Faculty Characteristics That Are Associated With the Retention of Doctoral Students.

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FACULTY CHARACTERISTICS THAT ARE ASSOCIATED WITH THE RETENTION OF DOCTORAL STUDENTS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Vocational Education

by

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M.S., Louisiana State University, 1986
August 1996
DEDICATION

This dissertation is dedicated to my husband, Jack, who propped me up when I was down, to my mother, Ellie, who taught me to persevere and to my nine year old daughter, Meagan, who had to make do without her mother.
ACKNOWLEDGMENTS

I would like to thank all members of my doctoral committee who gave their time and support. Throughout my doctoral program, members of my doctoral committee have functioned not only as advisors but also as mentors in their specific areas. Three members of my committee served as my mentors before the dissertation ordeal began: Dr. Peggy Draughn, Dr. Joe Kotrlik, and Dr. Michael Burnett.

Dr. Draughn was always that rock of support who gave encouragement, friendship, and compassion whenever needed. Dr. Kotrlik's door was always open and he was willing to listen, advise, and suggest alternatives. Dr. Burnett was unselfish in giving his time being my research mentor. Dr. Vincent Kuetemeyer, my sagacious chair, served for seven years as my mentor, professionally and personally. Dr. Kuetemeyer was instrumental in helping funnel the literature and selecting a topic that I could sustain a passion for throughout the dissertation writing phase. His wisdom was especially useful in instrument development and packaging. At other times that wisdom was used like a battering ram to spur me on towards completion. He is responsible for helping keep the dissertation manageable.

Two additional members of the Louisiana State University faculty deserve a special expression of appreciation. Dr. Betty Harrison served as friend and mentor for many years, and Professor Barbara Sims helped me draw closure to the process.

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The primary purpose of this study was to elicit perceptions of doctoral-student advisors regarding issues and processes associated with graduate dissertation research experiences in the schools of vocational education. A mailed survey was sent to teacher educators from the 21 member institutions of the University Council for Vocational Education (UCVE) who had served as chair to at least one doctoral committee. A researcher-designed instrument which used selected scales from other research was sent to the survey population. Statistical analyses were conducted on 144 completed surveys which represented a usable response rate of 76%.

The completion rate among faculty’s doctoral-student advisees was 76%. Significant associations with completion rate were identified as: tenure status, academic rank, advisor’s age, advisor’s gender, and whether or not faculty had a primary vocational area of Agricultural Education. A unique finding of this study was that the advisors’ experience in the profession was found to explain the greatest portion of the variability in the overall student completion rate. Stepwise regression analysis was used to identify a model consisting of 4 variables that explained 44% of the variability in completion rate. Tenure status provided 32% of the explanatory power of the model, academic rank provided 5%, and number of current doctoral-student committees advisors reported serving on as chairperson and the number of international completers advised explained another 7% of the explanatory power of the model. The researcher recommends that faculty development programs be implemented that would
utilize the experienced faculty as mentors of new faculty in areas of doctoral-student advising. It is recommended that additional variables of investigation be identified through conducting qualitative research activities with faculty and graduate students using techniques such as focus groups, focus universities, and/or Delphi panels.

It is concluded that the number of doctoral-student committees advisors reported currently serving on as chairpersons was negatively related to the overall doctoral-student completion rate. It is recommended that departments make faculty aware that the greater number of doctoral-student committees faculty currently served on as chairpersons might be a deterrent for their students' retention in the program.
CHAPTER 1

INTRODUCTION

This study involved surveying respondents from the vocational education discipline throughout the country to assess whether characteristics of the doctoral-student advisor, institution, or student were associated with retention of doctoral students. The study focused on doctoral-student attrition, specifically, attrition or retention during the time period when the student was preparing the dissertation required for the degree. The stimulus for such research came from recent predictions of doctoral shortages across all disciplines as well as evidence that shortages of doctorates are already occurring.

In the first chapter, the need will be discussed for determining the effects of departmental policies and counseling practices upon doctoral attrition/retention. The first chapter will also include a statement of the scope of the problem and a list of the objectives of the research.

Those completing doctorates are awarded the highest academic degree granted by North American universities. A task force composed of graduate deans from the Council of Graduate Schools prepared a policy statement which gives a description of modern doctoral programs and a definition of the Doctor of Philosophy degree:

The Doctor of Philosophy program is designed to prepare a student to become a scholar, that is, to discover, integrate, and apply knowledge, as well as communicate and disseminate it... The program emphasizes the development of the student's capacity to make significant original contributions to knowledge, in the context of
freedom of inquiry and expression. A well-prepared doctoral student will have developed the ability to understand and evaluate critically the literature of the field and to apply appropriate principles and procedures to the recognition, evaluation, interpretation, and understanding of issues and problems at the frontiers of knowledge. The student will also have an appropriate awareness of and commitment to the ethical practices appropriate to the field. All of this is accomplished in apprenticeship to and close association with faculty members who are experienced in research and teaching (Council of Graduate Schools of the U.S. {CGSUS}, 1991, p. 10).

Persons who have successfully completed all steps in the process of achieving a doctoral degree, except the last, the writing and defending of the dissertation, are given the temporary designation ‘ABD’ (All But Dissertation) (Wilson, 1965). Sometimes, the category becomes permanent, and the candidate is dropped from the university’s roll. These ABD candidates who are dropped from the rolls are then considered terminally ABD.

At some point between the student's becoming a doctoral candidate and the point at which he or she failed to graduate, circumstances changed. Those circumstances have been described in the literature by Berelson (1960). In some cases, the magnitude of these circumstances was so great that the student sacrificed all that he or she had worked for and withdrew from the program. The student abandoned the hope of ever achieving that long-sought-after degree. “The ‘black cloud,’ the writing of the dissertation, that had hung for so long over the student was finally gone” (Berelson, 1960, p. 171). Berelson points out that the dissertation had been an uncomfortable situation for all concerned. The dissertation had interfered with the
student’s career, his domestic life, even his peace of mind. Student attrition at the dissertation-writing level represents abandonment of a student’s money, time, and energy invested.

The individual doctoral-student dropout is not the only loser in such a scenario. There is a loss of potentially able teachers, researchers, and leaders when attrition occurs so late in the doctoral process. “Those doctoral candidates who leave without completing their program may deny others an opportunity to earn a doctoral degree” (Mah, 1986, p. 13). Departments can accommodate a finite number of candidates. A dropout occupies a niche where another student might have succeeded.

Losses of professional regeneration have been discussed by researchers and labeled: reproduction of the next generation of doctorates, institutional self-renewal, or genealogical lineage. “While not completing a doctorate does not necessarily reflect failure by an individual, it does reflect failure by a graduate institution to effectively and efficiently carry out one of its major societal responsibilities: the production of the next generation of teacher-educators, researchers, and leaders” (Mah, 1986, p 13). In a discussion of mentor and student bonding, Gould (1989) identified the obligations of advisors as consisting of not only intellectual guidance but also, in many cases, securing grant support for students. Gould states that rewards of the mentors lie in the reproduction of the next generation of doctorates of the students’ work. The
graduate students’ work becomes part of a mentor’s reputation forever. Tinto described doctoral-student attrition as lost opportunity for institutional self-renewal (1982).

Doctoral attrition has primarily been the concern of other ABDs. The source of most doctoral attrition research in the past has been from doctoral students, mostly in unpublished dissertations (Mah, 1986). In the past, researchers have found doctoral attrition to be an unpopular research topic among faculty scholars. Berelson, for example, found faculty didn't perceive doctoral-student attrition as a major problem (1960). Mah (1986) suggested that doctoral-student failure generally becomes a source of embarrassment to the department as well as to the major advisor.

The focus on ABD attrition began in this decade with intense interest from unexpected sources. University presidents, deans, and other administrators have been taking actions to reform doctoral programs, aiming to decrease the 'time-to-degree' and to decrease attrition. This interest was spurred by the prediction that all disciplines in American colleges and universities were likely to face serious staffing problems by the end of the 1990s (Bowen & Sosa, 1989). Due to current age and expected retirement patterns of college and university faculty, the supply and demand for doctorates could result in a significant imbalance (Bowen & Rudenstine, 1992). The message is clear: institutions that produce the top programs of study will not be able to find enough doctorates in the labor force to staff their faculty and perpetuate their fields.
Historical Perspective

There is no consensus in the literature as to the magnitude of doctoral attrition. Researchers report a wide range of attrition rates. Sternberg (1980) reported the highest estimate of doctoral attrition at 50%. Harvard researchers admit only 5% attrition (Jacks, Chubin, Porter, & Connolly, 1982). Sternberg’s estimate has been criticized as being excessively high. In bemoaning the reasons why there are no accurate estimates of doctoral attrition, there is agreement that a national data base on doctoral students enrolled or graduated is nonexistent (Sternberg, 1980; Matchett, 1988; Association of American Universities, 1990; Achilles, 1991; Bowen & Rudenstine, 1992; National Center for Research in Vocational Education 1993; and National Center for Education Statistics, January 1994).

Due to a lack of a national data base and tracking system for doctoral-students, estimates necessarily must come from individual studies conducted on populations within a university or college. Delaney (1980) and Mah (1986) sampled a population of a single college within a university. Some studies crossed universities, as with Bowen and Rudenstine, 1992. No studies were found that sampled a national or regional population of faculty for prediction variables on doctoral-student completions. Therefore, this research was designed to explore factors beyond the student which may have contributed to the student’s failure to complete the doctoral program.
Whatever the attrition rate, any attrition at this level is a waste. To reach the level of 'candidate for a doctoral,' the individual has demonstrated worthiness by completing at least two accredited college degrees (e.g., a master's and a bachelor's degree). Some departments allow doctoral students to begin their program of study after receiving a B.A. or a B.S. degree, but, usually the student is not considered a candidate for a doctoral degree until a comprehensive course of study consisting of approximately 50 hours of coursework has been completed and a general examination has been passed. Near the end of that coursework, doctoral students pass a written and oral comprehensive examination in both their major and minor fields of study. By this stage of the process, the natural 'weeding out' due to incompetence or lack of commitment to higher education should have already occurred (Brach, 1980).

Heretofore, attrition from doctoral programs has primarily focused upon the student. There has been a wealth of attrition studies directed at undergraduate student attrition. Many studies, when repeated at the doctoral level, found student-centered variables insignificant (Wright, 1964; Rogers, 1969; Clark, Hartnett, Baird, 1976; Sternberg, 1980; Jacks, et al., 1982). No academic differences were found between the persons who received their terminal degrees and those who became terminally ABD.

Latest Emphasis in Doctoral Attrition Research

More recent researchers have looked internally for attrition explanations. Berry (1993) states, "... the reasons for completing a doctoral program do not lie in the
domains of previous academic achievement or psychometric tests and measurements, but rather in the environment of graduate school itself" (p 7). Teacher educators from Texas A&M University steering committees developed a consensus on characteristics that constitute an ideal climate for collegial research (Dockweiler, Dodwell, Hope, Herring, Dapes, & Stenning, 1985). They concluded that there must exist a climate characterized by creative inquiry, openness, trust, interaction, camaraderie, and enthusiasm. This research was used to establish a foundation that could be used for evaluating an appropriate research climate for faculty and candidates (Dockweiler, et al., 1985). In discussing these ideal conditions, Denton (1987) found that graduate curricula in colleges of education rarely complement or encourage the identified ideal research climate. To see how graduate research experiences in the College of Education compared with the ideal atmosphere that had been developed, Denton sampled faculty, doctoral alumni, and current doctoral students at Texas A&M (1987). Taking this approach in an attempt to understand the complexities of doctoral attrition, Denton researched variables involving persistence and process. Other elements of recent research that have influenced the design of this study will be examined.

**Design Climate**

The advisor as the sole observational unit was not considered as a source for data on doctoral attrition until 1993. Berry (1993) studied 13 attrition variables and their impact upon student attrition as perceived by the professoriate. The study
sampled the graduate faculty from departments of educational administration at the institution membership of the University Council for Educational Administration, UCEA. Berry recommended that future doctoral attrition research define the interaction between doctoral students and the environment of the department (1993). Other research found sufficient associations to warrant recommendations that the advisor/advisee relation be examined in depth (Mah, 1986; Denton, 1987).

**Doctoral-Advisor Faculty**

The doctoral advisor's importance to the candidate's completion of a doctorate has been described by doctoral attrition researchers. The doctoral advisor is not only the 'other participant' (Berry, 1993) in the dissertation process, but advisors constitute a specialized group of experts. The professoriate consists of individuals who have experienced the dissertation process themselves. Each holds a terminal degree, having successfully completed and defended a dissertation. In most cases, each has advised a number of candidates. The advisor should be able to report about his or her advisee with a high level of reliability. In addition to these reasons, the education and experience accumulated add to an advisor's credibility as a viable data source.

**Statement of the Problem**

Demands on the labor market are expected to produce shortages of doctorates in all disciplines by the year 2000. The search for predictor doctoral attrition variables broadens from the student-centered focus of past research to a search for identifying
departmental, doctoral-student advising practices, and faculty characteristics that might impact attrition. To search persistently for data that would guide the development of this research, questions were formulated that would help narrow the scope of the project. The following questions were instrumental in developing objectives for the study:

(a) How could future doctoral students in University Council for Vocational Education (UCVE) institutions be helped through the dissertation ordeal?
(b) What beliefs do UCVE faculty hold that might affect doctoral attrition or retention?
(c) What practices do UCVE doctoral faculty exhibit that might shorten the time-to-degree or increase completion rates?
(d) Is the doctoral program reform movement reflected in UCVE departmental practices?

After searching the data available on doctoral attrition/retention, the following purpose and research objectives were formulated.

**Purpose and Objectives of the Study**

The primary purpose of this study was to elicit perceptions of doctoral advisors regarding issues and processes associated with graduate dissertation research experiences in university departments of vocational education. The aim was to describe the UCVE advisor-professoriate on characteristics that might impact attrition or retention of doctoral candidates. Five objectives were developed for the purposes of guiding the data collection.
Objective 1

The first objective was to describe UCVE doctoral-advisor faculty on selected professional and personal characteristics. These included: doctoral student completion rate and program completion stage; selected characteristics of doctoral students; doctoral-student advising load; perceptions regarding university, departmental, and individual emphasis on research and graduate advising; perceptions regarding their personal performance in doctoral advising; doctoral committee service; gender; primary vocational area; academic rank; age; tenure status; appointment regarding teaching, research, and public service; and publications.

Objective 2

The second objective was to determine if a relationship exists between doctoral-student completion rates and each of the following characteristics: selected characteristics of doctoral students; perceptions regarding university, departmental, and individual emphasis on research and graduate advising; perceptions regarding personal performance in areas relating to doctoral-student advising; current doctoral-student advising load; current doctoral committee service; advisor's gender; advisor's age; primary vocational area; academic rank; tenure status; and appointment regarding teaching, research, and public service.

Objective 3

The third objective sought to determine if a model exists which explains a significant portion of the variance in doctoral-student completion rates from the
following measures: selected characteristics of doctoral students; perceptions regarding their personal performance in areas relating to doctoral-student advising; current doctoral advising load; current doctoral committee service; advisors’ gender; advisors’ age; primary vocational area; academic rank; tenure status; and appointment regarding teaching, research, and public service.

**Objective 4**

This objective was set forth to determine if a relationship exists between perceptions regarding personal performance in areas relating to doctoral-student advising and each of the following characteristics: selected characteristics of doctoral students; perceptions regarding university, departmental, and individual emphasis on research and graduate advising; doctoral completion rate; current doctoral committee service; advisors’ gender; advisors’ age; primary vocational area; academic rank; tenure status; and appointment regarding teaching, research, and public service.

**Objective 5**

This objective sought to determine if a model exists which explains a significant portion of the variance in perceptions regarding personal performance in areas of doctoral-student advising from the following measures: personal characteristics of doctoral students; doctoral-student completion rate; current doctoral committee service; advisors’ gender; advisor’s age; primary vocational area; academic rank; and appointment regarding teaching, research, and public service.
Definitions

For the purpose of this study, the following terms are defined as follows:

**ABD**—The designation ABD (All But Dissertation) is the unofficial title given to those students who have officially become candidates of a doctoral program by having finished most of their course work and having successfully passed a written and oral examination. The length of time given doctoral candidates to complete the dissertation from this point varies depending upon the requirements of the graduate schools at the respective universities.

**Advisor**—the teacher-educator who is chairperson of a doctoral committee (the major advisor of the doctoral student).

**Advisor-faculty**—that segment of a graduate faculty who have served as chairpersons to a doctoral committee.

**Attrition**—the dropping out of graduate students prior to completion of a degree. This study focuses on attrition at the dissertation level of the doctoral degree.

**Candidate**—a person who has completed most of the course work for a doctorate and has passed a general examination.

**Completers**—candidates who have successfully completed either their doctoral degree or who are expected by their major advisor (chairperson to their doctoral committee) to complete their degree.

**Department Head**—an administrator of the UCVE departments.
**Doctorate**—the Doctor of Philosophy (Ph.D.) or the Doctor of Education (Ed.D.) degree.

**Emphasis**—the name given a variable that was computed from data reported on the emphasis respective faculty placed upon informal research seminars.

**Isolation**—the feelings of alienation or not belonging on the part of the graduate student (i.e., not fitting in) (Tinto, 1975).

**Mentoring**—the interactive relationship between an advisor and the advisee. Busch (1985).

**Noncompleters**—candidates who have either dropped out or been dropped from the graduate program, or are not expected by their major advisor (chairperson to their doctoral committee) to complete their degree.

**Performance**—the name of a variable that was computed using the self-reported evaluation scores of faculty on items related to doctoral-student advising.

**Practical Significance Scale**—a sense scale used to interpret differences between or relationships among variables in population data sets. The common sense scale used in this study to interpret the strength of the coefficients was suggested by Davis, (1971). Descriptors suggested by Davis based on the value of the coefficient are as follows: .01 - .09 = negligible, .10 - .29 = low, .30 - .49 = moderate, .50 - .69 = substantial, and .70 - .99 = very strong.

**Primary Vocational Area**—the name of a variable that was calculated using data reported on percentages of time spent in vocational areas. The variable was
dummy coded, creating two levels. Respondents reporting greater than 50% of their
time spent in a specified vocational area were considered to have a primary area.

**Professoriate**—comprises faculty in a given department who hold a terminal
degree. Not all members of the professoriate serve as chairperson to doctoral
committees.

**Retention**—remaining in the doctoral program until the degree is received (the
counterpart of attrition). Retention includes students currently enrolled.

**Stages**—the identified increments of doctoral programs at which students might
exit. Respondents were asked to indicate the number of their students who completed
the highest level of identified increments. Stage I was identified as the time when
doctoral students had passed their general oral examination and were admitted to
doctoral candidacy. Stages progressed at points in the doctoral program up until Stage
9, which was the stage when students received a doctoral degree.

**Survey population**—sampling frame most appropriate for the objectives of
the study. In this study the surveyed population consisted of faculty from UCVE.

**UCVE**—the abbreviation for the University Council of Vocational Education,
which is a not-for-profit organization whose mission is to be a “recognized force in
shaping the future of vocational education through improving the policy and practices
of education in the United States toward the betterment of individuals and the larger
society” (Article 1 of the UCVE Constitution). The membership consists of 21
universities in the continental United States.
Unit of Observation—unit of data collection. In this study the doctoral advisor
is the unit of data collection.
CHAPTER 2
REVIEW OF RELATED LITERATURE

The purpose of this chapter is to present a review of previous research relevant to doctoral attrition. Summaries of findings and conclusions of researchers will be presented in an arrangement that will point the direction doctoral attrition research has taken in the last decade. This chapter will look at the general aspects of the problem as shown by the literature available and then focus on more specific issues. To begin a review of doctoral attrition, a brief history of the doctoral degree will be presented.

History of the Doctorate

The doctor's degree is the highest earned degree in the United States, France, Germany, and many other countries. There are two types of doctoral degrees. One is the professional degree, which has an applied focus, such as the Doctor of Medicine degree. Completion of this degree is required of physicians in this country before they can be licensed to practice. In contrast, the Doctor of Philosophy is a research degree that is distinguished from other doctorates by the levels of research required in most programs. Completion of a Ph.D. or an Ed.D degree indicates that the recipient has acquired mastery of a broad field of knowledge and the technique for scholarly research. The first doctoral degrees were Ph.D.s awarded in Bologna in the latter part of the 12th century. The terms master and doctor were at first used interchangeably. With the impact of science on education in the 18th and 19th centuries, Germany began
to use the term doctor to mean a higher level than the degree of master. The German system of degrees was adopted by most of the countries of the world.

The idea of a Doctor of Philosophy degree in the United States originated in the middle of the 19th century. The top students in science graduating from the colleges and universities were going to Germany for further study and research (Brubacher and Rudy, 1976). The need to provide an incentive that would keep the finest minds from leaving the country led Harvard University to introduce the idea of an advanced degree that would attest to one's ability to conduct 'original research' (Berry, 1993).

Except for the dissertation requirement, today's system of degrees, rooted in the medieval system of journeyman and master craftsman, has remained unchanged for centuries. Most specializations, in virtually any academic subject, have doctoral programs. The Doctor of Philosophy degree is considered by some to be the most prestigious research doctorate. However, the Doctor of Education degree serves the fields in education, with Ed.D.s occupying the same professional niche as Ph.D.s. Both Ph.D. and Ed.D. programs require extensive course work and completion of a general examination, with both programs requiring the production of an original research paper. In the United States, this original research is a research document called a dissertation.

The Dissertation

The doctoral degree gained legitimacy as a mark of the ability to advance scholarship when Johns Hopkins University introduced the requirement that the original
research be printed and structured to conform to the scientific method (Brubacher and Rudy, 1976). After the scientific method requirement was added to the dissertation's structure, there was a clearly defined philosophy and direction. A modern clarification of the role of the doctoral dissertation was presented in a 1991 policy statement issued by a task force of the Council of Graduate Schools. The task force describes the current philosophy behind the concept of the dissertation as a scholarly work that demonstrates the student's ability to analyze, interpret, and synthesize information as well as demonstrate the creative application of scientific methods of research.

Reservations as to the intrinsic value of the dissertation are seldom expressed. Few doubt the dissertation's ability to serve as a measure of the mastery of research techniques, originality of thought, and the ability to produce quality scholarly work (Blanton, 1983). Dissertations have served as foundations for major advancements to mankind as well as to the field that produced them. Two dissertations served as the primary work that earned the authors the Nobel Prize. Werner Heisenburg's dissertation won him the Nobel Prize in 1932 for the development of the Uncertainty Principle. Niels Bohr's dissertation was the foundation for future work that won him the Nobel Prize in 1922 on the structure of the atom and radiation. Of course, few dissertations fulfill the 'original body of work requirement' to the extent that the Nobel Prize is awarded. This single requirement of an original body of work is a major stumbling block for students completing their degrees. Time becomes an undefined constituent of the dissertation production.
The time taken to obtain a doctorate is increasing in all fields and involves a substantial investment of time, energy, and resources (Isaac, Koenigsknecht, Malaney, and Karras, 1989). The completed dissertation represents the culmination of the doctoral program and is commonly regarded as a contribution to the general body of knowledge. Dissertation research is often published subsequently in the professional literature and may be the foundation for the early stages of the research career of the author. Heiss (1970) found that for science students, there was less independence in topic selection, which may have contributed to shorter tenure in graduate study than is the case in the humanities and education. Heiss further speculated that factors may vary by field but may also be paradigmatic. Education and the humanities have a broader array of options possible from a given point in a student's personal development. The level of independence the candidate exhibits while working on the dissertation may depend upon the individual, or it may be contingent upon variations within the system.

**Trends**

The time-honored system of awarding doctoral degrees has been changed by few universities. The process usually prescribes a program or course of study, a general examination, and a written thesis or dissertation. The system varies slightly from field to field.

The level of independence the student has in selecting and implementing the research also varies. The process experienced by most candidates in fields where
expensive laboratories are dedicated to the solution of definite problems is described by a paleontologist. "Universities operate as one of the few survivors of the old apprenticeship system in their program for awarding doctoral degrees. A candidate must abandon all thought of independence and work upon an assigned topic for a dissertation" (Gould, 1989, p. 139). Gould further explains that a choice of a topic is a luxury reserved only for post doctorates. He states that a student comes to a point when mere courses and books enable him or her to progress no further. The student must work closely with someone who is doing research well. Gould further states that the student must be on hand everyday, ready to assimilate information. Even though there is a lack of checks and balances in the system, Gould found the system works.

The Hard Sciences

The system Gould described in the area of Paleontology may give insight into the findings that many fields in the hard sciences appear to have a higher retention of candidates and shorter time-to-degree. At the dissertation stage, a study of 35,000 students showed attrition in the humanities was twice that in the natural sciences (Bowen and Sosa, 1989). Bowen and Sosa found a 90% completion rate at the dissertation level among students in the natural sciences. Theoretically, in those fields where a strong apprenticeship approach exists, the process of obtaining a degree takes less time. Data reported by the National Research Council (1978) on time taken to attain a doctorate degree noted a shorter time for engineering and the life and physical sciences than for the humanities, education, and social sciences. In strong
apprenticeship-type programs, the extent to which independence and originality are sacrificed, if they are at all, has not been determined. Students in some of the hard sciences may have made a greater contribution to their fields than if they had worked independently on original projects uniquely their own.

The Doctoral Glut

The number of Ph.D.s awarded by American universities has increased since the first Doctor of Education degrees were awarded at Yale in 1861 and Harvard in 1876 (Cude, 1987). In 1989, more than 6,000 new doctoral graduates entered the scholarly world (Digest of Education Statistics, 1990). A comprehensive analysis of the trends in Ph.D. growth in America was presented by Bowen and Rudenstine (1992).

Bowen and Rudenstine described the rapid growth of Ph.D.s that exemplified the decade of the 1960s (1992). Although the Ph.D. glut had an initial impetus from the launching of Sputnik in 1957, increased stimulus from favorable market conditions and the legislation for draft deferments also produced a Ph.D. glut. The decade tripled the ratio of doctorates per thousand. Bowen and Rudenstine (1992) suggests that generous national financial support from national fellowship programs, such as those sponsored by the Danforth Foundation and the Woodrow Wilson National Fellowship Foundation, allowed colleges and universities to expand rapidly.

The doctoral labor market was already responding before the Vietnam draft deferment spurred an additional increase in enrollment. The doctorate glut began its decline within two years of the lifting of the draft. The market absorbed the glut and
then demanded more. The market demand for doctorates increased continuously through the 1980s, but the number of doctorates conferred has not kept the same rate of increase (Bowen and Rudenstine, 1992). The predictions about the demands of the labor market by the end of the 1990s could present a far more serious problem than the brief oversupply of academics in the 1970s. Bowen and Rudenstine contend that departments and administrators should work to bring about changes that will increase the number and quality of doctorates in the labor force.

Maximizing Doctoral Retention

Attrition is a natural and probably necessary process in doctoral programs. The earlier attrition occurs, the better for all concerned. Early attrition allows the department to divert financial resources and faculty time to students who are more likely to complete their degrees. The 'weeding out' of doctoral students from the program is ideally completed before the general examination is given. Researchers have identified critical times in a student's program when attrition was likely to occur: (a) the early classroom phase; (b) the period when the student is preparing for the general examination, and (c) prior to acceptance of the research proposal (Cook and Swanson, 1978; and Bowen & Rudenstine, 1992). In a study of 190 doctoral students, the researcher reported the critical times when attrition was likely to occur as the stage before the general examination was taken and the point when the student presented the proposal to the committee (Mah, 1986). These studies found most
attrition in all fields occurred early in the student’s program before the general examination was given.

One fourth of all social studies doctorates awarded in the United States during the 1980s were in education (Grissom, 1985; Simpson, 1986). Many graduate students in fields of education as well as vocational education hold full-time teaching positions. Courses are offered for teachers in the evenings to accommodate their work schedules. Bowen and Rudenstine (1992) concluded that the length of time understandably would be longer in education because only 28% of those enrolled were full-time students. Length of time taken to degree was the longest in the field of education (Grissom, 1985; Simpson, 1986; Hauptman 1986; Bowen and Rudenstine, 1992).

There is no defined desirable attrition rate, nor should there be any. However, awareness of attrition rates might be a move in the right direction. Findings from a study that sampled faculty for attrition variables suggested many faculty were unaware of actual attrition rates in their departments (Berry, 1993). Faculty and student attrition awareness could help to maximize the success of students in doctoral programs (Bowen and Rudenstine, 1992).

To some extent, the labor market dictates the educational programs of society. A historical analysis of the demands of the labor force upon the doctoral market was presented by Bowen & Rudenstine (1992). The doctorate glut that existed in the 1970s and 1980s was brought about by an increase in government financing for
candidates during the 1960s. Due to a recent labor prediction that doctoral shortages will exist by the end of the 1990s, Bowen and Rudenstine (1992) urged that doctoral-granting departments restructure programs to eliminate the attrition caused by students taking too long to write a dissertation.

**Variables Researched**

Components of the ABD phenomenon are (1) the completion rate and (2) the time the students take to receive a degree. Exploratory research has been conducted in two major directions. The emphasis has been either on the student or on the program itself. Variables arising from these studies are termed selection and program variables. When searching for broad areas of content to research for doctoral attrition, researchers have typically looked at selection variables (Mah, 1986). Selection variables are useful for pointing out students' personal characteristics that might serve as predictors of completion of a doctoral degree.

**Selection Studies**

Selection studies have collected data in virtually all disciplines and from nearly every institution. Much of the data has been in the field of psychology (Rawls, Rawls & Harrison, 1969; Hackman & Dysinger, 1970). Typical selection studies analyze statistics about completers and noncompleters using measurements that were taken prior to the time the student entered the doctoral program. Groups and variables are checked for significant differences and relationships. Owing to the complexity of the issue and to the tremendous range of the variables studied, the findings are often
ambiguous (Hockey, 1991). Additionally, Mah (1986) stated that selection studies had not been useful for either predicting doctoral attrition or explaining the ABD attrition phenomenon.

Selection studies provide little information that is directly useful in understanding the phenomenon of doctoral attrition, but the information is often suggestive. There is little agreement about what impact these factors may have upon the outcome of the doctoral program. Tinto (1975) suggested that gender could be shown to contribute to attrition at the graduate level, but Grissom (1985) could find no consensus in the literature as to the importance of this factor as a variable. Hauptmann (1986) reported that the percentage of doctorates awarded to females had risen from 10 to 35 percent between 1965 and 1985. Hauptmann also commented upon the inconclusive nature of the few studies that have taken race into consideration. The evidence that ethnicity and gender are important to the study of doctorate attrition appears vague (Berg & Ferber, 1983).

Inconsistencies in the literature abound as to the variables that would predict doctoral attrition. A few doctoral attrition research recommendations have suggested that future research explore variables that are not student-centered. Mah (1986) stated that student-centered selection studies, by their very nature, do not focus on the policies, programs, interactions, research environment, teaching, and motivations that contribute to the cultivation of Ph.D.s capable of fine scholarship.
**Program Studies**

Although the term attrition appears in the titles of many abstracts, the doctoral process itself is rarely examined. Few researchers have looked outside the realm of selection variables for factors that would impact upon doctoral completion. The interest in producing specified numbers of doctorates for the labor market has led administrators and faculty to seek factors outside the realm of previous research. Tuition-driven institutions have come to realize that student retention is not just an enrollment management problem influenced by student characteristics, but an issue dealing with the effectiveness of the educational process (Grosset, 1989). The emphasis is upon finding variables that affect the outcome but only come into play after the doctoral student enters the program. Studies of doctoral programs have tended to be very general, and the resulting conclusions and suggestions are less specific than those arising from selection studies (Mah, 1986). Program studies can be summarized as a concern for two important variables, the structure of the program and the quality of the supervision that the student receives.

The following is a report of the program study findings. Heiss (1970) conducted a comprehensive study of 10 major American universities and found significant disillusionment with the programs. Students who left the program reported most frequently fatigue and poor intellectual stimulation as reasons for leaving the program. Dickinson (1983) found that students reported leaving doctoral programs
because of lack of interaction with and support from the advisor and an inability to gain a proper integration into the academic milieu.

In order to predict attrition in doctoral programs, one must take into account factors that are abstract and not easily quantified. In a study of doctoral completers and noncompleters, Delaney (1980) found students perceived morale more often than any other variable as the reason students completed or did not complete their doctorates. Participation in a doctoral program has a strong effect on the emotions of the student. It is not surprising that isolation, boredom, lack of interest, and other very general and ambiguous terms should appear as significant variables in the studies. Studies of possible reasons for success in doctoral programs suffer from similar problems.

**Key Research**

There are a few studies on doctoral attrition that are sufficiently noteworthy to be reported individually. The studies will be listed by the researcher's name and not necessarily in the order of perceived importance.

Heiss (1973) examined the doctoral training of 38 eminent educational scholars. Respondents expressed satisfaction with their doctoral training and listed components of their programs that might be described as the ideal doctoral training experience. Respondents' perceptions of their doctoral programs were categorized into three common elements: stimulating intellectual climate, excellent faculty-student interaction, and freedom to pursue topics and ideas of their own interest. The
following items were listed by the respondents as critical components of their programs: the university provided an atmosphere which placed a high value on research, encouraging everyone from theorist to clinician to do research; the experience of the doctoral candidate included excellent models of scholarship; provided an interdisciplinary viewpoint; and generated a respect for the field and for the data. Heiss (1973) concluded that the successful doctoral-student program was one which provided freedom from a crowded or rigid curriculum and promoted diversity and independence. Heiss summarized by stating that an ideal doctoral curriculum provides a structured program with a strong background in the tools of scholarship. Heiss continued that a program encourages quality research by providing a high quality staff that is available for consultation and supervision when needed.

A summary of the policy statement of the Association of University Administrators and the Council of Graduate Schools (1991) recommended that departments publish explicit requirements for graduate students in doctoral programs and suggestions for departments and advisors. The council recommended a highly structured program during the identification of the topic and the writing of the dissertation. The structure of the program should follow a three-year schedule which progresses from course work in the first year through seminars and independent study in conjunction with major research papers. Close supervision by faculty during the writing of the dissertation was stressed. The council suggested that the dissertation should be a hands-on, highly experience-based project rooted in previous research.
Lack of hands-on type activities for students during the dissertation writing stage has been blamed on the lack of structure in departments. Bassett (1979) found that lack of preparation for the tasks involved in conducting a dissertation was especially apparent in the field of education. Bassett also concluded that students who appeared ill-prepared to complete their dissertations were from departments that did not have highly structured doctoral programs.

The Graduate School of the University of Arizona (1991) published a position paper which suggested seminars and a 'clear map' of the dissertation. The Association of University Administrators and the Council of Graduate Schools outlined the importance of faculty to doctoral programs:

The quality of the graduate faculty is the single most important factor in the establishment and maintenance of an excellent program leading to the Ph.D. degree. Faculty are also departmental members, and the most important ingredient for departmental success with doctoral students is a strong departmental commitment to graduate study and to the responsibility of graduate students which this entails...no doctoral program will prosper unless the departmental environment is supportive of its aims and needs. Methods for exercising the responsibility for advising and mentoring vary from one institution to another. Those that provide continuous feedback, both formal and informal, are the most successful (Association of University Administrators and the Council of Graduate Schools, 1991, p. 44).

Delaney (1980) conducted a mail survey of doctoral candidates who had terminated studies at Boston College. He found that the amount of time a candidate spent on the dissertation was the most significant of the 12 variables capable of leading to predictions. Other factors found to be significant predictors were the time when the topic was decided upon and the number of times the topic was changed. The student’s
low morale was also found to be a significant predictor for failure to complete the
doctorate. Delaney identified variables involving the supervision of the candidate, such
as: (1) the cooperation and accessibility of the committee members; and
(2) atmosphere of communication and companionship that exists between the candidate
and the advisor. Delaney was able to construct hypothetical models of the completing
and noncompleting doctoral candidates and to make suggestions for improving the
success of the doctoral program. The most important of Delaney's suggestions
involved the advisor. Delaney identified two characteristics relating to the student's
relationship with the advisor that in most cases ensured the successful completion of
the students' theses. Those factors were encouragement and personal interest.
Completions tended to be associated with higher levels of perceived encouragement
and personal interest in student research.

Recommendations from other studies were shown to be surprisingly parallel.
Bowen and Rudenstine (1992) found time taken to complete the doctoral program
impacted upon attrition. Bowen and Rudenstine reported data from a 10 university
data set. The institutions involved in the study are widely recognized as strong centers
of graduate education, and the credentials of the researchers were notable—William
Bowen, the former president of Princeton University, and Neil Rudenstine, the
president of Harvard University. Bowen and Rudenstine urged departmental
restructuring of doctoral programs. The study equated effective advising with
structured programs and recommended extinguishing the single-advisor model in favor
of the committee-advisor model for supervising the doctoral student during the
the current financial aid system as one which too frequently encourages students to
begin doctoral work, but offers little support for completing the program via aid for
novices' initial research. Recommendations from the study suggested that financial aid
should center on length of time, with forms of aid being made available along specified
points in the doctoral program continuum.

Bowen and Rudenstine (1992) also recommended that graduate schools publish
the graduation rates of their doctoral students. This accountability requirement on the
part of the institution would compel individual departments to make a greater effort to
help their doctoral students complete their dissertations in a reasonable length of time.
This information would also help guide doctoral students in making a choice of an
institution or department in which to enroll.

More recently, researchers' concern with the interaction between candidate and
faculty emerged. Berry (1993) sampled faculty from the membership of the University
Council for Educational Administrators. Perceptions of faculty were collected on 13
attrition variables. The one distinctive finding of the study pointed to the
inconsistencies between previous research projects that had sampled students and this
study that sampled faculty. "The findings of this study demonstrate that the
perceptions held by professors and those reported in the past by students are distinct
enough from one another to merit further exploration and definition" (Berry, 1993, p. 131).

Researching the mentoring relationship between advisee and advisor has become a focus of recent researchers. Berry (1993) recommended that faculty be identified who were particularly successful in mentoring doctoral students. Berry further stated that identifying a core of supporters within the department might assist in raising the consciousness of other professors to adopt needed actions for addressing the attrition problem. Berry suggested that training workshops for faculty advisors be provided regularly in order to build and reinforce better mentoring practices. Berry stated that those professors who had demonstrated proven skills as advisors and mentors could provide the training for other faculty. In order for higher education to retain the public trust, the issues of student attrition and average length of time-to-degree must be dealt with as a part of demonstrating the educational effectiveness of the institution.

One study examined the styles of the advisors and determined that the techniques of advising activities were especially valuable when advisors and advisees are not of the same gender. Heinrich (1991) described a study of 22 female doctoral recipients and their relationships with their advisors. The article recommended further research into cross-gender doctoral advisement relationships as an attempt to understand the dynamics of relationships between males and females in the workplace and beyond. The findings of this study on advisor relationships concluded that
graduate faculty tended to be more supportive of students of their own gender. They deduced that since the majority of graduate faculties are males, female graduate students have difficulty establishing a close mentoring relationship with their major advisors. Heinrich concluded that the findings of the research lent credibility to the notion that a 'good old boy' network might exist even in the highest levels of education.

Ethnicity has been shown to be a significant factor of doctoral attrition in some studies (Brazziel, 1980; Clewell, 1987; Malott, 1989; Hockey, 1991). In a study funded by the Graduate Record Examinations Board (GRE), a survey of graduated and nonpersistent doctoral students tested to determine whether factors influencing persistence and nonpersistence of minority doctoral students could be identified, whether potentially successful minority doctoral students could be identified at the graduate entry level, and whether institutional practices that encourage or deter minority participation in graduate education could be determined (Clewell, 1987). The study found that the level of support for minority students varied greatly among institutions. Policies and practices that appeared to encourage minority students included institution-wide policies regarding minority graduate students, coordination of services for minority students by an entity above the departmental level, early identification of minority applicants, special admission arrangements, support services focused on minority students' needs, and efficient record keeping to monitor effectiveness. White staff respondents in this study perceived the dropout rate of
minority graduate students to be no higher or lower than that of white students. In contrast, Black staff respondents perceived the reason for dropout of black doctoral candidates was lack of financial support. Clewell's study on black doctoral students listed factors affecting persistence in a doctoral program. The variables identified are resonant with those arising from other studies that do not attempt to isolate the effects of ethnicity. However, the areas which seem especially sensitive to the impact of ethnicity are the same as those most sensitive to gender. Clewell suggested institutions hire more minority faculty and improve the quality of advisors by making them accountable for their students' progress. Clewell also suggested that departments encourage instructors to become more involved with their students in order to aid the development of mentoring relationships.

The role of the advisor is not well defined, if defined at all. Since intellectual guidance is fundamental in the advisor-candidate relationship, it follows that this primacy would demand carefully designed structure. In many fields, it is up to the advisor to find funding for his or her advisees. "Many leading professors spend at least half their time raising grant support for students" (Gould, 1989, p. 140). In some fields a candidate seeking an advisor applies not to a school but through a department to a particular prospective mentor. In England a candidate applies directly to a potential mentor. Gould continues by stating that when the advisor secures funds, grants are almost always earmarked for particular projects. In contrast to this highly structured involvement on the part of the advisor with his or her advisee, other fields tend to
attract students who are not so closely allied with his or her advisor’s work. Many are part-time and live off-campus during the writing phase of the dissertation process. The field of education is one of those disciplines tending to foster candidates who are part-time students. This practice promotes isolation and estrangement among the student, the committee, and the advisor.

Just as the relationships between the parties involved in obtaining a doctoral degree vary, so does the quality of instruction. The importance of this relationship between a candidate and his or her advisor is paramount to the candidate’s successful completion of the degree. In a description of the importance of the relationship between the candidate and the advisor, Gould makes this statement: “If you and he have a falling out, you quit, or pack up and go elsewhere. If you work well together, and your mentor's ties to the profession are secure, you will get your degree and, by virtue of his influence and your proven accomplishments, your first decent job” (1989, p.139). Other researchers conducting doctoral attrition research have noted the importance of the advisor in the relationship with the doctoral candidate. “The key to doctoral nurturing lies in the quality of the advisor-student relationship” (Mah, 1986, p. 140). Mah concluded that it was the advisor who most affected the candidate's interest, motivation, and sense of participation in a community of scholars.

Past research sampling noncompleters has identified the lack of a mentoring relationship between advisor and candidate as a significant cause for failure to complete doctoral programs (Mah, 1986). Post doctorate respondents sampled gave credit to
their advisors for their successful completion of their doctoral program (Delaney, 1980). The results of both selection studies and program studies indicate that the advisor may be the single most crucial factor in the success or failure of the doctoral student. Program studies indicate that the structure of the program and the quality of the advisor-advisee relationship are vital to the candidates' success or failure. The selection variables of gender and ethnicity are significant factors in the phenomenon of doctoral attrition, and studies of these tend to suggest that the advisor has a primary influence upon the impact of these variables.

In Search of an Attrition Model

The literature has identified many variables other than gender and ethnicity that might impact a doctoral student's completion of his or her dissertation and degree. This section contains a list of variables that could, if used in conjunction with one another, increase the number of doctorates in the labor force and shorten the time-to-degree.

In a paper presented at an annual meeting of the American Psychological Association in Washington, DC, Kiely (1982) stated that the problem of poor candidate preparation to conduct dissertation research may be compounded by institutions that reward professors for research and publishing, but not for supervising doctoral candidates. Structure and advising seem to be the strongest variables shown in the research. Clearly, the program itself has a profound effect not only on the activities of the candidate but also on the manner in which the advisor interacts with the candidate.
The topic of the dissertation must be chosen early enough to allow for sufficient involvement in the scholarly literature of the field being studied, but not so early that the candidate is unable to gain the research skills necessary for the task (Mendenhall, 1983). When the source of the dissertation topic was generated from the advisor or department, the completion rate was higher. In what seems to be contrary data, candidates in some studies perceived freedom of topic choice to impact upon their completing their dissertations. Time-to-degree is a vitally important factor in the process and is one which is certainly subject to manipulation at the level of the doctoral program.

Literature previously cited found students rated holding an assistantship in the major department as a factor that provided them an opportunity to be perceived as junior colleagues. This was interpreted as meaning that the students’ perceived potential for contributing to their discipline was perceived as being helpful in obtaining a degree. Faculty, on the other hand, did not perceive the assistantship as helpful to doctoral students in the completion of their degrees or helpful to their integration into the professional world. Doctoral graduates perceived having a space on campus to work as helpful, whereas students who did not have campus office space did not perceive it as important to their persistence in the doctoral program. Financial independence was perceived by candidates and former candidates as having made an impact upon their persistence in the program. However, candidates with full scholarships, such as a Pell Grant, did not have a higher completion rate than other
candidates. When they did finish, their time to degree was significantly shorter (Bowen and Rudenstine, 1992).

Awareness of personal problems of the students may have been the underlying factor in research that identified associations with size of departments and completion rates. Family and personal problems as a major stumbling block to students' completing their degrees were perceived differently by students and faculty. The perceptions of student family problems appeared to be associated with the number of full-time faculty working in a department. Family problems were perceived as major problems by professors when there were fewer full-time faculty working in a department. Data reflected that when a research course (in which surveys were developed and results analyzed) was not required by a department, the professoriate was likely to perceive family problems as a major stumbling block. Size of departments was found to be a two-sided coin. Bigger was better, up to a point, and then having too many candidates became highly associated with a decrease in completion rates.

Research found positive influences of variables where members of the faculty engaged in supportive activities with advisees (Bargar, 1982). Such activities included small numbers of co-authored papers or professional presentations and informal seminars or discussion groups made up of faculty and students. Departments with stronger research supportive activities tended to be associated with higher completion rates.
Freedom to choose an advisor for supervision was perceived as an influence for persistence in completing a dissertation. Porter and Wolfle (1975) found that dissertation research frequently was carried forward in later research in 39% of the cases by the original author and in 54% by other investigators.

Research that addressed the length of the dissertation and the length of time taken to complete the dissertation concluded that the trend was for shorter dissertations (Allen, 1968; Sproull, 1970). In addition, findings indicated that there was a negative association between the length of time taken to complete a dissertation and the completion rate. Findings from data collected indicated that the longer the time the student took to complete a dissertation, the less likely it was that it would ever be completed.

Factors perceived by noncompleters as detriments included trouble with their committee or one member of the committee. Isolation from campus, along with loneliness, stress, and loss of interest were cited as having negative associations when correlated with completion of the dissertation (Monsour & Corman, 1991). Assigning dissertation research partners was suggested as a method for countering these deterrents. The doctoral candidates who experience a sense of isolation, loss of interest and enthusiasm, or unpreparedness for the research task could overcome these factors by sound mentoring and advising within a structured doctoral program environment.
Faculty Performance

The literature was reviewed for indicators of quality of performance among faculty that might be associated with scholarly activities performed for or with doctoral students. Faculty performance in scholarship has traditionally been measured by: publications and conference presentations, student evaluations, and chairperson review (Cheng, 1994). The literature supports the theory that scholarship is being redefined and considered as a facet of faculty evaluation policies at some institutions (Padovan, 1994; Cheng, 1994). The following is a report of studies that sampled faculty and/or department chairpersons to determine emphasis on scholarship awareness and perceived indicators of performance in scholarship.

In a study conducted on faculty from liberal arts and comprehensive colleges, personal and environmental predictors of performance were identified (Knuesel, 1993). Self-competence was identified as a significant predictor of scholarship and research. Faculty were surveyed to determine an ideal evaluation system for promotion (Szeto, 1996). Findings indicated that faculty perceived student questionnaires and chairperson evaluations were generally the most influential indicators of teaching performance.

In a survey of administrators to investigate constraints encountered in promoting change through developmental activities, it was found that the programs most frequently instituted were orientation for new faculty (Smolen, 1993). Data reported indicated that communication between program administrators and their faculty were inadequate.
In a study that compared faculty performance to computer usage, it was found that faculty who rated themselves the highest in teaching, research, and other activities were ranked as low computer users (Hill, 1994). In a companion survey of department chairpersons, contradictory findings indicated that administrators perceived faculty with the highest usage of computer technology to be better performers in teaching and other professional activities.

In a study of faculty perceptions designed to reflect faculty emphasis on a reward system, faculty were in favor of including scholarship criteria in the decision process for promotion, tenure, and release time decisions but not for salary increases (Padovan, 1994). Faculty members in this study also reported anxiety about the danger of a scholarship-or-perish environment.

Summary

This chapter began with a description of the doctoral degree and program. The chapter continued with a history of the dissertation and trends in application. Studies of doctoral attrition have been classified into two types: selection studies and program studies. Selection studies basically center on locus of control variables, i.e., those variables perceived as centering on the student (Bolen & Torrance, 1978). Program studies have examined the nature of the doctoral program itself. The results of selection studies are inconsistent, though many indicate that the most important selection factors are gender and ethnicity. The importance of these findings is not
universally accepted. Recommendations arising from most selection studies suggest that the advisor should be the nucleus of future research into doctoral-student attrition.

Research tends to indicate that there are not two, but three divisions for categorizing attrition variables: selection variables, program variables, and advisor variables. Advisor-related variables may be a level within program variables. In any event, the natural direction for future research into doctoral attrition leans toward the perceptions and practices of the advisor.

The social milieu in which the candidate interacts during the time he or she is writing the dissertation provides an assortment of factors that are potentially decisive in determining the success or failure of the candidate. Interaction of many circumstances and conditions is always present when a student makes the decision to drop out. On the opposite side of the phenomenon there is a hodgepodge of variables which may impact on institutions' ability to produce doctorates in time to meet the needs of the labor market.

This conglomeration of factors impacting upon doctoral students' persistence in completing a dissertation has been summarized in an attempt to channel the literature into a more focused direction. Building on findings of other research, objectives were formulated, variables were selected, and population and sampling methods were identified. The next chapter will detail the design, objectives, methodology, and data analysis for the study.
CHAPTER 3

METHODOLOGY

Introduction

The purpose of this chapter is to describe the methods and procedures utilized to conduct this study. The chapter is divided into the following sections: a description of the research design, the population, the instrument, and assumptions and limitations of the study.

Design of the Study

The study was designed to provide descriptive and correlational information about ABD retention/attrition. A survey questionnaire was mailed to those vocational education teacher-educators who had served as chair to doctoral committees in one of the institutions listed as members of the UCVE during the spring of 1995. The study described and investigated the relationships among variables.

Population

The study focused on UCVE faculty who had served as chairpersons to doctoral committees. The Directory for University Council of Vocational Education 1993 lists a total of 411 faculty from 21 university members. In order to determine how many of the faculty members had served as chairperson for doctoral committees, a request was sent to department heads of each UCVE program (see Appendix A). The administrators were asked to eliminate persons from the UCVE directory roster
provided who had never served as chairperson to doctoral committees or had left the faculty. In addition, administrators were asked to add names to the list of persons who had joined their faculty since the roster was published but only if that faculty member had served as chair to one or more doctoral committees.

Two requests for an amended roster were sent to each administrator. Three individuals (representing a total of 43 faculty) did not respond with an adjusted roster. Of the 411 UCVE faculty members, 240 were identified by department administrators as having met the criterion of having served as chair of one or more doctoral committees. The 43 faculty who were on the unabridged roster were included in the survey mailing making a total of 283 survey packets mailed.

Instrumentation

A survey census mailed questionnaire was chosen as the most appropriate method of collecting data. The questionnaire was developed at Louisiana State University and reviewed by a faculty committee (see Appendix G - pam binder). The instrument was reviewed twice by the committee for face and content validity. The instrument items were reviewed for clarity and distribution of responses. Ambiguous and poorly worded items were rewritten or eliminated.

The length of the final questionnaire was less than 125 items, as suggested by Dillman (1978, p. 55). The instrument was divided into five parts, with a cover page, initial instructions, and a section for comments. With permission from the researcher, Part One was adapted from research conducted at the University of Washington by
Dennis Mah in 1986. Mah successfully field tested the instrument. The nine items that dealt with the doctoral program will be referred to as stages, although they were not called stages in the questionnaire. Data from Stages 1 and 9 of Part 1 were used to calculate the primary outcome measure. The second part of the questionnaire was composed of items that would provide information on the respondent's doctoral students. The third part of the questionnaire gathered perceptions of faculty on characteristics of their departments and doctoral programs. Part 4 of the questionnaire had items designed to obtain information regarding the respondents' self-rated performance in the area of doctoral advising. The fifth part of the questionnaire contained advisor demographic items and questions concerning current doctoral advising load, current doctoral committee membership, and allotment of time in vocational areas. Part 6 provided space for any information the respondents might want included.

The total design method (TDM) principles of mail questionnaire construction were followed in developing this questionnaire. These principles are outlined by Dillman (1978). The front cover of the questionnaire was designed with a color graphic. The picture selected was a picture of a Greco-Roman style stone building adapted from a 200-year-old fortune-telling card. The inside back cover was blank, with additional space for respondents should they wish to present their views on topics that are only tangentially related. The project's name was on the cover, along with that of the sponsoring organization.
The internal system of the questions followed the TDM suggested method of placement. The section of the questionnaire that was more likely to be of interest to the respondent was placed first in the booklet. In the writing of each sentence, questions felt to be most important were placed first in the instrument. The sections with sensitive items were placed last in the instrument. When possible, questions were grouped into content areas by types.

**Data Collection**

Data for this research were collected in the spring of 1995 through a survey packet mailed to each UCVE faculty member who had served as chair to doctoral committees. The questionnaire packet included was accompanied by a cover letter emphasizing the importance of the project and indicating the significance of faculty participation in compiling the data (see Appendix B).

The cover letter, designed to overcome participation reluctance, incorporated the following elements: placed on official ABD Research Letterhead; the date mailed; inside address for each subject; a paragraph describing the study and its social usefulness; a paragraph explaining the importance of the respondent's participation; a paragraph promising confidentiality and explaining the system of the outer and inner envelope; and a sentence expressing appreciation and the 'token' reward to the subjects. The format of the cover letter enlisted elements of advice given by Dillman (1978) and Altschuld and Lower (1984).
The packet’s outer envelope was coded with a three-digit number to facilitate nonrespondent follow-up. For the convenience of the participant, a self addressed, postage paid envelope and another security inner envelope were also included in the packet. The respondent was instructed to place the completed questionnaire in the unmarked security envelope and then inside the self addressed mailing envelope. Each respondent was ensured confidentiality by a guarantee from the researcher that only the outer envelope would be used for follow-up tracking of nonparticipants.

Strategy used to encourage response after the initial questionnaire was mailed, involved two months of intensive follow-up procedures. A follow-up letter (round 2) was sent to the entire mailing population ten days after the initial questionnaire packet was mailed. The letter reminded faculty of the first mailing and encouraged participation in the study (see Appendix C). After three weeks, a telephone follow-up (round 3) was initiated to nonrespondents. Telephone conversations helped encourage participation but also helped identify frame errors and faculty who were not accessible. Second questionnaire packets were sent to faculty who stated that they had not received their original packets. The fourth and final round was a follow-up mail questionnaire packet sent to nonrespondents. The questionnaire was identical to the first except that the cover was printed in black ink instead of color and printed over the tracking code information was No Tracking Code (see Appendix D). This was the final attempt to notify the respondents. It was therefore not necessary to include tracking information. Included with this questionnaire was a cover letter repeating the
instructions with an explanation that this reminder letter would be the last request for responses to the survey (see Appendix E). This mailing included another self addressed, postage paid return envelope.

Assumptions and Limitations

Two assumptions were made for the purposes of conducting this study. The doctoral-advisor faculty of UCVE was a homogeneous population that shared a common value base concerning doctoral education.

Limitations of the study were based on the perceptions and recollections of vocational education faculty from UCVE member universities. Recollections of student characteristics were estimates. Regarding the respondents' perceptions of their personal performances in the area of doctoral advising, the responses may have reflected the desirable responses and not reported their actual behaviors. In addition, most of the teacher educators who consented to develop and review the instrument were members of the population surveyed.
CHAPTER 4

RESULTS

In this chapter results are presented with a discussion of the statistical analyses utilized in answering the objectives specified in Chapter 1. Descriptive and inferential statistics were used to analyze the data collected. For correlations, only paired observations were used for determining coefficients. In the regression analyses, missing cases were eliminated through a listwise deletion. The focus of this study was to describe the population on selected variables, identify interactions between variables, and discover if a model or models exist which explain variations in group mean variances between selected random variables and (1) completion rate, or (2) perceived performance in doctoral-student advising.

Population

The population consisted of faculty from UCVE institutions who had served as chair to one or more doctoral committees. The UCVE doctoral-advisor faculty population as defined by this study was 190. The data were analyzed from 144 respondents, representing a 76% usable return rate. The first strategy used to establish the population parameters for the survey was to identify doctoral-student advising faculty from UCVE institutions. This was accomplished by the following procedures: (1) Department heads were asked to identify and/or amend the UCVE directory,
eliminating members on the list who had never served as chairperson to a doctoral committee. Those department heads who responded identified an amended list of 240 from a list of 411. To arrive at a mailing population, the corrected list of 240 was added to the unabridged list (of 43) from the three departments where no department head response was received, making a total of 283 for the first mailing.

(2) Thirty-five respondents returned the questionnaire and checked that they had never served as chair to a doctoral committee. These 35 respondents were subtracted from the mailing population, reducing the study population to 248.

(3) Fifty-eight frame errors or persons who were unavailable were identified in the process of completing the telephone follow-up to nonrespondents. Frame errors consisted of those persons who did not fit the criteria for the study. Examples of situations considered as frame errors included: (a) faculty who had left the university, (b) faculty who were visiting instructors, and (c) faculty who reported themselves as not being UCVE members. Persons who were unavailable consisted of one faculty member who was terminally ill and five faculty members who were out of the country for an extended length of time on international assignments. The mailing population size was reduced by the number of both frame errors and faculty who were unavailable for the reasons noted.

In order to estimate the nature of the replies of nonrespondents the late respondents were compared to early respondents. The respondents were grouped into three waves of responses according to the times the questionnaires were
returned. The early respondents consisted of 76 faculty who returned their
questionnaires in the month of June 1995; the middle group consisted of 51 faculty
who returned questionnaires in July 1995; and, the late respondents consisted of 17
faculty who returned their questionnaires after July 1995. Late respondents were
compared to early respondents to determine differences between group means on the
following variables: (a) tenure status, (b) advisor's gender, (c) academic rank, and (d)
completion rate. Using oneway analysis of variance, no two group means were found
to have significant differences when compared on all four of the variables selected.
Since groups of respondents were similar, the respondents were assumed to be
representative of the population, including the nonrespondent group. The procedure
used to compare nonrespondents and late respondents was based on procedures used
by Clausen and Ford; Goldhor; and Flanagan and Newman as cited in Miller and
Smith, 1983.

Objective 1 Results

Participating faculty members were asked to respond to selected items
regarding characteristics related to doctoral student programs. For reporting purposes,
these items were arranged into groups including the following areas: doctoral-student
programs and degree completions; students characteristics; departmental practices and
policies; faculty advising practices; and advisor's personal characteristics.
Doctoral Student Programs and Degree Completions

The status of student completions of doctoral degree stages was calculated and program completion rates by stage are reported.

Doctoral Program Completion Stages

To describe respondents' doctoral advisees by the stage of the doctoral program completed, respondents were asked to indicate the number of advisees who successfully completed each stage of the program, beginning with passing their general oral examination and being admitted to doctoral candidacy (Stage I). Other stages listed were: Stage II, submitted a draft of a proposal to a committee member or to the supervisory/graduate committee; Stage III, had a proposal approved by the supervisory/graduate committee; Stage IV, collected data; Stage V, drafted the dissertation; Stage VI, submitted a draft of the dissertation to the committee; Stage VII, defended the dissertation; Stage VIII, took the final examination; and Stage IX, received a doctoral degree.

Respondents were asked to indicate the highest step their doctoral advisees successfully completed by recording the number of students completing each stage of the identified doctoral program (see Table 1). This number would include the number of students who were currently enrolled. Data reported includes the numbers of students completing each stage of the doctoral program, the average number of students for each respondent, the standard deviation, and the percentage of retention.
Table 1

Number of Students Completing Doctoral Program By Stages

<table>
<thead>
<tr>
<th>Program stages</th>
<th>Completers</th>
<th>Retention %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2479</td>
<td></td>
</tr>
<tr>
<td>Stage I (entered program)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1530</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>949</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2275</td>
<td>92</td>
</tr>
<tr>
<td>Stage II (submitted a proposal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1398</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>877</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2236</td>
<td>90</td>
</tr>
<tr>
<td>Stage III (proposal approved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1378</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>858</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2155</td>
<td>87</td>
</tr>
<tr>
<td>Stage IV (collected data)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1329</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>826</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2113</td>
<td>85</td>
</tr>
<tr>
<td>Stage V (drafted a dissertation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1299</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>814</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2076</td>
<td>84</td>
</tr>
<tr>
<td>Stage VI (draft to committee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1284</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>792</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2038</td>
<td>82</td>
</tr>
<tr>
<td>Stage VII (defended dissertation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1263</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>775</td>
<td></td>
</tr>
</tbody>
</table>

(table con’d)
<table>
<thead>
<tr>
<th>Program stage</th>
<th>Completers</th>
<th>Retention %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>1873</td>
<td></td>
</tr>
<tr>
<td>Stage VIII</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(took final)</td>
<td>Male</td>
<td>1151</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>722</td>
</tr>
<tr>
<td>Overall</td>
<td>2027</td>
<td>82</td>
</tr>
<tr>
<td>Stage IX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(received a degree)</td>
<td>Male</td>
<td>1255</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>772</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>81</td>
</tr>
</tbody>
</table>

Note. N = 140 for stages I-VII and IX; N = 139 for stage VIII.

*Stages VII and VIII were inclusive of one another at some universities; 5 respondents indicated that Stage VIII was included with VII at their university.

... occurring at each program stage. The data indicated that student retention was less between the first and second stages than between other stages. Retention was not calculated between Stages VII and VIII because at some universities the defense of the dissertation (Stage VII) and the final examination (Stage VIII) were reported as the same stage.

**Completion Rate**

One of the primary purposes of this study was to determine the doctoral-student completion rate among doctoral advisors at the participating UCVE institutions. Information regarding the number of students completing various stages of the program was used to calculate this measurement. Specifically, for each faculty member responding, the total number of advisees completing Stage I (completed the general oral examination and admitted to candidacy) and the total number of students reported to have completed the program and received a doctorate were included in the...
calculation of the completion rate. The number of students who received the doctorate was divided by the total number completing the general oral examination for each respondent. The result was an overall doctoral-student completion rate for each individual faculty respondent of 76%. Data were available which divided the total number of students completing each of these stages into gender groupings. Therefore, a completion rate was computed for males and females in addition to the overall measurement. The completion rate for males and females was 77% and 74%, respectively.

To further examine the data regarding doctoral student completion rates, the distribution of advisors in selected completion rate categories was presented (see Table 2). The majority of respondents reported data indicating a completion rate among their

Table 2

Percentage of Completing Students Advised by Faculty

<table>
<thead>
<tr>
<th>Students completing</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>1 to 25</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>26 to 50</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>51 to 75</td>
<td>33</td>
<td>24</td>
</tr>
<tr>
<td>76 to 99</td>
<td>49</td>
<td>35</td>
</tr>
<tr>
<td>100</td>
<td>36</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>101</td>
</tr>
</tbody>
</table>

Note. M = 76%; SD = 24.9%. *Discrepancy in totals due to rounding.
students greater than 75% (n = 85 or 63%). Very few (n = 9 or 7%) of the faculty reported data which indicated doctoral completion rates of 25% or lower.

**Student Characteristics**

Respondents were asked to indicate the number of their doctoral advisees that met each of a series of selected student characteristics. They were asked to indicate how many students for whom they had served as advisor were: a member of an ethnic minority, had completed a master’s thesis, were international students, had experienced personal hardship, or had encountered financial hardship. On each of these characteristics, respondents were asked to include the number who completed the program, the number who were currently enrolled in the program, the number who did not complete the program, and the number for whom the characteristic could not be determined. A summary of the student enrollment by student characteristics is listed in Table 3. The table includes the five selected characteristics identified in the first objective and a breakdown by completing, noncompleting, and currently enrolled students. Also included in the table is a percentage of student characteristics by the total number of students. Percentages are based upon the 2,479 students reported as having passed their general oral examinations and who were admitted to candidacy (Stage I). Percentages will not equal 100 because students could have been members of more than one group.
Table 3

Distribution of Enrollment by Student Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Completers</th>
<th>Non completers</th>
<th>Currently enrolled</th>
<th>Total</th>
<th>Stage I %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters thesis</td>
<td>677</td>
<td>77</td>
<td>209</td>
<td>963</td>
<td>39</td>
</tr>
<tr>
<td>Financial hardship</td>
<td>430</td>
<td>80</td>
<td>193</td>
<td>703</td>
<td>28</td>
</tr>
<tr>
<td>Ethnic minority</td>
<td>268</td>
<td>52</td>
<td>215</td>
<td>535</td>
<td>22</td>
</tr>
<tr>
<td>Personal hardship</td>
<td>272</td>
<td>53</td>
<td>114</td>
<td>439</td>
<td>18</td>
</tr>
<tr>
<td>International</td>
<td>252</td>
<td>13</td>
<td>130</td>
<td>395</td>
<td>16</td>
</tr>
</tbody>
</table>

Note. Percentage was taken from the number of students reported as having passed their general oral examinations and admitted to candidacy (Stage I) (2479). Percentage total not equal to 100 because students could have been members of more than one group.

In addition to the data included in the summary table of student characteristics, 27 respondents reported that they were not able to estimate whether or not their students completed a master's thesis. Another 36 respondents indicated that they could not estimate their students' financial hardship status. In addition, 33 respondents, reported that they were not able to estimate whether or not their students encountered personal hardship during their doctoral programs. Four respondents indicated their doctoral students could not be included in estimates regarding their international status.
Departmental Policies and Practices

Participating faculty members were asked to respond to selected items regarding policies and practices relating to their doctoral programs.

Advising Model

Respondents were asked to identify the type of advising model used in their departments. They were asked to mark one of three choices: the traditional model, defined as a single advisor responsible to committee; the advisory-committee model, defined as equally shared advising by the committee members; and a choice of other for any other model. Data indicated that out of a total of 142 responses, 127, 89% reported their departments used the traditional, single-advisor model responsible to committee (see Table 4).

Table 4

Frequency Distribution for Advising Model

<table>
<thead>
<tr>
<th>Advising model</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>127</td>
<td>89</td>
</tr>
<tr>
<td>Shared</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>142</td>
<td>99</td>
</tr>
</tbody>
</table>

*a Discrepancy in total due to rounding.

Research Seminars Offered

Respondents were asked to indicate with a yes or no response if their departments offered research seminars for the purpose of group sessions which
typically were less formal and focused on research topics and issues. Data reported indicated that of a total of 143 responses on this item, three fourths of the respondents reported that their departments did offer informal research seminars (see Table 5).

Table 5

Summary of Departmental Policies and Practices

<table>
<thead>
<tr>
<th>Departmental practice</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research seminars</td>
<td>107</td>
<td>75</td>
<td>36</td>
<td>25</td>
<td>143</td>
</tr>
<tr>
<td>Informal dissertation writing meetings</td>
<td>76</td>
<td>54</td>
<td>65</td>
<td>46</td>
<td>141</td>
</tr>
<tr>
<td>Mentor training available</td>
<td>62</td>
<td>44</td>
<td>80</td>
<td>56</td>
<td>142</td>
</tr>
<tr>
<td>Department documents quality of advising</td>
<td>46</td>
<td>33</td>
<td>93</td>
<td>67</td>
<td>139</td>
</tr>
<tr>
<td>Mentoring used as a criterion for tenure and promotion</td>
<td>26</td>
<td>17</td>
<td>116</td>
<td>82</td>
<td>142</td>
</tr>
</tbody>
</table>

Informal Dissertation Writing Meetings

Respondents were asked to indicate with a yes or no response if their departments held informal meetings designed to assist groups of doctoral students with writing their dissertations. Data reported indicated that of a total of 141 responses on this item, over half of the respondents, 76, or 54%, indicated that their departments did have informal meetings designed to help students write their dissertations (see Table 5).
Mentor Training Availability

Respondents were asked to indicate by checking a yes or no response if mentor training was available in their respective faculties. Over half of the 142 respondents who reported on availability of mentor training in their departments, 80, or 56%, reported mentor training was not available (see Table 5).

Department Documentation of Quality of Faculty Advising

By use of a yes or no response, respondents were asked to indicate if their department documented quality of faculty advising. From data reported two-thirds of the respondents, 93, indicated that their respective departments did not document quality of faculty advising (see Table 5).

Mentoring Used as a Criterion for Merit Evaluation

Respondents were asked to indicate by use of a yes or no response if mentoring was used in their departments as a criterion for merit evaluation and determination of tenure and promotion. Most of the respondents, 116, or 82%, reported their departments did not use mentoring as a criterion for merit evaluation and determination of tenure and promotion (see Table 5).

Emphasis on Research Seminars

The respondents who answered yes that their departments did have informal research seminars were asked to indicate the emphasis that their respective faculties placed on informal research seminars by responding to a series of items relating to the issues of student and faculty participation in this type of meeting. Respondents were
asked to mark all of the items that described the emphasis on seminars in their departments. These items and the number of faculty indicating yes responses are reported in Table 6. The items for which the largest number of respondents indicated a yes response were, faculty is encouraged to participate in seminars on research and faculty leads seminars on research. Both items had responses of \( n = 81 \), or 76%, of the total number of respondents answering this item.

Table 6

<table>
<thead>
<tr>
<th>Emphasis of Informal Research Seminars</th>
<th>Number of yes responses</th>
<th>( %^{a} ) of yes responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty participation is encouraged</td>
<td>81</td>
<td>76</td>
</tr>
<tr>
<td>Faculty is the source of leadership</td>
<td>81</td>
<td>76</td>
</tr>
<tr>
<td>Student participation is encouraged</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>Faculty rotates leadership</td>
<td>57</td>
<td>54</td>
</tr>
<tr>
<td>Student participation is required</td>
<td>56</td>
<td>53</td>
</tr>
<tr>
<td>Students lead</td>
<td>51</td>
<td>48</td>
</tr>
<tr>
<td>Resource persons lead</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>Faculty participation is required</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Students are not encouraged to participation</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Note. Percentages were calculated using \( N = 106 \); respondents who did not offer informal research seminars in their departments were instructed to skip this group of items on the questionnaire.

\(^{a}\) Percentages will not add to 100 since respondents were asked to mark all that apply.

To further describe the reported departmental emphasis on informal research seminars, the data reported on the nine items included in this part of the instrument.
were summed to calculate an overall emphasis score. All items but one were positively worded. That item asked the respondents if students in their departments were not encouraged to participate in research seminars. The item was recoded to reverse the value. Actual summed scores on the variable emphasis ranged from 0 to 9. The average number of yes responses was $M = 5$, $SD = 1.57$ (see Table 7). Data reported indicated that 69 respondents had an emphasis score in the 4 to 6 grouping category. That represents 48% of the total respondents of the study $N = 144$.  

Table 7  

**Distribution of Emphasis Scores**  

<table>
<thead>
<tr>
<th>Number of items with yes responses</th>
<th>$f$</th>
<th>% of $N$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>4 to 6</td>
<td>69</td>
<td>65</td>
</tr>
<tr>
<td>7 to 9</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. $N = 106; M = 5; SD = 1.57; Missing cases = 38 respondents, 26% who reported their departments did not have informal research seminars.*

**Faculty Advising Practices**

UCVE participating faculty were asked to indicate professional occurrences involving their interaction with doctoral advisees. Items included were: number of informal discussions of professional and student research, number of hours per week advising doctoral students, perceived performance in the area of doctoral advising, number of current doctoral-student committees serving as chairperson, number of current doctoral-student committees serving as a member, overall number of doctoral-
student committees serving as chairperson, and number of current doctoral-student committees serving as a member.

**Informal Discussions of Professional and Student Research**

Respondents were asked to indicate how frequently they and their doctoral advisees held informal discussions of professional research other than their own. They were also asked how frequently they and their advisees held informal discussions of other students’ research. Respondents were given a scale of measurement consisting of the following categories: frequently, sometimes, rarely, or never. Most of the respondents, 133, or 94%, indicated they sometimes or frequently held informal discussions with their students on professional research (see Table 8). Of the 141 respondents who reported on occurrence of informal discussions of other student research, 110, or 78%, indicated they sometimes or frequently held discussions with their students.

**Table 8**

| Occurrence of discussions | Professional | | Student | |
|---------------------------|--------------|---|--------|
|                           | f  | %  | f  | %  |
| Frequently                | 58 | 40 | 29 | 21 |
| Sometimes                 | 75 | 52 | 81 | 57 |
| Rarely                    | 7  | 5  | 27 | 19 |
| Never                     | 2  | 3  | 4  | 3  |
| Total                     | 142| 100| 141| 100|
Hours Per Week Advising Doctoral Students

Respondents were asked to indicate the number of hours per week they spent counseling doctoral candidates for whom they served as advisor. The average number of hours per week respondents reported was $M = 6$, $SD = 5$. The majority, 75, or 54%, of the respondents indicated they spent between 2 and 5 hours per week advising doctoral students (see Table 9).

Table 9

<table>
<thead>
<tr>
<th>Number of Hours Counseling Doctoral Advisees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours per week</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2 - 5</td>
</tr>
<tr>
<td>6 - 10</td>
</tr>
<tr>
<td>11 - 15</td>
</tr>
<tr>
<td>16 - 25</td>
</tr>
<tr>
<td>&gt; 25</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Note. $M = 6$; $SD = 5$.

Performance

Participating faculty were asked to self-rate their own performance on eight identified scholarly activities. The respondent was asked to make this rating on a scale that ranged from 1 to 5 for each of the items listed. Each number was given a
descriptive label as follows: very poor = 1, below average = 2, average = 3, above average = 4, and very good = 5. Included in Table 10 are the eight items listed: research activities; publication of professional papers; presentation of research; conducting programs, seminars, and training; teaching graduate courses; serving on and acting as chair of advisory committees; acting as an ombudsman; and being accessible to candidates. The item on which the respondents rated themselves the highest was accessibility to graduate students, $M = 4.3$, $SD = 0.8$ (see Table 10). The lowest rating on the items was for the item publication of professional papers, $M = 3.7$, $SD = 1.0$. It should be noted that there was very little variability among the mean Table 10

**Perceived Performance in the Area of Advising**

<table>
<thead>
<tr>
<th>Scholarly activity</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility to candidates</td>
<td>4.3</td>
<td>.8</td>
</tr>
<tr>
<td>Teaching graduate courses</td>
<td>4.2</td>
<td>.7</td>
</tr>
<tr>
<td>Serving on and acting as chairperson to advisory committee</td>
<td>4.2</td>
<td>.8</td>
</tr>
<tr>
<td>Acting as an ombudsman for your advisees</td>
<td>4.1</td>
<td>.8</td>
</tr>
<tr>
<td>Conducting programs, seminars, and training</td>
<td>3.9</td>
<td>.9</td>
</tr>
<tr>
<td>Research activities</td>
<td>3.9</td>
<td>.8</td>
</tr>
<tr>
<td>Presentation of research</td>
<td>3.8</td>
<td>.9</td>
</tr>
<tr>
<td>Publication of professional papers</td>
<td>3.7</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Note.** Descriptors included: very poor = 1, below average = 2, average = 3, above average = 4, and very good = 5.
responses to the eight items with only 0.6 points between the highest-rated and the lowest-rated items. In addition, all of the items approximated the response value which was equated to the descriptor above average.

To further summarize the information acquired in this measurement and to develop a meaningful set of variables for inclusion in subsequent regression analyses, the researcher established a variable on the self-rated performance of the identified scholarly activities in advising. The eight items included in this part of the instrument were summed to calculate an overall performance score. Actual computed scores on the variable performance ranged from 12 to 40. The mean score was $M = 31.7$, $SD = 4.5$ (see Table 11).

Table 11

Performance Distributions of Summed Scores

<table>
<thead>
<tr>
<th>Scores</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 20</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21 to 25</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>26 to 30</td>
<td>39</td>
<td>27</td>
</tr>
<tr>
<td>31 to 35</td>
<td>63</td>
<td>44</td>
</tr>
<tr>
<td>36 to 40</td>
<td>29</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>98</td>
</tr>
</tbody>
</table>

a Discrepancy in total due to rounding.
Committee Service

Respondents were asked to indicate the number of doctoral committees for which they served as a member or as chairperson. Items included: overall number of doctoral-student committees serving as member, overall number of doctoral-student committees serving as chairperson, current number of doctoral-student committees serving as a member, and current number of doctoral-student committees served as chairperson. Data reported indicated that 41, or 29%, of the respondents were currently serving on from 1 to 5 doctoral committees (see Table 12). The average

Table 12

Current Doctoral Committee Service

<table>
<thead>
<tr>
<th>Number of committees</th>
<th>Membership</th>
<th></th>
<th>Chairperson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>1 - 5</td>
<td>41</td>
<td>29</td>
<td>76</td>
</tr>
<tr>
<td>6 - 10</td>
<td>40</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>11 - 20</td>
<td>29</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>21 - 40</td>
<td>22</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>&gt;40</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100</td>
<td>138</td>
</tr>
</tbody>
</table>

Note. Current committee membership $M = 11$, $SD = 9$; Current number of committee service as chairperson $M = 5$, $SD = 4.9$; A dash indicates no responses to that item.

number of committees respondents reported as currently serving on as member was 11 and as chairperson 5. Of the 138 respondents reporting on service to doctoral-student committee as chairperson, 76, or 55%, indicated they were currently serving as
chairperson to from 1 to 5 doctoral committees. Regarding overall committee service, the largest group, 41, or 30%, indicated they had served as members on from 21 to 30 doctoral-student committees (see Table 13). In addition, the overall number of committees serving as member averaged $M = 43$, $SD = 42.9$. The largest response group for overall number of committees serving as chairperson was the 0 to 10 category, $n = 66$, or 48%. The average number of overall committees respondents reported serving on as chairperson was $M = 17$, $SD = 16.7$.

Table 13

Overall Committee Service

<table>
<thead>
<tr>
<th>Number of committees</th>
<th>Membership</th>
<th></th>
<th>Chairperson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$f$</td>
<td>%</td>
<td>$f$</td>
</tr>
<tr>
<td>0 - 10</td>
<td>18</td>
<td>13</td>
<td>66</td>
</tr>
<tr>
<td>11 - 20</td>
<td>29</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>21 - 30</td>
<td>41</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>31 - 65</td>
<td>21</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>66 - 100</td>
<td>15</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>100 - 200</td>
<td>12</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>&gt;200</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>137</td>
<td>100</td>
<td>138</td>
</tr>
</tbody>
</table>

*Note.* Overall committee membership $M = 43$, $SD = 42.9$; Overall committee service as chairperson $M = 17$, $SD = 16.8$; A dash indicates no responses on that item.
Advisor's Personal Characteristics

Advisors were asked to provide information on the following personal characteristics: age, academic rank, tenure status, time spent in primary work areas, publication performance, primary vocational area, and gender.

Age (Advisor)

Respondents were asked to write their ages in a blank provided on the questionnaire. Data reported indicated that respondents' ages ranged from 35 to 82 years, with an average age of $M = 52$ years, $SD = 8$ (see Table 14).

Table 14

Frequency Distribution by Age

<table>
<thead>
<tr>
<th>Age of advisors</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 - 40</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>41 - 45</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>46 - 50</td>
<td>31</td>
<td>22</td>
</tr>
<tr>
<td>51 - 55</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>56 - 60</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>61 - 65</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>&gt; 65</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. $M = 52; SD = 8$. 

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Academic Rank

Respondents were asked to indicate their academic rank by marking one of four possible choices: instructor/researcher, assistant professor, associate professor, and professor. Data indicated that of a total of 143 respondents who reported their academic rank, 71, or 50%, held the rank of professor (see Table 15). There were no responses for the rank of instructor/researcher.

Table 15

Percentage of Respondents by Academic Rank

<table>
<thead>
<tr>
<th>Academic rank</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>71</td>
<td>50</td>
</tr>
<tr>
<td>Associate professor</td>
<td>62</td>
<td>43</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Instructor/researcher</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. A dash indicates no responses on that item.

Tenure Status

Respondents were asked to indicate their tenure status as either tenured or not tenured. A total of 130 respondents (90%) indicated they were tenured. Eleven respondents (8%) indicated they were not tenured. Respondents were also asked if they were in a tenure track position and asked to respond with a yes or no response. Five additional respondents (2%) indicated they were not in a tenure track position. These five were treated as missing values and were removed from this variable.
Appointment Regarding Teaching, Research, and Public Service

Respondents were asked to indicate the proportion of their work load by writing in the percentage of time spent in each of the following areas: teaching, advising, funded projects and research, and administrative duties. A space for other areas was also provided on the questionnaire. Respondents were instructed that their responses to all five items should equal 100%. When a response for all five items did not sum to 100% the response was coded as missing data. From data reported, a mean percentage for each work area was computed on each area. The largest reported proportion of time spent was in the area of teaching, $M = 42$, $SD = 22$ (see Table 16).

Table 16

Percentage of Time Spent in Work Areas

<table>
<thead>
<tr>
<th>Work area</th>
<th>M</th>
<th>SD</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>42</td>
<td>22</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Funded projects and research</td>
<td>21</td>
<td>16</td>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>Administrative duties</td>
<td>18</td>
<td>23</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Advising</td>
<td>16</td>
<td>13</td>
<td>0</td>
<td>80</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>11</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Performance in Publications

Respondents were asked to indicate their perceived performance in the area of publication of professional papers by marking a scale of measurement numbered 1 through 5. Each number had a performance criterion corresponding to the numbers which included the following descriptors: very poor = 1, below average = 2, average = 3, above average = 4, and very good = 5. The respondents were asked to circle the number that best described their performance in the area of publication of professional papers. Data reported indicated the average perceived performance level of respondents was $M = 3.7$, $SD = 1.0$ (see Table 17). The number 4 corresponded to an above average rating.

Table 17

<table>
<thead>
<tr>
<th>Level of performance</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Below average</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Average</td>
<td>44</td>
<td>31</td>
</tr>
<tr>
<td>Above average</td>
<td>49</td>
<td>35</td>
</tr>
<tr>
<td>Very good</td>
<td>34</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>142</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. $M = 3.7$; $SD = 1.0$. 

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Primary Vocational Area

Respondents were asked to indicate the proportion of their time spent in 14 identified vocational areas. The areas listed were: Administration, Adult Education, Agricultural Education, Business Education, General Vocational Education, Health and Occupational Education, Home Economics Education, Human Resource Development, Industrial Arts/Technology Education, Marketing Education, Trade and Industrial Education, Training and Development, Vocational Research, and Vocational Special Needs. A choice of other was given as an option, and the respondent was asked to specify. Respondents were instructed that their totals from all 15 items listed should equal 100%. When responses to this question did not sum to 100%, the response was coded as missing data. The mean percentage of time reported working in each of the identified vocational areas is included in Table 18. Also included is the mean percentage from the area not previously identified, called other. Agricultural Education was identified as the area which had the highest percent of work assignment to a vocational area, with 45 of the 142 respondents reporting an average of 72% of their time spent in that area, $M = 72$, $SD = 34$. The mean percentages of time spent in identified vocational areas ranged from 72% in Agricultural Education to 17% in Marketing Education, $n = 8$, $M = 17$, $SD = 15$.

To further summarize the information acquired in this measurement and to develop a meaningful set of variables for inclusion in subsequent regression analyses, the researcher established a variable for each of the 14 identified vocational areas.
Table 18

Percentage of Time Spent in Vocational Areas

<table>
<thead>
<tr>
<th>Vocational area</th>
<th>n^a</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural education</td>
<td>45</td>
<td>72</td>
<td>34</td>
</tr>
<tr>
<td>Industrial arts/technology education</td>
<td>26</td>
<td>59</td>
<td>37</td>
</tr>
<tr>
<td>Business education</td>
<td>11</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td>Other areas not previously identified</td>
<td>33</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Adult education</td>
<td>31</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>Home economics education</td>
<td>10</td>
<td>40</td>
<td>36</td>
</tr>
<tr>
<td>Human resource and development</td>
<td>18</td>
<td>35</td>
<td>28</td>
</tr>
<tr>
<td>Training and development</td>
<td>17</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Health occupations education</td>
<td>6</td>
<td>33</td>
<td>37</td>
</tr>
<tr>
<td>Vocational special needs</td>
<td>5</td>
<td>33</td>
<td>31</td>
</tr>
<tr>
<td>Administration</td>
<td>48</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>Trade and industrial education</td>
<td>19</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Vocational research</td>
<td>39</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>General vocational education</td>
<td>48</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>Marketing education</td>
<td>8</td>
<td>17</td>
<td>15</td>
</tr>
</tbody>
</table>

^a n = number representing a value greater than 0.

These variables were calculated by dummy coding each level of the variable to make a bivariate variable. Respondents reporting greater than 50% of their time spent in any specific vocational area were coded 2; those reporting 50% or less were coded 1.

Data collected indicated that 44 respondents, 31%, reported no area in which they spent > 50% of their time (see Table 19). Of the 142 respondents reporting, 33, or...
23%, indicated their primary assignment was in Agricultural Education. Forty-six percent of the respondents indicated a primary vocational area of greater than 50% of their time spent in the areas of Agricultural Education, Industrial Arts Technology Education, Adult Education and Administration.

Table 19

<table>
<thead>
<tr>
<th>Vocational area</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No primary area</td>
<td>44</td>
<td>31</td>
</tr>
<tr>
<td>Agricultural education</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td>Industrial arts/technology education</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Adult education</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Administration</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Other areas not previously identified</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Business education</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Home economics education</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Human resource development</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Trade and industrial education</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Training and development</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Vocational research</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>General vocational education</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Health and occupation education</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Vocational special needs</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Marketing education</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. This variable was based upon whether or not a respondent reported spending greater than 50% of their time in a specific vocational area.
Gender (Advisor)

Respondents were asked to indicate their sex by checking either an item labeled male or one labeled female. Data reported indicated that 117, or 81%, were males and 25, or 17%, were females. Two respondents did not respond to this item.

Objective 2 Results: Completion Rate Associations

The second objective was to determine if a relationship existed between doctoral-student completion rate and selected variables. The summary measure used to communicate the extent of correlation between variables was the Pearson product-moment coefficient. Data in this study were population data and therefore alpha levels are not reported. Practical or common sense interpretations of population data was suggested by Hays (1963) and Saladaga (1981) (as cited in Gold, 1969). Magnitude of the coefficients were reported using a scale for interpreting magnitude of coefficients suggested by Davis (1971). Descriptors suggested by Davis based on the value of the coefficient are as follows: .01 - .09 = negligible, .10 - .29 = low, .30 - .49 = moderate, .50 - .69 = substantial, and .70 - 1 = very strong. Relationships were examined between completion rate and selected student, department and advisor characteristics.

Student Characteristics

Data were collected in the study, which was designed to measure the characteristics of doctoral students advised by the respondent faculty in six selected
areas. These areas included the total number of male student completers, the total number of female completers, the total number of completers who were members of an ethnic minority, the total number of completers who were international students, the total number of completers who encountered financial hardship, the total number of completers who experienced personal hardship, and the total number of completers who completed a master’s thesis. Each of these variables was then correlated with the overall completion rate of doctoral students. The student characteristics associated with completion rate were low to negligible according to a scale suggested for interpreting magnitude of coefficients by Davis (1971).

Departmental Characteristics

The variable emphasis was used for measurement of associations with completion rate. Emphasis was a summarized score of responses to nine items that measured the emphasis respondents’ respective faculties placed on informal research seminars. Individual items on the emphasis variable were reported descriptively and were not analyzed individually for relationships with completion rate or performance. The association between the variable emphasis and completion rate was negligible based on a scale suggested for interpreting magnitude of coefficients by Davis (1971).
Advisor Characteristics

Advisor characteristics used in correlational analyses included: the respondents' performance in the area of doctoral advising; the number of doctoral committees on which respondents were currently serving as a member; the number of doctoral committees on which respondents were currently serving as chairpersons; advisor's age; tenure status; academic rank; advisor’s gender; work load assignments in the areas of teaching, research, service and administration; and primary vocational area. Each of these variables was then correlated with the completion rate of doctoral students. The performance variable was explained in the descriptive research results.

The variables which had the highest levels of correlation with completion rate were: tenure status, \( r = .54 \), academic rank, \( r = .43 \), and advisor’s age, \( r = .30 \) (see Table 20). The tenured response to the variable tenure status tended to be associated positively with higher levels of completion rate. The association between completion rate and academic rank was positive also, indicating that higher rank tended to be associated with higher completion rates. Tenure status was found to have a substantial association according to a scale for interpreting magnitude of coefficients suggested by Davis. Academic rank was found to be moderate in its associations with completion rate. Six additional advisor variables were found to have low correlations with completion rate (Davis, 1971).
Table 20

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>r</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure status</td>
<td>135</td>
<td>.54</td>
<td>Substantial</td>
</tr>
<tr>
<td>Academic rank</td>
<td>139</td>
<td>.43</td>
<td>Moderate</td>
</tr>
<tr>
<td>Advisor's age</td>
<td>138</td>
<td>.30</td>
<td>Low</td>
</tr>
<tr>
<td>Advisor's gender</td>
<td>138</td>
<td>-.24</td>
<td>Low</td>
</tr>
<tr>
<td>Agricultural education (vocational area)</td>
<td>138</td>
<td>.23</td>
<td>Low</td>
</tr>
<tr>
<td>Industrial arts/technology education (vocational area)</td>
<td>138</td>
<td>-.21</td>
<td>Low</td>
</tr>
<tr>
<td>Number of current doctoral committee service as member</td>
<td>135</td>
<td>-.20</td>
<td>Low</td>
</tr>
<tr>
<td>Funded projects and research (work assignment)</td>
<td>137</td>
<td>-.18</td>
<td>Low</td>
</tr>
<tr>
<td>Number of current doctoral committee service as chairperson</td>
<td>134</td>
<td>-.17</td>
<td>Low</td>
</tr>
<tr>
<td>Other (not previously specified) (work assignment)</td>
<td>137</td>
<td>-.12</td>
<td>Low</td>
</tr>
<tr>
<td>Adult education (vocational area)</td>
<td>138</td>
<td>-.13</td>
<td>Low</td>
</tr>
<tr>
<td>Administrative/ work assignment</td>
<td>137</td>
<td>.12</td>
<td>Low</td>
</tr>
<tr>
<td>Trade/industrial education (vocational area)</td>
<td>138</td>
<td>.09</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

(table con’d)
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>r</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational special needs (vocational area)</td>
<td>138</td>
<td>.08</td>
<td>Negligible</td>
</tr>
<tr>
<td>Health occupational education (vocational area)</td>
<td>138</td>
<td>.08</td>
<td>Negligible</td>
</tr>
<tr>
<td>Home economics education vocational area</td>
<td>138</td>
<td>.08</td>
<td>Negligible</td>
</tr>
<tr>
<td>Performance</td>
<td>138</td>
<td>.07</td>
<td>Negligible</td>
</tr>
<tr>
<td>Human resource development vocational area</td>
<td>138</td>
<td>-.06</td>
<td>Negligible</td>
</tr>
<tr>
<td>Training and development vocational area</td>
<td>138</td>
<td>.06</td>
<td>Negligible</td>
</tr>
<tr>
<td>Vocational research/vocational area</td>
<td>138</td>
<td>.04</td>
<td>Negligible</td>
</tr>
<tr>
<td>Teaching/work assignment</td>
<td>137</td>
<td>.03</td>
<td>Negligible</td>
</tr>
<tr>
<td>Other/vocational area</td>
<td>138</td>
<td>.03</td>
<td>Negligible</td>
</tr>
<tr>
<td>Emphasis</td>
<td>102</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Advising/assignment</td>
<td>137</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Administration/vocational area</td>
<td>138</td>
<td>.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Business education/vocational area</td>
<td>138</td>
<td>&lt;.001</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

**Note.** Practical significance was established using Davis's descriptors used (1971).

Tenure status was coded 2 = tenured, 1 = not tenured.

Gender was coded 1 = male, 2 = female.

**Multicollinearity**

Most social science research of a nonexperimental nature includes predictor variables that are intercorrelated (Kachigan, 1986; Agresti, 1990). The correlation matrix was examined for high coefficients to determine if there were variables that might be measuring the same thing. The systematically associated portion of the
variation in the values academic rank and tenure status was examined since these two variables had the highest correlation with completion rate. Their coefficient was squared, \( r^2 = .25 \), indicating the proportion of variance in tenure status that accounted for or explained the scores on academic rank. These variables covary in that 25% of the variance in the scores of tenure status were associated with the variance of the scores on academic rank. This coefficient of determination between academic rank and tenure status was high enough to cause suspicion that high multicollinearity might be present in the variables selected for the regression models.

Since multicollinearity is probably present in all regression analysis, the problem is to determine the degree of the problem (Schroeder, Sjoquist, & Stephan, 1986). To do so, a definition is necessary to distinguish between perfect collinearity and lesser degrees of multicollinearity. Perfect collinearity exists when one of the independent variables in a regression equation has a perfect linear relationship to one or more of the other independent variables in the equation (Berry & Feldman, 1985). The most commonly used test for multicollinearity is inspection of a matrix of bivariate correlations and conclude that multicollinearity is not a problem if no correlation exceeds some predefined cutoff value, typically around .80. There were no variables in the correlation matrix of this study that exceeded .80; however, this method was identified by Berry and Feldman as being unsatisfactory because one independent variable could be approximately a linear combination of several other
independent variables in the model. In addition, Berry and Feldman stated that it was
difficult to define a cutoff value that would always be appropriate. With smaller
samples Berry and Feldman stated that a lower value of $r = .70$ could be used for
determining if a multicollinearity problem exists. Berry and Feldman therefore suggest
that the preferable test for multicollinearity is to regress each independent variable in
the equation on all other independent variables and look at the $R^2$ s for the regression
and if any are close to 1.00, there is a high degree of multicollinearity present.

Stepwise regression analyses were used as suggested by Berry and Feldman
using each of the predictor variables as a criterion variable. Multicollinearity problems
were identified among the levels of the variable work assignment. Four of the five
levels of work assignment had an $R^2$ value that exceeded .70. A possibility for fixing
the problem is to drop one of the two variables (Schroeder, et al., 1986). The
correlation matrix was examined for the levels of this variable that had the lowest
correlation with completion rate and were identified as the proportion of time the
advisor spent teaching and the proportion of time the advisor spent advising students.
When regression analyses were run using the remaining three variables in the variable
as criterion variables, the collinearity problem was removed.

These procedures of first examining the correlation matrix and next regressing
each variable on every other variable allowed the researcher to have more confidence in
the power of the regression analyses for Objectives 3 and 5. By removing the two
levels of the variable teaching and advising, there were no variables that when
regressed on all other variables exceeded an $R^2$ value of .70. The researcher can safely state that there is not a great degree of multicollinearity among the remaining variables that were selected for the regression equations using completion rate and performance as criterion variables.

**Objective 3 Results: Completion Rate Model**

Objective 3 was to determine if a model existed which explained a significant portion of the variance in doctoral completion rates from the following measures: personal characteristics of doctoral students; perceptions regarding faculty’s personal performance in the area of doctoral advising; current doctoral advising load; current doctoral committee membership; advisor’s gender; advisor’s age; primary (greater than 50% of time spent) vocational area; academic rank; tenure status; and appointment regarding research, administration, and other not identified areas.

In the stepwise multiple regressions used to analyze the data for Objectives 3 and 5, missing values were dealt with by use of listwise deletion. This procedure reduced the total usable cases to 123. Respondents who were not in a tenure track position were eliminated from the variables tenure status and academic rank. The stepwise procedure was chosen for the analysis because the procedure adds the predictor variable that most highly correlates with the criterion variable. Because of the possibility of collinearity among the variables, this was preferable to backward eliminating procedures of regression analysis that remove the least predictive variables first.
The third objective was accomplished using multiple regression analysis, with completion rate used as the criterion variable. The vocational area variable was dummy-coded. A total of 29 variables, including original and dummy-coded variables, were entered into the regression analysis. The forward addition procedure was stopped when the predictor variable added less than 2.5% to the explained variance.

Four variables entered the model by adding 2.5% or more to the explained variance. These 4 variables were found to explain 44% of the variance in completion rate (see Table 21). The prediction model consisted of the following variables: tenure status, academic rank, number of current committees serving on as chairperson, and number of international completers advised. The variable tenure status entered the model first and accounted for 32% of the variability in completion rate. Entering the model at the second step was the variable academic rank, explaining an additional 5% of the variance in completion rate. The remaining two variables entering the model accounted for 7% of the remaining explained variance.

Objective 4 Results: Performance Associations in the Area of Advising

The fourth objective was to determine if a relationship existed between perceptions regarding personal performance in the area of doctoral advising and selected variables. The variable performance was computed as the mean of the eight items included in the instrument designed to measure self-rated performance on these eight items. This variable was described in the descriptive section of this chapter.
Table 21

**Stepwise Multiple Regression Analysis of Completion Rate**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>df</th>
<th>MS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>8202.1</td>
<td>23.46</td>
</tr>
<tr>
<td>Residual</td>
<td>118</td>
<td>349.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>8551.7</td>
<td></td>
</tr>
</tbody>
</table>

**Variables in the equation**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Multiple R</th>
<th>R²</th>
<th>R²Δ</th>
<th>FΔ</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Tenure status</td>
<td>.566</td>
<td>.32</td>
<td>.32</td>
<td>56.99</td>
<td>.5658</td>
</tr>
<tr>
<td>Academic rank</td>
<td>.606</td>
<td>.37</td>
<td>.05</td>
<td>9.00</td>
<td>.4841</td>
</tr>
<tr>
<td>Number of current committee service as chairpersons</td>
<td>.646</td>
<td>.42</td>
<td>.05</td>
<td>10.10</td>
<td>-.1688</td>
</tr>
<tr>
<td>Number of international completers advised</td>
<td>.666</td>
<td>.44</td>
<td>.03</td>
<td>5.49</td>
<td>.2627</td>
</tr>
</tbody>
</table>

**Variables not in the equation**

<table>
<thead>
<tr>
<th>Variables</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ethnic minority completers advised</td>
<td>1.29</td>
</tr>
<tr>
<td>Number of master's thesis completers advised</td>
<td>.44</td>
</tr>
<tr>
<td>Number of financial hardship completers advised</td>
<td>.44</td>
</tr>
<tr>
<td>Number of personal hardship completers advised</td>
<td>.92</td>
</tr>
<tr>
<td>Number of male completers advised</td>
<td>1.02</td>
</tr>
<tr>
<td>Number of female completers advised</td>
<td>1.76</td>
</tr>
</tbody>
</table>

(table con’d)
### Variables not in the equation

<table>
<thead>
<tr>
<th>Variables</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>.04</td>
</tr>
<tr>
<td>Number of current doctoral committee service as member</td>
<td>-1.07</td>
</tr>
<tr>
<td>Advisor's gender</td>
<td>-1.76</td>
</tr>
<tr>
<td>Advisor's age</td>
<td>.15</td>
</tr>
<tr>
<td>Administration/vocational area</td>
<td>1.42</td>
</tr>
<tr>
<td>Adult education/vocational area</td>
<td>-1.14</td>
</tr>
<tr>
<td>Agriculture education/vocational area</td>
<td>.72</td>
</tr>
<tr>
<td>Business education/vocational area</td>
<td>1.29</td>
</tr>
<tr>
<td>Home economics education/vocational area</td>
<td>.89</td>
</tr>
<tr>
<td>Human resource development/vocational area</td>
<td>-.11</td>
</tr>
<tr>
<td>Industrial arts/technology education/vocational area</td>
<td>-.84</td>
</tr>
<tr>
<td>Trade and industrial education/vocational area</td>
<td>-.08</td>
</tr>
<tr>
<td>Trade and development/vocational area</td>
<td>.44</td>
</tr>
<tr>
<td>Vocational special needs/vocational area</td>
<td>1.39</td>
</tr>
<tr>
<td>Funded projects and research/work assignment</td>
<td>.61</td>
</tr>
<tr>
<td>Administration/work assignment</td>
<td>.69</td>
</tr>
<tr>
<td>Other not specified/work assignment</td>
<td>-1.63</td>
</tr>
</tbody>
</table>

**Note.** Columns may not sum due to rounding.

a Tenure status was coded 2 = tenured, 1 = not tenured. b Gender was coded 1 = male, 2 = female.

Variables analyzed for associations with the variable performance were:

- number of ethnic minority completers advised;
- number of international completers
advised; number of completers advised who encountered financial hardship; number of completers advised who experienced personal hardship; number of male completers advised; number of female completers advised; completion rate measure; tenure status; academic rank; advisor's gender; advisor's age; advisor's work assignment; whether or not the respondent reported greater than 50% of his or her time spent in one of 14 vocational areas listed as well as a listing for writing in other areas; number of current doctoral committees serving as chairperson; number of current doctoral committees serving as member; the variable emphasis, and the variable completion rate. The variables completion rate, emphasis, and performance were variables that were explained and described in the descriptive results. Each of these variables was then correlated with the performance variable.

The summary measure used to communicate the extent of correlations between variables was the Pearson product-moment coefficient. Ten of the variables investigated were found to have low practical associations with the performance variable according to descriptors suggested by Davis (1971). The variable which had the highest level of correlation with performance was the number of doctoral committees the respondent was currently serving on as chairperson, \( r = .28 \) (see Table 22). The positive direction of the coefficient indicates that respondents with higher numbers of doctoral-student committees serving as chairperson tended to be associated
### Table 22

**Relationships Between Selected Variables and Performance**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>r</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of current doctoral committees serving as chairperson</td>
<td>136</td>
<td>.28</td>
<td>Low</td>
</tr>
<tr>
<td>Number of current doctoral committees serving as member</td>
<td>137</td>
<td>.24</td>
<td>Low</td>
</tr>
<tr>
<td>Number of ethnic minority completers advised</td>
<td>137</td>
<td>.24</td>
<td>Low</td>
</tr>
<tr>
<td>Number of female completers advised</td>
<td>137</td>
<td>.23</td>
<td>Low</td>
</tr>
<tr>
<td>Number of international completers advised</td>
<td>137</td>
<td>.23</td>
<td>Low</td>
</tr>
<tr>
<td>Number of male completers advised</td>
<td>137</td>
<td>.23</td>
<td>Low</td>
</tr>
<tr>
<td>Administration/primary vocational area</td>
<td>140</td>
<td>-.19</td>
<td>Low</td>
</tr>
<tr>
<td>Human resource development primary vocational area</td>
<td>140</td>
<td>.18</td>
<td>Low</td>
</tr>
<tr>
<td>Academic rank</td>
<td>141</td>
<td>.17</td>
<td>Low</td>
</tr>
<tr>
<td>Business education primary vocational area</td>
<td>140</td>
<td>-.17</td>
<td>Low</td>
</tr>
<tr>
<td>Funded projects and research work assignment</td>
<td>139</td>
<td>.16</td>
<td>Low</td>
</tr>
<tr>
<td>Vocational special needs primary vocational area</td>
<td>140</td>
<td>.16</td>
<td>Low</td>
</tr>
<tr>
<td>Trade and industrial education primary vocational area</td>
<td>140</td>
<td>-.13</td>
<td>Low</td>
</tr>
<tr>
<td>Health and occupational education primary vocational area</td>
<td>140</td>
<td>-.13</td>
<td>Low</td>
</tr>
<tr>
<td>Teaching/ work assignment</td>
<td>139</td>
<td>-.11</td>
<td>Low</td>
</tr>
</tbody>
</table>

*table con’d*
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>r</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>General vocational education (primary vocational area)</td>
<td>140</td>
<td>.08</td>
<td>Negligible</td>
</tr>
<tr>
<td>Completion rate</td>
<td>138</td>
<td>.07</td>
<td>Negligible</td>
</tr>
<tr>
<td>Number of master’s completers advised</td>
<td>137</td>
<td>.05</td>
<td>Negligible</td>
</tr>
<tr>
<td>Home Economics Education (primary vocational area)</td>
<td>140</td>
<td>.05</td>
<td>Negligible</td>
</tr>
<tr>
<td>Emphasis</td>
<td>104</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Administration (work assignment)</td>
<td>139</td>
<td>.03</td>
<td>Negligible</td>
</tr>
<tr>
<td>Adult education (primary vocational area)</td>
<td>140</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Agricultural education (primary vocational area)</td>
<td>140</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Industrial arts/technology education (primary vocational area)</td>
<td>140</td>
<td>.02</td>
<td>Negligible</td>
</tr>
<tr>
<td>Tenure status</td>
<td>137</td>
<td>.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Advisor’s gender</td>
<td>140</td>
<td>-.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Advisor’s age</td>
<td>139</td>
<td>.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Other (primary vocational areas) not previously specified</td>
<td>140</td>
<td>.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Vocational resource (primary vocational area)</td>
<td>140</td>
<td>.06</td>
<td>Negligible</td>
</tr>
<tr>
<td>Advising (work assignment)</td>
<td>139</td>
<td>&lt;.01</td>
<td>Negligible</td>
</tr>
<tr>
<td>Training and development (primary vocational area)</td>
<td>140</td>
<td>&lt;.01</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

*Tenure status was coded 2 = tenured, 1 = not tenured. Gender was coded 1 = male, 2 = female.*
with higher scores on performance. All ten of the relationships identified were positive in direction except for one, whether or not the respondent spent greater than 50% of his or her time in the (primary) vocational area of administration, $r = -0.19$. This negative coefficient indicates that the occurrence of higher values on the variable primary vocational area of Administration (the yes response) were associated with lower values on the variable performance.

**Objective 5 Results: Performance Model**

Objective 5 was to determine if a model existed which explained a significant portion of the variance in the performance measure from data collected. Variables used in the regression analysis were number of ethnic minority completers advised; number of international completers advised; number of completers advised who encountered financial hardship; number of completers advised who experienced personal hardship; number of male completers advised; number of female completers advised; completion rate measure; tenure status; academic rank; advisor’s gender; advisor’s age; advisor’s work assignment; whether or not the respondent reported greater than 50% of his or her time spent in one of 14 vocational areas listed as well as a listing for writing in other areas; number of current doctoral committees serving as chairperson; number of current doctoral committees serving as member; and the variable completion rate. The variables completion rate and performance were computed variables that were explained in the descriptive research. The fifth objective was
accomplished using multiple regression analysis, with the performance measure variable used as the criterion variable. The forward addition procedure was stopped when the predictor variable added less than 2.5% to the portion of the explained variance.

Using the performance measure as the criterion variable for the stepwise regression model, four variables entered the model by adding 2.5%. These variables were found to explain 19% of the variance in performance (see Table 23). The prediction model consisted of the following variables: number of international completers advised; whether or not the respondent reported time spent (>50%) in the primary vocational area of Human Resource and Development; the number of current doctoral committees serving on as chairperson; and whether or not the respondent reported time spent (>50%) in the primary vocational area of Trade and Industrial Education. The variable number of international completers advised entered the model first accounting for 7% of the variability on the performance variance. The variable that entered at the second step was whether or not the respondent spent greater than 50% of his or her time in the vocational area of Human Resource and Development, accounting for 5% of the variability on performance. The remaining two variables accounted for 7% of the explanatory power of the model.
Table 23

**Stepwise Multiple Regression Analysis of Performance**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>df</th>
<th>MS</th>
<th>E-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>98.558</td>
<td>6.6947</td>
</tr>
<tr>
<td>Residual</td>
<td>118</td>
<td>14.722</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>113.28</td>
<td></td>
</tr>
</tbody>
</table>

**Variables in the equation**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Multiple ( R )</th>
<th>( R^2 )</th>
<th>( R^2_\Delta )</th>
<th>( F_\Delta )</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of international completers advised</td>
<td>.26</td>
<td>.07</td>
<td>.07</td>
<td>8.49</td>
<td>.2560</td>
</tr>
<tr>
<td>Human resource and development/ (vocational area)</td>
<td>.34</td>
<td>.11</td>
<td>.05</td>
<td>6.70</td>
<td>.2060</td>
</tr>
<tr>
<td>Number of current committees serving as chairperson</td>
<td>.39</td>
<td>.15</td>
<td>.04</td>
<td>5.42</td>
<td>.2531</td>
</tr>
<tr>
<td>Trade &amp; industrial education (vocational area)</td>
<td>.43</td>
<td>.18</td>
<td>.03</td>
<td>4.55</td>
<td>-.1491</td>
</tr>
</tbody>
</table>

**Variables not in the equation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion rate</td>
<td>.03</td>
</tr>
<tr>
<td>Number of master’s thesis completers advised</td>
<td>-1.37</td>
</tr>
<tr>
<td>Number of financial hardship completers advised</td>
<td>1.27</td>
</tr>
<tr>
<td>Number of male completers advised</td>
<td>-.68</td>
</tr>
<tr>
<td>Number of female completers advised</td>
<td>.72</td>
</tr>
</tbody>
</table>

(table con’d)
<table>
<thead>
<tr>
<th>Variable</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of personal hardship completers advised</td>
<td>-.42</td>
</tr>
<tr>
<td>Number of current doctoral committees serving as member</td>
<td>.28</td>
</tr>
<tr>
<td>$^a$ Advisor's gender</td>
<td>1.92</td>
</tr>
<tr>
<td>Advisor's age</td>
<td>-.03</td>
</tr>
<tr>
<td>Academic rank</td>
<td>.31</td>
</tr>
<tr>
<td>Administration (vocational area)</td>
<td>-.50</td>
</tr>
<tr>
<td>$^b$ Tenure status</td>
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<tr>
<td>Adult education (vocational area)</td>
<td>-.77</td>
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<td>Agricultural education (vocational area)</td>
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<td>Business education (vocational area)</td>
<td>.27</td>
</tr>
<tr>
<td>Home economics education (vocational area)</td>
<td>.86</td>
</tr>
<tr>
<td>Industrial arts/technology education (vocational area)</td>
<td>-.11</td>
</tr>
<tr>
<td>Training and development (vocational area)</td>
<td>.22</td>
</tr>
<tr>
<td>Vocational special needs (vocational area)</td>
<td>1.39</td>
</tr>
<tr>
<td>Funded projects and research/ work assignment</td>
<td>1.20</td>
</tr>
<tr>
<td>Administration/ work assignment</td>
<td>-.47</td>
</tr>
<tr>
<td>Other not previously specified/ work assignment</td>
<td>-1.00</td>
</tr>
<tr>
<td>Number of ethnic minority completers advised</td>
<td>1.33</td>
</tr>
</tbody>
</table>

Note. Vocational area was based on whether or not a respondent reported greater than 50% of his or her time spent in a specified area.

$^a$ Gender was coded 1 = male, 2 = female; $^b$ Tenure status was coded 2 = tenured, 1 = not tenured.
Advisor-Faculty Comments

The population was selected for this study because of their association with doctoral students and because of their of doctoral-student advising expertise. Although most items on the questionnaire had a foundation in the literature, some items important to the study may have been overlooked. Comment on such areas was solicited by providing almost a full page of blank space on the questionnaire for the respondents’ additional thoughts. Respondents were invited to comment with suggestions that would help to decrease time-to-degree and increase success rates of doctoral students. Responses on this survey ran the gamut from support for concepts of doctoral-student advising and departmental policy change to apathy toward the subject. However, the result of content analysis of respondents’ comments suggests that a great deal of interest exists within the UCVE advisor-faculty on the subject of doctoral student attrition. For that reason, the respondents’ comments on attrition are presented almost in their entirety. The only items omitted were those that might identify either the respondent or the respondent’s department. Faculty comments on attrition were organized into categories. Key ideas in the respondents’ comments have been underlined and placed before the commentary (see Appendix F). The remaining quotations are reported verbatim within the limits of the researcher’s ability to read the respondents’ handwriting.
Comments from respondents demonstrate widely disparate viewpoints on numerous doctoral-student attrition areas of inquiry. Respondents gave advice on departmental practices and policies more frequently than they did on student-centered characteristics or on subjects in the area of doctoral advising.
CHAPTER 5

SUMMARY WITH DISCUSSIONS,
CONCLUSIONS, AND RECOMMENDATIONS

From the beginning, this study was motivated by a desire to identify ways that might improve the effectiveness of doctoral programs. Due to the lack of an absolute data base and the magnitude of the problem, it was decided to concentrate on describing current realities in existing programs and examine associations that might affect the doctoral-student completion rate.

In order to have a national data base that would be representative of all sections of the country, the doctoral-advising faculty from UCVE member institutions was selected as the source for data collection. The primary purpose of this study was to describe that segment of the UCVE faculty that had served as major advisor to doctoral students on characteristics that might affect doctoral students’ completion rate or shorten their time-to-degree. A secondary purpose was to develop a model of predictor variables on the primary outcome measure, completion rate.

Doctoral-student advisors from UCVE member universities were mailed a questionnaire requesting their perceptions on characteristics concerning their doctoral advisees, their department’s doctoral programs, and their own advising skills. A total of 144 respondents returned usable data, representing a return rate of 76% of the surveyed population.
Population parameters were summarized and associations between doctoral-student completion rate and selected random variables were examined. Relationships were also evaluated between the faculty’s perceptions of their performance in doctoral advising and selected random variables. Multiple regression analyses were used to determine if a model existed which explained a significant portion of the variability in (a) completion rate and (b) performance.

This chapter is devoted to a discussion of findings from the study. Summaries of findings will be presented, results will be discussed, and conclusions derived directly from findings of this study will be included. Recommendations for future research will be made.

Analyses, Summations, and Discussions of Descriptive Statistics

Five objectives were established for the study. These objectives were accomplished by constructing, distributing, and analyzing the results of the survey questionnaire. The first was to describe selected characteristics of the UCVE doctoral-advisor faculty.

Characteristics of Advisors

There was a total of 81% male respondents and 17% female respondents. Two respondents did not respond to this item. Respondents reported an average completion rate of their doctoral-students advised as 76%. Respondents of this study reported a variety of combinations of vocational areas comprising their work assignments; however, the original three vocational areas established by the Smith-Hughes Act in
1917 represent the largest segment of respondents for this study. Findings indicated that more than one third of the respondents reported their primary vocational area in one of three areas: 23% in Agricultural Education, 10% in Industrial Arts Technology Education, and 3% in Home Economics Education. From data reported 31% of the respondents had no primary (>50% time in area) vocational area. All other vocational areas comprised the remaining one third of the population.

The majority of the respondents of this study were tenured and had an academic rank of professor. Data indicated that 90% of the respondents of this study reported they were tenured. One-half of the respondents reported their academic rank as professor. Academic rank of associate professor or higher was reported by 93% of the respondents. The average age of respondents was 52, their ages ranged from 35 to 82 years. The 82-year-old respondent was working one fourth of the time.

In addition to the above personal characteristics, respondents reported on their work load assignments. The highest proportion of respondents' time working was spent teaching, 42%. The lowest proportion, 16%, of their time was spent advising. Current doctoral committee chair service averaged five; however, respondents reported currently serving on an average of 11 doctoral committees. Respondents reported advising doctoral advisees an average of six hours per week.

**Characteristics of Departments**

The definition of a traditional advising model consists of a committee with one member of that committee serving as chair and major advisor to the student. The
traditional advising model was reported used by 89% of the respondents’ departments. Although recommendations from the literature suggest that the shared method of advising was the preferred method (Bowen and Rudenstine, 1992), the shared method was reported being used in only 8% of the respondents’ departments. Data indicated that few departments within UCVE were using the shared method of advising. Even though the method was defined in the questionnaire, there was evidence from respondents’ margin comments that some were unaware of a model that differed from the traditional one.

More than half (56%) of the respondents reported mentor training was not available in their departments. Only 18% of the respondents reported mentoring was used in their departments as a criterion for merit evaluation and promotion. Two thirds of the respondents reported their departments did not document quality of faculty advising. A majority of the respondents reported the best description of faculty participation in seminars on research was that their faculty was encouraged to participate. Respondents perceived their level of performance highest in the areas of accessibility to students and teaching. The lowest perceived self-rated performance in the area of doctoral advising occurred in the areas of publication of professional papers and presentation of research.

**Characteristics of Students**

Respondents reported 62% of their overall completing doctoral-students advised were males. Female completers advised was reported as 38%. Respondents
reported serving as major advisor to a total of 1,255 male and 772 female completing students. Of the 2,479 students reported as having passed their general oral examination, 2,027 were reported as having completed the degree.

Completion Rate

There was no difference between male and female student completion rates reported in this study. This finding agrees with other research that found no significant difference in male and female completion rates (Summerskill, 1962; Renetzky, 1966; Doermann, 1968; and Delaney, 1980).

Program Completion Stages

Results from analysis of the nine stages of completion of the doctoral program found the lowest retention occurred between the first and second stage of the doctoral program. That stage was identified as the point where students had successfully completed the general oral examination but before a draft of a proposal was submitted to a member of the committee.

Comments of respondents revealed that some kept few records on their doctoral students. Their comments indicated that their memories were not sufficient to recall specific advisees, especially if the time they advised doctoral students had spanned many years and included numerous students. Ideally, an absolute data base should have been used for determining doctoral-student completions, but none was found to exist.
Informal Research

Informal research seminars appeared to be common among respondents. Informal dissertation writing meetings were reported in just over half of the respondents' departments. Departmental rewards for faculty interacting with doctoral students appeared to be rare among respondents' departments. Mentor training was available in almost half of the respondents' departments.

Analyses, Summations, and Discussion of Inferential Statistics

Completion Rate

The second objective was to determine if a relationship existed between selected variables and student completion rate. Two variables, tenure status (2 = tenured, 1 = not tenured), $r = .54$, and academic rank, $r = .43$, were found to have substantial and moderate associations with completion rate. When interpreting relationships identified in this study no attempt was made to imply causality.

Tenure status and academic rank tended to be associated with higher completion rates. Tenure status and academic rank associations with completion rate are unique to this study. No references were found in the literature to indicate that academic rank or tenure status had been examined for associations with doctoral student retention. An explanation of the conclusion that academic rank is an indicator for successful completion rates might lie in the assumption that faculty are rewarded at most universities by their publication records. Another possible explanation might
simply be that faculty who have tenure and achieved higher academic ranks have more experience in advising than nontenured or lower-ranked faculty.

In addition to the moderate associations of tenure and rank identified, the primary vocational area of Agricultural Education and advisor's gender were found to have low associations with completion rate according to descriptors by Davis (1971). Associations for completion rate and Agriculture Education primary vocational area, $r = .23$, and for advisor's gender (male coded = 1, female coded =2), $r = -.24$, were low according to a scale of descriptors suggested by Davis (1971). Male respondents tended to have higher completion rates.

In dealing with the suspected multicollinearity that might exist between predictor variables in the completion rate model, an additional procedure was conducted that tests for multicollinearity. All predictor variables were regressed on all other predictor variables to test for the degree of multicollinearity. The results of the regression analyses in this manner identified one variable with an $R^2$ value greater than .80. Levels of that variable with low correlations to completion rate were removed, and regression analyses were calculated again using each of the variables as a criterion variable for the set of predictor variables. After this additional test, no multicollinearity problems were found according to the test procedure outlined by Berry and Feldman (1985). No variable used as a dependent variable when regressed on all other variables had an $R^2$ value that exceeded .70. Variables selected for use in the regression
analyses for Objectives 3 and 5 excluded the two levels of work assignment that had been identified with the multicollinearity test as having measured the same thing.

In analyzing data collected for the third objective, a model was found to exist that explained 44% of the variability in completion rate. Four variables identified are listed by the step in which they entered the model:

1. Tenure status explained 32% of the explanatory power of the model;
2. Academic rank explained 5% of the explanatory power of the model;
3. The number of current doctoral-student committees serving on as chairperson explained 5% of the explanatory power of the model (negatively related);
4. The number of international completers advised explained 3% of the explanatory power of the model.

Rounding of individual items causes the total to equal more than the reported 44%.

**Performance**

The performance variable was described in the descriptive results section. The summed scores were used for the performance variable for correlations and regression models. The fourth objective was to determine if a relationship existed which explained a significant portion of the variance between performance in doctoral advising and selected variables. Nine variables were found to have low associations with the performance measure according to a scale for interpreting magnitude of coefficients by Davis (1971). Respondents perceived their self-rated performance highest in areas that served students. The two variables with the highest correlations were number of
current doctoral-student committees serving on as chairperson, $r = .28$, and number of
current doctoral-student committees serving as a member, $r = .24$. These correlations
were positive in direction indicating that the higher number of committees respondents
reported serving on as either a member or a chairperson tended to be associated with
higher scores on the performance variable. Doctoral-student committee service is
perceived by faculty as being important in their self-rated scores on advising.
However, the opposite influence is indicated in the completion rate model.

The fifth objective sought to determine if a model existed which explained a
significant portion of the variance in perceived personal performance in doctoral
advising from selected variables. Using stepwise entry into the regression model, four
variables were found to explain 19% of the variability in the equation. The following
variables are listed by the step they entered the model:

(1) The number of international completers advised contributed 7% to the
explanatory power of the model;

(2) Whether or not the respondent reported a primary vocational area of Human
Resource and Development contributed 5% to the explanatory power of the
model;

(3) The number of current doctoral-student committees serving on as chairperson
contributed 4% to the explanatory power of the model;
(4) Whether or not the respondent reported a primary vocational area of Trade and Industrial Education contributed 3% to the explanatory power of the model. The relationship identified was negative.

Qualitative Analyses of Faculty Comments

Faculty comments indicated that there is interest among faculty respondents in support of change in departmental advising practices and policies. Many respondents commented favorably in support of faculty mentoring and faculty being recognized for mentoring of students. Other respondents’ comments indicated that mentoring of faculty was not likely to occur in their departments. Another departmental policy suggested by one respondent was that doctoral candidates be sent to conferences.

Conclusions and Recommendations

It is hoped that findings of this study will be used as a stimulus for universities to implement departmental changes of practices that would improve the doctoral students’ success in completing the dissertation and shortening the time-to-degree. Conclusions and recommendations were based on the findings of this study.

Conclusion

1. Time and experience in the profession are indicators for high doctoral-student completion rates among faculty. This conclusion was based upon findings of substantial to low relationships between completion rate and the following variables: tenure status, academic rank, and advisor’s age. All three of these variables are facets of time and
experience in the profession. Age, tenure status, and academic rank as elements of experience are apparent because older faculty members are more likely to have been in the profession longer than younger members, and tenured and higher academically ranked faculty are more likely to have been in the profession longer.

**Recommendation**

The researcher recommends that if such a policy is not already in place, graduate faculty of doctoral programs require some proportion of the doctoral-student committee be composed of tenured members who hold an academic rank of professor or associate professor.

Additionally, it is recommended that faculty utilize the doctoral-student committee as a training element for nontenured and assistant professors by pairing experienced and inexperienced committee members for service.

**Conclusion**

2. **Selected characteristics of the doctoral-student advising faculty predict doctoral-student retention.** This conclusion is based on findings from the stepwise multiple regression model that identified four variables as explaining 44% of the variability in completion rate. Tenure status accounted for 32% of the explanatory power of the equation. Academic rank, the number of committees faculty were currently serving on as
chairpersons (negatively related), and the number of international completers advised accounted for the remaining 12% of the explanatory power of the model.

**Recommendations**

The researcher recommends that future research on doctoral-student completion rates use variables identified in the completion rate regression model of this study on other populations. Additional variables of investigation could be identified through conducting qualitative research activities with faculty and graduate students using techniques such as focus groups, focus universities such as those identified as having faculty mentoring programs, and/or Delphi panels. Other variables recommended for investigation that were not included in this study are:

1. comparisons of differences of doctoral-student completion rates by length of time doctorates have been offered in specific vocational areas,
2. comparisons of differences between doctoral-student completion rate and the primary vocational area of the student and advisor,
3. more detailed analysis of the types of doctoral-student committee advising models used by departments,
4. publication background of faculty,
(5) identification and clarification of types of financial support students receive and a comparison of the relationship of student assistantships with the doctoral-student program stages,

(6) years of experience the advisor has in the profession.

In addition, the researcher recommends the use of faculty development programs which have as their basic element experienced faculty serving as mentors of new faculty in areas of doctoral-student advising. Interdepartmental or intradepartmental mentoring of new faculty could be used. Experts are often accepted as authoritative sources more readily when coming from an outside source.

Conclusion

3. Students are more likely to drop out of the doctoral program between completion of the general oral examination and drafting a proposal. This conclusion was based on doctoral-student retention as measured by the nine stages of the doctoral-student program identified. The retention was least at the stage before the proposal was submitted to a committee member.

Recommendation

It is recommended that departments consider a more structured doctoral-student program where the student would be taken through the proposal writing stages by closer participation with faculty. This
recommendation is drawn from conclusions that doctoral-student program stage exits identified the least retention occurred at that point in the program where the proposal was being prepared. In addition, this recommendation is consistent with respondents' open-ended comments that some of their departments required a proposal be written before a student was entered into candidacy. In addition, this recommendation is consistent with recommendations by Delaney, (1980); Mah, (1986); Bowen and Rudenstine (1992); and Berry, (1993) who recommended a highly structured doctoral-student program. Highly structured programs were not clearly defined but were identified as doctoral-student programs like those found in many of the science fields. The completion rates were highest in the hard sciences (90%), and this was attributed in part to the structure of their doctoral programs and in part to funding that is usually secured for doctoral students (Gould, 1989).

Conclusion

4. The number of committees that faculty serve on as chairpersons is a predictor for doctoral-student retention. This conclusion was based on findings that the number of doctoral-student committees respondents reported currently serving on as chairpersons was the variable that entered the completion rate regression analysis model at the third step,
explaining 5% of the variability of the model. The association was negative.

**Recommendations**

It is recommended by the researcher that further research define and break down the aspects of committee service that apparently influence completion rate and faculty’s perceived performance in the area of advising.

**Conclusion**

5. **Retention of doctoral-students among UCVE faculty is comparable to completion rates in other fields.** This conclusion was based on data collected using doctoral-student advising faculty as the unit of observation. In this study respondents reported an average overall completion rate for each respondent’s doctoral-students of 76%. The completion rate of this study is similar to the completion rate calculated in the Washington College of Education study conducted by Mah in 1986. The instrument used in this study was adapted from the instrument used by Mah. Data sets for both studies were drawn from the field of education. The primary outcome measure was calculated using the same type of data collection; therefore, completion rates would be expected to be similar. Bowen and Rudenstine (1992) found completion rates to vary across six fields and from ten universities when
compared to the single-field completion rate in education. Bowen and Rudenstine's research identified the highest completion rate in the natural sciences (90%’s), followed by social sciences (70%’s), and then the humanities (60%’s). The study found that students who achieved ABD status had roughly an 80% chance of finishing a dissertation and receiving a doctorate. In addition, when comparing respondent doctoral-students’ completion rates in this study with those in the natural sciences, the present research’s completion rates were lower. However, they were higher when compared with the humanities and the social sciences. In comparing doctoral student completion rates from this study to previous completion rates, this study’s completion rate was considerably greater that the 50% attrition suggested by Sternberg (1980). It should be noted that this completion rate is based on data provided by advisors rather than by students. Therefore, if the respondent had worked at other universities during his or her career, student counts would have come from across universities.

Recommendations

It is recommended that a replication of the study be conducted with a population of vocational education faculty outside UCVE and with faculty from other educational fields.
In addition, the researcher recommends that departments make faculty aware that the number of current doctoral-student committees faculty serve on as chairpersons may be a deterrent for their students’ retention in the program.

Conclusion

6. Selected characteristics of the doctoral-student advising faculty is predictive of the perceived advising performance of faculty. This conclusion is based on findings from the stepwise multiple regression model identified that explained 19% of the variability in the model on the variable performance. Performance of faculty as measured by the four variables in the model were:

(1) number of international completers advised;
(2) Human Resource and Development (primary vocational area);
(3) number of current doctoral committees serving as chairperson;
(4) a negative relationship indicated by the primary vocational area of Trade and Industrial Education.

Recommendation

It is recommended that future researchers identify variables that would add to the explanatory power of a performance model among faculty in the area of advising.
REFERENCES

Achilles, C. M. (1991). Although we don't know for sure what it is, our views of the knowledge base are far too limited. Paper Presented at Southern Regional Council on Educational Administration (SRCEA) Annual Conference, Auburn, AL.


Denton, J. J. (1987). Quality of research experience in graduate programs as perceived by faculty, graduates and current students, *Annual Meeting of Teacher Educators.* Houston, TX.


Heiss, A. M. (1973). The graduate preparation of eminent educational scholars. In A. M. Heiss, J. R. Mixer, & J. G. Paltridge (Eds.), *Participants and patterns in higher education: Research and reflections* (pp. 121-140). Berkeley, CA: University of California School of Education, the Program in Higher Education.


APPENDIX A: LETTER TO DEPARTMENT ADMINISTRATORS

Date
Addressee
Company
City, State, Zip Code

Dear (Name):

For several years we have been trying to get a piece of research off the ground. The basic concept revolves around ABD attrition rates. With your help and suggestions, we will continue toward our goal.

A review of the literature has led us to personal contact with previous researchers in this area. Generally, ABD reported rates have ranged from between a low of 5% to as much as 50%. Each of these reports was based upon studies made within colleges and universities. Our goal is to review the concept within our profession.

The study planned will cross geographic and university boundaries by sampling vocational education faculty from the University Council. In addition, it will give us an opportunity to compare vocational education doctoral attrition with that of other disciplines. The design of this research is intended to refine a descriptive model of ABD attrition. We feel this can best be achieved by surveying the major advisor. The major advisor has been referred to as 'the key factor' in ABD attrition. As chairperson to doctoral committees, he/she is not only a participant in the dissertation process but is also an expert observer.

Please identify the teacher-educators from your department who have served as chairpersons to doctoral committees. Glance over the enclosed list from the 1993 University Council Vocational Education directory and:

1. Cross off faculty members who have never been major advisors to a 'doctoral candidate'. Candidate is defined as a student who has passed general examinations.
2. Add names of new faculty members who do meet the requirements identified in #1.
3. Cross off faculty members who have left your school.

After checking the list, please return it in the enclosed stamped envelope. Ms. Bonnie Cooper will incorporate the data into her dissertation. Thank you for your assistance. If you have any questions, please call me at the above number.

Sincerely,

Vincent Kuitemeyer, EdD

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May 1, 1995

Addressee
Company
City, State, Zip code

Dear [Name]:

Concern over future staffing of colleges and universities has led some departments to change doctoral program policies to lessen the 'time-to-degree' and increase completion rates of doctoral students. Research has suggested the advisor might be in the best position to identify the underlying factors that contribute to the students' success or failure. We would like to know your perceptions of your doctoral students and departmental practices involving doctoral student programs.

We realize that you have pressing duties and responsibilities. However, your responses on the enclosed questionnaire will be valuable in helping to describe doctoral departments and doctoral students from vocational education university council member institution. The mail questionnaire will take about 20 minutes of your time to complete. After completing, place the questionnaire in the colored envelope and then place inside the stamped addressed white envelope. Mail by May 14th.

Your response will be kept entirely confidential. Only the student working with the data will see the raw responses. The tracking code on the outer envelope is explained at the back of the questionnaire.

We appreciate your assistance and your time.

Sincerely,

Bonnie Cooper, MS  Vincent Kuetemeyer, EdD
Doctoral Candidate
APPENDIX C: FOLLOW-UP LETTER SENT TO MAILING POPULATION

May 10, 1995
Addressee
Company
City, State, Zip Code

Dear (Name),

Last week you should have received a questionnaire from ABD Phenomenon Research. Our research will be based upon your perceptions of doctoral students and departmental practices involving doctoral student programs. With your help and that of other members of the UCVE professoriate, the data collected from the questionnaire will be valuable in describing doctoral departments and doctoral students from council member institutions.

If you have not received the questionnaire fax us a memo notifying us that your questionnaire was lost in the mail. We will send another immediately. If you have not yet completed the questionnaire, we would like this letter to serve as a gentle reminder to complete and mail the questionnaire by May 14th. If you have completed and mailed the questionnaire, we thank you very much for your prompt participation.

Sincerely,

Bonnie Cooper, M.S.
Doctoral Candidate
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May 10, 1995
Addressee
Company
City, State, Zip Code

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If you have not received the questionnaire fax us a memo notifying us that your questionnaire was lost in the mail. We will send another immediately. If you have not yet completed the questionnaire, we would like this letter to serve as a gentle reminder to complete and mail the questionnaire by May 14th. If you have completed and mailed the questionnaire, we thank you very much for your prompt participation.

Sincerely,

Bonnie Cooper, M.S.
Doctoral Candidate
NOTE:
If you have not served as chairperson to a doctoral committee, please check the space below and return this questionnaire in the enclosed envelope.

To comment on any questions or to qualify any of your answers, use the space provided at the back of the booklet. You may write in the margins.

PART 1

Please mark the highest step your doctoral advisees successfully completed.

<table>
<thead>
<tr>
<th>Step</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total number of your doctoral advisees who passed their general oral examination and were admitted to doctoral candidacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of the above number, how many completed the following steps:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Submitted a draft of a proposal to a member of or to the supervisory / graduate committee</td>
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<td></td>
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<tr>
<td>3. Had a proposal approved by the supervisory / graduate committee</td>
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</tr>
<tr>
<td>4. Collected data</td>
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<td></td>
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<tr>
<td>5. Drafted the dissertation</td>
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<td></td>
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<tr>
<td>6. Submitted a draft of the dissertation to the committee</td>
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<tr>
<td>7. Defended dissertation</td>
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<tr>
<td>8. Took final examination</td>
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<tr>
<td>9. Received a doctoral degree</td>
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<td></td>
</tr>
</tbody>
</table>
PART 2

Please answer the questions in Part 2 by recording your estimates in the appropriate column.

<table>
<thead>
<tr>
<th>A. Number completed</th>
<th>B. Number currently enrolled</th>
<th>C. Number did not complete</th>
<th>D. Number can not estimate</th>
</tr>
</thead>
</table>

How many doctoral candidates for which you served as committee chair:

<table>
<thead>
<tr>
<th></th>
<th>A # Completed</th>
<th>B # Enrolled</th>
<th>C # Did not Complete</th>
<th>D # Can not estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Belonged to an ethnic minority?</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Were international students?</td>
<td></td>
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<tr>
<td>3.</td>
<td>Completed a Master's thesis?</td>
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<tr>
<td>4.</td>
<td>Encountered financial hardships?</td>
<td></td>
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<tr>
<td>5.</td>
<td>Experienced personal hardship (other than financial)?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6.</td>
<td>Dissertation topic grew from research activities involving members of the faculty?</td>
<td></td>
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<tr>
<td>7.</td>
<td>Have co-authored non-dissertation manuscripts with you or other members of the faculty?</td>
<td></td>
<td></td>
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<tr>
<td>8.</td>
<td>Published manuscripts before writing a dissertation?</td>
<td></td>
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<tr>
<td>9.</td>
<td>Selected their dissertation topic prior to passing their general examination?</td>
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<tr>
<td>10.</td>
<td>Were males?</td>
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<td></td>
</tr>
<tr>
<td>11.</td>
<td>Were females?</td>
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<td></td>
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</tr>
<tr>
<td>12.</td>
<td>Were assigned to your supervision?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13.</td>
<td>Selected you as their committee chair?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>You chose to supervise?</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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PART 3

Answer the following questions by placing a check mark above the line to the right of your chosen response.

CHECK MARK ONE RESPONSE

1. What is the best description of the advising model used within your department?
   a. The traditional, single-advisor mode responsible to committee
   b. The advisory-committee model.
   (Advising is shared equally by committee-members)
   c. Other model

2. How often do you and your advisees hold informal discussions of professional research other than your own?
   a. Frequently
   b. Sometimes
   c. Rarely
   d. Never

3. How often do you and your advisees hold informal discussions of other student research?
   a. Frequently
   b. Sometimes
   c. Rarely
   d. Never

4. Is mentor training available to faculty?
   a. Yes
   b. No

5. Is mentoring used in your department as a criteria for merit evaluation and determination of tenure and promotion?
   a. Yes
   b. No

6. Does your department document quality of faculty advising?
   a. Yes
   b. No

7. Approximately how many hours per week do you spend involved in counseling doctoral candidates? (# of hours per week)

8. How many faculty in your department are approved to serve on doctoral committees?

9. What is the number of doctoral students enrolled in your department?
10. Are informal meetings held in your department which are designed to assist groups of doctoral students with the writing of their dissertations?  
a. Yes  
b. No

11. Does your department offer research seminars for the purpose of group sessions which typically are less formal and focus on research topics and issues?  
a. Yes  
b. No

If you answered No to the above research question, #11, skip to Part 4 on page 5.
If you answered YES to the above question, #11, continue with the questionnaire.

Which of the following best describes the emphasis your faculty places upon informal research seminars?  
CHECK MARK ALL RESPONSES THAT APPLY

12. a. Doctoral students are required to participate in seminars on research  
b. Doctoral students are encouraged to participate in seminars on research  
c. Doctoral students are not encouraged to participate in seminars on research  
d. Faculty is required to participate in seminars on research  
e. Faculty is encouraged to participate in seminars on research  
f. Faculty rotate the teaching of research seminars  
g. Faculty leads seminars on research.  
h. Students lead seminars on research.  
i. Resource people from outside the department lead seminars on research  
j. Other
PART 4

We would like to identify the counseling skills of UCVE doctoral advisors. We think you would be the best judge of your counseling skills. The following questions are a self-evaluation.

CIRCLE ONE NUMBER FOR EACH

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Very Poor</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Please rate your performance in each of the following areas:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Research activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. Publication of professional papers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c. Presentation of research</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d. Conducting programs, seminars, and training</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e. Teaching graduate courses</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f. Serving on and acting as chair of advisory committees</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g. Acting as an ombudsman for your advisees</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h. Accessibility to candidates</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. For how many years have you been acting as an advisor for doctoral candidates? 

3. On how many doctoral committees have you served? 

4. Of those, how many did you serve as advisor / chair? 

5. On how many doctoral committees are you currently serving? 

6. Of those, on how many are you currently serving as advisor / chair? 

7. At what phase of the doctoral student's study experiences do you feel your advice is of the most value?

CIRCLE ONE LETTER

A. Up to the time the student passes the general oral examination. 

B. From passing the general oral exam until the proposal is approved. 

C. From the approval of the dissertation until the first draft is submitted to a committee member. 

D. From submitting a first draft until receiving a doctorate.
Finally, we would like to ask a few questions about you. Please answer the next set of questions by writing the information in the spaces provided.

1. What is your sex?  a. Male   b. Female
2. What is your age? _________
3. How many years until your expected retirement?_________

For the next set of questions, place a mark in the space to the right of the appropriate item.

5. Please indicate the proportion of your work load in each area below by marking the percentage that best corresponds to time spent. (TOTAL SHOULD EQUAL 100%)
   a. Teaching ............................................................
   b. Advising ............................................................
   c. Funded projects and research .................................
   d. Administrative duties ...........................................
   e. Other  ................................................................

6. What is your academic rank?
   a. Instructor/Researcher ...........................................
   b. Assistant professor ............................................
   c. Associate professor ............................................
   d. Professor ........................................................
7

CHECK MARK ONE RESPONSE PER QUESTION

7. Are you tenured or Are you in a tenure track position?
   a. Yes ___ b. No ___

8. Please indicate the proportion of your time spent in each vocational area. TOTAL SHOULD EQUAL 100%

   a. Administration ........................................____
   b. Adult Education ........................................____
   c. Agricultural Education ...............................____
   d. Business Education ....................................____
   e. General Vocational Education .......................____
   f. Health and Occupational Education ....................____
   g. Home Economics Education ............................____
   h. Human Resource Development ..........................____
   i. Industrial Arts / Technology Education ...............____
   j. Marketing Education ....................................____
   k. Trade and Industrial/Industrial Education ..........____
   l. Training and Development ................................____
   m. Vocational Research .....................................____
   n. Vocational Special Needs ...............................____
   o. Other. (specify) ........................................._____
PART 6

Is there anything else you would like to tell us? We would appreciate any suggestions you might have that would help to decrease 'time-to-degree' and increase success rates.

End of Questionnaire

When you have finished with the questionnaire, fold it in half lengthwise and place it in the white non-coded envelope and seal it. Then place it inside the larger gray envelope with postage already affixed. The gray envelope has a mailing label and (for tracking purposes only) an identification code. The researcher will destroy the tracking envelope as soon as it is received. All white envelopes will be opened simultaneously in order to insure anonymity. NO TRACKING CODE ON SECOND MAILING.

We sincerely appreciate your help in this study.
APPENDIX E: SECOND FOLLOW-UP COVER LETTER

August 2, 1995
Addressee
Company
Street Address
City, State, Zip Code

Dear Name,

In May a survey questionnaire was mailed to university council vocational education faculty. The purpose of the research is to describe UCVE faculty on characteristics that might impact upon doctoral students' 'time-to-degree' or completion rates. Although there has been an overwhelming response, we would like to insure that every doctoral advisor from the university council member institutions has an opportunity to respond to this survey. This is the final request for your participation. By now you should have received a follow-up letter as well as a telephone contact either with you in person, a message left on your voice mail or with your secretary. A few questionnaires have been returned without tracking codes on the envelopes. It's possible, (Name), that we received your questionnaire but our records do not reflect that response. If you have responded please ignore this final round and thanks for your participation.

Instead of using an arbitrary time period when describing your doctoral advisees, we would like you to recall all your doctoral advisees, both past and present, when responding to the questionnaire. Your best recollections will satisfy the objectives of this study. The instrument was designed to elicit your expert perceptions of experiences with your doctoral students, not to test your record keeping skills.

For your convenience, a copy of the survey is enclosed along with a stamped envelope. After completing, place the questionnaire in the white envelope and then place it inside the stamped addressed gray envelope. Your responses will be kept entirely confidential. Only the student working with the data will see the raw responses.

In order to have your responses included in the final run of data, please mail by August 21st. We appreciate your assistance and your time.

Sincerely,

Bonnie Cooper, MS
Doctoral Candidate
APPENDIX F: FACULTY COMMENTS

Program or Department-Related Comments

**Highly Structured** - "It is essential that students be given a clearly defined path to follow and an effort be made to provide course work mandated".

**Structure** - "A definite time period for reporting (e.g., 3-5 years) would have helped".

**Assistantships/Fellowships** - "More assistantships/fellowships to support doctoral students".

**Full-time Student Status** - "Funds for graduate research to accomplish full-time status of students".

**Proposal Requirement of Orals** - "Graduate students develop their proposal as part of the requirements for the research course series. In many cases their proposal is submitted as part of the comprehensive examination".

**Early Topic Selection** - "Major key is beginning to think about the dissertation very early in the program. I’ve found it valuable to force this completion through Chapter 2 with a literature related reading course, graduate research seminars, and lots of interaction".

**Topic Selection Early** - "The requirement of having a tentative research proposal (idea paper-4 pages) before taking comprehensive exams is productive".

**Early Topic Selection** - "Must have an approved topic to take orals".
**Students to conferences** - “Recruit good students. Train advisors. Promote work of students. Good teaching. Support for students. Send students to conferences”.

**Merit Pay for Mentoring** - “Advising students is an expected, out-of-hide activity. One’s merit and promotion is based primarily on research and publication. One gets true performance on rewards: therefore, advisement should be evaluated and rewards should be given for exemplary performance”.

**Trained Advisors** - “Train advisors!!!!!! Conceive of programs (1) with and without oral exams, etc. (2) that don’t parallel 1917 programs (3) separate Master’s completely”.

**Document quality of faculty advising** - “You’ve got to be kidding! They don’t want to be held accountable”.

**Advising Load** - “For many years, we carried about 15-20 doctoral advisees: too many. Now, we are down to 10; much better. However, we are penalized, financially, because of fewer credit hours earned”.

**Research seminars** - Doctoral students should be enrolled into research seminars during the first 15 hours. Their research interests and course work should be related”.

**Antiquated Philosophy** - “Vocational education is dying due to its inability to look to the future. There will be many changes in the next 5 years. Most university vocational education programs will die due to the lack of students and support from their college.”
In some cases the programs are healthy, and the faculty are paralyzed with 1917 philosophies.

**Program Emphasis** - “Doctoral degrees should place primary emphasis on research dissertation, thus reducing ‘gap’ between course work and dissertation process”.

**Team approach** - “I like the idea of sharing advising of students and I particularly like the idea of the mentoring approach to prepare faculty to work with doctoral students. I look at the advising of doctorate students as a team approach. Unfortunately, I am the only one in my department who feels that way”.

**Reduce Number of Advisees per Advisor** - “Require fewer students per advisor, meaning more intense and regular interaction, for example, working with faculty on research project, publishing, and attending conferences”.

**Ed.D. & Ph.D. Requirements** - “Need different research requirements and purpose for Ed.D. and Ph.D. programs. Nature of dissertation for each student should be analogous for the committee selected”.

**Attrition Rate** - “Is there a problem with success rate”?

**Comments on Doctoral Advising:**

**Availability** - “Advisor-availability; advisor-quality of advice”.

**Facilitator** - “It is crucial to perform the role of facilitator/resource person rather than teacher/controller”.

**Availability, Placement** - “Advising varies by student and topic. Activities in the department also vary from year to year. Spending time to get students to publish and
present is important. Also, helping place them, I feel, is part of the job. Much of what I do is informal and supportive. I try to be available to my students and advisees.

Perhaps this is not the general consensus of faculty but I see it as a priority”.

Committee Selection - “Help candidates choose a committee with expertise in area of students’ dissertation research”.

Funding for Research - “Work extensively with a candidate in research design stage and to secure funding for research”.

Proposal to Whole Committee - “Make sure that the committee views objective and procedures used in the same light. (You don’t want any surprises at the end because a committee member says ‘I thought you were to do thus and so’). This is why a ‘presentation of research proposal’ meeting to a whole committee is so important”.

Dissertation Stages - “Have candidate break research and writing process into steps and stages so that progress can be demonstrated”.

Limit Numbers of Advisees per Advisor - “Success is based on wise entry counseling into the program. Generally, advisors accept too many students. Each student should be prepared as if they were going to replace you in the faculty”.

Accessibility of Advisor - “Planning from entry to exit with opportunities for change as appropriate. Accept that each has limitations and strengths. Committees should be composed such that the student support (assistance for the student) is whole.”
Professors should be there for students!!!! Students should try to look long-term when considering committees and research interest. I believe that the individual student should take the best they know or observe from each professor they encounter during their program and leave as one who it better than any one of the individual (professors), does not leave as a clone of any one professor”.

Early Preparation for Dissertation - "Start students in research early! Choose research topic early. Take research design and statistics before the 30th hour".

Perceived Advisor Success - “I count this group of doctoral completers as my greatest success”.

Student-centered Comments:

Personal Hardship - “Illness has caused my only long-term ‘ABD’ to occur. Work and family problems are other factors. Divorce/separation has marred the achievement of two of my advisees”.

Motivation and Ability - “Student-motivation and student-ability”.

Comments on the Study and Questionnaire Packet

In addition to the blank section that requested comments, respondents were asked to qualify their answers in the margins of the booklet, if they chose to. There were a number of positive comments on the questionnaire and the incentive material that were included in the mailing packet. Some respondents made positive comments
about the questionnaire without commenting on doctoral-student attrition. Comments are as follows:

Survey:

Survey Technique - “An excellent example of a quality survey technique”.

Packaging - “Nice packaging. Could you send another copy of the questionnaire and the incentive”? “I’m keeping your cover”.

“On cover, very well designed and attractively produced. Thanks for the extra effort”.

Worthy Topic - “Please send a summary of your finding. A worthy topic! This is a very attractive package! Congratulations”. “Nice Survey. Well done”! “Sorry, but I had to keep your outside cover! I have several students who will be interested in your very professional creation. By the way, do you have a cost figure for each instrument, i.e. printing, postage, graphics, etc? This is easily the most professionally packaged I have seen in 15 years. I certainly hope the knowledge you acquire comes close to your investment in packaging the instrument. Thanks for calling about the instrument”.

“Worthy study and excellent questionnaire. Thanks for the Lagniappe”. “Your Mardi Gras lagniappe is innovative”.

Critical of Instrument - There were also respondents who were critical of the instrument. “Questionnaire is poorly done. Was it field tested and pilot tested prior to mailing? You’ll have data analysis problems”! “I’m confused! I don’t see any connection between the questions you asked (to which most answers are guesses - not hard counts) and the ‘time to degree’ and success rates. How does any of this stuff
relate to time to degree? Do you have another data base you haven’t told us about that provides ‘time-to-degree’? Your expectations that we keep track of all this stuff amazes me! In 25 + years I have no idea how many committees I have participated in or do I or anybody else (except you!) care. I would be really cautious about using numbers from this study to draw any conclusions. I don’t think I am the only poor record keeper in the world. On a bright note, this was the best questionnaire I have ever responded to in terms of eye appeal, neatness, lots of white space, etc. It was nice! You are to be commended on the questionnaire”.

“I have been at this many years and have advised many students (Ph.D./Ed.D. = 15 at present). My records would require too much time to assemble. Rule I of surveys: don’t ask for information not readily available. Sorry”.

“After 38 years of teaching there is absolutely no way I can provide factual data for Parts 1 and 2 of the questionnaire. A response return for you, but too specific with only 7 days to commencement”. “I question the validity of this survey in regard to my responses. I am in a department of Educational Psychology and 50% or more of my time is spent outside vocational education. Many of my doctoral students are also outside vocational education. Also, many of the references to Part 2 of the questionnaire are just a guess. I would have no way of knowing the current answers”.

Difficulty with Completion - “This questionnaire was very difficult for me to complete accurately because of the extended time period involved, 15 years, and the fact that this
occurred at two different universities. However, I think this is an important study and I wish you success with your degree”.

Lack of Advisee Information - “I have not maintained any accurate student records”.

Quality of Degree Paramount Importance - “Quality of the degree is much more important than ‘Time-to-Degree’.

Connection between ABD and the Study? - “Your concept-if I can infer one, seems to be most interesting, however, the title, ‘ABD Phenomenon” would lead me to believe a survey of ABD students rather than faculty. Good Luck”.

Is Shortening the Degree Better? - “The notion of ‘T to D’ suggests shortening is better (somehow). Who has put a ‘time clock’ on the process/why? By cutting incubation/gestation time (re - the study) what is gained/lost”?

Items of the Questionnaire:

Respondents clarified their perceptions in more than 100 items. However, most marginal comments were criticisms of specific questions. The first two sections of the questionnaire, which asked for the respondents’ estimates of characteristics of doctoral advisees, received the most negative commentary. Ten respondents reported difficulty in responding to questions because they could not recall the exact numbers or did not possess the information requested. Five respondents did not complete Parts 1 and 2 of the questionnaire. Three other respondents refused to answer the entire questionnaire because they found the first two sections too difficult. Comments included:
Estimates - "After 24 years, these are estimates". "For what period of time? All of them? Not sure how to respond". "I have not maintained any accurate student records". "I have been a doctoral advisee since 1972. It would be impossible (at least too time consuming to generate the info requested in parts 1 and 2". "It is really difficult to accurately count the numbers of Ph.D. committees and advisees over 20 years. It would take hours of time".

Financial Hardship - Concerning responses to Part 2, questions 4 and 5, which asked the respondent for numbers of his or her students whom they perceived as having encountered financial or personal hardship, respondents commented; "Ambiguous" and "By what standard".

Choice of Advisor - In Part 2, questions 12 and 14, which asked respondents how they acquired their doctoral advisees, choices given as possible answers were assigned or selected. Comments included: "They chose advisors". "All are allowed to choose. I decide who I want after they ask me". "The chair always has option to decline"!

Performance - Part 4, question 1, asked the respondent to evaluate his or her performance in the areas relating to advising. One respondent stated, "Ask the student".

Ombudsman - In Part 4, question 1, the respondent was asked for an evaluation of his or her performance as an ombudsman for their advisees. Comments included: "What is an ombudsman"? "Sexist language; ombudsperson not ombudsman".
Committee Service - In the fourth part of the questionnaire, four respondents had difficulty arriving at a total number of doctoral committees they had served on or chaired.

Advice Most Valuable - In Part 4, question 7, the respondent was asked to circle the phase of the doctoral student's study experiences in which they felt their advice was most valuable. Respondents were given four choices; however, five chose to write in the response all instead of marking one of the choices. "Bad question. We don't have general oral examinations. Better to have a rating scale on each".

Gender - Two respondents, concerning the fifth part, question 1, of the questionnaire, suggested gender was a more appropriate word than sex. One respondent left gender unanswered but all other items were answered.

Work Load - In the same part, the respondents were asked the proportion of their work loads in each of four areas: teaching, advising, funded projects, and research. Comments included: "Advising not part of our department load". "You left out service".

Academic Rank - Part 5, question 6 of the questionnaire asked the respondents for their academic rank. Two respondents wrote in the margins beside the rank of professor that they were department heads.

Primary Vocational Area - Question 8 in the fifth part of the questionnaire, which asked for primary vocational area, was criticized because it was a "Poor, traditional question". On item q, which asked for other vocational areas not included in the list,
respondents wrote in the following responses: service, a program liaison, director, department head, vocational guidance, counseling psychology, and research methods.

**UCVE Roster Errors**

Frame errors were pointed out by two respondents concerning the UCVE membership directory. Two respondents suggested that directors of vocational departments might pad their lists. Reproduction of these comments will not be presented in order to maintain the anonymity that was guaranteed.
VITA

Bonnie Beth Chaney Cooper was born June 5, 1943, in Tomberlin, Arkansas. Tomberlin is located on Indian Bayou in Lonoke County. She and her only sibling, Bobby, were children of Robert C. and Ellie Chaney. She attended elementary and junior high school at Tomberlin and high school at England, Arkansas, graduating in 1961. She was graduated from the University of Arkansas in 1964, with a bachelor of science degree in Agriculture and Home Economics, with a major in Home Economics Education.

She was employed as a dietitian for the England Hospital in England, Arkansas, from 1964 to 1967. She was also employed as a consumer and homemaking teacher at Scott High School at Scott, Arkansas, from 1964 to 1970. She was employed at Jacksonville Junior High School at Jacksonville, Arkansas, as a home economics teacher from 1970 to 1971. Both Scott and Jacksonville are within the Pulaski County Special School District of Little Rock, Arkansas. In the summer of 1969 she was employed as a Home Economist for the Arkansas Rural Electric Cooperative at Little Rock, Arkansas. After moving to Baton Rouge, she was employed from 1971 to 1973 as a science teacher at Northwestern Junior High School in Zachary, Louisiana, which is within the East Baton Rouge Parish School District. In 1973 she became the proprietor of a retail business in Baton Rouge, Louisiana. She owned and operated Fin and Feather Pet Shop for five years.
In 1984 Bonnie received a master of science degree from Louisiana State University in Baton Rouge, Louisiana, in Vocational Home Economics Education. That same year she opened and managed a medical clinic, Baton Rouge Weight Control Clinic, located in Baton Rouge, Louisiana. She served as owner/manager and nutritional consultant for the clinic from 1986 to 1993. Her present work responsibilities include managing the family owned medical clinic.

In 1986 Bonnie became a candidate for the degree of Doctor of Philosophy in Vocational Education at Louisiana State University in Baton Rouge, Louisiana. In August of 1996 she will receive that degree.

Bonnie is married to Edward J. Cooper, M.D., and they reside in Baton Rouge, Louisiana, with their nine-year-old daughter, Meagan.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Bonnie Chaney Cooper

Major Field: Vocational Education

Title of Dissertation: Faculty Characteristics That Are Associated With The Retention of Doctoral Students

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]
Peggy L. Draughn

[Signature]
Joe Kelso

[Signature]
Michael J. Burnett

[Signature]
McDonald - Dissent

Date of Examination:

June 4, 1996