed the representatives from over 100 leading graduate institutions who were enthusiastically urging college seniors to continue their education and discovered that not only did few college representatives mention the career prospects for those who completed graduate programs, but only

two colleges provided any information pertaining to recent graduates of their programs (Staff, 1984, "Does graduate education pay off?," p. 2).

Therefore, the literature supported the need for identifying the benefits of completing a doctoral degree for males and females in the 1980s. The extant literature indicated that gender differences existed in the benefits derived from completing a doctoral program. This study was initiated to determine if the differences cited in the general literature applied to doctoral graduates of the College of Education at Virginia Tech.

#### Statement of the Problem

The problem of this study was to assess the benefits of completing a doctoral degree in education for females versus males relative to the expected benefits upon entry to Virginia Tech.

#### Purpose Statement

The purposes of this study were to:

1. synthesize the extant literature since 1980 relative to female and male doctoral graduates in education and the relationship between the expected benefits upon entry to the graduate program and the actual benefits derived from completing it.
2. compare the differences, if any, in the expected benefits upon entry to the doctoral degree program between female and male graduates.
3. compare the benefits of completing a doctoral degree program for female and male graduates.

4. compare the relationship between expected benefits upon entry to the doctoral degree program and the benefits resulting from completion of it.
5. assess the impact of the recipient's age at the time the degree was obtained on the benefits resulting from it.
6. assess the impact of the current marital status of the doctorate recipient on the work status of the recipient.

#### Research Questions

The following questions were answered as a result of this research:

1. What are the differences, if any, in the expected benefits upon entry to the doctoral degree program for females and males?
2. What are the differences, if any, in the benefits accrued following completion of the doctoral degree for females and males?
3. What is the relationship between the expected benefits upon entry to the doctoral degree program and the benefits resulting from completion of it?
4. How does the recipient's age at the time the degree was obtained affect the benefits resulting from it?
5. How does the current marital status of the doctorate recipient affect the work status of the recipient?

### Delimitations

This study was delimited as follows:

1. The study was delimited to include research findings published since 1980 relative to expected benefits upon entry to a doctoral degree program and the subsequent benefits derived from completing the program.
2. The study delimited the terminology used to identify expected benefits upon entry to a doctoral degree program and the benefits derived from completing it to a list of 18 aspects of the job that may be affected by completing a doctoral degree and 18 intellectual qualities and skills that are often improved as a result of the doctoral degree program as reported in a Higher Education Research Institute report by Solomon and Ochsner (1980).
3. The study includes a brief accounting of the number of doctorate recipients in the United States and at Virginia Tech from 1980 to 1984 to support the fact that more females are completing degrees and entering the professional world of work both nationally as well as regionally. A complete review of the history of females in education was not necessary to substantiate this point.
4. The study was delimited to all female and male doctorate recipients of the College of Education at Virginia Tech from 1980 to 1984.

### Limitations

1. The study was descriptive ex post facto research. According to Kerlinger this type of research has three major weaknesses: "(a) the inability to manipulate independent variables; (b) the lack of power to randomize; and (c) the risk of improper interpretation" (1973, p. 390). In category (c) the greatest risk is oversimplification.
2. The study included the use of a mailed self-administered survey instrument. Kerlinger (1973) believes that there can be two weaknesses inherent in the use of this instrument: insufficiency of response and the inability to verify the responses given (p. 414).
3. The names and addresses of the female and male doctoral graduates of the College of Education at Virginia Tech from 1980 to 1984 were obtained from the Office of Alumni Affairs and the College of Education at Virginia Tech. Some addresses were not current and, therefore, some surveys did not reach intended participants in the study.

### Assumptions

This study was undertaken with two assumptions:

1. The doctoral degree in education can benefit female and male recipients.
2. A difference in salary will exist between female and male doctoral recipients ("Faculty Salaries," 1984; Fox, 1981;

Hottinger, 1982; Hurley, Brown, & Schmidtlein; 1981; Hyer, Eastman, Herezo, & Malebranche, 1983; Staff, 1985, On Campus With Women; Smith, 1981; Strum, 1981; "Study: Men paid twice as much," 1984, The Roanoke Times & World News).

#### Need for the Study

In 1985, Virginia Tech, like most institutions of higher education, was faced with a predicted decline in enrollment of students and with dwindling federal and state financial support (Rickard & Waters, 1984, p. 26). It seemed important, then, to assess the value of maintaining each graduate program. The prospective graduate student was certainly forced to assess the value of pursuing the doctoral degree in relation to the predicted yearly increase in tuition, the anticipated reduction in financial aid, and the prospect of competing with a growing number of highly educated professionals for a diminishing number of doctoral level positions.

This study addressed the concerns of both the prospective graduate student and the College of Education by (a) providing a benefit profile for female and male Virginia Tech doctoral graduates in education; (b) developing a data base for the career planning of individuals contemplating the pursuit of a doctoral degree in education; (c) providing current information for accreditation purposes for the College of Education; (d) providing valuable information to assist faculty members charged with recruitment duties; and (e) providing information to assist in the development of career counseling programs for doctoral students.

### Definition of Terms

Benefit: "Something that promotes well-being, advantage . . ." (Webster's Seventh New Collegiate Dictionary, 1972, p. 80).

Benefits: Both expected and derived benefits from completion of the doctoral degree program were delimited to (a) 18 aspects of employment that may be affected by completing a doctoral degree, and (b) 18 intellectual qualities and skills that are often improved as a result of completing the doctoral degree program as reported in a Higher Education Research Institute report by Solomon and Ochsner (1980). This decision was based on the fact that an extensive review of the literature did not uncover any research that examined expected benefits upon entry into a doctoral degree program.

The 18 aspects of the job that may be affected by completing a doctoral degree program are overall job satisfaction, salary and fringe benefits, opportunity for scholarly pursuits, opportunity for creativity, opportunity to use training or schooling, resources to get the job done, internal politics, working conditions (hours, location), status, autonomy and independence, variety in activities, policy making power, congenial work relationships, competency of colleagues, opportunities for different or better jobs at respondent's present institution or organization, visibility for jobs at other institutions or organizations, challenge, job security, and prestige of employer (Solomon & Ochsner, 1980, p. 100-104).

The 18 intellectual qualities and skills often improved as a result of completing the doctoral degree program included general knowledge, ability to think clearly, leadership ability, self-confidence, self-discipline, creativity and originality, insight, cultural perspective, understanding of others, political awareness, academic ability, drive to achieve, analytical skills, writing ability, mathematical ability, mechanical ability, public speaking ability, and research skills (Solomon & Ochsner, 1980, p. 100-104).

Intercollege Doctoral Degree: Virginia Tech awarded an Intercollege Doctoral Degree to students in eight graduate programs from 1980 to 1983. These programs included: Computer Science and Applications, Environment Science and Engineering, Genetics, Materials Engineering Science, Nuclear Science and Engineering, Public Administration and Public Affairs, Systems Engineering, and Unclassified Graduate. In 1984, six of the programs were incorporated into appropriately related colleges, and so, in 1984, the Intercollege Degree was awarded to the remaining two programs, Public Administration and Public Affairs and Unclassified Graduate (Bloom, 1985).

Median Age at Doctorate: One-half of the doctorate recipients received the degree at or before this age (Syverson, 1983, p. 22).

Virginia Tech: Popular name for Virginia Polytechnic Institute and State University.

#### Organization of the Study

This study is divided into five chapters: Chapter I includes the

introduction, the statement of the problem, the purpose of the study, the research questions, the delimitations and limitations of the study, the assumptions, the need for the study, the definition of terms, and the organization of the study.

Chapter II includes a synthesis of the extant literature since 1980 relative to assessing the doctoral degree benefits and expected benefits upon entry to the graduate program for females and males.

Chapter III describes the methodological procedures for the study, which include the research questions, the subjects, the source of data, the instrumentation, the research procedures, and the research plan.

Chapter IV presents the findings of the study. It discusses the benefit profiles of the respondents and gives the results of the analysis of the data.

Chapter V includes a synopsis of the study's purpose, research methods, and demographic data. It also includes a review of the research questions. Conclusions and recommendations complete the study.

The reference section contains a list of the literature cited. The appendices include copies of the complete survey packet, the pilot study, and the coded survey book.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter includes a synthesis of the extant literature since 1980 relative to assessing the expected benefits upon entry to the doctoral program in education and the benefits accrued following completion of the degree. The literature review includes three major sections. The first section pertains to doctorate degree recipients and a brief accounting of the number of doctorate recipients in the United States and at Virginia Tech from 1980 to 1984 by field of study and by sex. The second section incorporates selected demographic data such as sex, median age at receipt of the doctorate degree, marital status, and the work status of the doctorate recipient. The third section identifies the benefits derived from completion of the doctoral degree.

#### United States Doctoral Degree Recipients

This study compiles, summarizes, and reports portions of the results of the 1980 through 1984 Summary Report Doctorate Recipients From United States Universities. The publication of these annual reports is funded jointly by the National Institute of Health, the National Endowment for the Humanities, the U.S. Department of Education, and the National Science Foundation. These surveys have been conducted on an annual basis since 1958 by the Office of Scientific and Engineering Personnel (USEP) of the National Research

Council (NRC) under the administrative supervision of Peter D. Syverson.

The surveys are distributed through the graduate deans of all United States universities and are completed by the doctoral students at the end of their graduate programs. The surveys include all research and applied research doctoral fields. Professional degrees (M.D., D.D.S., D.D., D.V.M., and J.D.) are not included in the annual surveys. Responses are obtained from over 95 percent of the doctorate recipients annually and, when there are nonrespondents, abbreviated records are compiled with the use of the universities' commencement bulletins (Syverson, 1983, p. 3). The data from these surveys, then, represents the most accurate and comprehensive information available concerning doctorate recipients.

#### Doctoral Degrees Awarded in the United States

The total number of doctoral degrees awarded by United States universities between 1980 and 1984 was 155,877 (see Table 1).

In 1980 the largest percentage of degrees or approximately one-quarter of all doctoral degrees awarded by United States universities was in the field of education (see Table 1).

#### Virginia Tech Doctoral Degree Recipients

The total number of doctoral degrees awarded at Virginia Tech from 1980 to 1984 was 1,209 (see Table 2). Of the nine doctoral degree-awarding colleges at Virginia Tech, the College of Education

Table 1

Number of United States Doctorates by Field of Study From 1980 to 1984

Field of Doctorate	Year of Doctorate					Total
	1980	1981	1982	1983	1984	
Physical Sciences	4,111	4,170	4,284	4,424	4,453	21,442
Engineering	2,479	2,528	2,646	2,780	2,915	13,348
Life Sciences	5,460	5,607	5,709	5,540	5,745	28,061
Social Sciences	5,855	6,142	5,836	6,055	5,895	29,783
Humanities	3,868	3,748	3,559	3,494	3,528	18,197
Education	7,586	7,497	7,232	7,147	6,780	36,242
Professional & Other	<u>1,656</u>	<u>1,653</u>	<u>1,808</u>	<u>1,750</u>	<u>1,937</u>	<u>8,804</u>
Total	31,015	31,345	31,074	31,190	31,253	155,877

Note. The data are from Summary Report 1984: Doctorate Recipients From United States Universities (unpublished raw data) by P.D. Syverson, Project Director, 1984, Washington, DC: National Academy Press.

Table 2

Number of Virginia Tech Doctoral Degrees Awarded by College and Sex From 1980 to 1984

Field of Doctorate	Year of Doctorate					Total
	1980	1981	1982	1983	1984	
<b>Agriculture</b>						
Female	2	2	8	4	9	25
Male	<u>32</u>	<u>29</u>	<u>30</u>	<u>33</u>	<u>29</u>	<u>163</u>
Total	34	31	38	37	38	178
<b>Architecture</b>						
Female	0	0	0	0	0	0
Male	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>5</u>
Total	0	0	2	2	1	5
<b>Business</b>						
Female	0	1	0	3	4	8
Male	<u>12</u>	<u>20</u>	<u>19</u>	<u>15</u>	<u>16</u>	<u>82</u>
Total	12	21	19	18	20	90
<b>Education</b>						
Female	34	33	38	45	44	194
Male	<u>39</u>	<u>24</u>	<u>33</u>	<u>31</u>	<u>34</u>	<u>161</u>
Total	73	57	71	76	78	355
<b>Engineering</b>						
Female	0	0	1	0	4	5
Male	<u>22</u>	<u>26</u>	<u>29</u>	<u>43</u>	<u>56</u>	<u>176</u>
Total	22	26	30	43	60	181
<b>Inter-College</b>						
Female	0	0	2	0	1	3
Male	<u>8</u>	<u>9</u>	<u>6</u>	<u>12</u>	<u>3</u>	<u>37</u>
Total	8	9	7	12	4	40
<b>Human Resources</b>						
Female	6	9	10	9	14	48
Male	<u>2</u>	<u>6</u>	<u>1</u>	<u>6</u>	<u>2</u>	<u>16</u>
Total	8	15	11	14	16	64
<b>Arts &amp; Sciences</b>						
Female	6	14	14	11	13	58
Male	<u>31</u>	<u>36</u>	<u>35</u>	<u>33</u>	<u>41</u>	<u>176</u>
Total	37	50	49	44	54	234
<b>DVM Veterinary Medicine</b>						
Female	0	0	0	0	35	35
Male	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>27</u>	<u>27</u>
Total	0	0	0	0	62	62
<b>COLUMN TOTAL</b>	194	209	227	246	333	1209

Note. The data are from Ethnic Diploma Report 19 by A. Bloom, 1985. Unpublished manuscript, Virginia Polytechnic Institute and State University, Center for Institutional Research and Planning Analysis, Blacksburg.

awarded the greatest number of doctoral degrees per year from 1980 to 1984, or approximately 30 percent of all the doctoral degrees in that time period (see Table 2).

#### Demographic Data

Sex. Whereas the total number of doctorate recipients in the United States has stayed relatively consistent since 1977, the number of female doctorate recipients has steadily increased so that 34% of the total doctorate recipients were females in 1983. The relative proportion of male doctorate recipients continued declining, as has been the case since the early 1970s (Syverson, 1983, p. 5). This trend is reflected for the years 1980 to 1984 in Table 3.

Between 1971 and 1981 the number of females completing doctoral degrees in education in the United States more than doubled or increased 163%. In 1983, Syverson noted that a dramatic change in gender proportions had occurred for the first time for a major field, in the field of education, where the number of female doctorate recipients surpassed the number of male doctorate recipients. He explained that this change was ". . . the combined result of consistent increases in the number of women and concurrent decreases in the number of men receiving doctorates in education" (p. 5-6). (See Table 3).

While the total number of doctorate recipients at Virginia Tech has steadily increased since 1980, the number of female doctorate recipients more than doubled between 1980 and 1984. The number of male doctorate recipients has continued to increase steadily and, contrary

Table 3

Number of Doctoral Degrees Awarded by United States Universities by Broad Field and Sex From 1980 to 1984

Field of Doctorate	Year of Doctorate					Total
	1980	1981	1982	1983	1984	
<b>Education</b>						
Female	3,383	3,540	3,528	3,604	3,457	17,512
Male	4,203	3,957	3,704	3,543	3,323	18,730
<b>Engineering</b>						
Female	90	99	124	124	152	589
Male	2,389	2,429	2,522	2,656	2,763	152
<b>Life Sciences</b>						
Female	1,414	1,531	1,635	1,717	1,788	8,085
Male	4,046	4,076	4,074	3,823	3,957	19,976
<b>Physical Sciences</b>						
Female	502	503	572	617	656	2,850
Male	3,609	3,667	3,712	3,807	3,797	18,592
<b>Social Sciences</b>						
Female	2,045	2,197	2,157	2,380	2,507	11,186
Male	3,810	3,945	3,679	3,675	3,488	18,597
<b>Humanities</b>						
Female	1,532	1,548	1,510	1,530	1,586	7,706
Male	2,336	2,200	2,049	1,964	1,942	10,491
<b>Professional Fields</b>						
Female	432	459	545	504	614	2,554
Male	<u>1,202</u>	<u>1,159</u>	<u>1,239</u>	<u>1,224</u>	<u>1,323</u>	<u>5,147</u>
<b>Total</b>						
Female	9,406	9,885	10,075	10,485	10,660	50,511
Male	21,609	21,460	20,999	20,705	20,593	105,366

Note. The data are from Summary Report 1984: Doctorate Recipients From United States Universities (unpublished raw data) by P.D. Syverson, Project Director, Washington DC: National Academy Press.

to the national trend, actually took an upward swing in 1983 and 1984, so that the total number of male doctorate recipients outnumbered the total number of female doctorate recipients at Virginia Tech from 1980 to 1984 (see Table 4).

However, the total number of female doctorate recipients outnumbered their male counterparts in the College of Education, which follows the national trend, and also in two other doctoral degree-awarding colleges at Virginia Tech, the College of Human Resources and the College of Veterinary Medicine (see Table 2).

Between 1980 and 1984 the number of female doctorate recipients in Education at Virginia Tech steadily increased every year except in 1981. Their male counterparts decreased in number after a high of 39 in 1980 so that in 1981 the number of female doctorate recipients outnumbered their male counterparts for the first time in Education. Virginia Tech thus experienced its first dramatic change in gender proportions, in a major field, a full two years ahead of the national trend (see Table 2).

Age. The median age of United States doctorate recipients for all fields of study from 1980 to 1984 was 32.6. The median age of United States male doctorate recipients for all fields of study from 1980 to 1984 was 31.9, and the median age of United States female doctorate recipients for all fields of study from 1980 to 1984 was 34.1 (see Table 5).

The median age of all male United States doctorate recipients in Education from 1980 to 1984 was 37.1, and the median age for all female

Table 4

Number of Doctoral Degrees Awarded at Virginia Tech by Sex, 1980 to 1984

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Year	Males	Total	Females
1980	146		48
1981	150		59
1982	154		73
1983	174		72
1984	209		124
Totals	833		376

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Note. The data are from Ethnic diploma Report 19 by A. Bloom, 1985. Unpublished manuscript, Virginia Polytechnic Institute and State University, Center for Institutional Research and Planning Analysis, Blacksburg.

Table 5

The Median Age of United States Doctorate Recipients by All Fields of Study, by Field of Education and Sex From 1980 to 1984

Year	Total All Fields of Study, %	Sex, %		Total Field of Education,%	Sex, %	
		Male	Female		Male	Female
1980	32.2	31.7	33.5	37.0	36.7	37.5
1981	32.4	31.8	33.8	37.3	36.8	38.0
1982	32.5	32.0	34.0	37.4	36.9	38.3
1983	32.8	32.1	34.4	37.8	37.4	38.3
1984	<u>33.0</u>	<u>32.3</u>	<u>34.8</u>	<u>38.4</u>	<u>37.9</u>	<u>39.0</u>
Average	32.6	31.9	34.1	37.6	37.1	38.2

Note. The data are from Summary Report, 1980, p. 30-35; 1981, p. 34-39; 1982, p. 32-37, 1983, p. 30-35; 1984, Unpublished raw data: Doctorate Recipients From United States Universities, by P.D. Syverson, Project Director, Washington, DC: National Academy Press.

doctorate recipients in Education from 1980 to 1984 was 38.2 (see Table 5).

Syverson reported that the median age of 85% of all the 1983 doctorate recipients in the United States was between 25 and 34 years of age (1983, p. 7-8). He further indicated that while the number of doctorate recipients in the United States was approximately the same in 1970 and 1983, the population of the 25- to 34-year-old group more than doubled in size, which indicated ". . . that a dramatic change has occurred in the participation and/or completion rates of the 25- to 34-year-old cohort in graduate education at the doctoral level" (1983, p. 8).

When Syverson (1983) assessed the number of United States citizens obtaining doctoral degrees in relation to the United States population cohort, which constitutes the pool of potential doctoral degree recipients, he concluded that

future increases in the number of doctorate recipients will rely more on raising the participation rates of baccalaureate recipients in graduate education and introducing nontraditional students into the Ph.D. population than on growth in the population of potential degree earners. (p. 21)

Marital Status. The marital status of all United States doctorate recipients from 1980 to 1984 is profiled in Table 6. The marital status of all male and female United States doctorate recipients from 1980 to 1984 is profiled by year in Table 7.

Smith's (1983) study of a sample of 248 females who had completed their doctoral degree programs between 1973 and 1974 from 80

Table 6

Marital Status of United States Doctorate Recipients From 1980 to 1984

Year	Married %	Not Married %	Unknown %
1980	61.1	34.1	4.7
1981	60.1	34.7	5.2
1982	59.4	35.1	5.5
1983	59.1	35.8	5.1
1984	58.4	36.0	5.6

Note. The data are from Summary Report, 1980, p. 30; 1981, p. 32; 1982, p. 34; 1983, p. 30; 1984, Unpublished raw data. Doctorate Recipients From United States Universities by P.D. Syverson, Project Director, Washington, DC: National Academy Press.

Table 7

Marital Status of United States Doctorate Recipients by Sex  
From 1980 to 1984

Year	Married, %		Not Married, %		Unknown, %	
	Male	Female	Male	Female	Male	Female
1980	64.8	52.8	30.2	43.1	5.0	4.1
1981	63.7	52.2	30.9	42.8	5.3	5.0
1982	62.7	52.6	31.5	42.6	5.9	4.8
1983	67.3	52.8	32.3	42.6	5.4	4.6
1984	61.8	51.9	32.1	43.5	6.1	4.6

Note. The data are from Summary Report, 1980, p. 32-34; 1981, p. 34-36; 1982, p. 36-38; 1983, 32-34; 1984, Unpublished raw data. Doctorate Recipients From United States Universities by P.D. Syverson, Project Director, Washington DC: National Academy Press.

institutions throughout the United States revealed that 22% were single; 51% were married; and 27% were separated, divorced, or widowed. Among the married respondents in the study, 10% reported that their career decisions assumed greater importance than their spouses' career decisions; 60% said their career decisions assumed equal importance; 26% said their career decisions assumed less importance; and 3% said their career decisions assumed no importance in their spouses' career decisions (p. 19). The review of literature did not uncover any research from the male viewpoint relative to career decisions in dual-career doctorate recipient marriages. This study provided information from both male and female respondents concerning this issue.

Work Status. Syverson's yearly summary reports of United States doctorate recipients from 1980 to 1984 included information concerning their career plans immediately following completion of the degree (see Table 8). In the field of Education, Syverson reported the career plans of the doctorate recipients immediately following completion of the degree (see Table 9).

Smith's (1983) study of female doctorate recipients reported "at the time of the study, 82% were employed full-time, 5% more than half-time, 4% half-time, 5% less than half-time, 4% were unemployed (1% due to poor health), and 2% retired (1% due to poor health)" (p. 84).

Table 8

Work Status of United States Doctorate Recipients by Sex  
From 1980 to 1984

	1980 %	1981 %	1982 %	1983 %	1984 %
<b>Definite Post Doctoral Study</b>					
Female	11.3	10.5	11.2	11.5	11.4
Male	<u>14.9</u>	<u>14.8</u>	<u>14.7</u>	<u>15.3</u>	<u>15.9</u>
Total	13.8	13.4	13.6	14.0	14.4
<b>Seeking Post Doctoral Study</b>					
Female	4.1	4.5	4.4	4.7	5.5
Male	<u>4.8</u>	<u>5.0</u>	<u>5.3</u>	<u>5.6</u>	<u>6.5</u>
Total	4.6	4.9	5.0	5.3	6.1
<b>Definite Employment</b>					
Female	54.4	54.1	53.6	52.8	52.0
Male	<u>57.0</u>	<u>56.9</u>	<u>55.5</u>	<u>53.9</u>	<u>51.5</u>
Total	56.2	56.0	54.9	53.6	51.7
<b>Seeking Employment</b>					
Female	23.9	24.4	24.0	24.9	24.8
Male	<u>17.1</u>	<u>17.2</u>	<u>17.7</u>	<u>18.7</u>	<u>18.8</u>
Total	19.1	19.5	19.7	20.8	20.8

Note. The data are from Summary Report, 1980, p. 30-34; 1981, p. 32-37; 1982, p. 36-39; 1983, p. 30-34; 1984, Unpublished raw data. Doctorate Recipients From United States Universities by P.D. Syverson, Project Director, Washington, DC: National Academy Press.

Table 9

Work Status of United States Doctorate Recipients in Field of Education  
by Sex From 1980 to 1984

	1980 %	1981 %	1982 %	1983 %	1984 %
<b>Definite Post Doctoral Study</b>					
Female	2.0	1.6	1.6	1.8	1.4
Male	<u>1.4</u>	<u>1.5</u>	<u>1.3</u>	<u>1.8</u>	<u>1.7</u>
Total	<u>1.6</u>	<u>1.6</u>	<u>1.7</u>	<u>1.8</u>	<u>1.6</u>
<b>Seeking Post Doctoral Study</b>					
Female	1.4	1.9	1.9	1.6	1.9
Male	<u>1.1</u>	<u>1.4</u>	<u>.9</u>	<u>1.4</u>	<u>1.4</u>
Total	<u>1.2</u>	<u>1.6</u>	<u>1.5</u>	<u>1.5</u>	<u>1.7</u>
<b>Definite Employment</b>					
Female	65.0	63.5	64.5	64.4	64.5
Male	<u>71.2</u>	<u>71.2</u>	<u>76.4</u>	<u>70.4</u>	<u>71.3</u>
Total	<u>68.5</u>	<u>67.6</u>	<u>67.8</u>	<u>67.4</u>	<u>67.8</u>
<b>Seeking Employment</b>					
Female	25.5	26.8	25.8	26.9	27.0
Male	<u>20.6</u>	<u>20.5</u>	<u>13.0</u>	<u>21.3</u>	<u>19.9</u>
Total	<u>22.8</u>	<u>23.5</u>	<u>23.1</u>	<u>24.1</u>	<u>23.5</u>

Note. The data are from Summary Report, 1980, p. 30-34; 1981, p. 32-37; 1982, p. 36-39; 1983, p. 30-34; 1984, Unpublished raw data. Doctorate Recipients From United States Universities by P.D. Syverson, Project Director, Washington, DC: National Academy Press.

### Benefits Derived From Completion of the Doctoral Degree

Solomon and Ochsner, 1980, in "Final Report Humanities PhDs and the Labor Market: Alternatives to Academe" sponsored by the Higher Education Research Institute (HERI), declared that ". . . although the [5,144] respondents to two HERI surveys do not constitute a representative sample of publicly employed PhDs . . . nowhere else can such detailed data be found on such a large group of doctorate-holders" (p. 7). Two slightly different surveys were mailed to government-employed humanists, natural scientists, social scientists, and engineers for participation in the HERI studies. Doctorate recipients from the field of Education, however, were not included in either study. This benefit assessment research, therefore, adapted two of the HERI survey items that define and identify expected and actual benefits resulting from completion of the doctoral degree to establish a data base for prospective doctorate recipients in the field of Education.

The first HERI item to be adapted for use in this study was "How satisfied are you with the following aspects of (a) your present job and (b) your previous job?" (Solomon & Ochsner, 1980, Appendix A, p. 4, item number 18). From the list of 18 aspects of the job, male respondents were more satisfied than female humanities graduates with 10 aspects: (1) 36% of the male respondents and 31% of the female respondents were very satisfied with their jobs, (2) 44% of the males

and 32% of the females were very satisfied with their salary and fringe benefits, (3) 8% of the males and 7% of the females were very satisfied with the internal politics of their present jobs, (4) 31% of the male respondents and 29% of the female respondents were very satisfied with their working conditions, which included hours and location of employment, (5) 28% of the males and 22% of the females were very satisfied with their status, (6) 31% of the males and 28% of the females were very satisfied with the congeniality of their work relationships, (7) 23% of the males and 22% of the females were very satisfied with the competency of their colleagues, (8) 17% of the males and 8% of the females were very satisfied with their opportunities for different or better jobs at their present institution or organization, (9) 33% of the males and 32% of the females were very satisfied with the challenge of their present jobs, (10) 50% of the males and 40% of the females were very satisfied with the job security of their present jobs (Solomon & Ochsner, 1980, Table 22, p. 160).

Female respondents were more satisfied than their male counterparts with the following six aspects of the job: (11) 21% of the females and 20% of the males were very satisfied with their opportunity for scholarly pursuits, (12) 34% of the females and 30% of the males were very satisfied with their opportunity to use their training or school, (13) 31% of the females and 27% of the males were very satisfied with the autonomy and independence offered in their present jobs, (14) 34% of the females and 33% of the males were very satisfied with the variety of their work activities, (15) 21% of the females and

17% of the males were very satisfied with the policy making power of their present jobs, and (16) 38% of the females and 36% of the males were very satisfied with the prestige of their present employer (Solomon & Ochsner, 1980, Table 22, p. 160).

Regarding two aspects of the job, the male and female respondents were equally well satisfied: (17) 26% of both males and females were very satisfied with the resources available to get their jobs done, and (18) 16% of both male and female respondents were very satisfied with their visibility for jobs at other institutions or organizations (Solomon & Ochsner, 1980, Table 22, p. 160).

The second item in the HERI study, number 37, that was adapted for use in this research, requested that the Humanists and Nonhumanists (social scientists, natural scientists, and engineers) indicate which of 18 traits and abilities had (a) improved significantly during the graduate program, and (b) proved useful in their present jobs. The traits and abilities or intellectual qualities and skills were: (1) general knowledge, (2) ability to think clearly, (3) leadership ability, (4) critical thinking or analytical skills, (5) self-confidence, (6) self-discipline and ability to follow rules, (7) creativity and originality, (8) writing ability, (9) insight, (10) cultural perspective, (11) understanding of others, (12) political awareness, (13) academic ability, (14) drive to achieve, (15) mathematical ability, (16) mechanical ability, (17) public speaking ability, and (18) research skills (Solomon & Ochsner, 1980, Appendix A, p. 6). The traits and abilities mentioned as being improved

significantly during the graduate program and those considered most useful in their present jobs are listed in numbered rank order and percent rank order for the humanists graduates in Table 10 and for the nonhumanists (social scientists, natural scientists, and engineering graduates) in Table 11.

The HERI study did not investigate the marital status of the respondents nor the importance of the respondents' career in relation to the career decisions of their spouses. This study evaluated the presence or absence of a relationship among and between work status, actual benefits, and current marital status.

Table 10

Traits and Abilities Humanists Thought (a) Improved Significantly in Graduate School and (b) Proved Useful in Present Job by Number Rank Order and Percent Rank Order

NR	%R	Improved Significantly In Graduate School	NR	%R	Proved Useful in Present Job
1	79	Research Skills	1	80	Ability to Think Clearly
2	71	Critical Thinking and Analytical Skills	2	79	Writing Ability
3	65	General Knowledge	3	75	Critical Thinking and Analytical Skills
4	62	Academic Ability	4	69	Ability to Follow Orders
5	61	Ability to Think Clearly	5	68	Self-Confidence
6	50	Cultural Perspective	6	64	Understanding Others
7	38	Creativity and Originality	7	60	Research Skills
8	33	Political Awareness	8	58	Insight
9	5	Mathematical Ability	9	57	Leadership Ability
10	2	Mechanical Ability	10	54	Creativity and Originality
			11	53	Public Speaking Ability
			12	48	Drive to Achieve
			13	46	Cultural Perspective
			14	40	Academic Ability
			15	16	Mathematical Ability
			16	6	Mechanical Ability

Note. The data are from L.C. Solomon and N.L. Ochsner, (1980, p. 100-104) [Final Report Humanities PhDs and the Labor Market: Alternatives to Academe] Unpublished raw data.

Table 11

Traits and Abilities Scientists and Engineers Thought (a) Improved Significantly in Graduate School and (b) Proved Useful in Present Job by Number Rank Order and Percent Rank Order

NR	%R	Improved Significantly in Graduate School	NR	%R	Proved Useful in Present Job
1	85	Research Skills	1	82	Writing Ability
2	75	Critical Thinking or Analytical Skills	2	80	General Knowledge
3	70	General Knowledge	3	75	Critical Thinking or Analytical Skills
4	64	Academic Ability	4	70	Self-Confidence
5	50	Creativity and Originality	5	67	Insight
5	50	Writing Ability	6	66	Public Speaking Ability
6	44	Mathematical Ability	7	64	Leadership Ability
7	26	Cultural Perspective	7	64	Creativity and Originality
8	20	Political Awareness	8	62	Self-Discipline and the Ability to Follow Orders
9	14	Mechanical Ability	9	60	Research Skills
			10	56	Drive to Achieve
			11	38	Mathematical Ability
			12	33	Academic Ability
			13	24	Cultural Perspective
			14	23	Mechanical Ability

Note. The data are from L.C. Solomon and N.L. Ochsner, (1980, p. 100-104) [Final Report Humanities PhDs and the Labor Market: Alternatives to Academe] Unpublished raw data.

## CHAPTER III

### METHODOLOGY

This chapter describes methodological procedures for the study, which include research questions, subjects, the sources of data, instrumentation, research procedures, and the research plan. The research plan comprises the preparation of the researcher, preparation for collecting data, the steps in collection of data, and strategies for analyzing the data.

#### Research Questions

In order to assess the benefits of completing a doctoral degree in education for females and males relative to the expected benefits upon entry to Virginia Tech the following questions were asked:

1. What are the differences, if any, in the expected benefits upon entry to the doctoral degree program for females and males?
2. What are the differences, if any, in the benefits accrued following completion of the doctoral degree for females and males?
3. What is the relationship between expected benefits upon entry to the doctoral program and the benefits resulting from completion of it?

4. How does the recipient's age at the time the degree was obtained affect the benefits resulting from it?
5. How does the current marital status of the doctorate recipient affect the work status of the recipient?

### Subjects

Subjects used in this study were 265 doctorate recipients from the College of Education at Virginia Tech between 1980 and 1984. They included 144 females and 121 males. One hundred eighty of the subjects were from the Administrative and Educational Services (AES) Division, 41 were from the Curriculum and Instruction (C&I) Division, and 43 of the subjects were from the Vocational-Technical (VTE) Division. Doctorate recipients of the Health, Physical Education, and Recreation (HPE&R) Division are routed through either the AES or C&I Divisions for graduation and were, therefore, also included in the study.

### Sources of Data

The methodology was descriptive ex post facto research. A self-administered survey instrument was mailed to subjects. Data were collected that synthesized opinions of doctoral graduates in education pertaining to the expected versus the actual benefits derived from completion of the degree. Responses to the survey were the source of data for the study. This study was thus able to establish a data base

of information on doctorate recipients from the College of Education at Virginia Tech.

### Instrumentation

The survey instrument used in the study was developed from a review of the extant literature since 1980 relative to assessing expected benefits versus the actual benefits derived from completion of a doctoral degree and incorporated two items developed for use in national surveys of doctorate recipients. The face validity and clarity of the survey instrument were confirmed by requesting six female and six male doctoral graduates in Education, not selected for participation in this study, to respond to the survey and thus pilot test the instrument in relation to interpretation of meaning and sufficiency of response format. Revisions and refinements were made as required. (See The Pilot Study in Appendix A and the Survey Code Book in Appendix B).

### Research Procedures

The design of the survey instrument incorporated, as previously mentioned, two items developed for use in national surveys of doctorate recipients. The two items contained lists of 18 aspects of employment and satisfaction with employment and 18 intellectual qualities and skills often improved in graduate school programs that were identified and used by the Higher Education Research Institute in surveys of doctorate recipients in the humanities, social sciences, natural sciences, and engineering (Solomon & Ochsner, 1980).

The survey contained demographic items (age, sex, marital status, work status, and salary range) that were reported as frequencies and percentages. In addition, the survey contained Likert-scale items that provided information on the benefits related to each aspect of employment and satisfaction with employment and each intellectual quality and skill. Benefits were defined and ranked by item frequencies and percentages for males and females. A comparative analysis of the expected and actual benefits by sex was explored by crosstabulating the results of the reported benefits and selected demographic data. Chi-square was used to determine relationships among or between variables.

#### Research Plan

One of the purposes of the study was to establish a data base of information on doctorate recipients in the College of Education at Virginia Tech. The following steps were taken to commence the study:

Preparation for the Study. The researcher prepared a proposal for her dissertation committee's approval and then requested and received endorsements for the study from the Dean of the Graduate School, the Office of Institutional Research and Planning Analysis, the Office of Alumni Affairs, and the Dean of the College of Education at Virginia Tech. She requested and received a master list of the names and addresses of the 1980 to 1984 doctoral graduates in education from the Dean of the College of Education and the Office of Alumni Affairs. Finally, she also requested and received permission from the Graduate

School and the Center for Institutional Research and Planning Analysis to obtain information pertaining to all Virginia Tech doctorate female recipients from 1980 to 1984.

Preparation for Conducting Data Collection. A survey was used to collect the pertinent data and steps were taken to arrange an orderly collection of the data. The researcher worked with the Office of Alumni Affairs, the Dean of the College of Education, the Registrar's Office, the division heads, and professors who chaired doctorate recipients' committees in an effort to insure the accuracy of the names, addresses, year of graduation, and division of graduate. Consequently, 14 doctorate recipients (9 females and 5 males) were declared "lost" and deleted from the list of potential respondents.

The researcher developed the survey instrument and cover letter and then made revisions as directed by her dissertation committee. The survey instrument was pilot tested and final revisions and refinements of the instrument and cover letters were made.

Steps in Collection of Data. The following steps were taken to insure an orderly collection of the data: (a) A data file was established for completed and returned surveys; (b) each survey was given a code number indicative of name, sex, year of graduation, and division; (c) a master list was prepared to check off the respondent's name and the date the complete survey was posted; and (d) each item on the survey was also coded for future purposes of analysis (see Code Book in Appendix B).

Finally, each participant was mailed a survey packet that consisted of the following: (a) a computer-printed addressed envelope with a 17-cent Rachel Carson stamp and a 22-cent Abigail Adams stamp; (b) a cover letter explaining the purposes of the study, the importance of each doctorate recipient's participation in the study, and the steps that would be taken to insure the confidentiality of the responses; (c) two letters of endorsement from the Dean of the Graduate School and the Dean of the College of Education; (d) the survey in booklet format; (e) a prepaid self-addressed return envelope; and (f) a Sanka packet to be used for a coffee break while the subject completed the survey (see Appendix C).

The researcher established and used a mailing sequence in accordance with Dillman's (1978) general recommendations (pp. 180-190). The first mailing was sent to the subjects of the study July 15, 1985.

Eighty-six surveys were completed and returned after the first mailing. One week later, on July 22, 1985, a postcard was mailed to each subject of the study. It served as a thank you note to the respondents and as a reminder for those who had not responded. Between the postcard mailing and the third mailing, 115 surveys were completed and returned.

A follow-up letter was sent August 5, 1985 to the nonrespondents requesting an immediate response. A replacement survey and a prepaid self-addressed return envelope were included in this packet. Between this mailing and the final mailing two weeks later, 33 surveys were completed and returned.

August 19, 1985 was the date of the final mailing. It contained a final letter of appeal, a replacement survey, a Sanka packet, and a prepaid self-addressed envelope. It was sent to the remaining nonrespondents by certified mail to underscore the importance of the subject's participation in the study. Thirty completed surveys were returned between August 19 and September 19, 1985. By then, 265 completed surveys (90%) had been returned representing a 87% return for female doctorate recipients and a 93% return for male doctorate recipients. At this point the researcher's committee determined that a follow-up of the remaining nonrespondents was unnecessary.

Strategies for Analyzing Data. SPSSX (1983) statistical procedures were used to crosstabulate demographic data as follows:

Research Question One: What are the differences, if any, in the expected benefits upon entry to the doctoral degree program for females and males? The expected benefits were crosstabulated with the sex factor to identify the differences, if any, in expected benefits upon entry to the doctoral program. Chi-square tests were used to further evaluate this research question.

Research Question Two: What are the differences, if any, in the benefits accrued following completion of the doctoral degree for females and males? The actual benefits were crosstabulated with the sex factor to identify the differences. Chi-square tests were used to further evaluate this research question.

Research Question Three: What is the relationship between expected benefits upon entry to the doctoral program and the

benefits resulting from completion of it? The expected benefits were crosstabulated with the actual benefits to evaluate the presence or absence of a relationship. Chi-square tests were used to further evaluate this research question.

Research Question Four: How does the recipient's age at the time the degree was obtained affect the benefits resulting from it? The actual benefits were crosstabulated with the age factor to evaluate the presence or absence of a relationship. Chi-square tests were used to further evaluate this research question.

Research Question 5: How does the current marital status of the doctorate recipient affect the work status of the recipient? The work status was crosstabulated with the actual benefits and current marital status separately for males and females to evaluate the presence or absence of a relationship.

The results of analysis of the data are summarized and presented by tables in Chapter IV.

## CHAPTER IV

### RESULTS OF STUDY

This chapter includes the results of the study. It is divided into three sections: (1) demographic data of the subjects who responded to survey, which includes their sex, median age at completion of doctorate, marital status, and work status; (2) responses to each of the survey items; and (3) responses to research questions.

Respondents: The population surveyed for this study consisted of all doctorate recipients of the College of Education at Virginia Tech from 1980 to 1984. Three hundred and seven names and addresses were obtained from the Office of Alumni Affairs (173 females and 134 males). After the addresses were updated, 14 doctorate recipients were deleted and classified as "lost," leaving 294 doctorate recipients (165 females and 129 males) to be used as potential subjects of the study.

Each subject received by mail a survey packet described in Chapter III. Ninety percent (n=265) of the doctoral recipients responded. Of the 265 respondents, 16.3% (n=43) graduated in 1980; 26.1% (n=69) were 1981 graduates; 18.9% (n=51) were 1983 graduates; and 19.3% (n=51) were 1984 graduates. One respondent could not be designated by graduation year (see Table 12). Table 13 shows the distribution of responses per mailing.

Table 12

Number of Respondents to the Survey by Graduation Year

Year of Graduation	Number of Respondents %
1980	43 16.3
1981	69 26.1
1982	50 18.9
1983	51 19.3
1984	51 19.3
Missing Cases	1 <u>0.4</u>
Total	265 100.0

Table 13

Number and Percent of Responses to the Survey per Mailing

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Mailing Data	Male		Female		Row Total	
	F	%	F	%	F	%
July 15, 1985	41	.34	45	.31	86	.325
July 22, 1985	52	.43	63	.44	115	.435
August 5, 1985	16	.13	17	.12	33	.125
August 19, 1985	<u>12</u>	<u>.10</u>	<u>19</u>	<u>.13</u>	<u>30</u>	<u>.115</u>
Column Totals	121	1.00	144	1.00	264	1.00

---

From among the 265 respondents, 68.2% (n=180) were from the Administration and Educational Services (AES) Division; 15.5% (n=41) respondents were from the Curriculum and Instruction (C&I) Division; and 16.3% (n=43) were from the Vocational-Technical (VTE) Division (see Table 14).

Nonrespondents: From among the 10.0% (n=29) nonrespondents, 68.9% (n=20) were females and 31.0% (n=9) were males. Of the 29 nonrespondents 79.3% (n=23) were from the AES Division; 0.03% (n=1) were from the C&I Division and 17.2% (n=5) nonrespondents were from the VTE Division (see Table 15). Parallel to these findings, among the respondents 68.2% were from the AES Division, 15.5% were from the C&I Division and 16.3% were from the VTE Division (see Table 14). By graduation year, 34.5% (n=9) of the nonrespondents graduated in 1980; 17.2% (n=5) graduated in 1981, 24.1% (n=7) nonrespondents graduated in 1982; 20.7% (n=6) graduated in 1983, and .068% (n=2) of the nonrespondents graduated in 1984 (see Table 15). Paralleling this data, ✓ from among the respondents, 16.3% graduated in 1980, 26.1% graduated in 1981, 18.9% graduated in 1982, 19.3% graduated in 1983, and 19.3% graduated in 1984 (see Table 16).

Sex: From a total of 265 respondents, 54.5% (n=144) were female and 45.5% (n=121) were male representing a return rate of 87% for females and 93% for males or a 90% overall return. A Chi-square ( $X^2$ ) test indicated there were no significant differences between the number of male and female respondents from each graduating class. Table 16 shows the crosstabulation of graduation year by sex. One respondent is missing because he could not be assigned a graduation year.

Table 14

Number of Doctoral Respondents by Division

<u>Division</u>	<u>F</u>	<u>%</u>
Administration and Educational Services	180	68.2
Curriculum and Instruction	41	15.5
Vocational-Technical	43	16.3
Missing	<u>1</u>	<u>0.4</u>
Total	265	100.0

Table 15

Number of Nonrespondents by Graduation Year, Division, and Sex

Graduation Year	AES		C&I		VTE		Row Total	% Total
	Female	Male	Female	Male	Female	Male		
1980	5	3	0	0	1	0	9	34.5
1981	2	2	1	0	0	0	5	17.2
1982	4	1	0	0	0	2	7	24.1
1983	4	1	0	0	1	0	6	20.7
1984	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>6.9</u>
Column Total	16	7	1	0	3	2	29	100.0
Column & Row Total by Division	23		1		5		29	100.0

Note. AES = Administration and Educational Services  
 C&I = Curriculum and Instruction  
 VTE = Vocational-Technical Education

Table 16

Crosstabulation of Graduation Year by Sex for Doctoral Respondents

Graduation Year	Female	Male	Row Total
1980			
F	17	26	43
ROW %	39.5	60.5	16.3
COL %	11.8	21.7	
1981			
F	38	31	69
ROW %	55.1	44.9	26.1
COL %	26.4	25.8	
1982			
F	29	21	50
ROW %	58.0	42.0	18.9
COL %	20.1	17.5	
1983			
F	34	17	51
ROW %	66.7	33.3	19.3
COL %	23.6	14.2	
1984			
F	26	25	51
ROW %	51.0	49.0	19.3
COL %	<u>18.1</u>	<u>20.8</u>	
Column Total	144	120	264
	54.5	45.5	100.0

Note.  $\chi^2 = 7.43981$  with 4 df .  $p < .05$ , 0.1144

When crosstabulations of graduation year by division were completed, from among the 1980 respondents, 76.7% (n=33) were from the AES Division, 2.3% (n=1) were from the C&I Division, and 20.9% (n=9) were from the VTE Division. Of the 1981 respondents 60.9% (n=42) were from the AES Division, 17.4% (n=12) were from the C&I Division, and 21.7% (n=15) were from the VTE Division. Among the 1982 respondents 66.0% (n=33) were from the AES Division, 14.8% (n=7) were from the C&I Division, and 20.0% (n=10) were from the VTE Division. Of the 1983 respondents 66.7% (n=34) were from the AES Division, 27.5% (n=14) were from the C&I Division, and 5.9% (n=3) were from the VTE Division. Among the 1984 respondents 74.5% (n=38) were from the AES Division, 13.7% (n=7) were from the C&I Division and 11.8% (n=6) were from the VTE Division. Therefore, 68.2% (n=180) of all the respondents were from the AES Division, 15.5% (n=41) were from the C&I Division and 16.3% (n=43) were from the VTE Division (see Table 17). Fluctuations in enrollment of females and males in C&I and VTE were observed from 1980 to 1984. The number of respondents in AES had remained relatively constant and much larger than in the other divisions. However, the differences in the proportions of respondents in each division for the five survey years, were not significant when the patterns for males and females were examined separately (see Table 18).

When crosstabulations of graduation year by division and controlling for sex were completed among the 1980 respondents 11.8% (n=17) were female and 21.7% (n=26) were male. Of the 1981 respondents 26.4% (n=38) were female and 25.8 percent (n=31) were male. Among the 1983 respondents, 23.6% (n=34) were female and 14.2% (n=17) were male.

Table 17

Crosstabulation of Graduation Year by Division of Doctoral Respondents

Graduation Year	AES	C&I	VTE	Row Total
1980				
F	33	1	9	43
ROW %	76.7	2.3	20.9	16.3
COL %	*18.3	* 2.4	20.9	
1981				
F	42	12	15	69
ROW %	60.9	17.4	21.7	26.1
COL %	23.3	19.3	* 34.9	
1982				
F	33	7	10	50
ROW %	66.0	14.0	20.0	18.9
COL %	18.3	17.1	23.3	
1983				
F	34	14	3	51
ROW %	66.7	27.5	5.9	19.3
COL %	18.9	* 34.1	* 7.0	
1984				
F	38	7	6	51
ROW %	74.5	13.7	11.8	19.3
COL %	<u>21.1</u>	<u>17.1</u>	<u>14.0</u>	—
Column Total	180	41	43	264
	68.2	15.5	16.3	100.0

Note.  $\chi^2 = 17.46736$  with 8 df \*p < .05, 0.0256

Table 18

Crosstabulation of Graduation Year by Division and Controlling for Sex of Respondents

Graduation Year	AES		C&I		VTE		Row Total	
	Female	Male	Female	Male	Female	Male	Female	Male
1980								
F	13	20	1	0	3	6	17	26
ROW %	76.5	76.9	5.9	0.0	17.6	23.1	11.8	21.7
COL %	13.1	24.7	3.7	0.0	16.7	24.0		
1981								
F	24	18	6	6	8	7	38	31
ROW %	63.2	58.1	15.8	19.4	21.1	22.6	26.4	25.8
COL %	24.2	22.2	22.2	42.9	44.4	28.0		
1982								
F	19	14	6	1	4	6	29	21
ROW %	65.5	66.7	20.7	4.8	13.8	28.6	20.1	17.5
COL %	19.2	17.3	22.2	7.1	22.2	24.0		
1983								
F	23	11	11	3	0	3	34	17
ROW %	67.6	64.7	32.4	17.6	0.0	17.6	23.6	14.2
COL %	23.2	13.6	40.7	21.4	0.0	12.1		
1984								
F	20	18	3	4	3	3	26	25
ROW %	76.9	72.0	11.5	11.0	11.5	12.0	18.1	20.8
COL %	20.2	22.2	11.1	28.6	16.7	12.0		
Column Total	99	81	27	14	18	25	144	120
	68.8	67.5	18.8	11.7	12.5	20.8	100.0	100.0

Note. Females  $X^2 = 13.32855$  with 8 df  $p < .05$ , 0.1010  
Males  $X^2 = 8.96432$  with 8 df  $p < .05$ , 0.3453

Of the 1984 respondents, 18.1% (n=26) were female and 20.8% (n=25) were male (see Table 18).

Age at doctorate: The ages at doctorate of all the respondents ranged between 27 and 61 years. The median age at doctorate for all Virginia Tech doctoral respondents of the College of Education from 1980 to 1984 was 38.5. The median age of Virginia Tech female doctoral respondents in Education from 1980 to 1984 was 38.7, and the median age for all male doctorate respondents in Education from 1980 to 1984 was 38.2. There were no significant differences between the age at doctorate for male and female respondents (see Table 19). There were, however, significant differences in age by graduation year indicating that doctoral graduates are getting older (see Table 20).

The variable, age, yielded the following pattern. A few respondents, 1.9% (n=5) did not answer the question. The youngest doctorate recipients, those below the age of 34, comprised 26.0% (n=69) of the total. Those between the ages of 35 and 38 were 23.8% (n=63) of the total. Another 27.9% (n=74) of the respondents were between the ages of 39 and 44. Finally, 20.4% (n=54) were 45 years of age or older (see Table 21).

Marital status: From a total of 264 respondents, 8.3% (n=22) reported that they were single or never married. Another 75.4% (n=199) stated that they were married. Lastly, 16.3% (n=43) indicated that they were either separated, divorced, or widowed. When marital status was analyzed by gender, of the 143 female respondents 10.5% (n=15) were single or never married; 65.7% (n=94) were married; and 23.8% (n=34) were separated, divorced, or widowed. The 121 male respondents

Table 19

Median Age of Respondents by Graduation Year

Graduation Year	Female	Male
1980	34.0	35.0
1981	37.0	39.0
1982	41.0	35.0
1983	39.5	42.0
1984	<u>42.0</u>	<u>40.0</u>
Median Age	38.7	38.2

Table 20

Median Age at Doctorate by Year of Graduation for All Doctoral Respondents

	1980	1981	1982	1983	1984
GT Median	11	31	23	31	32
LE Median	30	36	27	20	19
Cases	Median Age	Nonparametric	df	Significance	
260	38.000	15.1263	4	.0044 = Yes	

Table 21

Median Age at Doctorate by Age Group

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Age at Doctorate	F	%
Did Not Respond	5	1.9
Under 34	69	26.0
35 to 38	63	23.8
39 to 44	74	27.9
45 and older	<u>54</u>	<u>20.4</u>
Column Totals	264	100.0

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reported that 5.8% (n=7) were single or never married; 86.8% (n=105) were married; and 7.4% (n=9) were separated, divorced, or widowed. The marital status of all Virginia Tech doctoral respondents from 1980 to 1984 is profiled in Table 22. When the relationship of marital status and gender was tested a significant relationship was observed. Twice as high a proportion of females as males (10.5% versus 5.8%) were never married and over three times the proportion of female respondents versus male respondents (23.8% versus 7.4%) indicated that they were either separated, divorced, or widowed.

Degree of importance of career decisions in relation to career

decisions of spouse: Among the 196 married respondents (92 females and 104 males) 4.3% (n=4) of the females versus 9.6% (n=10) of the males reported that their career decisions assumed no importance in their spouses' career decisions, 14.1% (n=13) of the females versus 5.8% (n=6) of the males said their career decisions assumed less importance, 71.7% (n=66) of the females and 35.6% (n=37) of the males said their career decisions assumed equal importance, and 9.8% (n=9) of the females versus 49.0% (n=51) of the males reported that their career decisions assumed greater importance than their spouses' career decisions (see Table 23). When the relationship between importance of respondents' career decisions and spouses' decisions was examined a significant relationship was observed. Indicating that spouses' career decisions had no importance were 71.4% of the male respondents versus 28.6% of the female respondents, and 85% of the male respondents versus 15% of the female respondents reported that their career decisions assumed greater importance than their spouses' career decisions.

Table 22

Marital Status of Respondents by Sex

Graduation Year	Female	Male	Row Total
<b>Never Married</b>			
F	* 15	* 7	22
ROW %	68.2	31.8	8.3
COL %	10.5	5.8	
<b>Married</b>			
F	94	105	199
ROW %	47.2	52.8	75.4
COL %	65.7	86.8	
<b>Separated, Divorced, Widowed</b>			
F	* 34	* 9	43
ROW %	79.1	20.9	16.3
COL %	<u>23.8</u>	<u>7.4</u>	<u>      </u>
<b>Column Total</b>	143 54.2	121 45.8	264 100.0

Note.  $\chi^2 = 16.33210$  with 2 df      \*p < .05,      0.0003

Table 23

Degree of Importance of Career Decisions in Relation to Career Decisions of Spouse

	Female	Male	Row Total
<b>No Importance</b>			
F	4	10	14
ROW %	* 28.6	* 71.4	7.1
COL %	4.3	9.6	
<b>Less Importance</b>			
F	13	6	19
ROW %	68.4	31.6	9.7
COL %	14.1	5.8	
<b>Equal Importance</b>			
F	66	37	103
ROW %	64.1	35.9	52.6
COL %	71.7	35.6	
<b>Greater Importance</b>			
F	9	51	60
ROW %	* 15.0	* 85.0	30.6
COL %	9.8	49.0	
<b>Column Total</b>			
	92	104	196
	46.9	53.1	100.0

Note.  $\chi^2 = 42.13867$  with 3 df      \* $p < .05$ , 0.0000

Work status of spouse: When the relationship of spouses' employment status and gender was tested there was a significant relationship. Among the male respondents approximately four times as high a proportion of males' (81.3%) as females' spouses (18.8%) were not employed and not seeking employment. Twice the proportion of female respondents' spouses as male respondents' spouses (66.7% versus 33.3%) were not employed but seeking full-time employment. Approximately 20 times the proportion of male respondents as female respondents' spouses (95.2% versus 4.8%) were working part-time and about the same percent (55.8% females versus 44.2% males) reported that their spouses were employed full-time (see Table 24).

Work status of doctoral respondents: When the relationship between work status and respondents by gender was examined, no significant relationship was observed. Among the 264 respondents (143 females and 121 males), 7% (n=1) of the females and .8% (n=1) of the males stated that they were neither employed nor seeking employment; .7% (n=1) females and .8% (n=1) of the males reported that they were not employed but seeking part-time work; 4.2% (n=6) of the females and .8% (n=1) of the males indicated that they were not employed but seeking full-time employment; 3.5% (n=5) of the females and .0% (n=0) of the males stated that they were employed part-time; and 90.9% (n=138) of the females and 97.5% (n=118) of the males specified that they were employed full-time (see Table 25).

Table 24

Crosstabulation of Work Status of Spouse by Sex

	Female	Male	Row Total
<b>No, Not Seeking</b>			
F	3	13	16
ROW %	18.8	81.3	8.1
COL %	3.2	12.4	
<b>No, Seeking Part-Time</b>			
F	0	2	2
ROW %	0	100.0	1.0
COL %	0	1.9	
<b>No, Seeking Full-Time</b>			
F	2	1	3
ROW %	66.7	33.3	1.5
COL %	2.2	1.0	
<b>Yes, Part-Time</b>			
F	1	20	21
ROW %	4.8	95.2	10.6
COL %	1.1	19.0	
<b>Yes, Full-Time</b>			
F	87	69	156
ROW %	55.8	44.2	78.8
COL %	* 93.5	65.7	
<b>Column Total</b>			
	9.3	10.5	19.8
	47.0	53.0	100.0

Note.  $\chi^2 = 27.22345$  with 4 df

\*p < .05, 0.0000

Table 25

Crosstabulation of Work Status of Respondent by Sex

	Female	Male	Row Total
<b>No, Not Seeking</b>			
F	1	1	2
ROW %	50.0	50.0	0.8
COL %	0.7	0.8	
<b>No, Seeking Part-Time</b>			
F	1	1	2
ROW %	50.0	50.0	0.8
COL %	0.7	0.8	
<b>No, Seeking Full-Time</b>			
F	6	1	7
ROW %	85.7	14.3	2.7
COL %	4.2	0.8	
<b>Yes, Part-Time</b>			
F	5	0	5
ROW %	100.0	0	1.9
COL %	3.5	0	
<b>Yes, Full-Time</b>			
F	130	118	248
ROW %	52.4	47.6	93.9
COL %	90.9	97.5	
<b>Column Total</b>	143	121	264
	54.2	45.8	100.0

Note.  $\chi^2 = 7.36992$  with 4 df  $p < .05$ , 0.1176

Predoctoral monthly gross salary of respondents: When the relationship of predoctoral salary and sex was examined, there were no significant differences in the female and male predoctoral salaries. Among the 259 respondents, 140 were females and 119 were males.

Postdoctoral monthly gross salary of respondents: Among the 260 respondents, 140 were females and 120 were males. An examination of the relationship of postdoctoral salaries and sex revealed no significant difference. Table 27 presents data on gross monthly postdoctoral salaries of respondents.

Number of respondents entering doctoral program due to employer requirements: Two hundred and sixty-two doctorate recipients (143 females and 119 males) indicated whether or not they had returned to college because of their employer's requirements. Among the respondents, only 10.5% (n=15) females and 9.2% (n=11) males did return to college because of their employer's requirements, and 89.5% (n=128) females and 90.8% (n=109) males did not return to college because of employer requirements. Therefore, 90.15% (n=237) of all respondents entered the doctoral program in Education at Virginia Tech for reasons unrelated to employer requirements and so there were no significant differences between the sexes concerning this survey item (see Table 28).

Table 26

Predoctoral Monthly Gross Salary of Respondents: Crosstabulation of Salary by Sex

	Female	Male	Row Total
None			
Count	2	0	2
ROW PCT	100.0	0	0.8
COL PCT	1.4	0	
Less than \$1,000			
Count	18	12	30
ROW PCT	60.0	40.0	11.6
COL PCT	12.9	10.0	
\$1,000 to \$1,999			
Count	77	66	143
ROW PCT	53.8	46.2	55.2
COL PCT	55.0	55.5	
\$2,000 to \$2,999			
Count	30	22	52
ROW PCT	57.7	42.3	28.1
COL PCT	21.4	18.5	
\$3,000 to \$3,999			
Count	3	12	15
ROW PCT	20.0	80.0	5.8
COL PCT	2.1	10.1	
\$4,000 to \$4,999			
Count	1	2	3
ROW PCT	33.3	66.7	1.2
COL PCT	0.7	1.7	
\$5,000 to \$5,999			
Count	0	0	0
ROW PCT	0	0	0.0
COL PCT	0	0	
\$6,000 to \$6,999			
Count	1	0	1
ROW PCT	100.0	0.0	0.4
COL PCT	0.7	0.0	
\$7,000 or more			
Count	8	5	12
ROW PCT	61.5	38.5	5.0
COL PCT	<u>5.7</u>	<u>4.2</u>	
Column Total	140	119	259
	54.1	45.9	100.0

Note.  $\chi^2 = 11.07266$  with 7 df  $p < .05$ , 0.1355

Table 27

Postdoctoral Monthly Gross Salary of Respondents by Sex

	Female	Male	Row Total
None			
F	2	0	3
ROW %	100.0	0	1.2
COL %	1.4	0	
Less than \$1,000			
F	5	1	6
ROW %	83.3	16.7	2.3
COL %	3.6	0.8	
\$1,000 to \$1,999			
F	19	12	31
ROW %	61.3	38.7	11.9
COL %	13.6	10.0	
\$2,000 to \$2,999			
F	69	50	119
ROW %	58.0	42.0	45.8
COL %	49.3	41.7	
\$3,000 to \$3,999			
F	31	37	68
ROW %	45.6	54.4	26.2
COL %	22.1	30.8	
\$4,000 to \$4,999			
F	6	13	19
ROW %	31.6	68.4	7.3
COL %	4.3	10.8	
\$5,000 to \$5,999			
F	1	0	1
ROW %	100.0	0	0.4
COL %	0.7	0	
\$6,000 to \$6,999			
F	0	1	1
ROW %	0	100.0	0.4
COL %	0	0.8	
\$7,000 or more			
F	6	6	12
ROW %	50.0	50.0	4.6
COL %	4.3	5.0	
Column Total	140	120	260
	53.8	46.2	100.0

Note.  $\chi^2 = 13.93326$  with 8 df  $p < .05$ , 0.0835

Table 28

Number of Respondents Entering Doctoral Program Due to Employer Requirements

Graduation Year	Female		Male		Row Total	
	No	Yes	No	Yes	Female	Male
1980						
F	15	2	24	2	17	26
ROW %	88.2	11.8	92.3	7.7	11.9	21.8
COL %	11.7	13.3	22.2	18.2		
1981						
F	31	6	26	4	37	30
ROW %	83.8	16.2	86.7	13.3	25.9	25.2
COL %	24.2	40.0	24.1	36.4		
1982						
F	27	2	21	0	29	21
ROW %	93.1	6.9	100.0	0.8	20.3	17.6
COL %	21.1	13.3	19.4	0.0		
1983						
F	31	3	13	4	34	17
ROW %	91.2	8.8	76.5	23.5	23.8	14.3
COL %	24.2	20.0	12.0	36.4		
1984						
F	24	2	24	1	26	25
ROW %	92.3	7.7	96.0	4.0	18.2	21.0
COL %	18.8	13.3	22.2	9.1		
Column Total	128	15	108	11	143	119
	89.5	10.5	90.8	9.2	100.0	100.0

Expected benefits A: 18 aspects of employment and satisfaction with employment.

The subjects of this study were asked to evaluate and indicate the expected importance of obtaining a doctoral degree on 18 aspects of employment and satisfaction with employment. When the expected benefits were tallied according to the number of positive responses per benefit, the top 10 primary expected benefits for all respondents were as follows: (a) challenge, (b) opportunity to use training or schooling, (c) visibility for jobs at other institutions or organizations, (d) opportunity for scholarly pursuits, (e) opportunities for different or better jobs at this institution or organization, (f) salary and fringe benefits, (g) overall job satisfaction, (h) status, (i) autonomy and independence, and (j) resources to get the job done (see Tables 29 and 30).

When the relationship of expected benefits and sex were examined there were significant differences on two items: opportunity to use training or schooling at  $p < .05$   $\chi^2(2) = 6.90295$ , and autonomy and independence at  $p < .05$   $\chi^2(2) = 10.92358$ . The significance indicates that 80.1% of the females versus 67.5% of the males expected an opportunity to use training or schooling to be a primary benefit, and 53.8% of the females versus 42.9% of the males respondents expected increased autonomy and independence on the job to be a primary benefit accrued following the completion of a doctoral degree program (see Table 29).



Table 29 (continued)

Code	Sex Frequency Row Percentage	Not Expected Benefits of Doctoral Degree by Sex												Chi-Square	Degree of Freedom	Significance
		Not Expected						Not Expected								
		5		6		Row Total		5		6		Row Total				
F	%	F	%	F	%	F	%	F	%	F	%	F	M			
Q8A1	Overall Job Satisfaction	29	20.9	17	14.4	46	17.9	6	12	257	1.93948	2	0.3792			
Q8A2	Salary & Fringe Benefits	10	7.2	11	9.3	21	8.2	15	14	257	0.44611	2	0.8001			
Q8A3	Opportunity for Scholarly Pursuits	13	9.3	9	7.6	22	8.5	14	15	259	1.84049	2	0.08430			
Q8A4	Opportunity to Use Training or Schooling	8	5.7	6	5.1	14	5.4	16	17	258	6.90295	2	0.0317*			
Q8A5	Resources to Get Job Done	21	15.1	29	25.4	50	19.8	12	6	253	5.34220	2	0.692			
Q8A6	Internal Politics	65	46.8	48	42.5	113	44.8	2	1	252	0.47040	2	0.7904			
Q8A7	Working Conditions (Hours, Location)	63	45.0	46	39.0	109	42.2	3	4	258	3.00085	2	0.10785			
Q8A8	Status	7	5.0	5	4.3	12	4.7	17	18	257	0.13418	2	0.9351			
Q8A9	Autonomy and Independence	35	24.5	20	16.8	55	21.0	8	11	262	10.92358	2	0.0042*			
Q8A10	Variety in Activities	28	20.0	28	23.9	56	21.8	10	8	257	3.85981	2	0.1452			
Q8A11	Policy Making Power	31	22.1	24	20.5	55	21.4	9	9	257	0.11979	2	0.9419			
Q8A12	Congenial Work Relationships	66	47.1	48	40.7	114	44.2	1	2	258	1.13439	2	0.5671			
Q8A13	Competency of Colleagues	51	37.5	47	40.5	98	38.9	4	3	252	11.34426	2	0.21217			
Q8A14	Opportunities for Different/Better Jobs at This Institution/Organization	27	19.7	23	20.0	50	19.8	11	10	252	0.49817	2	0.7795			
Q8A15	Visibility for Jobs at Other Institutions/Organizations	14	10.1	8	6.8	22	8.6	13	16	257	1.07039	2	0.5856			
Q8A16	Challenge	6	4.2	11	9.4	17	6.6	18	13	259	4.92955	2	0.0850			
Q8A17	Job Security	40	28.2	30	25.4	70	26.9	7	6	260	0.30614	2	0.8581			
Q8A18	Prestige of Employer	49	35.3	31	26.3	80	31.1	5	5	257	2.60286	2	0.2721			

Note. \* = significant

Table 30

Expected Primary Benefits A: 18 Aspects of Employment and Satisfaction With Employment for All Respondents by Number and Percent Rank Order

Female %	Male %	Aspects of Employment	Total %	Number Rank
79.6	68.4	Challenge	74.0	1
80.1	67.5	Opportunity to Use Training or Schooling	73.8	2
67.6	67.8	Visibility for Jobs at Other Institutions/Organizations	67.7	3
60.0	53.8	Opportunity for Scholarly Pursuits	56.9	4
56.9	53.0	Opportunities for Different/Better Jobs at This Institution/Organization	54.9	5
51.8	49.2	Salary and Fringe Benefits	50.5	6
48.9	50.8	Overall Job Satisfaction	49.9	7
48.6	50.4	Status	49.5	8
53.8	42.9	Autonomy and Independence	48.4	9
50.4	38.6	Resources to Get Job Done	44.5	10
38.7	41.5	Job Security	40.1	11
43.6	31.6	Variety in Activities	37.6	12
33.6	35.0	Policy Making Power	34.3	13
28.6	24.6	(Hours, Location)	26.6	14
25.2	26.3	Prestige of Employer	25.8	15
30.9	13.8	Competency of Colleagues	22.4	16
15.7	18.6	Working Conditions Congenial Work Relationships	17.2	17
14.4	15.9	Internal Politics	15.2	18

Note. This table was constructed from information in Table 29.

Tables 31 and 32 show there are marked similarities among the top 10 expected benefits for the female and male respondents. For example, 9 out of 10 of the top 10 ranked expected benefits for both the female and male respondents were the same. The only differences were females (resources to get the job done) versus males (job security), as indicated in the comparative lists that follow:

Females	Males
1 Opportunity to use training or schooling	1 Challenge
2 Challenge	2 Visibility for jobs at other institutions or organizations
3 Visibility for jobs at other institutions or organizations	3 Opportunity to use training or schooling
4 Opportunity for scholarly pursuits	4 Opportunity for scholarly pursuits
5 Opportunity for different/better jobs at this institution/organization	5 Opportunity for different/better jobs at this institution/organization
6 Autonomy and independence	6 Overall job satisfaction
7 Salary and fringe benefits	7 Status
8 Resources to get the job done	8 Salary & fringe benefits
9 Overall job satisfaction	9 Autonomy and independence
10 Status	10 Job security

Expected benefits B: 18 Intellectual qualities and skills.

The subjects were asked to evaluate and indicate each quality or skill they possessed upon entry to the doctoral program; whether they needed or did not need improvement; whether or not they expected improvement; and finally, whether each intellectual skill and quality improved, improved less than expected, or did not improve at all. When the expected benefits were ranked according to the number of responses per benefit, the primary expected benefits for all respondents were as follows: (a) research skills, (b) critical thinking

Table 31

Expected Primary, Secondary, and Not Expected Benefits A: 18 Aspects of Employment and Satisfaction With Employment for Females

NR	Z	Expected Primary Benefits: Most Important	NR	Z	Expected Secondary Benefits: By Product	NR	Z	Not Expected Benefits
1	80.1	Opportunity to Use Training or Schooling	1	46.4	Status	1	47.1	Congenial Work Relationships
2	79.6	Challenge	2	44.3	Policy Making Power	2	46.8	Internal Politics
3	67.7	Visibility for Jobs at Other Institutions/ Organizations	3	41.0	Salary and Fringe Benefits	3	45.0	Working Conditions (Hours, Location)
4	60.0	Opportunity for Scholarly Pursuits	4	39.6	Prestige of Employer	4	37.5	Competency of Colleagues
5	56.9	Opportunity for Different/Better Jobs at This Institution/Organization	5	38.8	Internal Politics	5	35.3	Prestige of Employer
6	53.8	Autonomy and Independence	6	37.1	Congenial Work Relationships	6	28.2	Job Security
7	51.8	Salary and Fringe Benefits	7	36.4	Variety in Activities	7	24.5	Autonomy and Independence
8	50.4	Resources to Get Job Done	8	34.5	Resources to Get Job Done	8	22.1	Policy Making Power
9	48.9	Overall Job Satisfaction	9	33.1	Job Security	9	20.9	Overall Job Satisfaction
10	48.6	Status	10	31.6	Competency of Colleagues	10	20.0	Variety in Activities
11	43.6	Variety in Activities	11	30.7	Opportunity for Scholarly Pursuits	11	19.7	Opportunity for Different/Better Jobs at This Institution/ Organization
12	38.7	Job Security	12	30.2	Overall Job Satisfaction	12	15.1	Resources to Get Job Done
13	33.6	Policy Making Power	13	26.4	Working Conditions (Hours, Location)	13	10.1	Visibility for Jobs at Other Institutions/Organizations
14	30.9	Competency of Colleagues	14	23.4	Opportunity for Different/Better Jobs at This Institution/Organization	14	9.3	Opportunity for Scholarly Pursuits
15	28.6	Working Conditions (Hours, Location)	15	22.3	Visibility for Jobs at Other Institutions/Organizations	15	7.2	Salary and Fringe Benefits
16	25.2	Prestige of Employer	16	21.7	Autonomy and Independence	16	5.7	Opportunity to Use Training or Schooling
17	15.7	Congenial Work Relationships	17	16.2	Challenge	17	5.0	Status
18	14.4	Internal Politics	18	14.2	Opportunity to Use Training or Schooling	18	4.2	Challenge

Note. This table was constructed from information in Table 29.

Table 32

Expected Primary, Secondary, and Not Expected Benefits A: 18 Aspects of Employment and Satisfaction With Employment for Malee

NR	Z	Expected Primary Benefits: Most Important	NR	Z	Expected Secondary Benefits: By Product	NR	Z	Not Expected Benefits
1	68.4	Challenge	1	47.5	Prestige of Employer	1	42.5	Internal Politics
2	67.8	Visibility for Jobs at Other Institutions/ Organizations	2	45.7	Competency of Colleagues	2	40.7	Congenial Work Relationships
3	67.5	Opportunity to Use Training or Schooling	3	45.3	Status	3	40.5	Competency of Colleagues
4	53.8	Opportunity for Scholarly Pursuits	4	44.4	Variety in Activities	4	39.0	Working Conditions (Hours, Location)
5	53.0	Opportunity for Different/Better Job at This Institution/Organization	4	44.4	Policy Making Power	5	26.3	Prestige of Employer
6	50.8	Overall Job Satisfaction	5	41.6	Internal Politics	6	25.4	Resources to Get Job Done
7	50.4	Status	6	41.5	Salary and Fringe Benefits	6	25.4	Job Security
8	49.2	Salary and Fringe Benefits	7	40.7	Congenial Work Relationships	7	23.9	Variety in Activities
9	42.9	Autonomy and Independence	8	40.3	Autonomy and Independence	8	20.5	Policy Making Power
10	41.5	Job Security	9	38.7	Opportunity for Scholarly Pursuits	9	20.0	Opportunity for Different/Better Jobs at This Institution/ Organization
11	38.6	Resources to Get Job Done	10	36.4	Working Conditions (Hours, Location)	10	16.8	Autonomy and Independence
12	35.0	Policy Making Power	11	36.0	Resources to Get Job Done	11	14.4	Overall Job Satisfaction
13	31.6	Variety in Activities	12	34.7	Overall Job Satisfaction	12	9.4	Challenge
14	26.3	Prestige of Employer	13	33.1	Job Security	13	4.3	Salary and Fringe Benefits
15	24.6	Working Conditions (Hours, Location)	14	27.4	Opportunity to Use Training or Schooling	14	7.6	Opportunity for Scholarly Pursuits
16	18.6	Congenial Work Relationships	15	27.0	Opportunity for Different/Better Jobs at This Institution/Organization	15	6.8	Visibility for Jobs at Other Institutions/Organizations
17	15.9	Internal Politics	16	25.4	Visibility for Jobs at Other Institutions/ Organizations	16	5.1	Opportunity to Use Training or Schooling
18	13.8	Competency of Colleagues	17	22.2	Challenge	17	4.3	Status

Note. This table was constructed from information in Table 29.

or analytical skills, (c) writing ability, (d) general knowledge, (e) insight, (f) political awareness, (g) ability to think clearly, (h) academic ability, (i) self-confidence, (j) mathematical ability, (k) political awareness, (l) creativity and originality, (m) public speaking ability, (n) understanding of others, (o) cultural perspective, (p) self-discipline and the ability to follow orders, (q) drive to achieve, and (r) mechanical ability (see Tables 33 and 34).

When the relationship of expected benefits and sex was examined there was no significant difference.

There were similarities among the top 10 expected benefits for the female and male respondents. Nine out of 10 of the top ranked expected benefits for the female respondents were the same for the male respondents and, due to ties, the males had three additional benefits ranked among their top 10 most expected benefits. Mathematical ability was the sixth most expected benefit for females while creativity and originality, political awareness, and public speaking ability were among the 10 most expected benefits for the males.

Females	Males
1 Research skills	1 Research skills
2 Critical thinking or analytical skills	2 Writing ability
3 General knowledge	3 General knowledge
4 Writing ability	4 Critical thinking or analytical skills
5 Insight	5 Insight
6 Mathematical ability	6 Leadership ability
7 Self-confidence	7 Academic ability
8 Ability to think clearly	8 Ability to think clearly
9 Leadership ability	9 Self-confidence, Creativity and Originality, and Political awareness
10 Academic ability	10 Public speaking ability

Master Expected Benefits E: 18 Intellectual Qualities and Skills for All Respondents

	A1 NEEDED IMPROVEMENT						B1 EXPECTED IMPROVEMENT						B2 DID NOT EXPECT IMPROVEMENT						C0								
	C2 IMPROVED			C1 LESS THAN EXPECTED			C0 NOT EXPECTED IMPROVED			C2 IMPROVED			C1 LESS THAN EXPECTED			C0 NOT EXPECTED IMPROVED			C2 IMPROVED			C1 LESS THAN EXPECTED			C0 NOT EXPECTED IMPROVED		
	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %	Male	Female	F %
Q9A1 Creativity and Originality	34	28.1	34	23.6	16	13.2	17	11.8	2	1.7	4	2.8	1	0.8	5	3.5	0	0.0	2	1.4	3	2.5	1	0.7			
Q9A2 Cultural Perspective	41	34.9	32	22.2	8	6.6	8	5.6	0	0.0	2	1.4	0	0.0	3	2.1	0	0.0	1	0.8	1	0.8	3	2.1			
Q9A3 Drive to Achieve	15	12.4	10	6.9	3	2.5	0	0.0	0	0.0	1	0.7	3	2.5	1	0.7	0	0.0	0	0.0	0	0.0	1	0.7			
Q9A4 Insight	65	53.7	63	43.8	14	11.6	17	11.8	0	0.0	0	0.0	0	0.0	1	0.7	1	0.8	1	0.8	1	0.8	0	0.0			
Q9A5 Leadership Ability	48	39.7	50	34.7	17	14.0	19	13.2	1	0.8	0	0.0	4	3.3	3	2.1	0	0.0	3	2.1	0	0.0	2	1.4			
Q9A6 Political Awareness	44	36.4	50	34.7	6	4.9	16	11.1	2	1.7	0	0.0	4	3.3	6	4.2	1	0.8	3	2.1	2	1.7	0	0.0			
Q9A7 Public Speaking Ability	37	30.6	35	24.3	10	8.3	15	10.4	5	4.1	4	2.8	7	5.8	6	4.2	2	1.7	3	2.1	0	0.0	4	2.8			
Q9A8 Self-Confidence	47	38.8	53	36.8	3	2.5	12	8.3	1	0.8	7	4.9	1	0.8	5	3.5	1	0.8	1	0.8	0	0.0	0	0.0			
Q9A9 Self-Discipline and the Ability to Follow Orders	28	23.1	23	15.9	3	2.5	2	1.4	2	1.7	0	0.0	1	0.8	1	0.7	0	0.0	0	0.0	0	0.0	0	0.0			
Q9A10 Understanding of Others	40	33.1	30	20.8	9	7.4	8	5.6	0	0.0	2	1.4	2	1.3	2	1.4	0	0.0	1	0.8	0	0.0	2	1.4			
Q9A11 Ability to Think Clearly	47	38.8	52	36.1	9	7.4	17	11.8	0	0.0	1	0.7	0	0.0	1	0.7	1	0.8	1	0.8	0	0.0	0	0.0			
Q9A12 Academic Ability	50	41.3	57	39.6	7	5.8	8	5.6	0	0.0	0	0.0	0	0.0	1	0.7	1	0.8	0	0.0	0	0.0	0	0.0			
Q9A13 Critical Thinking or Analytical Skills	77	63.6	92	63.9	10	8.3	21	14.6	1	0.8	1	0.7	2	1.3	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0			
Q9A14 General Knowledge	78	64.5	85	59.2	12	9.9	18	12.5	1	0.8	0	0.0	2	1.3	0	0.0	1	0.8	1	0.8	0	0.0	0	0.0			
Q9A15 Research Skills	94	77.7	106	73.6	14	11.6	25	17.4	2	1.7	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0			
Q9A16 Writing Ability	83	68.6	88	61.1	14	11.6	10	6.9	0	0.0	0	0.0	1	0.8	2	1.4	1	0.8	0	0.0	1	0.8	0	0.0			
Q9A17 Mathematical Ability	38	31.4	56	38.9	6	4.9	19	13.2	2	1.7	5	3.5	6	4.9	6	4.2	2	1.7	2	1.4	4	3.3	6	4.9			
Q9A18 Mechanical Ability	13	10.7	18	12.5	0	0.0	5	3.5	0	0.0	3	2.1	10	8.3	11	7.6	2	1.7	4	2.8	2	1.7	14	9.7			
TOTALS	879	934	161	237	19	32	44	54	7	8	6	13	24	14	35												
Columns	1	2	3	4	5	6	7	8	9	10	11	12															

Table 33 (continued)

	B1 EXPECTED IMPROVEMENT						A2 DID NOT NEED IMPROVEMENT						B2 DID NOT EXPECT IMPROVEMENT													
	C2 IMPROVED		C1 LESS THAN EXPECTED		C0 NOT EXPECTED IMPROVED		C2 IMPROVED		C1 LESS THAN EXPECTED		C0 NOT EXPECTED IMPROVED		C2 IMPROVED		C1 LESS THAN EXPECTED		C0 NOT EXPECTED IMPROVED									
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female								
F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %	F %									
9A1	1	0.8	2	1.4	0	0.0	1	0.7	0	0.0	0	0.0	2	1.7	2	1.4	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0
9A2	1	0.8	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0	2	1.7	3	2.1	1	0.8	0	0.0	2	1.7	1	0.7	2	1.7
9A3	3	2.5	4	2.8	2	1.7	0	0.0	0	0.0	0	0.0	4	8.3	5	3.5	1	0.8	0	0.0	2	1.7	1	0.7	2	1.7
9A4	2	1.7	3	2.1	0	0.0	1	0.7	1	0.8	0	0.0	1	0.8	3	2.1	0	0.0	0	0.0	1	0.8	0	0.0	1	0.8
9A5	1	0.8	4	2.8	1	0.8	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	1	0.8	0	0.0	2	1.7	1	0.7	2	1.7
9A6	1	0.8	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	2	1.7	1	0.7	3	2.5	0	0.0	1	0.8	1	0.7	2	1.7
9A7	0	0.0	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	3	2.1	1	0.8	0	0.0	2	1.7	0	0.0	2	1.7
9A8	2	1.7	3	2.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	2	1.4	0	0.0	1	0.7	1	0.8	0	0.0	1	0.8
9A9	1	0.8	5	3.5	0	0.0	0	0.0	1	0.8	0	0.0	3	2.5	2	1.4	2	1.7	0	0.0	1	0.8	0	0.0	1	0.8
9A10	1	0.8	5	3.5	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	2	1.4	0	0.0	0	0.0	1	0.8	0	0.0	1	0.8
9A11	1	0.8	4	2.8	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	2	1.4	0	0.0	0	0.0	1	0.8	1	0.7	2	1.7
9A12	1	0.8	3	2.1	1	0.8	1	0.7	0	0.0	0	0.0	2	1.7	2	1.4	0	0.0	0	0.0	1	0.8	1	0.7	2	1.7
9A13	2	1.7	1	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	1	0.8	0	0.0	1	0.8
9A14	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	1	0.8	0	0.0	1	0.8	0	0.0	1	0.8
9A15	0	0.0	1	0.7	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9A16	1	0.8	3	2.1	0	0.0	0	0.0	0	0.0	1	0.7	1	0.8	0	0.0	1	0.8	0	0.0	1	0.8	1	0.7	2	1.7
9A17	0	0.0	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.4	0	0.0	0	0.0	2	1.7	1	0.7	2	1.7
9A18	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	2	1.7	1	0.7	2	1.7
TOTALS	19	45	14	45	5	3	4	1	24	31	12	1	24	19	20	21	22	23	24	22	23	24	24	24	24	24
Columns	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38

Table 34

Expected Primary Benefits B: 18 Intellectual Qualities and Skills  
for All Respondents by Number and Percent Rank Order

Female %	Male %	Intellectual Skills and Qualities	Total %	Number Rank
93.1	91.7	Research Skills	92.4	1
79.9	74.4	Critical Thinking or Analytical Skills	77.2	2
70.8	80.9	Writing Ability	75.9	3
71.5	76.0	General Knowledge	73.8	4
58.3	67.8	Insight	63.1	5
50.7	56.2	Leadership Ability	53.5	6
51.4	47.9	Ability to Think Clearly	49.7	7
47.9	48.8	Academic Ability	48.4	8
52.1	43.8	Self-Confidence	47.9	9
56.9	38.0	Mathematical Ability	47.5	10
47.2	43.8	Political Awareness	45.5	11
40.3	43.8	Creativity and Originality	42.1	12
38.9	42.9	Public Speaking Ability	40.9	13
31.3	42.1	Understanding of Others	36.7	14
29.9	41.3	Cultural Perspective	35.6	15
20.8	28.9	Self-Discipline and the Ability to Follow Orders	24.9	16
10.4	19.0	Drive to Achieve	14.7	17
18.1	10.7	Mechanical Ability	14.4	18

Note. This table was constructed from information in Table 33.

Accrued benefits following completion of the doctoral degree.

Following completion of the doctorate, benefits were collected from two areas: (a) 18 aspects of employment and satisfaction with employment and (b) 18 intellectual qualities and skills. As can be seen in Tables 37 and 38, when the relationships of perceived benefits accrued following completion of the doctoral degree and sex were examined there were significant differences for four items: autonomy and independence at  $p < .05$   $\chi^2(3) = 11.64128$ , congenial work relationships at  $p < .05$   $\chi^2(3) = 8.52158$ , visibility for jobs at the institutions or organizations at  $p < .05$   $\chi^2(3) = 10.09205$ , and mechanical ability at  $p < .05$   $\chi^2(2) = 6.58427$ . These results indicated that:

1. 70.4% (n=83) of the male versus 56.4% (n = 79) of the female respondents perceived that increased autonomy and independence was a primary or secondary accrued benefit, and 43.6% (n=61) of the female versus 29.6% (n=33) of the male respondents perceived that they had accrued either less than expected or no benefit relative to an increase in autonomy and independence in the job;
2. 58.9% (n=82) of the female versus 44.8% (n=52) of the male respondents perceived that they had accrued either less than expected or no benefit relative to an increase in congenial work relationships while 41.0% (n=57) of the female versus 55.2% (n=64) of the male respondents perceived that improved congenial work relationship was a primary or secondary accrued benefit;

3. 62.9% (n=88) of the female versus 73.3% (n=85) of the male respondents perceived that increased visibility for jobs at other institutions or organizations was a primary or secondary accrued benefit of completing the doctoral degree while 37.2% (n=52) female versus 26.7% (n=31) male respondents perceived that they had accrued either less than expected or no benefit relative to increasing their visibility for jobs at other institutions or organizations; and
4. 50.0% (n=30) of the female versus 77.4% (n=24) of male respondents perceived that an improvement in mechanical ability was a primary accrued benefit while 50.0% (n=30) of the female and 22.6% (n=7) of the male respondents perceived that they had accrued less than expected or no improvement in their mechanical ability as a result of completing the doctoral degree. There were no other significant differences (see Tables 37 and 38).

A. Accrued Benefits A: 18 aspects of employment and satisfaction with employment. When the perceived accrued benefits were ranked according to the number of positive responses per benefit for the 18 aspects of employment and satisfaction with employment, the primary perceived accrued benefits for all respondents were as follows: (a) challenge, (b) opportunity to use training or schooling, (c) visibility for jobs at other institutions or organizations, (d) status, (e) resources to get the job done, (f) overall job satisfaction, (g) variety in activities, (h) autonomy and independence,

Table 35

Expected and Not Expected Benefits B: 18 Intellectual Qualities and Skills for Females

NR	A			B			
	F	%R	Expected Improvement or Benefit	NR	F	%R	Did Not Expect Improvement or Benefit
1	134	93.1	Research Skills	1	47	32.6	Mechanical Ability
2	115	79.9	Critical Thinking or Analytical Skills	2	25	17.4	Mathematical Ability
3	103	71.5	General Knowledge	2	25	17.4	Public Speaking Ability
4	102	70.8	Writing Ability	3	23	15.9	Political Awareness
5	84	58.3	Insight	4	15	10.4	Creativity and Originality
6	82	56.9	Mathematical Ability	4	15	10.4	Cultural Perspective
7	75	52.1	Self-Confidence	5	14	9.7	Leadership Ability
8	74	51.4	Ability to Think Clearly	5	14	9.7	Self-Confidence
9	73	50.7	Leadership Ability	6	12	8.3	Understanding of Others
10	69	47.9	Academic Ability	7	10	6.9	Drive to Achieve
11	68	47.2	Political Awareness	8	9	6.3	Insight
12	58	40.3	Creativity and Originality	8	9	6.3	Self-Discipline and the Ability to Follow Orders
13	56	38.9	Public Speaking Ability	9	8	5.6	Ability to Think Clearly
14	45	31.3	Understanding of Others	10	6	4.2	Academic Ability
15	43	29.9	Cultural Perspective	11	5	3.5	Writing Ability
16	30	20.8	Self-Discipline and the Ability to Follow Orders	11	5	3.5	Critical Thinking or Analytical Skills
17	26	18.1	Mechanical Ability	12	0	0	Research Skills
18	15	10.4	Drive to Achieve				

Note. This table was constructed as follows:  
 Column A is Columns 2 + 4 + 6 + 14 + 16 + 18 of Table 33, and  
 Column B is Columns 8 + 10 + 12 + 20 + 22 + 24 of Table 33.

Table 36

Expected and Not Expected Benefits B: 18 Intellectual Qualities and Skills for Males

NR	F	ZR	A		NR	F	ZR	B	
			Expected Improvement or Benefit	Did Not Expect Improvement or Benefit					
1	111	91.7	Research Skills		1	24	19.8	Mechanical Ability	
2	98	80.9	Writing Ability		2	19	15.7	Mathematical Ability	
3	92	76.0	General Knowledge		3	16	13.2	Public Speaking Ability	
4	90	74.4	Critical Thinking or Analytical Skills		4	15	12.4	Political Awareness	
5	82	67.8	Insight		5	14	11.6	Drive to Achieve	
6	68	56.2	Leadership Ability		6	12	9.9	Creativity and Originality	
7	59	48.8	Academic Ability		6	12	9.9	Self-Discipline and the Ability to Follow Orders	
8	58	47.9	Ability to Think Clearly		7	11	9.1	Cultural Perspective	
9	53	43.8	Self-Confidence		8	10	8.3	Leadership Ability	
9	53	43.8	Creativity and Originality		9	9	7.4	Ability to Think Clearly	
9	53	43.8	Political Awareness		10	7	5.8	Self-Confidence	
10	52	42.9	Public Speaking Ability		11	6	4.9	Academic Ability	
11	51	42.1	Understanding of Others		11	6	4.9	Understanding of Others	
12	50	41.3	Cultural Perspective		11	6	4.9	Writing Ability	
13	46	38.0	Mathematical Ability		11	6	4.9	General Knowledge	
14	35	28.9	Self-Discipline and the Ability to Follow Orders		12	5	4.1	Critical Thinking or Analytical Skills	
15	23	19.0	Drive to Achieve		13	4	3.3	Insight	
16	13	10.7	Mechanical Ability		14	0	0	Research Skills	

Note. This table was constructed as follows:  
 Column A is Columns 1 + 3 + 5 + 13 + 15 + 17 + of Table 33, and  
 Column B is Columns 7 + 9 + 11 + 19 + 21 + 23 of Table 33.

Table 37

Master Accrued Benefits A: JE Aspects of Employment and Satisfaction With Employment for All Respondents

	MALES			FEMALES			Chi-Square	df	Significance												
	Less Than Expected F NR %	Secondary F NR %	Primary F NR %	Less Than Expected F NR %	Secondary F NR %	Primary F NR %															
1 OVERALL JOB SATISFACTION	20	6	17.1	32	14	27.4	46	5	39.3	30	3	21.7	29	12	21.0	51	8	37.0	2.14565	3	0.4987
2 SALARY AND FRINGE BENEFITS	24	2	20.7	38	9	32.8	43	6	37.1	37	2	26.4	43	4	30.7	46	10	32.9	1.30170	3	0.7287
3 OPPORTUNITY FOR SCHOLARLY PURSUITS	23	4	19.5	39	7	33.1	38	12	32.2	30	4	21.3	35	10	24.8	56	7	39.7	2.67141	3	0.4951
4 OPPORTUNITY TO USE TRAINING OR SCHOOLING	23	3	19.7	32	14	27.4	55	3	47.0	28	5	20.0	29	14	20.7	74	2	52.9	1.64097	3	0.6501
5 RESOURCES TO GET JOB DONE	12	15	10.6	35	11	31.0	41	7	36.3	16	16	11.5	41	7	29.5	56	6	40.3	0.70932	3	0.8710
6 INTERNAL POLITICS	11	16	9.8	44	3	39.3	19	16	17.0	10	17	7.5	49	1	36.6	21	15	15.7	0.24149	3	0.7431
7 WORKING CONDITIONS (HOURS, LOCATION)	20	5	17.4	28	17	24.3	24	15	20.9	21	10	15.1	29	13	20.9	25	14	18.0	1.93338	3	0.5863
8 STATUS	14	13	12.1	47	1	40.5	46	4	39.7	20	11	14.4	48	2	34.5	58	4	41.7	1.11581	3	0.7733
9 AUTONOMY AND INDEPENDENCE	15	12	12.7	44	5	37.3	39	10	33.1	19	13	13.6	28	15	20.0	51	9	36.4	11.64128	3	0.0087 *
10 VARIETY IN ACTIVITIES	15	11	13.0	36	10	31.3	39	8	33.9	8	18	5.8	39	9	28.1	57	5	41.0	5.06964	3	0.1668
11 POLICY MAKING POWER	19	7	16.5	38	8	33.0	36	12	31.3	27	6	19.1	46	3	32.6	35	12	24.8	1.74466	3	0.6270
12 CONGENIAL WORK RELATIONSHIPS	13	14	11.2	46	2	59.7	18	17	15.5	18	14	12.9	32	11	23.0	25	14	18.0	8.52158	3	0.0364 *
13 COMPETENCY OF COLLEAGUES	18	8	15.9	41	6	36.3	14	18	12.4	24	8	17.8	40	6	29.6	19	16	14.1	1.25051	3	0.7409
14 OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ORGANIZATION	24	1	21.1	30	15	26.3	38	9	33.3	44	1	31.7	25	17	18.0	39	11	28.1	5.46114	3	0.1410
15 VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ORGANIZATIONS	24	2	20.7	30	16	25.9	55	2	47.4	25	7	17.9	27	16	19.3	61	3	43.6	10.09205	3	0.0178 *
16 CHALLENGE	11	17	9.6	33	13	28.7	61	1	53.0	20	12	14.2	21	18	14.9	87	1	61.7	7.67700	3	0.0532
17 JOB SECURITY	16	10	13.8	34	12	29.3	36	13	31.0	25	9	17.5	42	8	29.4	31	13	21.7	3.41327	3	0.3322
18 PRESTIGE OF EMPLOYER	16	9	13.9	44	4	38.3	28	14	24.3	18	15	12.8	43	5	30.5	35	112	24.8	2.79513	3	0.4243

Note. \* = significant

Table 38

Master Accrued Benefits B: 18 Intellectual Qualities and Skills for All Respondents

	MALES				FEMALES				Chi-Square	df	Significance										
	Less Than Expected		Primary		Less Than Expected		Secondary					Primary									
	F	NR	%	F	NR	%	F	NR	%	F	NR	%									
1 CREATIVITY AND ORIGINALITY	8	3	13.1	16	1	26.2	37	17	60.7	5	8	7.0	21	1	29.6	45	15	63.4	1.39893	2	0.4969
2 CULTURAL PERSPECTIVE	3	8	5.3	9	7	15.8	45	8	78.9	6	4	10.9	9	12	16.4	40	9	72.7	1.25880	2	0.5329
3 DRIVE TO ACHIEVE	4	4	11.1	6	5	16.7	26	13	72.2	2	6	8.0	1	17	4.0	22	2	88.0	2.67480	2	0.20940
4 INSIGHT	4	13	4.7	14	6	16.3	68	7	79.1	2	10	2.2	19	6	20.7	71	6	77.2	1.28821	2	0.5251
5 LEADERSHIP ABILITY	4	9	5.1	20	2	25.6	54	16	69.2	3	9	3.5	23	2	27.1	59	11	69.4	0.27329	2	0.8723
6 POLITICAL AWARENESS	7	6	10.3	10	10	14.7	51	12	75.0	11	3	12.0	20	5	21.7	61	12	66.3	0.54995	2	0.4608
7 PUBLIC SPEAKING ABILITY	7	5	10.4	13	3	19.4	47	15	70.1	8	5	10.5	19	3	25.0	49	14	64.5	0.66955	2	0.7155
8 SELF-CONFIDENCE	4	7	6.7	4	17	6.7	52	1	86.7	7	6	8.0	14	13	16.1	66	8	75.9	3.18295	2	0.2036
9 SELF-DISCIPLINE AND THE ABILITY TO FOLLOW ORDERS	5	4	11.1	5	16	11.1	35	9	77.8	0	16	0.0	4	15	11.1	32	1	88.9	4.29837	2	0.1166
10 UNDERSTANDING OF OTHERS	2	11	3.5	11	4	19.3	44	11	77.2	4	7	7.4	11	7	20.4	39	10	72.2	0.88749	2	0.6416
11 ABILITY TO THINK CLEARLY	3	10	4.7	10	8	15.6	51	6	79.7	1	14	1.3	18	4	22.8	60	8	75.9	2.46918	2	0.2910
12 ACADEMIC ABILITY	2	13	3.1	9	12	14.1	53	5	82.8	1	14	1.3	11	14	14.7	63	3	84.0	0.52821	2	0.7679
13 CRITICAL THINKING OR ANALYTICAL SKILLS	3	12	3.2	11	15	11.6	81	2	85.3	1	15	0.8	23	9	19.2	96	4	80.0	3.64884	2	0.1613
14 GENERAL KNOWLEDGE	2	16	2.1	14	11	14.4	81	4	83.5	2	12	1.8	21	11	18.9	88	5	79.3	0.75104	2	0.6869
15 RESEARCH SKILLS	3	15	2.6	15	13	13.2	96	3	84.2	2	13	1.5	26	10	19.0	109	7	76.6	1.88386	2	0.3899
16 WRITING ABILITY	3	14	2.9	16	9	15.2	86	18	47.5	2	11	1.9	10	16	9.3	95	16	52.5	2.01344	2	0.3654
17 MATHEMATICAL ABILITY	9	2	14.8	8	14	13.1	44	14	72.1	14	2	13.6	21	7	20.4	68	13	66.0	1.39264	2	0.4984
18 MECHANICAL ABILITY	5	1	16.1	2	18	6.5	24	10	77.4	18	1	30.0	12	8	20.0	30	17	50.0	6.58427	2	0.0372 *

Note. \* = significant

(i) opportunity for scholarly pursuits, (j) salary and fringe benefits, (k) opportunities for different/better jobs at this institution/organization, (l) policy making power, (m) job security, (n) prestige of employer, (o) working conditions (hours, location), (p) congenial work relationships, (q) internal politics, and (r) competency of colleagues (see Tables 39, 40, and 41).

B. Accrued Benefits B: 18 intellectual qualities and skills. When the perceived accrued benefits were ranked according to the number of positive responses per benefit for the 18 intellectual qualities and skills, the primary perceived accrued benefits for all respondents were as follows: (a) self-discipline and the ability to follow orders, (b) critical thinking and analytical skills, (c) general knowledge, (d) self-confidence, (e) research skills, (f) drive to achieve, (g) insight, (h) ability to think clearly, (i) cultural perspective, (j) understanding of others, (k) political awareness, (l) leadership ability, (m) mathematical ability, (n) public speaking ability, (o) mechanical ability, (p) creativity and originality, and (q) writing ability (see Tables 40 and 41).

Accrued Benefits A: 18 aspects of employment and satisfaction with employment for females versus males.

In rank order according to the proportion of positive responses the primary accrued benefits for females versus male respondents for the 18 aspects of employment and satisfaction with employment were as follows: (a) females (61.7%) challenge and males (53.0%) challenge, (b) females (52.9%) opportunity to use training or schooling versus

Table 39

Accrued Benefits A: 18 Aspects of Employment and Satisfaction With Employment for All Respondents by Number and Percent Rank Order

Female %	Male %	Aspects of Employment	Total %	Number Rank
61.7	53.0	Challenge	57.4	1
52.9	47.0	Opportunity to use Training or Schooling	49.9	2
43.6	47.4	Visibility for Jobs at Other Institutions/Organizations	45.5	3
41.7	39.7	Status	40.7	4
40.3	36.3	Resources to Get Job Done	38.3	5
37.0	39.3	Overall Job Satisfaction	38.2	6
41.0	33.9	Variety in Activities	37.5	7
36.4	33.1	Autonomy and Independence	36.9	8
39.7	32.2	Opportunity for Scholarly Pursuits	35.9	9
32.9	37.1	Salary and Fringe Benefits	35	10
28.1	33.3	Opportunities for Different/Better Jobs at This Institution/Organization	30.7	11
24.8	31.3	Policy Making Power	28.1	12
21.7	31.0	Job Security	26.4	13
24.8	24.3	Prestige of Employer	24.6	14
18.0	20.9	Working Conditions (Hours and Location)	19.5	15
18.0	15.5	Congenial Work Relationships	11.8	16
15.7	17.0	Internal Politics	16.4	17
14.1	12.4	Competency of Colleagues	13.3	18

Note. This table was constructed from information in Tables 38 and 39.

Table 40

## Accrued Benefits A: 18 Aspects of Employment and Satisfaction With Employment for Females

NR	ZR	Accrued Benefits	NR	ZR	Less Than Expected	NR	ZR	No Benefits Accrued
1	61.7	Challenge	1	36.6	Internal Politics	1	31.7	Opportunities for Different/Better Jobs at This Institution/Organization
2	52.9	Opportunity to Use Training or Schooling	2	34.5	Status	2	26.4	Salary and Fringe Benefits
3	43.6	Visibility for Jobs at Other Institutions/Organizations	3	32.6	Policy Making Power	3	21.7	Overall Job Satisfaction
4	41.7	Status	4	30.7	Salary and Fringe Benefits	4	21.3	Opportunity for Scholarly Pursuits
5	41.0	Variety in Activities	5	30.5	Prestige of Employer	5	20.0	Opportunity to Use Training or Schooling
6	40.3	Resources to Get Job Done	6	29.6	Competency of Colleagues	6	19.1	Policy Making Power
7	39.7	Opportunity for Scholarly Pursuits	7	29.5	Resources to Get Job Done	7	17.9	Visibility for Jobs at Other Institutions/Organizations
8	37.0	Overall Job Satisfaction	8	29.4	Job Security	8	17.8	Competency of Colleagues
9	36.4	Autonomy and Independence	9	28.1	Variety in Activities	9	17.5	Job Security
10	32.9	Salary and Fringe Benefits	10	24.8	Opportunity for Scholarly Pursuits	10	15.1	Working Conditions (Hours, Location)
11	28.1	Opportunities for Different/Better Jobs at This Institution/Organization	11	23.0	Congenial Work Relationships	11	14.4	Status
12	24.8	Prestige of Employer	12	21.0	Overall Job Satisfaction	12	14.2	Challenge
12	24.8	Policy Making Power	13	20.9	Working Conditions (Hours, Location)	13	13.6	Autonomy and Independence
13	21.7	Job Security	14	20.7	Opportunity to Use Training or Schooling	14	12.9	Congenial Work Relationships
14	18.0	Congenial Work Relationships	15	20.0	Autonomy and Independence	15	12.8	Prestige of Employer
14	18.0	Working Conditions (Hours, Location)	16	19.3	Visibility for Jobs at Other Institutions/Organizations	16	11.5	Resources to Get Job Done
15	15.7	Internal Politics	17	18.0	Opportunities for Different/Better Jobs at This Institution/Organization	17	7.5	Internal Politics
16	14.1	Competency of Colleagues	18	14.9	Challenge	18	5.8	Variety in Activities

NOTE. This table was constructed from information in Table 37.

Table 41

## Accrued Benefits A: 18 Aspects of Employment and Satisfaction With Employment for Males

NR	ZR	Accrued Benefits	NR	ZR	Less Than Expected	NR	ZR	No Benefits Accrued
1	53.0	Challenge	1	40.5	Status	1	21.1	Opportunities for Different/Better Jobs at This Institution/Organization
2	47.4	Visibility for Jobs at Other Institutions/Organizations	2	39.7	Congenial Work Relationships	2	20.7	Visibility for Jobs at Other Institutions/Organizations
3	47.0	Opportunity to Use Training or Schooling	3	39.3	Internal Politics	2	20.7	Salary and Fringe Benefits
4	39.7	Status	4	38.3	Prestige of Employer	3	19.7	Opportunity to Use Training or Schooling
5	39.3	Overall Job Satisfaction	5	37.3	Autonomy and Independence	4	19.5	Opportunity for Scholarly Pursuits
6	37.1	Salary and Fringe Benefits	6	36.3	Competency of Colleagues	5	17.4	Working Conditions (Hours, Location)
7	36.3	Resources to Get Job Done	7	33.1	Opportunity for Scholarly Pursuits	6	17.1	Overall Job Satisfaction
8	33.9	Variety in Activities	8	33.0	Policy Making Power	7	16.5	Policy Making Power
9	33.3	Opportunities for Different/Better Jobs at Other Institutions/Organizations	9	32.8	Salary and Fringe Benefits	8	15.9	Status
10	33.1	Autonomy and Independence	10	31.3	Variety in Activities	9	13.9	Prestige of Employer
11	32.2	Opportunity for Scholarly Pursuits	11	31.0	Resources to Get Job Done	10	13.8	Job Security
12	31.3	Policy Making Power	12	29.3	Job Security	11	13.0	Variety in Activities
13	31.0	Job Security	13	28.7	Challenge	12	12.7	Autonomy and Independence
14	24.3	Prestige of Employer	14	27.4	Overall Job Satisfaction	13	12.1	Competency of Colleagues
15	20.9	Working Conditions (Hours, Location)	14	27.4	Opportunity to Use Training or Schooling	14	11.2	Congenial Work Relationships
16	17.0	Internal Politics	15	26.3	Opportunities for Different/Better Jobs at This Institution/Organization	15	10.6	Resources to Get Job Done
17	15.5	Congenial Work Relationships	16	25.9	Visibility for Jobs at Other Institutions/Organizations	16	9.8	Internal Politics
18	12.4	Competency of Colleagues	17	24.3	Working Conditions (Hours, Location)	17	9.6	Challenge

NOTE. This table was constructed from information in Table 37.

males (47.4%) visibility for jobs at other institutions or organizations, (c) females (43.6%) visibility for jobs at other institutions or organizations versus males (40.0%) opportunity to use training or schooling, (d) females (41.7%) status and males (39.7%) status, (e) females (41.0%) variety in activities versus males (39.3%) overall job satisfaction, (f) females (40.3%) resources to get the job done versus males (37.1%) salary and fringe benefits, (g) females (39.7%) opportunity for scholarly pursuits versus males (36.3%) resources to get the job done, (h) females (37.0%) overall job satisfaction versus males (36.3%) resources to get the job done, (i) females (36.4%) autonomy and independence versus males (33.3%) opportunities for different or better jobs at this institution or organization, (j) females (32.0%) salary and fringe benefits versus males (33.1%) autonomy and independence, (k) females (28.1%) opportunities for different or better jobs at this institution or organization, (l) females (24.8%) policy making power and males (31.3%) policy making power, (m) females (21.7%) job security and males (31.0%) job security, (n) females (18.0%) congenial work relationships and (18.0%) working conditions versus males (24.3%) prestige of employer, (o) females (15.7%) internal politics versus males (20.9%) working conditions, (p) females (14.1%) competency of colleagues versus males (17.0%) internal politics, (q) males (15.5%) congenial work relationships and (r) males (12.4%) competency of colleagues (see Tables 40 and 41).

Accrued Benefits B: 18 intellectual qualities and skills for females versus males.

In rank order according to the proportion of positive responses the primary accrued benefits for female versus male respondents for the 18 intellectual qualities and skills were as follows: (a) females (88.9%) self-discipline and the ability to follow orders versus males (86.7%) self-confidence, (b) females (88.9%) drive to achieve versus males (85.3%) critical thinking and analytical skills, (c) females (84.0%) academic ability versus male (84.0%) research skills, (d) females (80.0%) critical thinking and analytical skills versus males (83.5%) general knowledge, (e) females (79.3%) general knowledge versus males (82.8%) academic ability, (f) females (77.2%) insight versus males (79.7%) ability to think clearly, (g) females (76.6%) research skills versus males (79.1%) insight, (h) females (75.9%) self-confidence and (75.9%) ability to think clearly versus males (78.9%) cultural perspective, (i) females (72.7%) cultural perspective versus males (77.8%) self-discipline and the ability to follow orders, (j) females (72.2%) understanding of others versus males (77.4%) mechanical ability, (k) females (69.4%) leadership ability versus males (77.2%) understanding of others, (l) females (66.3%) political awareness and males (75.0%) political awareness, (m) females (66.0%) mathematical ability versus males (72.2%) drive to achieve, (n) females (64.5%) public speaking ability versus males (72.1%) mathematical ability, (o) females (63.4%) creativity and originality versus males (70.1%) public speaking ability, (p) females (52.5%) writing ability versus males (69.2%) leadership

ability, (q) females (50.0%) mechanical ability versus males (60.7%) creativity and originality, (r) males (47.5%) writing ability (see Tables 42 and 43).

Similarities of female and male accrued benefits A: 18 aspects of employment and satisfaction of employment.

There were marked similarities among the top 10 perceived accrued benefits for female and male respondents for the 18 aspects of employment and satisfaction with employment. For example, 9 out of 10 of the top ranked accrued benefits of the female and male respondents were the same. The exceptions were for the females, opportunity for scholarly pursuits; and for the males, opportunities for different or better jobs at this institution or organization, as indicated in the comparative lists that follow:

Females	Males
1 Challenge	1 Challenge
2 Opportunity to use training or schooling	2 Visibility for jobs at other institutions or organizations
3 Visibility for jobs at other institutions or organizations	3 Opportunity to use training or schooling
4 Status	4 Status
5 Variety in activities	5 Overall job satisfaction
6 Resources to get the job done	6 Salary and fringe benefits
7 Opportunity for scholarly pursuits	7 Resources to get the job done
8 Overall job satisfaction	8 Variety in activities
9 Autonomy and independence	9 Opportunities for different/better jobs at this institution/organization
10 Salary and fringe benefits	10 Autonomy and independence

Table 42

## Accrued Benefits B: 18 Intellectual Qualities and Skills for Females by Number and Percent Rank Order

NR	ZR	Accrued Benefits	NR	ZR	Less Than Expected	NR	ZR	No Benefits Accrued
1	88.9	Self-Discipline and the Ability to Follow Orders	1	29.6	Creativity and Originality	1	30.0	Mechanical Ability
2	88.0	Drive to Achieve	2	27.1	Leadership Ability	2	13.6	Mathematical Ability
3	84.0	Academic Ability	3	25.0	Public Speaking Ability	3	12.0	Political Awareness
4	80.0	Critical Thinking or Analytical Skills	4	22.8	Ability to Think Clearly	4	10.9	Cultural Perspective
5	79.3	General Knowledge	5	21.7	Political Awareness	5	10.5	Public Speaking Ability
6	77.2	Insight	6	20.7	Insight	6	8.0	Drive to Achieve
7	76.6	Research Skills	7	20.4	Understanding of Others	6	8.0	Self-Confidence
8	75.9	Self-Confidence	7	20.4	Mathematical Ability	7	7.4	Understanding of Others
8	75.9	Ability to Think Clearly	8	20.0	Mechanical Ability	8	7.0	Creativity and Originality
9	72.7	Cultural Perspective	9	19.2	Critical Thinking or Analytical Skills	9	3.5	Leadership Ability
10	72.2	Understanding of Others	10	19.0	Research Skills	10	2.2	Insight
11	69.4	Leadership Ability	11	18.9	General Knowledge	11	1.9	Writing Ability
12	66.3	Political Awareness	12	16.4	Cultural Perspective	12	1.8	General Knowledge
13	66.0	Mathematical Ability	13	16.1	Self-Confidence	13	1.5	Research Skills
14	64.5	Public Speaking Ability	14	14.7	Academic Ability	14	1.3	Academic Ability
15	63.4	Creativity and Originality	15	11.1	Self-Discipline and the Ability to Follow Orders	14	1.3	Ability to Think Clearly
16	52.5	Writing Ability	16	9.3	Writing Ability	15	0.8	Critical Thinking or Analytical Skills
17	50.0	Mechanical Ability	17	4.0	Drive to Achieve	16	0.0	Self-Discipline and the Ability to Follow Orders

Note. This table was constructed from information in Table 41.

Table 43

Accrued Benefits B: 18 Intellectual Qualities and Skills for Males by Number and Percent Rank Order

NR	ZR	Accrued Benefits	NR	ZR	Less Than Expected	NR	ZR	No Benefits Accrued
1	86.7	Self-Confidence	1	26.2	Creativity and Originality	1	16.1	Mechanical Ability
2	85.3	Critical Thinking or Analytical Skills	2	25.6	Leadership Ability	2	14.8	Mathematical Ability
3	84.2	Research Skills	3	19.4	Public Speaking Ability	3	13.1	Creativity and Originality
4	83.5	General Knowledge	4	19.3	Understanding of Others	4	11.1	Drive to Achieve
5	82.8	Academic Ability	5	16.7	Drive to Achieve	4	11.1	Self-Discipline and the Ability to Follow Orders
6	79.7	Ability to Think Clearly	6	16.3	Insight	5	10.4	Public Speaking Ability
7	79.1	Insight	7	15.8	Cultural Perspective	6	10.3	Political Awareness
8	78.9	Cultural Perspective	8	15.6	Ability to Think Clearly	7	6.7	Self-Confidence
9	77.8	Self-Discipline and the Ability to Follow Orders	9	15.2	Writing Ability	8	5.3	Cultural Perspective
10	77.4	Mechanical Ability	10	14.7	Political Awareness	9	5.1	Leadership Ability
11	77.2	Understanding of Others	11	14.4	General Knowledge	10	4.7	Insight
12	75.0	Political Awareness	12	14.1	Academic Ability	10	4.7	Ability to Think Clearly
13	72.2	Drive to Achieve	13	13.2	Research Skills	11	3.5	Understanding Of Others
14	72.1	Mathematical Ability	14	13.1	Mathematical Ability	12	3.2	Critical Thinking or Analytical Skills
15	70.1	Public Speaking Ability	15	11.6	Critical Thinking or Analytical Skills	13	3.1	Academic Ability
16	69.2	Leadership Ability	16	11.1	Self-Discipline and the Ability to Follow Orders	14	2.9	Writing Ability
17	60.7	Creativity and Originality	17	6.7	Self-Confidence	15	2.6	Research Skills
18	47.5	Writing Ability	18	6.5	Mechanical Ability	16	2.1	General Knowledge

Note. This table was constructed from information in Table 41.

Similarities of female and male accrued benefits B: 18 intellectual qualities and skills.

There were marked similarities among the top 10 perceived accrued benefits for female and male respondents for the 18 intellectual qualities and skills. For example 8 out of 10 of the top ranked accrued benefits of the female and 9 out of 10 of the male respondents were the same. The exceptions were for the females, drive to achieve and understanding of others, versus males, mechanical ability, as indicated in the comparative lists that follow:

Females	Males
1 Self-discipline and the ability to follow orders	1 Self-confidence
2 Drive to achieve	2 Critical thinking or analytical skills
3 Academic ability	3 Research skills
4 Critical thinking or analytical skills	4 General knowledge
5 General knowledge	5 Academic ability
6 Insight	6 Ability to think clearly
7 Research skills	7 Insight
8 Self-confidence	8 Cultural perspective
9 Cultural perspective	9 Self-discipline and the ability to follow orders
10 Understanding of others	10 Mechanical abilities

Effect of earning doctoral degree on career development: The subjects were asked to indicate if earning the doctoral degree had (a) a substantially positive effect, (b) some positive effect, (c) no effect, or (d) a negative effect on their career development. When the relationship between career development and sex was examined no significant relationship was observed. One hundred and forty-three females and 120 males responded. The responses

represent the crosstabulation of effect by sex. Among the respondents 44.1% (n=63) females and 52.5% (n=63) males reported that earning the doctoral degree had a substantially positive effect on their careers and 46.9% (n=67) females and 39.2% (n=47) males indicated that earning the doctoral degree had some positive effect on their career development. Interestingly, 6.3% (n=9) females and 6.7% (n=8) stated that earning the doctoral degree had no effect in their career development and 2.8% (n=4) females and 1.7% (n=2) males registered a negative effect from having earned the doctoral degree. These responses indicate, then, that the majority of the respondents, 88% (n=130) females and 91.7% (n=110) males, think that earning the doctoral degree had a positive effect on their career development (see Table 44).

Value of earning doctoral degree in Education: personal, professional, and financial. Among the 143 female and 120 male respondents, 90.9% (n=130) females and 91.7% (n=110) males indicated there was personal value in earning the doctoral degree. Conversely, 9.1% (n=13) females and 8.3% (n=10) males responded that the doctoral degree had no personal value. When the relationship between personal value of the degree and sex was examined a significant relationship was observed. The doctoral degree was determined to have a higher personal value for females than for males.

Table 44

Effect of Earning Doctoral Degree on Career Development

Effect on Career Development	Female	Male	Row Total
Negative			
F	4	2	6
Row %	66.7	33.3	2.3
Col %	2.8	1.7	
No Effect			
F	9	8	17
Row %	52.9	47.1	6.5
Col %	6.3	6.7	
Some Positive Effect			
F	67	47	114
Row %	58.8	41.2	43.3
Col %	46.9	39.2	
Substantial Positive Effect			
F	63	63	126
Row %	50.0	50.0	47.9
Col %	<u>41.1</u>	<u>52.5</u>	
Column Total	143	120	263
	54.4	45.6	100.0

Among the 139 female and 120 male respondents, 82.7% (n=115) females and 88.3% (n=106) males stated that there was no professional value in completing the doctoral degree. On the other hand, 17.3% (n=24) females and 11.7% (n=14) males indicated that the doctoral degree had no professional value.

Among the 141 female and 118 male respondents, 57.4% (n=81) females and 56.8% (n=67) males implied that there was financial value in earning the doctoral degree. Conversely, 42.6% (n=60) females and 43.2% (n=51) males indicated that the doctoral degree had no financial value (see Table 45).

Research Question One: What are the differences, if any, in the expected benefits upon entry to the doctoral degree program for females versus males? Frequencies and percentages were tabulated and ranked according to the number of positive responses for each of 36 potential benefits that were separated into two categories: (A) 18 aspects of employment and satisfaction with employment that might be positively affected by completion of a doctoral degree program, and (B) 18 intellectual qualities and skills often developed in graduate school. Chi-square tests of the relationship between each of the 18 expected aspects of employment and satisfaction with employment benefits and sex were examined.

There were significant differences between the sexes in relation to 2 of the 18 items: opportunity to use training or schooling at  $p < .05$   $\chi^2(2) = 6.90295$  and autonomy and independence at  $p < .05$

Table 45  
Value of Earning Doctoral Degree in Education: Personal, Professional, and Financial

NO	Personal Worth			Professional Worth			Financial Worth		
	Female	Male	Row Total	Female	Male	Row Total	Female	Male	Row Total
F	13	10	23	24	14	38	60	51	111
ROW $\Sigma$	56.5	43.5	8.7	63.2	36.8	14.7	54.1	45.9	42.9
COL $\Sigma$	9.1	8.3		17.3	11.7		42.6	43.2	
YES	130	110	240	115	106	221	81	67	148
F	54.2	45.8	91.3	52.0	48.0	85.3	54.7	45.3	57.1
ROW $\Sigma$	90.9	91.7		82.7	88.3		57.4	56.8	
COL $\Sigma$									
Column Total	143	120	263	139	120	259	141	118	259
Total	54.4	45.6	100.0	53.7	46.3	100.0	54.4	45.6	100.0

Note.	No		Yes	
	$\chi^2$	df	No	Yes
	0.0	1	1.19669	1.61295
	1.000	1	0.2740	0.2041
$P$			1.000	0.9140

$\chi^2(2) = 10.92358$ . The significant differences indicate that more females (80.1%) than males (67.5%) expected an increased opportunity to use training or schooling; and more females (53.8%) than males (42.9%) expected increased autonomy and independence on the job to be a primary (most important) benefit accrued following the completion of a doctoral degree program (see Table 29). There were no other significant differences for females versus males relative to the 18 aspects of employment and satisfaction with employment.

Chi-square tests of relationship between each of the 18 intellectual qualities and skills often developed in graduate school and sex were not examined because there were too many empty cells to evaluate statistical differences (see Table 33). As a consequence, no significant differences were found between males and females relative to the 18 intellectual qualities and skills.

Research Question Two: What are the differences, if any, in the benefits accrued following completion of the doctoral degree for males and females? Frequencies and percentages were tabulated and ranked according to the number of positive responses for each of 36 perceived accrued benefits that were separated into two categories: (A) 18 aspects of employment and satisfaction with employment, and (B) 18 intellectual qualities and skills.

Chi-square tests of the relationship between each of the 18 perceived aspects of employment and satisfaction with employment and sex were examined. There were significant differences between the

sexes in relation to 3 of the 18 items: autonomy and independence at  $p < .05$   $\chi^2(3) = 11.64128$ , congenial work relationships at  $p < .05$   $\chi^2(3) = 8.52158$ , and visibility for jobs at other institutions or organizations at  $p < .05$   $\chi^2(3) = 10.09205$ . These significant differences indicate the following:

1. More males (78.4%,  $n = 83$ ) versus females (56.4%,  $n = 35$ ) perceived that they had actually accrued either less than expected or no benefit in increased autonomy and independence relative to their job situations following completion of the doctoral degree.
2. More males (55.2%,  $n = 64$ ) versus females (41.0%,  $n = 57$ ) perceived that improved or increased congenial work relationships was a primary or secondary accrued benefit following the completion of the doctoral degree. On the other hand, more females (58.9%,  $n = 82$ ) versus males (44.8%,  $n = 52$ ) perceived that they had accrued either less than expected or no benefit in the congeniality of their work relationship following the completion of the doctoral degree.
3. More males (73.3%,  $n = 85$ ) versus females (62.9%,  $n = 88$ ) perceived that increased visibility for jobs at other institutions or organizations was a primary or secondary accrued benefit of completing the doctoral degree. Conversely, more females (37.2%,  $n = 52$ ) versus males (26.7%,  $n = 31$ ) perceived that they had accrued either less

than expected or no benefit in increased visibility for jobs at other institutions or organizations. No other significant differences were found relative to the 18 aspects of employment and satisfaction with employment (see Table 37).

Chi-square tests of the relationship between each of the 18 perceived accrued intellectual qualities and skills and sex were examined. There were significant differences between the sexes in relation to 1 of the 18 items, mechanical ability at  $p < .05$   $X^2(2) = 6.58427$ . This significant difference indicates that more males (77.4%,  $n = 24$ ) versus females (50.0%,  $n = 30$ ) perceived that an improvement in mechanical ability was a primary or secondary accrued benefit of completing the doctoral degree. Conversely, more females (50.0%,  $n = 30$ ) versus males (22.6%,  $n = 7$ ) perceived that they had accrued less than expected or no improvement in their mechanical ability following completion of the doctoral degree. No other significant differences were found relative to the 18 intellectual qualities and skills (see Table 38).

Research Question Three: What is the relationship between expected benefits upon entry to the doctoral program and the benefits resulting from completion of it? The frequencies and percentages of the expected and perceived accrued benefits were crosstabulated to evaluate the presence or absence of a relationship. Chi-square tests of the relationships between the expected benefits and the

perceived accrued benefits were examined for: (A) the 18 aspects of employment and satisfaction with employment, and (B) the 18 intellectual qualities and skills. For the former (Benefits A), the relationships between the expected and perceived accrued benefits were statistically significant at  $p < .05$  level for each of the 18 aspects of employment and satisfaction with employment as follows: overall job satisfaction at  $p < .05$   $X^2(6) = 144.56955$ , salary and fringe benefits at  $p < .05$   $X^2(6) = 141.56217$ , opportunity for scholarly pursuits at  $p < .05$   $X^2(6) = 145.70517$ , opportunity to use training or schooling at  $p < .05$   $X^2(4) = 96.60414$ , resources to get the job done at  $p < .05$   $X^2(5) = 172.48682$ , internal politics at  $p < .05$   $X^2(6) = 126.17714$ , working conditions (hours, location) at  $p < .05$   $X^2(7) = 188.53610$ , status at  $p < .05$   $X^2(6) = 86.28647$ , autonomy and independence at  $p < .05$   $X^2(4) = 160.24150$ , variety in activities at  $p < .05$   $X^2(6) = 179.42855$ , policy making power at  $p < .05$   $X^2(6) = 128.97657$ , congenial work relationships at  $p < .05$   $X^2(6) = 146.89185$ , competency of colleagues at  $p < .05$   $X^2(6) = 157.08497$ , opportunities for different/better jobs at this institution/organization at  $p < .05$   $X^2(6) = 91.69145$ , visibility for jobs at other institutions/organizations at  $p < .05$   $X^2(6) = 92.01729$ , challenge at  $p < .05$   $X^2(6) = 133.82154$ , job security at  $p < .05$   $X^2(6) = 164.96212$ , and prestige of employer at  $p < .05$   $X^2(6) = 153.50350$ .

This finding, that there was a significant relationship between each of the 18 expected and perceived accrued benefits, suggests that

if the respondents expected a benefit, they also perceived an accrued benefit upon completion of the doctoral degree (see Table 46).

For the latter (Benefits B) the relationship between the expected and perceived accrued benefits were statistically significant at  $p < .05$  level for 13 of the 18 intellectual qualities and skills as follows: creativity and originality at  $p < .05$   $\chi^2(2) = 16.35084$ , cultural perspective at  $p < .05$   $\chi^2(2) = 29.49151$ , insight at  $p < .05$   $\chi^2(2) = 53.05629$ , leadership ability at  $p < .05 = 12.24932$ , political awareness at  $p < .05 = 23.50969$ , self-discipline and the ability to follow orders at  $p .05 = 17.59907$ , understanding of others at  $p < .05 = 15.78025$ , academic ability at  $p < .05 = 24.11414$ , critical thinking/analytical skills at  $p < .05 = 33.18346$ , general knowledge at  $p < .05 = 51.96366$ , writing ability at  $p < .05 = 51.36517$ , mathematical ability at  $p < .05 = 33.22114$ , and mechanical ability at  $p < .05 = 13.10072$  (see Table 47). This finding that there was a significant relationship between 13 of the 18 intellectual qualities and skills also suggests that if the respondents expected a benefit, they also perceived that they had accrued a benefit upon completion of the doctoral degree.

Regarding research skills, while the computer printout stated that a "statistic could not be computed because of nonempty rows/columns in one" (Table 47), the fact that research skills was ranked number one among the expected benefits for all respondents suggests that research skills was an important "expected" and "perceived" accrued benefit.

Table 46

Relationship Between Expected and Accrued Benefits A: 18 Aspects of Employment and Satisfaction With Employment

	Not Expected		Secondary		Primary		Chi-Square	df	Significance
	F	%	F	%	F	%			
<b>OVERALL JOB SATISFACTION</b>									
Less Than Expected	3	6.7	16	19.5	29	23.2	144.56955	6	0.0000
Secondary	7	15.6	38	46.3	15	12.0			
Primary	3	6.7	19	23.2	75	60.0			
<b>SALARY AND FRINGE BENEFITS</b>									
Less Than Expected	2	9.5	4	19.0	1	4.8	141.56217	6	0.0000
Secondary	27	25.7	57	54.3	15	14.3			
Primary	30	23.4	20	15.6	73	57.0			
<b>OPPORTUNITY FOR SCHOLARLY PURSUITS</b>									
Less Than Expected	1	4.5	19	21.3	32	21.9	145.70517	6	0.0000
Secondary	2	9.1	43	48.3	28	19.2			
Primary	0	0.0	13	14.6	81	55.5			
<b>OPPORTUNITY TO USE TRAINING OR SCHOOLING</b>									
Less Than Expected	2	14.3	10	19.2	39	20.5	96.60414	4	0.0000
Secondary	3	21.4	26	50.0	32	16.8			
Primary	1	7.1	13	25.0	114	60.0			
<b>RESOURCES TO GET JOB DONE</b>									
Less Than Expected	4	8.2	11	12.5	13	11.6	172.48682	6	0.0
Secondary	4	8.2	51	58.0	21	18.8			
Primary	3	6.1	19	21.6	72	64.3			
<b>INTERNAL POLITICS</b>									
Less Than Expected	5	4.6	12	12.2	4	10.5	126.17714	6	0.0000
Secondary	26	23.9	57	58.2	9	23.7			
Primary	3	2.8	15	15.3	22	57.9			
<b>WORKING CONDITIONS (HOURS, LOCATION)</b>									
Less Than Expected	4	3.8	19	24.1	17	24.6	188.53610	6	0.0
Secondary	7	6.7	38	48.1	11	15.9			
Primary	3	2.9	10	12.7	36	52.2			
<b>STATUS</b>									
Less Than Expected	1	9.1	13	11.2	19	15.1	86.28647	6	0.0000
Secondary	3	27.3	64	55.2	27	21.4			
Primary	0	0.0	28	24.1	76	60.3			
<b>AUTONOMY AND INDEPENDENCE</b>									
Less Than Expected	2	3.7	6	11.1	3	5.6	160.24150	4	0.0
Secondary	9	11.4	43	54.4	23	18.4			
Primary	3	5.6	16	20.3	71	56.8			

Table 46 (Continued)

	Not Expected		Secondary		Primary		Chi-Square	df	Significance
	F	%	F	%	F	%			
<b>VARIETY IN ACTIVITIES</b>									
Less Than Expected	3	5.7	9	8.7	11	11.3	179.42855	6	0.0
Secondary	4	7.5	57	55.3	14	14.4			
Primary	3	5.7	25	24.3	67	69.1			
<b>POLICY MAKING POWER</b>									
Less Than Expected	4	7.4	22	19.5	19	21.8	128.97657	6	0.0000
Secondary	9	16.7	57	50.4	17	19.5			
Primary	3	5.6	23	20.4	45	51.7			
<b>CONGENIAL WORK RELATIONSHIPS</b>									
Less Than Expected	8	7.2	16	16.0	7	16.3	146.89185	6	0.0000
Secondary	11	9.9	55	55.0	12	27.9			
Primary	5	4.5	17	17.0	21	48.8			
<b>COMPETENCY OF COLLEAGUES</b>									
Less Than Expected	8	8.4	14	14.9	20	35.1	157.08497	6	0.0
Secondary	10	10.5	57	60.6	13	22.8			
Primary	2	2.1	11	11.7	20	35.1			
<b>OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ORGANIZATION</b>									
Less Than Expected	4	8.3	19	30.2	44	31.9	91.69145	6	0.0000
Secondary	9	18.8	26	41.3	19	13.8			
Primary	5	10.4	10	15.9	61	44.2			
<b>VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ORGANIZATIONS</b>									
Less Than Expected	2	9.1	9	14.8	37	21.8	92.01729	6	0.0000
Secondary	3	13.6	26	42.6	28	16.5			
Primary	2	9.1	18	29.5	96	57.5			
<b>CHALLENGE</b>									
Less Than Expected	1	5.9	6	12.2	24	12.6	133.82154	6	0.0000
Secondary	4	23.5	28	57.1	22	11.6			
Primary	1	5.9	9	18.4	138	72.6			
<b>JOB SECURITY</b>									
Less Than Expected	3	4.4	15	17.4	23	22.3	164.96212	6	0.0
Secondary	11	16.2	48	55.8	17	16.5			
Primary	2	2.9	10	11.6	55	33.4			
<b>PRESTIGE OF EMPLOYER</b>									
Less Than Expected	5	6.4	17	15.3	12	18.5	153.50350	6	0.0
Secondary	12	15.4	59	53.2	16	24.6			
Primary	2	2.6	28	25.2	33	50.8			

Table 47

Relationship Between Expected and Accrued Benefits B: Intellectual Qualities and Skills

	Expected Improvement		Chi-Square	df	Signi- ficance		
	NO	YES					
	F	%	F	%			
<b>CREATIVITY AND ORIGINALITY</b>							
No	6	35.3	6	3.4	16.35084	2	0.0003
Less Than Expected	2	11.8	34	30.4			
Yes	9	52.9	72	64.3			
<b>CULTURAL PERSPECTIVE</b>							
No	7	41.2	2	2.1	29.49151	2	0.0000
Less Than Expected	2	11.8	16	17.0			
Yes	8	47.1	76	80.9			
<b>DRIVE TO ACHIEVE</b>							
No	3	17.6	1	2.6	4.29717	2	0.116
Less Than Expected	1	5.9	5	13.2			
Yes	13	76.5	32	84.2			
<b>INSIGHT</b>							
No	4	40.0	1	0.6	53.05629	2	0.0000
Less Than Expected	1	10.0	32	19.3			
Yes	5	50.0	133	80.1			
<b>LEADERSHIP ABILITY</b>							
No	3	20.0	3	2.1	12.24932	2	0.0022
Less Than Expected	4	26.7	37	25.7			
Yes	8	53.3	104	72.2			
<b>POLITICAL AWARENESS</b>							
No	10	33.3	6	4.8	23.50969	2	0.0000
Less Than Expected	7	23.3	22	17.6			
Yes	13	43.3	97	77.6			
<b>PUBLIC SPEAKING ABILITY</b>							
No	6	20.7	9	8.2	3.74583	2	0.1537
Less Than Expected	6	20.7	25	22.7			
Yes	17	58.6	76	69.1			
<b>SELF-CONFIDENCE</b>							
No	1	7.7	8	6.2	1.50681	2	0.4708
Less Than Expected	3	23.1	15	11.6			
Yes	9	69.2	106	82.2			
<b>SELF-DISCIPLINE AND THE ABILITY TO FOLLOW ORDERS</b>							
No	3	25.0	0	0.0	17.59907	2	0.0002
Less Than Expected	2	16.7	5	8.1			
Yes	7	58.3	57	91.9			

Table 47 (Continued)

	Expected Improvement NO		YES		Chi-Square	df	Signi- ficance
	F	%	F	%			
<b>UNDERSTANDING OF OTHERS</b>							
No	3	30.0	2	2.1	15.78025	2	0.0004
Less Than Expected	1	10.0	18	18.8			
Yes	6	60.0	76	79.2			
<b>ABILITY TO THINK CLEARLY</b>							
No	1	12.5	2	1.5	4.49927	2	0.1054
Less Than Expected	1	12.5	26	19.5			
Yes	6	75.0	105	78.9			
<b>ACADEMIC ABILITY</b>							
No	2	28.6	1	0.8	24.11414	2	0.0000
Less Than Expected	1	14.3	17	13.1			
Yes	4	57.1	112	86.2			
<b>CRITICAL THINKING OR ANALYTICAL SKILLS</b>							
No	2	33.3	2	1.0	33.18346	2	0.0000
Less Than Expected	1	16.7	31	15.0			
Yes	3	50.0	173	84.0			
<b>GENERAL KNOWLEDGE</b>							
No	3	33.3	1	0.5	51.96366	2	0.0000
Less Than Expected	3	33.3	30	15.3			
Yes	3	33.3	165	84.2			
<b>RESEARCH SKILLS</b>							
No	0	0.0	5	2.0	Statistics could not be com- puted because the number of nonempty rows/columns is one.		
Less Than Expected	0	0.0	39	15.9			
Yes	0	0.0	202	82.1			
<b>WRITING ABILITY</b>							
No	3	3.3	1	0.5	51.36517	2	0.000
Less Than Expected	2	22.2	24	11.9			
Yes	4	44.4	176	87.6			
<b>MATHEMATICAL ABILITY</b>							
No	14	43.8	7	5.4	33.22114	2	0.0000
Less Than Expected	4	12.5	25	19.4			
Yes	14	43.8	97	75.2			
<b>MECHANICAL ABILITY</b>							
No	19	40.4	3	7.5	13.10072	2	0.0014
Less Than Expected	6	12.8	5	12.5			
Yes	22	46.8	32	80.0			

Concerning the four remaining items wherein a relationship was not found significant, the following observations seem appropriate:

1. Drive to achieve was ranked number 17 for expected benefit and number 6 for perceived accrued benefit by all respondents. This finding suggests that the overwhelming majority of the respondents did not anticipate "drive to achieve" to be a primary or secondary benefit but "drive to achieve" was subsequently perceived to be one of the 10 most important of the accrued benefits.
2. Public speaking ability was ranked number 16 for expected benefit and number 14 for perceived accrued benefit by all respondents. This item, then, was not an especially expected benefit but ranked 2 points above the expected benefit ranking relative to all of the respondents' perceived accrued benefits.
3. Among all the respondents, self-confidence was ranked as the 7th most anticipated benefit and the 4th most perceived accrued benefit for all respondents. In fact, self-confidence was ranked the number 1 perceived accrued benefit for males and the number 7 perceived accrued benefit for females. This finding suggests that all respondents anticipated that self-confidence would be an important benefit of completing a doctoral degree. However, the degree of importance was different for females and males. Self-confidence was the number one or most important perceived accrued benefit for the males although they had anticipated that it would be less important (8th) in expected benefits. Self-confidence was ranked number 7 by the females for expected

benefits and was, in fact, ranked as the 7th most perceived accrued benefit in relation to the 18 intellectual qualities and skills.

4. Ability to think clearly was expected to be one of the top 10 (6th) benefits accrued following completion of the doctoral degree by all respondents. This quality was one of the top 10 perceived accrued benefits for the male respondents (6th) and the female respondents (8th).

Research Question Four: How does the recipient's age at the time the degree was obtained affect the benefits resulting from it? The actual benefits were crosstabulated with the age factor to evaluate the presence or absence of a relationship.

Eighteen chi-square tests of significance were run on the relationships between the age at doctorate and the benefits accrued following completion of the doctoral degree for the 18 aspects of employment and satisfaction with employment. Among the respondents for these 18 tests, working conditions (hours, location) was found significant at  $p < .05$  level ( $\chi^2(9) = 22.36061$ ), and congenial work relationships was found significant at  $p < .05$  level ( $\chi^2(9) = 18.55512$ ). This means that the youngest age group (27 to 34 years of age) indicated more improvement in working conditions (hours and location) than did the other respondents. This same age group reported a significant improvement in the competency of their colleagues upon completion of the doctoral degree (see Table 48).

Table 48

Relationship Between Age at Doctorate and Benefits A Accrued: 18 Aspects of Employment and Satisfaction With Employment

	27-34 years old		35-38 years old		39-44 years old		45 years and older		Chi-Square	df	Significance
	F	X	F	X	F	X	F	X			
<b>OVERALL JOB SATISFACTION</b>											
Less Than Expected	7	16.3	15	24.6	14	20.0	13	25.0	11.30011	9	0.2557
Secondary	18	26.5	18	29.5	15	21.4	8	15.4			
Primary	31	45.6	18	29.5	29	41.4	18	34.6			
<b>SALARY AND FRINGE BENEFITS</b>											
Less Than Expected	13	19.1	12	20.3	19	26.8	16	30.2	9.48198	9	0.3940
Secondary	21	30.9	22	37.3	20	28.2	18	34.0			
Primary	30	44.1	20	33.9	23	32.4	12	22.6			
<b>OPPORTUNITY FOR SCHOLARLY PURSUITS</b>											
Less Than Expected	12	17.6	16	26.2	11	15.5	12	22.2	12.92583	9	0.1660
Secondary	22	32.4	22	36.1	18	25.4	12	22.2			
Primary	26	38.2	19	31.1	30	42.3	17	31.5			
<b>OPPORTUNITY TO USE TRAINING OR SCHOOLING</b>											
Less Than Expected	11	16.2	13	21.7	14	19.4	11	21.2	2.91036	9	0.9677
Secondary	17	25.0	15	25.0	14	19.4	14	26.9			
Primary	35	51.5	29	48.3	38	52.8	25	48.1			
<b>RESOURCES TO GET JOB DONE</b>											
Less Than Expected	7	10.6	5	8.6	11	15.5	3	5.7	12.46010	9	0.12941
Secondary	22	33.3	23	39.7	16	22.5	15	28.3			
Primary	29	43.9	21	36.2	26	36.6	20	37.7			
<b>INTERNAL POLITICS</b>											
Less Than Expected	3	4.6	6	10.5	4	5.9	8	15.1	8.91136	9	0.4455
Secondary	22	33.8	23	40.4	28	41.2	19	35.8			
Primary	15	23.1	9	15.8	11	16.2	5	9.4			
<b>WORKING CONDITIONS (HOURS, LOCATION)</b>											
Less Than Expected	14	20.9	9	15.0	8	11.3	9	17.6	22.36061	9	0.0078
Secondary	18	26.9	16	26.7	16	22.5	6	11.8			
Primary	20	29.9	9	15.0	12	16.9	6	11.8			
<b>STATUS</b>											
Less Than Expected	10	14.9	6	10.2	9	12.5	9	17.0	5.86832	9	0.7530
Secondary	22	32.8	25	42.4	27	37.5	19	35.8			
Primary	32	47.8	22	37.3	27	37.5	21	39.6			
<b>AUTONOMY AND INDEPENDENCE</b>											
Less Than Expected	11	16.2	7	11.7	8	11.1	8	14.8	12.66521	9	0.1783
Secondary	17	25.0	21	35.0	17	23.6	17	31.5			
Primary	29	42.6	21	35.0	26	36.1	11	20.4			

Table 48 (Continued)

	27-34 years old		35-38 years old		39-44 years old		45 years and older		Chi-Square	df	Significance
	F	X	F	X	F	X	F	X			
<b>VARIETY IN ACTIVITIES</b>											
Less Than Expected	9	13.4	3	5.1	4	5.6	7	13.2	8.67796	9	0.4675
Secondary	22	32.8	19	32.2	21	29.6	12	22.6			
Primary	25	37.3	24	40.7	27	38.0	18	34.0			
<b>POLICY MAKING POWER</b>											
Less Than Expected	9	13.4	15	25.0	8	11.4	12	22.2	14.37252	9	0.1097
Secondary	23	34.3	22	36.7	20	28.6	18	33.3			
Primary	19	28.4	18	30.0	23	32.9	10	18.5			
<b>CONGENIAL WORK RELATIONSHIPS</b>											
Less Than Expected	10	14.7	7	11.9	9	12.7	4	7.5	11.85488	9	0.2216
Secondary	29	42.6	19	32.2	15	21.1	15	28.3			
Primary	8	11.8	8	13.6	16	22.5	9	17.0			
<b>COMPETENCY OF COLLEAGUES</b>											
Less Than Expected	13	19.4	7	12.3	13	18.8	9	17.3	18.55512	9	0.0293
Secondary	33	49.3	15	26.3	18	26.1	14	26.9			
Primary	7	10.4	6	10.5	12	17.4	7	13.5			
<b>OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ORGANIZATION</b>											
Less Than Expected	16	24.6	17	27.9	15	21.7	16	30.2	4.00144	9	0.9113
Secondary	13	20.0	13	21.3	17	24.6	11	20.8			
Primary	20	30.8	22	36.1	20	29.0	15	28.3			
<b>VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ORGANIZATIONS</b>											
Less Than Expected	10	15.2	11	18.3	10	14.1	11	29.6	12.76269	9	0.1736
Secondary	12	18.2	15	25.0	14	19.7	14	25.9			
Primary	35	53.0	29	48.3	36	50.7	15	27.8			
<b>CHALLENGE</b>											
Less Than Expected	9	13.6	8	13.3	6	8.5	7	13.0	5.12639	9	0.8232
Secondary	14	21.2	15	25.0	15	21.1	9	6.7			
Primary	39	59.1	34	56.7	42	59.2	31	57.4			
<b>JOB SECURITY</b>											
Less Than Expected	13	19.4	8	13.3	7	9.6	9	16.7	12.13661	9	0.2057
Secondary	24	35.8	21	35.0	15	20.5	16	29.6			
Primary	17	25.4	15	25.0	24	32.9	11	20.4			
<b>PRESTIGE OF EMPLOYER</b>											
Less Than Expected	12	17.9	5	8.3	9	12.9	6	11.1	12.20460	9	0.2020
Secondary	28	41.8	24	40.0	22	31.4	12	22.2			
Primary	12	17.9	13	21.7	21	30.0	15	27.6			

Note. \* = Significant

Eighteen chi-square tests of significance were run on the relationship between the age at doctorate and the benefits accrued following completion of the doctoral degree for the intellectual qualities and skills. Among the respondents for these 18 tests, public speaking ability was found significant at  $p < .05$  level ( $\chi^2(6) = 19.59025$ ), and academic ability was found significant at the  $p < .05$  level ( $\chi^2(6) = 15.42130$ ). This means that the youngest age group (27- to 34-year-olds) indicated more improvement in public speaking ability and academic ability than did their older counterparts (see Table 49).

Research Question Five: How does the current marital status of the doctorate recipient affect the work status of the recipient? The frequencies and percentages were tabulated for each response. However, since the overwhelming majority of all respondents (94.2%) were working full-time, (females 90.9%,  $n = 138$ ; and males 97.5%,  $n = 118$ ), the data did not allow the researcher to examine a relationship between work status and marital status (see Tables 50 and 51).

Table 49

Relationship Between Age at Doctorate and Benefits B Accrued: 18 Intellectual Qualities and Skills

	27-34 years old		35-38 years old		39-44 years old		45 years and older		Chi-Square	df	Significance
	F	X	F	X	F	X	F	X			
<b>CREATIVITY AND ORIGINALITY</b>											
No	2	5.9	1	5.9	4	11.4	2	8.3	3.56482	6	0.7353
Less Than Expected	8	23.5	1	5.9	5	14.3	4	16.7			
Yes	24	70.6	15	88.2	26	74.3	18	75.0			
<b>CULTURAL PERSPECTIVE</b>											
No	2	5.9	1	5.9	4	11.4	2	8.3	3.56482	6	0.7353
Less Than Expected	8	23.5	1	5.9	5	14.3	4	16.7			
Yes	24	70.6	15	88.2	26	74.3	18	16.4			
<b>DRIVE TO ACHIEVE</b>											
No	0	0.0	0	0.0	3	20.0	3	20.0	8.06339	6	0.2335
Less Than Expected	2	12.5	3	21.4	1	6.7	1	6.7			
Yes	14	87.5	11	78.6	11	73.3	11	73.3			
<b>INSIGHT</b>											
No	1	2.2	0	0.0	3	5.8	2	5.9	4.96413	6	0.5484
Less Than Expected	10	21.7	5	11.9	10	19.2	6	17.6			
Yes	35	76.1	37	88.1	39	75.0	26	76.5			
<b>LEADERSHIP ABILITY</b>											
No	1	2.6	1	2.7	3	6.1	2	5.4	5.44255	6	0.4884
Less Than Expected	7	17.9	12	32.4	16	32.7	7	18.9			
Yes	31	79.5	24	64.9	30	61.2	28	75.7			
<b>POLITICAL AWARENESS</b>											
No	2	5.0	1	2.6	10	22.2	4	12.5	11.90244	6	0.0642
Less Than Expected	8	20.0	6	15.4	7	15.6	8	25.0			
Yes	30	75.0	32	82.1	28	62.2	20	62.5			
<b>PUBLIC SPEAKING ABILITY</b>											
No	0	0.0	2	6.5	9	23.1	3	9.7	19.59025	6	0.0033
Less Than Expected	4	10.3	9	29.0	8	20.5	10	32.3			
Yes	35	89.7	20	64.5	22	56.4	18	58.1			
<b>SELF-CONFIDENCE</b>											
No	3	7.3	0	0.0	4	9.8	4	12.5	7.70138	6	0.2608
Less Than Expected	4	9.8	5	16.1	7	17.1	1	3.1			
Yes	34	82.9	26	83.9	30	73.2	27	84.4			
<b>SELF-DISCIPLINE AND THE ABILITY TO FOLLOW ORDERS</b>											
No	0	0.0	1	7.7	3	12.0	1	5.6	5.9361	6	0.4304
Less Than Expected	3	13.0	3	23.1	1	4.0	12	11.1			
Yes	20	87.0	9	69.2	21	84.0	15	83.3			

Table 49 (Continued)

	27-34 years old		35-38 years old		39-44 years old		45 years and older		Chi-Square	df	Significance
	F	X	F	X	F	X	F	X			
<b>UNDERSTANDING OF OTHERS</b>											
No	1	3.2	0	0.0	3	9.1	1	4.8	5.13373	6	0.5395
Less Than Expected	6	19.4	7	29.2	4	12.1	5	23.8			
Yes	24	77.4	17	70.8	26	78.8	15	71.4			
<b>ABILITY TO THINK CLEARLY</b>											
No	0	0.0	0	0.0	3	6.8	1	3.4	7.03118	6	0.3180
Less Than Expected	8	19.0	8	30.8	8	18.2	4	13.8			
Yes	34	81.0	18	69.2	33	75.0	24	82.8			
<b>ACADEMIC ABILITY</b>											
No	0	0.0	0	0.0	2	4.4	1	3.3	15.42130	6	0.0172
Less Than Expected	3	7.9	9	36.0	3	6.7	5	16.7			
Yes	35	92.1	16	64.0	40	88.9	24	80.0			
<b>CRITICAL THINKING OR ANALYTICAL SKILLS</b>											
No	1	1.9	0	0.0	2	3.2	1	2.1	6.41005	6	0.3789
Less Than Expected	4	7.4	11	22.9	10	16.1	9	19.1			
Yes	49	90.7	37	77.1	50	80.6	37	78.7			
<b>GENERAL KNOWLEDGE</b>											
No	0	0.0	2	4.0	2	3.5	0	0.0	5.48252	6	0.4836
Less Than Expected	11	20.4	9	18.0	7	12.3	6	13.3			
Yes	43	79.6	39	78.0	48	84.2	39	36.7			
<b>RESEARCH SKILLS</b>											
No	2	3.2	1	1.7	1	1.4	1	1.9	4.04811	6	0.6702
Less Than Expected	11	17.5	13	21.7	7	10.0	9	17.0			
Yes	50	79.4	46	76.7	62	88.6	43	81.1			
<b>WRITING ABILITY</b>											
No	0	0.0	0	0.0	3	5.1	2	4.3	5.76868	6	0.4496
Less Than Expected	8	13.8	6	13.6	6	11.2	4	8.7			
Yes	50	86.2	38	86.4	50	84.7	40	87.0			
<b>MATHEMATICAL ABILITY</b>											
No	6	14.3	5	13.9	8	16.3	4	11.4	3.84573	6	0.6978
Less Than Expected	4	9.5	8	22.2	11	22.4	6	17.1			
Yes	32	76.2	23	63.9	30	61.2	25	15.4			
<b>MECHANICAL ABILITY</b>											
No	6	22.2	3	15.8	7	26.9	7	38.9	3.28526	6	0.7723
Less Than Expected	4	14.8	3	15.8	5	19.2	2	11.1			
Yes	17	63.0	13	68.4	14	53.8	9	50.0			

Note. \* = significant

Table 50

Relationship of Work Status to Marital Status and to Actual Benefits Accrued in IR Aspects of Employment and Satisfaction With Employment

FEMALES

	Single, Never Married						Married						Separated, Divorced, Widowed					
	No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
<b>OVERALL JOB SATISFACTION</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	1	0.7	0	0.0	16	11.1	0	0.0	0	0.0	7	4.9
Less Than Expected	1	0.7	0	0.0	3	2.1	3	2.1	1	0.7	14	9.7	1	0.7	0	0.0	6	5.6
Secondary	0	0.0	0	0.0	3	2.1	0	0.0	0	0.0	22	15.3	0	0.0	0	0.0	4	2.7
Primary	0	0.0	0	0.0	5	3.5	0	0.0	4	2.7	27	18.8	1	0.7	0	0.0	14	9.7
<b>SALARY AND FRINGE BENEFITS</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	10	6.9	0	0.0	0	0.0	2	1.4
Less Than Expected	0	0.0	0	0.0	3	2.1	2	1.4	2	1.4	21	14.6	1	0.7	0	0.0	8	5.6
Secondary	1	0.7	0	0.0	7	4.9	0	0.0	3	2.1	25	17.4	0	0.0	0	0.0	7	4.9
Primary	0	0.0	0	0.0	3	2.1	0	0.0	0	0.0	25	17.4	1	0.7	0	0.0	15	10.4
<b>OPPORTUNITY FOR SCHOLARLY PURSUITS</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	0	0.0	0	0.0	13	9.3	0	0.0	0	0.0	2	1.4
Less Than Expected	1	0.7	0	0.0	3	2.1	1	0.7	2	1.4	11	7.6	2	1.4	0	0.0	10	6.9
Secondary	0	0.0	0	0.0	4	2.7	2	1.4	0	0.0	22	15.3	0	0.0	0	0.0	7	4.9
Primary	0	0.0	0	0.0	4	2.7	1	0.7	3	2.1	35	24.3	0	0.0	0	0.0	13	9.3
<b>OPPORTUNITY TO USE TRAINING OR SCHOOLING</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	0	0.0	0	0.0	5	3.5	0	0.0	0	0.0	3	2.1
Less Than Expected	0	0.0	0	0.0	5	3.5	0	0.0	2	1.4	15	10.4	2	1.4	0	0.0	5	3.5
Secondary	0	0.0	0	0.0	6	4.2	2	1.4	0	0.0	16	11.1	0	0.0	0	0.0	6	4.2
Primary	1	0.7	0	0.0	14	9.7	1	0.7	3	2.1	45	31.3	0	0.0	0	0.0	18	12.5
<b>RESOURCES TO GET JOB DONE</b>																		
Not Affected	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	15	11.4	0	0.0	0	0.0	9	6.3
Less Than Expected	1	0.7	0	0.0	1	0.7	0	0.0	0	0.0	7	4.9	1	0.7	0	0.0	5	3.5
Secondary	0	0.0	0	0.0	9	6.3	3	2.1	2	1.4	20	13.9	1	0.7	0	0.0	6	4.2
Primary	0	0.0	0	0.0	3	2.1	1	0.7	3	2.1	38	26.4	0	0.0	0	0.0	11	7.6
<b>INTERNAL POLITICS</b>																		
Not Affected	1	0.7	0	0.0	6	4.2	2	1.4	2	1.4	29	20.1	0	0.0	0	0.0	12	8.3
Less Than Expected	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	5	3.5	2	1.4	0	0.0	2	1.4
Secondary	0	0.0	0	0.0	3	2.1	1	0.7	2	1.4	35	24.3	0	0.0	0	0.0	8	5.6
Primary	0	0.0	0	0.0	3	2.1	0	0.0	1	0.7	10	6.9	0	0.0	0	0.0	7	4.9
<b>WORKING CONDITIONS (HOURS, LOCATION)</b>																		
Not Affected	0	0.0	0	0.0	6	4.2	1	0.7	0	0.0	40	27.8	0	0.0	0	0.0	15	10.4
Less Than Expected	0	0.0	0	0.0	2	1.4	2	1.4	1	0.7	9	6.3	2	1.4	0	0.0	5	3.5
Secondary	1	0.7	0	0.0	6	4.2	0	0.0	1	0.7	18	12.5	0	0.0	0	0.0	3	2.1
Primary	0	0.0	0	0.0	0	0.0	1	0.7	3	2.1	12	8.3	0	0.0	0	0.0	9	6.3
<b>STATUS</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	6.3	0	0.0	0	0.0	3	2.1
Less Than Expected	0	0.0	0	0.0	3	2.1	2	1.4	2	1.4	10	6.9	1	0.7	0	0.0	2	1.4
Secondary	1	0.7	0	0.0	8	5.6	1	0.7	1	0.7	27	18.8	0	0.0	0	0.0	10	6.9
Primary	0	0.0	0	0.0	3	2.1	1	0.7	2	1.4	34	23.6	1	0.7	0	0.0	16	11.1
<b>AUTONOMY AND INDEPENDENCE</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	1	0.7	0	0.0	29	20.1	0	0.0	0	0.0	7	4.9
Less Than Expected	0	0.0	0	0.0	3	2.1	0	0.0	2	1.4	7	4.9	1	0.7	0	0.0	6	4.2
Secondary	0	0.0	0	0.0	6	4.2	2	1.4	0	0.0	17	11.8	0	0.0	0	0.0	3	2.1
Primary	0	0.0	0	0.0	2	1.4	1	0.7	3	2.1	29	20.1	1	0.7	0	0.0	14	9.7

Table 50 (Continued)

	Single, Never Married						Married						Separated, Divorced, Widowed					
	No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed	
	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X
<b>VARIETY IN ACTIVITIES</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	1	0.7	0	0.0	22	15.3	0	0.0	0	0.0	7	4.9
Less Than Expected	0	0.0	0	0.0	1	0.7	1	0.7	1	0.7	4	2.7	1	0.7	0	0.0	0	0.0
Secondary	0	0.0	0	0.0	8	5.6	0	0.0	0	0.0	27	18.8	0	0.0	0	0.0	4	2.7
Primary	1	0.7	0	0.0	2	1.4	2	1.4	4	2.7	28	19.4	1	0.7	0	0.0	19	13.2
<b>POLICY MAKING POWER</b>																		
Not Affected	0	0.0	0	0.0	5	3.5	1	0.7	1	0.7	19	13.2	0	0.0	0	0.0	5	3.5
Less Than Expected	1	0.7	0	0.0	2	1.4	2	1.4	2	1.4	12	8.3	1	0.7	0	0.0	7	4.9
Secondary	0	0.0	0	0.0	6	4.2	1	0.7	1	0.7	30	20.8	1	0.7	0	0.0	7	4.9
Primary	0	0.0	0	0.0	1	0.7	0	0.0	1	0.7	20	13.9	0	0.0	0	0.0	13	9.3
<b>CONGENIAL WORK RELATIONSHIPS</b>																		
Not Affected	0	0.0	0	0.0	8	5.6	1	0.7	2	1.4	33	22.9	0	0.0	0	0.0	18	12.5
Less Than Expected	1	0.7	0	0.0	2	1.4	0	0.0	1	0.7	8	5.6	2	1.4	0	0.0	4	2.7
Secondary	0	0.0	0	0.0	4	2.7	3	2.1	0	0.0	24	16.7	0	0.0	0	0.0	1	0.7
Primary	0	0.0	0	0.0	0	0.0	0	0.0	2	1.4	15	10.4	0	0.0	0	0.0	8	5.6
<b>COMPETENCY OF COLLEAGUES</b>																		
Not Affected	0	0.0	0	0.0	5	3.5	1	0.7	1	0.7	30	20.8	0	0.0	0	0.0	13	9.3
Less Than Expected	1	0.7	0	0.0	4	2.7	2	1.4	2	1.4	7	4.9	2	1.4	0	0.0	6	4.2
Secondary	0	0.0	0	0.0	4	2.7	1	0.7	2	1.4	30	20.8	0	0.0	0	0.0	3	2.1
Primary	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	6.9	0	0.0	0	0.0	9	6.3
<b>OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ORGANIZATION</b>																		
Not Affected	0	0.0	0	0.0	4	2.7	1	0.7	0	0.0	20	13.9	0	0.0	0	0.0	5	3.5
Less Than Expected	1	0.7	0	0.0	4	2.7	3	2.1	3	2.1	21	14.6	1	0.7	0	0.0	10	6.9
Secondary	0	0.0	0	0.0	4	2.7	0	0.0	1	0.7	14	9.7	0	0.0	0	0.0	6	4.2
Primary	0	0.0	0	0.0	2	1.4	0	0.0	0	0.0	27	18.8	0	0.0	0	0.0	10	6.9
<b>VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ ORGANIZATIONS</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	1	0.7	1	0.7	12	8.3	0	0.0	0	0.0	9	6.3
Less Than Expected	0	0.0	0	0.0	3	2.1	2	1.4	2	1.4	11	7.6	1	0.7	0	0.0	6	4.2
Secondary	1	0.7	0	0.0	2	1.4	1	0.7	0	0.0	18	12.5	1	0.7	0	0.0	3	2.1
Primary	0	0.0	0	0.0	6	4.2	0	0.0	2	1.4	39	27.1	0	0.0	0	0.0	14	9.7
<b>CHALLENGE</b>																		
Not Affected	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	6	4.2	0	0.0	0	0.0	4	2.7
Less Than Expected	0	0.0	0	0.0	3	2.1	1	0.7	2	1.4	8	5.6	2	1.4	0	0.0	4	2.7
Secondary	1	0.7	0	0.0	3	2.1	1	0.7	0	0.0	11	7.6	0	0.0	0	0.0	5	3.5
Primary	0	0.0	0	0.0	7	4.9	2	1.4	3	2.1	56	38.9	0	0.0	0	0.0	19	13.2
<b>JOB SECURITY</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	3	2.1	1	0.7	27	18.8	0	0.0	0	0.0	9	6.3
Less Than Expected	1	0.7	0	0.0	2	1.4	1	0.7	2	1.4	11	7.6	2	1.4	0	0.0	6	4.2
Secondary	0	0.0	0	0.0	8	5.6	0	0.0	2	1.4	26	18.1	0	0.0	0	0.0	6	4.2
Primary	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	19	13.2	0	0.0	0	0.0	11	7.6
<b>PRESTIGE OF EMPLOYER</b>																		
Not Affected	0	0.0	0	0.0	3	2.1	1	0.7	3	2.1	29	20.1	0	0.0	0	0.0	8	5.6
Less Than Expected	0	0.0	0	0.0	3	2.1	1	0.7	0	0.0	7	4.9	2	1.4	0	0.0	5	3.5
Secondary	1	0.7	0	0.0	6	4.2	1	0.7	0	0.0	25	17.4	0	0.0	0	0.0	9	6.3
Primary	0	0.0	0	0.0	2	1.4	1	0.7	2	1.4	20	13.9	0	0.0	0	0.0	10	6.9

Table 51

Relationship of Work Status to Marital Status and to Actual Benefits Accrued in 18 Aspects of Employment and Satisfaction With Employment

MALES

	Single, Never Married						Married						Separated, Divorced, Widowed					
	No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed	
	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X
<b>OVERALL JOB SATISFACTION</b>																		
Not Affected	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	15	12.4	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	18	14.9	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	3	2.5	1	0.8	0	0.0	24	19.8	0	0.0	0	0.0	4	3.3
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	43	35.5	0	0.0	0	0.0	2	1.7
<b>SALARY AND FRINGE BENEFITS</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	10	8.3	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	17	14.0	1	0.8	0	0.0	3	2.5
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	34	28.1	0	0.0	0	0.0	2	1.7
Primary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	38	31.4	0	0.0	0	0.0	3	2.5
<b>OPPORTUNITY FOR SCHOLARLY PURSUITS</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	18	14.9	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	18	14.9	0	0.0	0	0.0	2	1.7
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	36	29.8	0	0.0	0	0.0	1	0.8
Primary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	29	24.0	1	0.8	0	0.0	5	4.1
<b>OPPORTUNITY TO USE TRAINING OR SCHOOLING</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	5.8	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	22	18.2	0	0.0	0	0.0	0	0.0
Secondary	0	0.0	0	0.0	4	3.3	1	0.8	0	0.0	24	19.8	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	47	38.8	1	0.8	0	0.0	5	4.1
<b>RESOURCES TO GET JOB DONE</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	24	19.8	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	10	8.3	0	0.0	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	5	4.1	0	0.0	0	0.0	27	22.3	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	35	28.9	1	0.8	0	0.0	4	3.3
<b>INTERNAL POLITICS</b>																		
Not Affected	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	34	28.1	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	8	6.6	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	37	30.6	0	0.0	0	0.0	4	3.3
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	16	13.2	0	0.0	0	0.0	2	1.7
<b>WORKING CONDITIONS (HOURS, LOCATION)</b>																		
Not Affected	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	37	30.6	0	0.0	0	0.0	3	2.5
Less Than Expected	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	17	14.0	1	0.8	0	0.0	0	0.0
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	24	19.8	0	0.0	0	0.0	2	1.7
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	20	16.5	0	0.0	0	0.0	3	2.5
<b>STATUS</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	8	6.6	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	11	9.1	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	4	3.3	1	0.8	0	0.0	38	31.4	0	0.0	0	0.0	4	3.3
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	42	34.7	0	0.0	0	0.0	3	2.5
<b>AUTONOMY AND INDEPENDENCE</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	18	14.9	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	11	9.1	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	37	30.6	0	0.0	0	0.0	6	5.0
Primary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	35	28.9	0	0.0	0	0.0	1	0.8

Table 51 (Continued)

	Single, Never Married						Married						Separated, Divorced, Widowed					
	No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed		No, Seeking Employment		Yes, Part-time Employed		Yes, Full-time Employed	
	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X	F	X
<b>VARIETY IN ACTIVITIES</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	24	19.8	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	12	9.9	1	0.8	0	0.0	0	0.0
Secondary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	30	24.8	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	32	26.4	0	0.0	0	0.0	4	3.3
<b>POLICY MAKING POWER</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	19	15.7	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	15	12.4	1	0.8	0	0.0	2	1.7
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	32	26.4	0	0.0	0	0.0	4	3.3
Primary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	32	26.4	0	0.0	0	0.0	1	0.8
<b>CONGENIAL WORK RELATIONSHIPS</b>																		
Not Affected	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	34	28.1	0	0.0	0	0.0	3	2.5
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	9	7.4	1	0.8	0	0.0	2	1.7
Secondary	0	0.0	0	0.0	4	3.3	1	0.8	0	0.0	38	31.4	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	18	14.9	0	0.0	0	0.0	0	0.0
<b>COMPETENCY OF COLLEAGUES</b>																		
Not Affected	0	0.0	0	0.0	3	2.5	1	0.8	0	0.0	33	27.3	0	0.0	0	0.0	3	2.5
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	15	12.4	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	35	28.9	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	10.7	0	0.0	0	0.0	1	0.8
<b>OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ORGANIZATION</b>																		
Not Affected	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	20	16.5	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	19	15.7	1	0.8	0	0.0	2	1.7
Secondary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	24	19.8	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	34	28.1	0	0.0	0	0.0	3	2.5
<b>VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ORGANIZATIONS</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	5.8	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	20	16.5	0	0.0	0	0.0	2	1.7
Secondary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	25	20.7	0	0.0	0	0.0	2	1.7
Primary	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	47	38.8	1	0.8	0	0.0	4	3.3
<b>CHALLENGE</b>																		
Not Affected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	8.3	0	0.0	0	0.0	0	0.0
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	10	8.3	0	0.0	0	0.0	0	0.0
Secondary	0	0.0	0	0.0	4	3.3	0	0.0	0	0.0	26	21.5	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	52	42.9	1	0.8	0	0.0	5	4.1
<b>JOB SECURITY</b>																		
Not Affected	0	0.0	0	0.0	3	2.5	0	0.0	0	0.0	26	21.5	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	2	1.7	1	0.8	0	0.0	11	9.1	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	31	25.6	0	0.0	0	0.0	1	0.8
Primary	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	31	25.6	0	0.0	0	0.0	5	4.1
<b>PRESTIGE OF EMPLOYER</b>																		
Not Affected	0	0.0	0	0.0	3	2.5	1	0.8	0	0.0	22	18.2	0	0.0	0	0.0	1	0.8
Less Than Expected	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	13	10.7	1	0.8	0	0.0	1	0.8
Secondary	0	0.0	0	0.0	2	1.7	0	0.0	0	0.0	39	32.2	0	0.0	0	0.0	3	2.5
Primary	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	24	19.8	0	0.0	0	0.0	3	2.5

## CHAPTER V

### DISCUSSION

#### Summary

This chapter includes a synopsis of the study's purpose, research methods, and demographic data. It also includes a review of the research questions. Conclusions and recommendations complete the study.

#### Purpose

The purpose of this study was to assess the benefits of completing a doctoral degree in education for females versus males relative to expected benefits upon entry to Virginia Tech. Relationships between expected benefits, accrued benefits, and selected demographic data by gender were studied.

#### Research Methods

The basic design of the study involved a survey completed by 265 (90%) of the doctorate recipients between 1980 and 1984. The survey was composed of 12 questions that provided selected demographic data (gender, age at completion of the doctorate, marital status, work status, and salary range). In addition, Likert-scale items provided information on the expected and perceived benefits that were divided into two categories: (a) 18 aspects of employment and satisfaction with employment, and (b) 18 intellectual qualities and skills.

The specific computational procedures utilized in the data analysis included frequency distributions, percentages, crosstabulations, and chi-square procedures.

#### Demographic Data

The results of the study indicated more similarities than differences for the female and male respondents. The median age at completion of the doctorate was 38.5 years. Most respondents (75.4%) were married. Approximately 62% of the respondents reported their career decisions assumed equal or greater importance than their spouses' career decisions. Most of the spouses (79.6%) were employed full-time.

#### Research Questions

Specifically, the study sought the answers to the following questions:

Question 1. What are the differences in the expected benefits upon entry to the doctoral degree program for females and males?

There were significant differences at the  $p < .05$  level by gender for only 2 of the 36 benefit items. More females than males expected an increased opportunity to use training or schooling (80.1% versus 67.5%) and increased autonomy and independence on the job (53.8% versus 42.9%) to be primary benefits of completing the program. No other significant differences were found.

In terms of expected employment and satisfaction benefits, males and females ranked these in very similar ways. Both males and

females ranked the following employment and satisfaction benefits in the top 10 benefits: (a) challenge, (b) visibility for other jobs, (c) the opportunity for use of training, (d) scholarly pursuits, (e/f) different or better jobs at present institutions or other institutions, (g) job satisfaction, (h) status, (i) salary and fringe benefits, and (j) autonomy and independence. Females ranked resources to get job done whereas males ranked job security among their top 10 expected benefits.

In terms of expected intellectual qualities and skills, males and females ranked these qualities in the top 10 benefits: (a) research skills, (b) writing skills, (c) general knowledge, (d) critical thinking, (e) insight, (f) leadership ability, (h) academic ability, (i) self-confidence, and (j) the ability to think clearly. Females ranked mathematical ability whereas males ranked creativity, originality, and political awareness among their top 10 benefits.

Question 2. What are the differences, if any, in the benefits accrued following completion of the doctoral degree for females and males?

There were significant differences at the  $p < 0.5$  level by gender for only 4 of the 36 benefit items. More males than females indicated that (a) increased autonomy and independence on the job, (b) increased congeniality of work relationships, (c) increased visibility for jobs at other institutions or organizations, and (d) increased mechanical ability were primary or secondary benefits of completing the degree. Specifically, these significant differences indicate that:

1. More males than females (70.4% versus 56.4%) reported that increased autonomy and independence at work was a primary or secondary accrued benefit. Conversely, more females than males (43.6% versus 29.6%) indicated either less than expected or no benefit relative to increased autonomy and independence at work.

2. More males than females (55.2% versus 41.0%) reported that an increase in the congeniality of their work relationships was a primary or secondary accrued benefit. Conversely, more females than males (58.9% versus 44.8%) indicated that they had either less than expected or no benefit relative to increased congeniality of work relationships.

3. More males than females (73.3% versus 62.9%) reported that increased visibility for jobs at other institutions or organizations was a primary or secondary benefit. Conversely, more females than males (37.2% versus 26.7%) indicated that they had either less than expected or no benefit relative to increased visibility for jobs at other institutions or organizations.

4. More males than females (77.4% versus 50.0%) reported that increased mechanical ability was a primary or secondary benefit. Conversely, more females than males (50.0% versus 22.6%) indicated that they had less than expected or no increase in their mechanical ability.

From among the respondents, the majority of females and males (91.0% versus 91.7%) reported that earning a doctoral degree in education had a substantially positive effect or some positive effect

on their career development. Among the personal, professional, and financial values of earning the doctoral degree, females indicated that the personal value was the most important and statistically significant value. No statistically significant relationship was found for the males among those three values. However, both genders reported the primary value of having completed the doctoral degree was the personal value (91.7% males versus 90.9% females). Second in importance were the professional benefits (88.4% males versus 57.4% females), and third in importance to the respondents were the financial gains (56.8% males versus 57.4% females). Regarding predoctoral salaries, the largest percent of respondents (76.4% female and 73.3% male) earned between \$12,000 and \$35,988 annually. As for the postdoctoral salaries, the greatest percent of respondents (71.4% female and 73.9% male) earned \$24,000 to \$47,988 annually.

In terms of employment and satisfaction benefits, both males and females ranked these benefits as most important: (a) challenge, (b) visibility for jobs at other institutions or organizations, (c) opportunity to use training or schooling, (d) status, (e) overall job satisfaction, (f) salary and fringe benefits, (g) resources to get the job done, (h) variety in activities, and (i) autonomy and independence. Females ranked opportunity for scholarly pursuits whereas males ranked opportunities for different/better jobs at this institution/organization among their top 10 benefits.

In terms of intellectual qualities and skills, males and females ranked these qualities in the top 10 benefits: (a) self-confidence, (b) critical thinking and analytical skills, (c) research skills, (d)

general knowledge, (e) academic ability, (f) insight, (g) cultural perspective, and (h) self-discipline and the ability to follow rules. Females ranked understanding of others and males ranked ability to think clearly and mechanical ability among their top 10 benefits.

Question 3. What is the relationship between the expected benefits upon entry to the doctoral degree program and the benefits resulting from completion of it?

There was a statistically significant relationship at the  $p < .05$  level between the following 31 of the 36 expected and reported accrued benefits: overall job satisfaction, salary and fringe benefits, opportunity for scholarly pursuits, opportunity to use training or schooling, resources to get the job done, internal politics, working conditions (hours, location), status, autonomy and independence, variety in activities, policy making power, congenial work relationships, competency of colleagues, opportunities for different/better jobs at this institution/organization, visibility for jobs at other institutions/organizations, challenge, job security, prestige of employer, creativity and originality, cultural perspective, leadership ability, political awareness, self-discipline and the ability to follow orders, understanding of others, academic ability, critical thinking/analytical skills, general knowledge, writing ability, mathematical ability, and mechanical ability.

Question 4. How does the recipient's age at the time the degree was obtained affect the benefits resulting from it?

The 27-34-year-old group indicated they had accrued more benefits than the other age groups relative to working conditions (hours, location), congenial work relationships, public speaking ability, and academic ability.

Question 5. How does the current marital status of the doctorate recipient affect the work status of the recipient?

The majority of respondents (75.4%) were married and 94.2% of all respondents were working full-time.

#### Conclusions and Recommendations

Conclusion 1. The data for this study suggests that if the respondents expected a specific benefit, they also tended to indicate they had accrued that specific benefit at some level following completion of the program. One might observe that this is not especially surprising as the "self-fulfilling prophecy" tends to exert a tremendous impact on behavior.

Recommendation. It is recommended that the Graduate School and the College of Education recognize the importance of the prospective graduate students' expectations upon entry into the doctoral program in relation to their reported achievements upon completion of the program. Future research relative to graduate students' expectations would not only aid the faculty's review of the students' progress in light of their respective expectations but would also help the faculty assist the students in attaining their academic and career goals.

Conclusion 2. There was no significant difference between male and female respondents in their age at completion of the doctorate. However, there were significant differences in age by graduation year, indicating that the average age of doctoral students at the time of graduation is increasing.

Recommendation. Future research might examine age and related issues to determine if a significant number of those pursuing graduate education tend to be older, more experienced persons. If this is the case, there may be implications for curriculum changes to meet the needs of older, more experienced persons.

Conclusion 3. The majority of all respondents (94.2%) were working full-time, thus indicating that the work status was not affected by the marital status of the respondents. However, when the relationship of marital status and gender was examined for the respondents, a significant relationship was observed. Twice the proportion of females as males (10.5% versus 5.8%) were never married and over three times the proportion of female as male respondents (23.8% versus 7.4%) indicated that they were either separated, divorced, or widowed. The latter finding may verify a portion of the findings of Fortune, Blecharczyk, and McLaughlin (1982) that nearly half their sample of females from the Survey of Non-Traditional Students Returning to Higher Education suffered with personal problems (marital, 20.2%; occupational, 13.7%; or financial, 12.2%) prior to their return to college (unpublished raw data, p. 12).

Recommendation. Future research should be conducted to verify or refute the finding of Fortune, Blecharczyk, and McLaughlin's 1982

study that nearly half their sample of females suffered with personal problems prior to their return to college.

Conclusion 4. In contrast to what was suggested by the extant literature, results of this study indicated that there were more similarities than differences between males and females in benefits derived from completing a doctorate from the College of Education at Virginia Tech. Furthermore, female recipients did not differ from their male counterparts in terms of their work status, salaries, career development, or assessment of the value of their doctoral degree.

Recommendation. It is recommended that other institutions interested in similar research replicate this study using only post-1980 doctorate recipients since post-1980 doctorate data takes into consideration the status of women in ways that reflect the societal changes of this decade.

Conclusion 5. The doctorate in Education at Virginia Tech is a highly marketable degree. Among all the respondents, 94.2% were employed full-time. Virginia Tech College of Education doctorate recipients, when compared to national statistics, were employed at a higher rate than might be expected based on the National Research Council's figures of employment for the 1980 to 1984 doctoral graduates.

Recommendation. Since the national statistics represent data that was collected prior to the doctorate recipients' departure from the college/university campus, it is recommended that other institutions interested in similar research replicate this study

using data collected from their respective doctorate recipients at least 12 months following their exit from the campus for a more accurate reflection of their doctoral graduates' work status.

Conclusion 6. Personal growth factors were clearly the most important expected and accrued benefits for both the female and male doctorate recipients from 1980 to 1984. The majority of respondents also indicated that the doctoral degree had had a substantially positive or some positive effect on their career development and thus their professional lives. In addition, the respondents noted some financial gains following completion of the doctoral degree. Approximately 92% of the respondents thought it was worth the time, effort, and expense involved to complete the doctoral degree. These findings suggest, then, that the doctorate recipients of Virginia Tech's College of Education perceived the degree to have improved the overall quality of their lives.

Recommendation. It is recommended that the Graduate School and especially the College of Education utilize these findings in marketing of the Graduate School and in recruiting students for graduate study.

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APPENDIX     A  
THE PILOT STUDY



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF ADMINISTRATIVE AND EDUCATIONAL SERVICES

June 5, 1985

Dear Colleague:

I am asking you to help pilot test a survey that will be sent to all 1980 through 1984 doctoral recipients in Education at Virginia Tech. The study is designed to identify and evaluate the benefits they expected from completing the doctoral degree and the actual benefits received.

It is important that your survey be completed and returned with any comments or suggestions relative to the interpretation of meaning and sufficiency of response format.

Your responses will be kept confidential. The survey has an identification number so that we can remove your name from the mailing list when your survey is returned. Your name will never be put on the survey.

The aggregated results of this study will be made available to prospective graduate students, faculty members charged with recruitment duties, officials of the College of Education and the Alumni Association. If you would like to have a summary of the results, please write "copy of results requested" on the back of the return envelope and print your name and address below it. Do not put this information on the survey.

If you have any questions or comments pertaining to the survey, please call me. The telephone number is \_\_\_\_\_ or \_\_\_\_\_. Then, please take a five minute coffee break and complete the survey.

Thank you for your assistance and cooperation.

Sincerely yours,

u

Donna Ann Bell  
Doctoral Candidate

Enclosures

### The Pilot Study

The cover letters and survey were pretested and revised four times over a span of three months. First, the survey was distributed to 11 doctoral students enrolled in a survey design course in April, 1985. The students were asked to complete the survey and answer the following questions that Dillman (1978) suggested were important to the effectiveness of a pretest procedure:

- Is each of the questions measuring what it is intended to measure?
- Are all the words understood?
- Are questions interpreted similarly by all respondents?
- Does each close-ended question have an answer that applies to each respondent?
- Does the questionnaire create a positive impression, one that motivates people to answer it?
- Are questions answered correctly? (Are some missed, and do some elicit uninterpretable answers?)
- Does any aspect of the questionnaire suggest bias on the part of the researcher? (p. 156)

The completed surveys were collected the following week and the comments and suggestions of the respondents were recorded. Two weeks later the first revised cover letter and survey were distributed to a professional seminar of seven doctoral students. The professor and the students returned their completed surveys the following week and their comments and suggestions were used to further refine the instrument. Next, the researcher's prospectus exam provided an opportunity for the five committee members to make suggestions relative to the survey's question and response format. Once again, revisions and refinements of the cover letters and the survey were made by the researcher.

Finally, the researcher's committee agreed that the survey should be pretested by six female and six male doctorate recipients of the College of Education prior to 1980. Four females and males (24 potential respondents) from each of the three doctoral-granting divisions of the College of Education and living within a 40-mile radius of Blacksburg, Virginia, were selected by the researcher from the Alumni Association's printout of doctorate recipients from 1973-1979.

Each potential respondent's name and address was written on individual slips of paper, folded, and arranged by gender and division into rows. The researcher's co-chairperson was asked to randomly select two participants from each grouping and thus six females and males were selected for participation in the pilot study. The researcher wrote an appropriate cover letter for the pilot study participants; and the survey packet including the cover letter, the endorsement letters, survey, prepaid return envelope, and a Sanka packet was mailed to each of the 12 participants January 6, 1985. Three completed surveys were returned prior to the mail-out of the follow-up postcard one week later on January 13, 1985. The following week six additional completed surveys were returned thereby providing a 75 percent rate of response. The researcher's research committee member reviewed the nine completed and returned surveys and concluded that further follow-ups were not required because the completed and returned surveys indicated the need for only minor revisions.

The nine participants responded in the following numbers of questions:

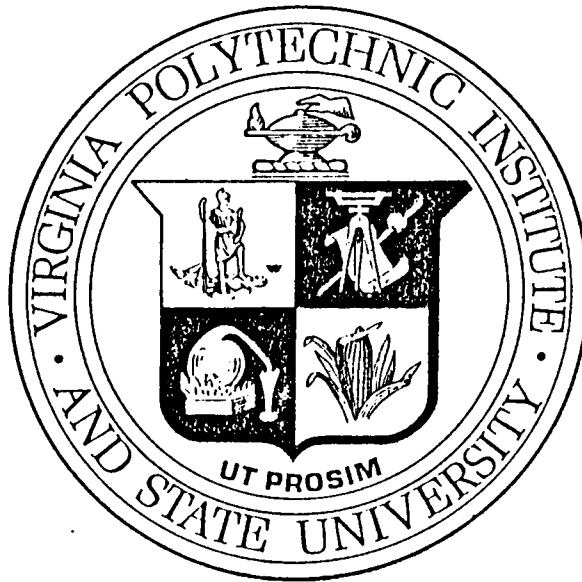
Question #1	9 responses
Question #2	9 responses
Question #3	9 responses
Question #4	9 responses
Question #5	9 responses
Question #6	9 responses
Question #7	9 responses
Question #8	9 responses
Question #9	8 responses
Question #10	9 responses
Question #11	9 responses

While the pilot study was under way, the Graduate School and Office of Institutional Research and Planning Analysis asked the researcher to send the survey to the female doctorate recipients of all the Colleges at Virginia Tech from 1980 to 1984 for use in a similar institutional study.

The researcher agreed to do this and so the title of the survey and the sponsorship were changed to acknowledge the interest and support of the Graduate School and the Center for Institutional Research and Planning Analysis.

An open-ended question (number 12) was added to the survey at the request of the Center for Institutional Research and Analysis that asked, "What one change would most improve the desirability of enrolling in Virginia Tech's doctoral program?" The responses to this question were not included in this study but interested readers may write to the Center for Institutional Research and Planning Analysis for a copy of the results of the institutional study, which will be completed prior to the fall of 1986.

APPENDIX B  
SURVEY CODE BOOK



SURVEY OF SELECTED 1980 TO 1984  
DOCTORAL GRADUATES OF  
VIRGINIA TECH

The Graduate School, the Office of  
Institutional Research and Planning Analysis,  
the Alumni Association, and the College  
of Education would appreciate your  
cooperation in the completion and return  
of this survey

Virginia Tech  
Graduate School  
P. O. Box 850  
Blacksburg, Virginia 24060-9985

DIRECTIONS: Please answer each question.

- 15-18 Q1. Year of birth \_\_\_\_\_
- 19 Q2. Sex:
- |        |          |
|--------|----------|
| FEMALE | <u>0</u> |
| MALE   | <u>1</u> |
- 20 Q3. Marital status:
- |                              |          |
|------------------------------|----------|
| SINGLE (NEVER MARRIED)       | <u>0</u> |
| *MARRIED                     | <u>1</u> |
| SEPARATED, DIVORCED, WIDOWED | <u>2</u> |
- 21 Q3A \*If married, please indicate below the degree of importance your career assumes in relation to career decisions of your spouse.
- |                    |          |         |          |
|--------------------|----------|---------|----------|
| GREATER IMPORTANCE | <u>3</u> | N/A     | <u>8</u> |
| EQUAL IMPORTANCE   | <u>2</u> | Missing | <u>9</u> |
| LESS IMPORTANCE    | <u>1</u> |         |          |
| NO IMPORTANCE      | <u>0</u> |         |          |
- 22 Q3B \*Is your spouse presently employed for pay?
- |  |          |         |          |
|--|----------|---------|----------|
| YES, EMPLOYED FULL-TIME                        | <u>4</u> | N/A     | <u>8</u> |
| YES, EMPLOYED PART-TIME                        | <u>3</u> | Missing | <u>9</u> |
| NO, SEEKING FULL-TIME WORK                     | <u>2</u> |         |          |
| NO, SEEKING PART-TIME WORK                     | <u>1</u> |         |          |
| NO, NOT SEEKING OR PLANNING TO SEEK EMPLOYMENT | <u>0</u> |         |          |
- 23 Q4. Are you presently employed for pay? (Mark only one)
- |  |          |
|--|----------|
| YES, EMPLOYED FULL-TIME                        | <u>4</u> |
| YES, EMPLOYED PART-TIME                        | <u>3</u> |
| NO, SEEKING FULL-TIME WORK                     | <u>2</u> |
| NO, SEEKING PART-TIME WORK                     | <u>1</u> |
| NO, NOT SEEKING OR PLANNING TO SEEK EMPLOYMENT | <u>0</u> |

24 Q5. What was your monthly gross salary for the year prior to your entry into the doctoral program? If self-employed or, partially self-employed, indicate your monthly income after adjusting for business expenses.

NONE	<u>0</u>	\$4,000-4,999	<u>5</u>
LESS THAN \$1,000	<u>1</u>	\$5,000-5,999	<u>6</u>
\$1,000-1,999	<u>2</u>	\$6,000-6,999	<u>7</u>
\$2,000-2,999	<u>3</u>	\$7,000 OR MORE	<u>8</u>
\$3,000-3,999	<u>4</u>		

25 Q6. What was your monthly gross salary for 1984? If self-employed or partially self-employed, indicate your monthly income after adjusting for business expenses.

NONE	<u>0</u>	\$4,000-4,999	<u>5</u>
LESS THAN \$1,000	<u>1</u>	\$5,000-5,999	<u>6</u>
\$1,000-1,999	<u>2</u>	\$6,000-6,999	<u>7</u>
\$2,000-2,999	<u>3</u>	\$7,000 OR MORE	<u>8</u>
\$3,000-3,999	<u>4</u>		

26 Q7. Did you return to college because of employer requirements?

YES	<u>1</u>
NO	<u>0</u>

12. Listed below are aspects of employment and satisfaction with employment that might be affected by completion of a doctoral degree. Evaluate and indicate in Section A the expected importance of obtaining a doctoral degree on these aspects of your postdoctoral employment. In Section B evaluate and indicate the actual effect of earning the doctoral degree on these aspects of your present or most recent employment. (Mark one in both sections)

Q8B

Q8A

Aspects of Employment	A Expected Benefits Of Doctoral Degree		B Actual Benefits of Earned Doctoral Degree			
	2 *Primary	1 *Secondary	3 *Primary	2 *Secondary	1 Less Than Expected	0 Not Affected
Q8A 1 OVERALL JOB SATISFACTION	___	___	___	___	___	___
2 SALARY AND FRINGE BENEFITS	___	___	___	___	___	___
3 OPPORTUNITY FOR SCHOLARLY PURSUITS	___	___	___	___	___	___
4 OPPORTUNITY TO USE TRAINING OR SCHOOLING	___	___	___	___	___	___
5 RESOURCES TO GET JOB DONE	___	___	___	___	___	___
6 INTERNAL POLITICS	___	___	___	___	___	___
7 WORKING CONDITIONS (HOURS, LOCATION)	___	___	___	___	___	___
8 STATUS	___	___	___	___	___	___
9 AUTONOMY AND INDEPENDENCE	___	___	___	___	___	___
10 VARIETY IN ACTIVITIES	___	___	___	___	___	___
11 POLICY MAKING POWER	___	___	___	___	___	___
12 CONGENIAL WORK RELATIONSHIPS	___	___	___	___	___	___
13 COMPETENCY OF COLLEAGUES	___	___	___	___	___	___
14 OPPORTUNITIES FOR DIFFERENT/BETTER JOBS AT THIS INSTITUTION/ ORGANIZATION	___	___	___	___	___	___
15 VISIBILITY FOR JOBS AT OTHER INSTITUTIONS/ORGANIZATIONS	___	___	___	___	___	___
16 CHALLENGE	___	___	___	___	___	___
17 JOB SECURITY	___	___	___	___	___	___
18 PRESTIGE OF EMPLOYER	___	___	___	___	___	___

\*PRIMARY: MOST IMPORTANT  
\*SECONDARY: BYPRODUCT

2 1 0 3 2 1 0  
Missing 9

13. Listed below are intellectual qualities or skills often developed in graduate education programs. In Section A evaluate and indicate each quality or skill you possessed upon entry to the doctoral program. If your response in Section A is "Needed Improvement" complete Section B and C. If your response to Section A is "Did Not Need Improvement" check "Not Applicable" in Section B and C. In Section B evaluate and indicate the extent to which you expected each quality or skill to improve as a result of your doctoral program. In Section C evaluate and indicate the extent to which each actually improved as a result of your doctoral program. (Mark one in all three sections).

Intellectual Skills and Qualities	Q9A 37-54		Q9B 1-17		Q9C 18-36	
	A Qualities or Skills Upon Entry to Graduate Program		B Expected Improvement		C Were Expectations Met?	
	1 Needed Improvement	0 Did Not Need Improvement	1 Yes	0 No	2 Yes	0 No
			3 Not Applicable		1 Less Than Expected	0 No Applicable
1 CREATIVITY AND ORIGINALITY	—	—	—	—	—	—
2 CULTURAL PERSPECTIVE	—	—	—	—	—	—
3 DRIVE TO ACHIEVE	—	—	—	—	—	—
4 INSIGHT	—	—	—	—	—	—
5 LEADERSHIP ABILITY	—	—	—	—	—	—
6 POLITICAL AWARENESS	—	—	—	—	—	—
7 PUBLIC SPEAKING ABILITY	—	—	—	—	—	—
8 SELF-CONFIDENCE	—	—	—	—	—	—
9 SELF-DISCIPLINE AND THE ABILITY TO FOLLOW ORDERS	—	—	—	—	—	—
10 UNDERSTANDING OF OTHERS	—	—	—	—	—	—
11 ABILITY TO THINK CLEARLY	—	—	—	—	—	—
12 ACADEMIC ABILITY	—	—	—	—	—	—
13 CRITICAL THINKING OR ANALYTICAL SKILLS	—	—	—	—	—	—
14 GENERAL KNOWLEDGE	—	—	—	—	—	—
15 RESEARCH SKILLS	—	—	—	—	—	—
16 WRITING ABILITY	—	—	—	—	—	—
17 MATHEMATICAL ABILITY	—	—	—	—	—	—
18 MECHANICAL ABILITY	—	—	—	—	—	—

38 Q 10. What effect has completion of the doctoral degree had on your career development?

SUBSTANTIALLY POSITIVE EFFECT	<u>3</u>
SOME POSITIVE EFFECT	<u>2</u>
NO EFFECT	<u>1</u>
NEGATIVE EFFECT	<u>0</u>
Missing	<u>9</u>

11. Do you think it was worth the time, effort and expenses invested to complete a doctoral degree at Virginia Tech? (Check one on each item)

	<u>1</u> YES	<u>0</u> NO
39 A. PERSONALLY	_____	_____
40 B. PROFESSIONALLY	_____	_____
41 C. FINANCIALLY	_____	_____

42 12. What one change would most improve the desirability of enrolling in Virginia Tech's doctoral program?

THANK YOU

APPENDIX C  
SURVEY PACKET



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

GRADUATE SCHOOL

TELEX NO. 7108753699

June 28, 1985

Dear Colleagues:

Enclosed is a survey from Donna Ann Bell, a doctoral candidate in the College of Education, Virginia Polytechnic Institute and State University.

I want to indicate my interest in and support of the research Ms. Bell is conducting to fulfill the requirements of her doctoral program at VPI&SU. The survey is designed to provide a benefit profile and a data base for the career planning of prospective graduate students. It is also designed to allow you direct input regarding future plans for the improvement of graduate programs and services and subsequently the quality of graduate education at VPI&SU.

Ms. Bell had originally planned to send the enclosed survey to doctoral graduates of the College of Education at VPI&SU; however, since the survey is designed to help identify and evaluate the benefits of completing a doctoral program, the Graduate School and the Office of Institutional Research encouraged Ms. Bell to include selected doctoral candidates from the other colleges on campus. Consequently, I am requesting that you complete the survey and return it to Ms. Bell as soon as possible.

Thank you for your attention and best wishes for continued success in your academic endeavors.

Sincerely,

Dean

RT:bcc

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

OFFICE OF THE DEAN

May 22, 1985

Dear Fellow Educators:

Enclosed is a survey from Donna Ann Bell, a doctoral candidate in Counseling and Student Personnel Services at Virginia Tech. This survey seeks information designed to help evaluate the benefits of completing a doctoral degree program in education at Virginia Tech.

Ms. Bell's study is specifically designed to provide a benefit profile in Education and to serve as a data base for the career planning of individuals contemplating entry into a doctoral program in education.

I am happy to endorse Ms. Bell's research project because this study will provide useful data for the College of Education and for prospective students. The Virginia Tech Alumni Association also has asked me to include their enthusiastic endorsement of this study.

Very truly yours,

Dean

RMS/kdp

Enclosures

# VIRGINIA TECH

Division of Administrative  
Educational Services

July 15, 1985

University City Office Building  
Blacksburg, VA 24061

Dear Colleague:

We are contacting selected 1980 through 1984 doctoral recipients from Virginia Tech to request their participation in a study designed to identify and evaluate the benefits expected from completing the doctoral degree and the actual benefits received.

You are one of the graduates being asked to give your judgment. It is important that your survey be completed and returned to insure that the results will accurately reflect the thinking of doctoral graduates from Virginia Tech.

Your responses will be kept confidential and will be reported only as aggregates. The survey has an identification number so that we can remove your name from the mailing list when your survey is returned. Your name will never be put on the survey.

The aggregated results of this study will be made available to prospective graduate students, the Dean of the Graduate School, the Office of Institutional Research and Planning Analysis, the Dean of the College of Education, and the officials of the Alumni Association. If you would like to have a summary of the results, please write "copy of results requested" on the back of the return envelope and print your name and address below it. Do not put this information on the survey. If you have any questions pertaining to the study, please call or write. The telephone number is . Then, please take a five minute coffee break and complete the survey.

Thank you for your assistance and cooperation.

Sincerely,

Donna Ann Bell  
Doctoral Candidate

Dr. Lou C. Talbutt  
Doctoral Committee Co-Chairperson

Dr. David E. Hutchins  
Doctoral Committee Co-Chairperson

Enclosures

July 22, 1985

A survey seeking information designed to help evaluate the benefits of completing a doctoral degree program was mailed to you last week.

If you have completed and returned the survey, I sincerely thank you. If you have not, please complete and return the survey today because I need your participation in the study so the results will accurately reflect the opinions of the 1980 to 1984 doctoral recipients.

If for some reason you have not received the survey or it was misplaced, call me at ., and I will be happy to put another one in the mail.

Sincerely,

Donna Ann Bell  
Doctoral Candidate

Graduate School  
Virginia Tech  
P.O. Box 850  
Blacksburg, VA 24060-9985

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**VIRGINIA  
TECH**

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VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

*Blacksburg, Virginia 24061*

College of Education

A&ES Division

August 5, 1985

Dear Colleague:

Three weeks ago I sent you a survey seeking information designed to help evaluate the benefits of completing a doctoral degree program at Virginia Tech. I have not received your completed survey.

The prospective graduate student is being forced to assess the value of pursuing a doctoral degree in relation to the increase in tuition, reduction in financial aid, and the prospect of competing with a growing number of professionals for a diminishing number of doctoral level positions.

Your participation in this study will help provide an accurate benefit profile of doctoral recipients and establish a data base for the career planning of individuals considering entry into a doctoral program at Virginia Tech. Please take a few minutes to complete and return the enclosed survey today. Your cooperation will be greatly appreciated.

Sincerely,

Donna Ann Bell  
Doctoral Candidate

Enclosures



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

College of Education

AE&S Division

August 19, 1985

Dear Colleague:

I am writing to you about our study of the benefits derived from the completion of a doctoral degree. I have not received your completed survey. I am delighted that many surveys have been returned but I am concerned that those who have not returned a completed survey may feel differently from those who have. The usefulness of the results will depend on an honest assessment of the benefits accrued following the completion of the doctoral degree by all 1980 to 1984 recipients.

I am sending this by certified mail to insure delivery to you in the event that, for some reason, you have not received the previous mailings. Please complete and return the enclosed survey today.

If you would like to have a summary of the results, please write "copy of results requested" on the back of the return envelope and print your name and address below it. Do not put this information on the survey.

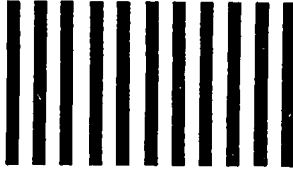
Your contribution to the accuracy of the results of this study will be most appreciated.

Cordially,

Donna Ann Bell  
Doctoral Candidate

Enclosures

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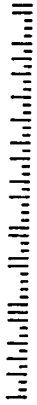


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Virginia Polytechnic Institute & State University  
Graduate Office  
P.O. Box 850  
Blacksburg, Virginia 24060 - 9985



Art. Donna Bell



VIRGINIA TECH  
GRADUATE SCHOOL  
100 SANDY HALL  
BLACKSBURG, VIRGINIA 24061

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the scanned document**