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A mediated hierarchical regression analysis of factors related to research productivity of Human Resource Education and workforce development postsecondary faculty

Heather Anne Williams
Louisiana State University and Agricultural and Mechanical College

A MEDIATED HIERARCHICAL REGRESSION ANALYSIS OF FACTORS RELATED TO RESEARCH PRODUCTIVITY OF HUMAN RESOURCE EDUCATION AND WORKFORCE DEVELOPMENT POSTSECONDARY FACULTY

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Heather Anne Williams
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ABSTRACT

This study described Human Resource Education and Development Faculty; their research productivity, satisfaction with instructional duties and other related job factors, and opinion of emphasis on research/teaching at their employing institutions; analyzed differences between faculty members' actual time spent and preferred time spent through the use of *t*-tests; and determined if selected factors drive research productivity measured as a career research productivity score, a recent research productivity score, and time spent in research through the use of mediated hierarchical regression. The study utilized two NCES data sets derived from the 1992-93 and 1998-99 National Study of Postsecondary Faculty surveys.

HRED faculty members possessed instructional duties and were engaged in research, with presentations/exhibitions reported as the most common type of research produced. More respondents held the rank of instructor than any other, and of those tenured, the average number of years tenured ranged from 8 to 10 years. The two predominant types of highest degrees held were doctorate and masters.

The findings of this study suggest research support was present in the form of teaching assistants, funding, and resources specifically provided for research. Also, HRED faculty preferred to spend less time in teaching than they were spending and more time in research than they were spending. Faculty were somewhat satisfied with instructional duties and with other factors related to their job. Faculty disagreed somewhat with items stating research was the primary promotional criteria at their institution and that research was rewarded more than teaching at their institution.

The proposed model evaluated in this study was based on cognitive motivation theory and was supported by the analyses. A fully mediated model resulted for the dependent variables career and

recent research productivity scores, and a partially mediated model resulted for the dependent variable time spent in research. The findings demonstrated the importance of an individual's perception of their personal interests/abilities in research when predicting research productivity.

CHAPTER I: INTRODUCTION

"Publish or Perish." Publications in postsecondary education have existed for some time now as a standard by which individual faculty member's tenure is granted (along with teaching and service), a measure against which institutional programs are judged and rated, and a method by which a discipline's progress is tracked (Campbell, Gaertner, & Vecchio, 1983; Cargile and Bublitz, 1986; Hasselback & Reinstein, 1995; Hexter, 1969; Ingram and Petersen, 1991; Schultz, Mead, & Khurana, 1989; Vasil, 1996). Hexter (1969) noted that publications are the best available criteria for evaluating the quality of an individual faculty member and their departments and institutions.

As a new millennium begins, the word "accountability" has come to the forefront of national culture, especially in education. Standard after standard has been produced in an attempt to determine the location of strengths and weaknesses within educational systems. Within higher education, it has been stated that faculty members with a successful publishing record and expertise in research are often admired by other faculty and students as on the cutting edge of their field and are regarded as knowledgeable about most issues in their field (Levine, 1997). McKeachie (1994) stated that research could provide individuals with a better background to be successful teachers. It can be said that these highly productive faculty members are seen as more powerful educators and often serve as a frame of reference for junior faculty members and others who are developing their own research agenda (Levine, 1997).

Beyond the accountability aspect of educating the future decision makers of our world, a faculty member has a second task. A faculty member must produce research in most postsecondary institutions in order to obtain tenure. Tenure is generally granted through the measurement of teaching, research and service (Centra, 1977 & 1983; Kotrlik, Bartlett, Higgins, & Williams, 2001; Read, Rae,

& Raghunandan, 1998). In the past, the type and mission of an institution determined what percentage of research, teaching and service was most important. Today, "research" and "teaching" institutions are increasing the value of research productivity in granting tenure (Cargile & Bublitz, 1986). Since faculty members have a large amount of control over research produced, individual faculty members have the opportunity to increase their success in academia and remain competitive in this job market (Hasselback & Reinstein, 1995).

From the faculty member's view, postsecondary education literature demonstrates that faculty members perceive research as more important than service and teaching in tenure decisions (Cargile & Bublitz, 1986). Cargile & Bublitz (1986) discussed the recognition of the importance of research publications for promotion, tenure, salary, and obtaining grant funding by faculty members. Although at one time faculty members could choose the type of institution according to their preference in allocating time to research, today, "faculty in almost every institutional type perceive pressure to obtain external funding, conduct research, and publish their findings" (Blackburn, Bieber, Lawrence, & Trautvetter, 1991, p. 385).

Universities also value research from the standpoint of prominence of their faculty members (e.g., by the number of citations and publications of each), obtaining grant funding, and increasing the reputation of their institutional programs. Numerous studies of research productivity focus on rating universities and their respective programs through the measurement of their current and past faculty member's research contributions (Cox & Catt, 1977; DeMeuse, 1987; Henry & Burch, 1974; Jones, Lindzey, & Coggeshall, 1982; Levin et al., 1978; Ross, 1978). These ratings are then provided to prospective students to help them select universities (especially graduate programs), utilized in recognition and further granting of funding to institutional programs, and used to track institutional

progress in content areas over time (Howard, Cole & Maxwell, 1987). This is a driving force for institutions to increase the value of research productivity in granting tenure, promotion and rewards.

In addition to evaluation of a faculty member, and of a university and the quality of its programs, research productivity of a discipline is also measured to determine the progress and reputation of that discipline. Research efforts such as Holton (1990) in the management field, Podsaffok and Dalton (1987) in the education field, and Williams (2000) in the Human Resource Development (HRD) field, reviewed the publications of each respective field for multiple measures to determine the state of research in that discipline and to provide recommendations for furthering the research efforts of that discipline. Beyond the judgment of a discipline's progress, research within a discipline is important as a conduit of thought and progress toward an understanding of phenomena within the discipline.

The discipline of HRD is not unlike any other discipline beyond that it is a young discipline, and therefore, possesses little research on its research and faculty - with only one study produced which investigated the factors influencing research productivity of HRD faculty members (Williams, Bartlett, Kotrlik & Higgins, 2001) and no longitudinal studies. Due to the astounding growth of the HRD discipline over the past 20 years, and therefore of HRD programs throughout colleges and universities, some attention must be paid to the faculty members who are instructing those who will further develop the discipline of HRD. One such method of assessing the development of a discipline is through the research produced by the faculty members within a discipline.

Given the recognized importance of research within the postsecondary education, and specifically, within the HRD discipline, this study will focus on selected postsecondary Human Resource

Education and Development (HRED) disciplines, namely HRD, Organizational Behavior and Adult Education. These disciplines will be collectively referred to as Human Resource Education and Development (HRED).

Statement of the Problem

Research productivity has been viewed as a valuable entity reaching as far back in postsecondary history as the early 1910's (Cattell, 1910). Due to the value postsecondary institutions have and currently place on research productivity, the ongoing growth of the HRD discipline, and the paucity of research on factors explaining research productivity of HRED faculty members, a need exists to investigate what drives an HRED postsecondary faculty member to produce research. This study will investigate what drives an HRED postsecondary faculty member to produce research, and in doing so will utilize past research efforts on faculty members' research productivity and two National Center for Educational Statistics (NCES) data sets (National Study of Postsecondary Faculty Studies, 1992-93 and 1998-99).

Purpose and Objectives of the Study

It is the purpose of this research effort to investigate what drives an HRED postsecondary faculty member to demonstrate higher research productivity than fellow HRED faculty members. The objectives of the study are as follows:

1. Describe HRED faculty members on the following variables:
    a. Personal variables (age, gender)
    b. Institutional support variables:
        i. Number of teaching assistants: the cumulative number of teaching assistants for that individual

ii. Opinion of institutional research resources: the supplies and/or resources an institution provides for its faculty members to assist in production of research (opinion of: availability of research assistants, office space, secretarial support, and library holdings)

iii. Sources of funding: sources of funding for that individual (institution, foundation, for profit business/industry, state or local government, federal government, and other)

c. Professional variables:

i. Instructional duties: presence of instructional duties

ii. Tenure status: a faculty member's tenure status (tenured, on tenure track but not tenured, not on tenure track/although institution has a tenure system, no tenure system at this institution)

iii. Department chair: whether or not a faculty member was department chair of his or her department

iv. Principal activity: a faculty member's main activity (teaching, research, clinical service, administration, sabbatical, or other activity)

v. Part-time/full-time: whether a member was employed by that institution part-time or full-time

vi. Engaged in professional research/writing: whether or not a faculty member participated in professional research, proposal writing, creative writing or creative works either funded or nonfunded

vii. Type of professional research/writing: type of professional research/writing a

faculty member participated in (basic research, applied or policy-oriented research or analysis, program/curriculum design and development, other)

viii. Academic rank/title/position: a faculty member's academic rank, title or position at that institution

ix. Time in academic rank/title/position/tenure: the length of time a faculty member has held current academic rank/title/position/tenure

x. Total funding from grants/contracts: the amount of funding from grants/contracts received from all sources

d. Educational/Training variables:

i. Highest degree held: highest degree a faculty member has received (first profession degree, doctoral degree, masters of fine arts or social work, other master degree, bachelor degree, associate degree, or certificate)

ii. Number of years since highest degree was earned

2. Describe the research productivity of HRED faculty members as follows:

a. Career research productivity (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, reports; and presentations and exhibitions).

b. Recent research productivity (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, reports; and presentations and exhibitions).

3. Describe differences in faculty members' actual time spent verses their preferred time spent teaching, at research, on professional growth, at administration, on service activity, and on consulting.
4. Describe faculty members' satisfaction with instructional duties. That is, the measurement of a faculty member's satisfaction with factors related to instructional duties scale (authority to decide course content, authority to decide courses taught, authority to make non-instructional job decisions, time available to advise students, quality of undergraduate students, and quality of graduate students).
5. Describe faculty members' satisfaction with other related job factors. That is, the measurement of a faculty member's satisfaction with job related factors scale (work load, job security, advancement opportunity, time to keep current in field, freedom to do consulting, salary, benefits, spouse employment opportunity, and job overall).
6. Describe faculty members' opinion of emphasis on research/teaching at their employing institution. That is, the measurement of a faculty member's opinion of emphasis of their institution on research/teaching scale (teaching as promotion criteria, research as promotion criteria, research rewarded vs. teaching).
7. Determine if selected variables explain a significant proportion of the variance in the research productivity of HRED faculty members.

Significance of the Study

The identification of the drivers of HRED faculty members to produce research may assist institutions in identifying individuals who will likely be high producers of research, who will be likely to contribute to building stronger graduate programs to produce stronger researchers, and assist

institutions in building programs designed to support and enable faculty members to increase their research productivity. This research effort will provide attention to faculty members because faculty members produce or guide most scholarly work. In addition, the end point of this research effort, although somewhat similar to other faculty research productivity studies, is unique in that it is investigated from the basis of identifying what "drives" an HRED faculty member to produce research; therefore, this effort expands a step further and applies cognitive motivation theory as the basis of constructing a theoretical model and then as the basis for explaining the findings of the investigation.

Faculty Research Productivity Defined

Faculty research productivity is defined in this research effort as any scholarly research produced by a faculty member that contributes to the knowledge base of a discipline. This research will include articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, and reports; and presentations and exhibitions.

CHAPTER II: REVIEW OF LITERATURE

This review of literature is divided into six primary sections. The following categories of literature will be presented - the role of research productivity in postsecondary education; factors related to research productivity; measurement of research productivity; research productivity research conducted utilizing a theoretical base; cognitive motivation theory; and a summary of literature.

Role of Research Productivity in Postsecondary Education

Literature discussing the role of research productivity in postsecondary education is divided into four areas: institutions, disciplines, students, and faculty. This literature covers disciplines within HRED and other closely related social science areas.

Institutions

Numerous institutions' promotion and tenure systems as well as reward systems are based on research, teaching and service (Astin & Lee, 1967; Centra, 1977; Centra, 1983; Kotrlik et al., 2001; Read, Rae, & Raghunandan, 1998). The weights of each factor vary by institution (Kotrlik, et al., 2001). In the past, the type of institution was the determining factor as to how weights were distributed; however, a trend toward greater emphasis on research across all types of institutions has arisen and increased over time (Bowen & Schuster, 1985; Campbell & Morgan, 1987; Englebrecht et al., 1994; Milne & Vent, 1987; Schultz et al., 1989; Seldin, 1984).

Numerous research efforts support this trend. Blackburn et al. (1991) and Perry, Clifton, Menec, Struthers, and Menges (2000) stated that Liberal arts colleges are pushing faculty members to produce more to ensure promotion and tenure. Henthorne, LaTour, and Loraas (1998) reported many "teaching oriented" schools are requiring publications in refereed journals for tenure and

promotion. McNurlen and West (2000) reported findings from several studies substantiating that in tenure reviews productivity is valued over the quality of teaching and service.

In addition, findings from a report produced by the Ohio Legislative Office of Education Oversight (1993) show research to outweigh teaching and service in regards to granting promotion and tenure across all Ohio colleges and universities, and conclude this to be due in part to the desire for national prestige, no systematic methods of evaluating teaching and service, and a profession that fosters and promotes efforts in research publication. These findings support those of an earlier study by Gibbs and Locke (1989). Gibbs and Locke (1989) found that research productivity was the central criterion for making promotion and tenure decisions as a result of surveying 59 chairs of promotion and tenure committees in 93 universities.

Furthermore, Read et al. (1998) determined those faculty members promoted in recent years had more publications than those promoted in earlier years. This increase in emphasis on research and decrease in emphasis on teaching and service has been recognized by faculty members as early as the 1980's (Cargile & Bublitz, 1986; Schultz et al., 1989).

Aside from the duties of establishing promotion, tenure and reward structures, institutions are also faced with the challenge of upholding their ranking, establishing their prestige, and improving their economic status (Blackburn et al., 1991; Ohio State Legislative Office of Education Oversight, 1993). Blackburn et al. (1991) stated that it is hoped that the increase in significance placed upon research productivity will enhance an institution's reputation and economic status. Perry et al. (2000) reported findings from a study by Boyer (1990) that research activity is increasingly viewed "as a key element in status attainment of postsecondary institutions" (p. 167).

Creamer (1998) addressed these issues in stating, "faculty publishing and productivity are often used as an index of departmental and institutional prestige" (p. 1). While Henthorne et al. (1998) also discussed institutional rank and performance stating that bench marking of an institution's research productivity allows demonstration of that institution's ranking and performance. DeMeuse (1987) reported program quality is commonly judged by the productivity of its faculty members. And Olsen (1994) reported that increases in productivity lead to high prestige for the university and the student alike.

Bentley and Blackburn (1990) reported that universities that maintain higher teaching loads tend to lose out in funding when it comes to research expenditures. Porter and Umbach (2000) reported that institutions are concerned with increasing teaching loads due to a potential loss in grant revenue. Grant revenue is an important source of an institution's budget; therefore, research derived from funding is an important factor for an institution to consider. The Ohio State Legislative Offices of Education Oversight (1993) study also addressed funding issues. This report stated that public institutions receive state funding based on enrollment and in order to maintain enrollment, institutions must attract and retain students. An institution's prestige, that is, the presence of known faculty members (for their research), higher quality graduate programs, and exceptional departments are more likely to attract quality students, and therefore maintain adequate state funding.

Disciplines

Just as an individuals and institutions are assessed based on their research output, so are discipline's (Henthorne et al., 1998). Disciplines build and disseminate knowledge through productivity of research (Dundar & Lewis, 1998; Henthorne et al., 1998). Faculty members may stay current in their discipline through conducting research (Ohio State Legislative Office of Education Oversight,

1993). Progress of newly formed disciplines is also judged through evaluation of a discipline's research productivity (Williams, 2000). This calls attention to the faculty members within that discipline who are not only participating in its development, but also instructing those who will further develop the discipline in years to come. Research also serves to provide progress toward an understanding of phenomena within the discipline (Williams, 2000).

Students

Within a discipline are academics, practitioners and students. Research serves as a conduit of thoughts and knowledge throughout each of these facets (Dundar & Lewis, 1998; Henthorne et al., 1998; Williams, 2000). New information is disseminated through research productivity, and current information becomes available for use in the classroom providing individuals with a better background to be successful teachers (McKeachie, 1994).

Massive research efforts have sought to correlate research and teaching effectiveness. In an extensive review of literature pertaining to this topic, Feldman (1987) concluded that research productivity is only slightly associated with teaching proficiency. Faia (1976) stated that if research is not overemphasized, teaching and research are mutually supportive activities.

Jacob, Reinmuth, and Hamada (1987) produced a report for the American Association of Colleges and Schools of Business that stated success in the classroom is dependent upon research productivity. This is supported by Paul and Rubin (1984), Dyl (1991), and Logue (1991). Bell, Frecka, and Solomon (1993) found teaching effectiveness to be associated with research productivity. Blake (1994) posited that teaching effectiveness and research activities are linked. Noser, Manakyan and Tanner (1996) discussed previous research reporting that faculty members' knowledge is increased by research as well as students are challenged more thoroughly by faculty members who are productive researchers.

Levine (1997) posited that faculty members who produce research are on the cutting edge of the field, knowledgeable about issues in the field, more powerful educators and serve as a frame of reference for junior faculty members.

Conversely, Mortimer (1984), Boyer (1987), and Sykes (1988) report a negative effect on teaching due to overemphasis on research productivity in the forms of diminished teaching effectiveness. The Ohio State Legislative Office of Education Oversight (1993) report stated a concern that "undergraduate education may be negatively impacted by the lack of emphasis on teaching" (p. 4). Olsen (1994) reported that universities cannot expect high levels of research to accompany high levels of teaching.

Faculty

Faculty and research productivity interact in three methods. First, a faculty member is the main contributor to the research productivity of an institution and a discipline. The faculty members produce the research, collaborate within and between institutions, teach courses to promote proper research methodologies as well as research itself, and search for external funding (Kelly & Warmbrod, 1985). Also, the faculty members utilize the information presented in research to teach undergraduate and graduate students. It is in part the characteristics of a faculty member that explains variances in research productivity (Bailey, 1992). Also, faculty members have to make do with resources allocated by institutions to assist in research production (McNurlen & West, 2000).

Second, faculty members' success in academia is strongly based on research productivity (Ohio State Legislative Office of Education Oversight, 1993; Read et al., 1998). Research productivity is considered a part of the reputational capital of academics as well as a venue to increase one's visibility (Creamer, 1998; Moore, Newman, & Turnbull, 2001). Research productivity assumes a

major role in the ability of a faculty member to contribute to a discipline and demonstrate performance - thereby affecting his or her prestige, promotion, tenure, salary and reward advancement (Creamer, 1998; Henthorne et al., 1998; Moore et al., 2001; Radhakrishna et al., 1994). That is, an individual's level of research productivity assumes a major role in that individual attaining success in academia (Kotrlik et al., 2001; Ohio State Legislative Office of Education Oversight, 1993).

Third, expectations are set upon faculty members to produce research because of the desire for prestige and high ranking of a postsecondary institution, as well as attracting high-level graduate students, faculty members and grant funds (Cox & Catt, 1977; DeMeuse, 1987; Howard et al., 1987; Levine et al., 1978; Ross, 1978). Faculty members' time allocation and workload then become of paramount importance to universities, legislators and the public (McNurlen & West, 2000; Ohio State Legislative Office of Education Oversight, 1993). In response, faculty members have to maintain their respective responsibilities, according to the missions of their employing universities, to manage time between research, service and teaching while risking criticism for their actions (Bailey, 1992; Oklahoma State Regents for Higher Education, 1993).

Factors Related to Research Productivity

Numerous variables have been addressed in the area of research productivity. This section will discuss personal, institutional support, professional, education and training, time spent, opinion of job and research environment, institutional characteristics and salary variables.

Personal Variables

Personal variables have generally been associated with research productivity, but have experienced mixed results. The following variables will be discussed: age, gender, and marital status.

The variable age has been evaluated in multiple studies. Over (1982) determined productivity slightly decreased with age. However, when productivity was investigated in groups by birth date, younger faculty members produced more at an earlier career stage than older faculty members. This reduced the total decline in productivity by age leading to the conclusion that "a person's previous research productivity was a far better predictor of subsequent research output than age was" (p. 519). Bland and Berquist (1997) observed that average productivity of faculty members drops with age but many senior faculty members remains active, and that there is no significant evidence that age determines a drop in productivity, but shifting workloads and emphasis is to blame. Teodorescu (2000) investigated correlates of faculty publication across 10 countries. He found age to significantly influence research productivity in the United States. Kotrlik et al. (2001) in a study using a random sample of 228 college and university agricultural education faculty members in the United States determined that age did not significantly affect research productivity while Williams et al. (2001) found similar results within United States Academy of Human Resource Development (AHRD) faculty members. Ramsden (1994) also found age not to be associated with research productivity. On the other hand, Blackburn et al. (1991), and Gorman and Scruggs (1984) reported age was related to productivity with Blackburn et al. stating that younger faculty members were producing more.

Gender has been assessed in numerous studies with mixed results. Most results reported females are less productive than males (Bailey, 1992; Bartlett, Kotrlik, Higgins, & Williams, 2001; Billard, 1993; Cohen and Gutek, 1991; Cole and Zuckerman, 1987; Gottlieb et al., 1994; Guyer and Fidell, 1973; Kirk and Rosenblatt, 1980, 1984; Nicoloff and Forrest, 1988; Over, 1982; Rodgers and Maranto, 1989; Vasil, 1992). Gmelch, Wilke, & Lovrich (1986); Sax et al. (1996) and Smith, Anderson, & Lovrich (1995) further supported these findings by reporting that females are lagging

behind males. Six studies did find that there was no difference in productivity due to gender (Boice, Shaughnessy, & Pecker, 1985; Kotrlik et al., 2001; Royalty & Magoon, 1985; Teodorescu, 2000; Williams et al., 2001).

Blackburn et al. (1991) reported that studies investigating marital status have found little if any correlations with faculty members' performance. No particular studies addressing marital status could be located; however, this variable does possess potential to explain research productivity due to the increase of women faculty members in postsecondary education (Creamer, 1998). The potential effect is due to the idea that women generally carry more of a family burden than men and this acts as a deterrent to women allocating additional time to research.

Institutional Support Variables

"Institutions play a significant role in determining both individual and departmental productivity" (Dundar & Lewis, 1998, p. 613). Institutional support has been measured as the number of teaching/research assistants assigned to a faculty member, the hours of assignment, the ratio of such hours allocated per faculty member, institutional and departmental support for research, administrative support, quality of computing facilities, size of libraries, and funding.

The variable teaching/research assistant has been found to be significantly correlated with research production. Dundar and Lewis (1998) found high ratios of graduate students to faculty members correlates with productivity, and the percentage of graduate students that were hired as research assistants correlated highly with research productivity. On a similar note, Kotrlik et al. (2001) and Williams et al. (2001) found a significant proportion of variance explained by number of graduate assistant hours allocated to a faculty member.

Studies investigating the variable institutional supplies and resources have found this variable to significantly effect research productivity. Institutional supplies in the form of perceived institutional and departmental support for research were found by Kelly and Warmbrod (1986) as an important enabler of research productivity. Bland & Berquist (1997) demonstrated that productivity might be enhanced due to administrative support. Johnes (1988) noted that the quality of computing facilities and the size of the library were factors that might influence research performance. Dundar and Lewis (1998) found institutions with more resources provide better resources in the form of library resources as well as other forms of resources. Rebne (1989) found that procurement of research facilities was of importance to faculty members. However, Teodorescu (2000) found no evidence supporting a predictive relationship between institutional support and research productivity.

The variable funding was found to be of major importance in a study by Snyder, McLaughlin, & Montgomery (1990). They stated that in order to have successful research faculty members, research activities must be properly funded. Teodorescu (2000) found the amount of research funds received in the past three years to be an important correlate in the majority of countries in his study. Dundar & Lewis (1998) and Tornquist & Kallsen (1992) also found that financial support was highly correlated to productivity.

Professional Variables

Studies investigating professional variables have met with mixed results. Variables such as tenure, rank, involvement with graduate student research, financial support for research, the amount of time spent in professional employment, and teaching load and level have been studied.

The variable tenure was studied by Butler and Cantrell (1989). Their study evaluated tenure as a valence as related to research productivity of business faculty members, and determined desire for

tenure was significantly related to research productivity. Later, a study by Radhakrishna et al. (1994) found that tenured faculty members held publishing as significantly more important than nontenured faculty members. Bailey (1992), and McNurlen and West (2000) found that research productivity increased from nontenured faculty members to tenured faculty members. Bartlett et al. (2001) found that the number of years a faculty member held a tenure track position did not explain a significant portion in variance for research productivity. Teodorescu (2000) found that tenure was not significantly correlated with article productivity.

Academic rank was studied by Bailey (1992), Dundar and Lewis (1998), Gottlieb et al. (1994), Kyvik and Smeby (1994), Teodorescu (2000) and Vasil (1992). Each found rank to be a significant predictor of research productivity. Ramsden (1994) found seniority of academic rank to be correlated with research performance. Williams et al. (2001) however did not find rank to be a significant predictor of research productivity.

Involvement of faculty members with graduate student research was investigated by Gorman & Scruggs (1984), Radhakrishna et al. (1994), and Kyvik and Smeby (1994). All reported participation in graduate student research was related to faculty members' research productivity supporting earlier research findings of Berelson (1960) and Hagstrom (1965). This was supported by Kelly and Warmbrod's 1986 study in which the number of doctoral committees chaired successfully was highly related to higher research productivity. In contrast, Bartlett et al. (2001) found the number of masters students advised to completion in the last five years explained a significant portion of variance in research productivity of faculty members, while the number of doctoral students advised to completion in the last five years did not explain a significant proportion of the variance. Williams et al. (2001)

found neither master's students nor doctoral students advised to completion explained a significant proportion of the variance.

Financial support through obtaining grants is a strong predictor of publishing at research type institutions (Blackburn et al., 1991). Bailey (1992) found an increase in research productivity from faculty members receiving low funding to those receiving high funding. Dundar and Lewis (1998) reported the percentage of departmental faculty members holding research funding was a factor correlated with research productivity.

The amount of time an individual has spent in professional employment was found to have an impact on faculty members' productivity (Gorman & Scruggs, 1984; Noser et al., 1996; Radhakrishna, 1994; Vasil, 1992). Pfeffer & Langton (1993) later reported that the total years in a profession had a major impact on total research, but not on recent research. Teodorescu (2000) reported that the number of years in higher education did not significantly correlate with article productivity.

Noser et al., (1996) investigated teaching loads and teaching level. Teaching load and teaching level were found to be significantly related to research output. Faculty members with lower teaching loads and those who taught primarily at the graduate level demonstrated the highest mean research scores. Butler & Cantrell (1989) found that the valance of a reduced teaching load was positively related to research production.

Educational/Training Variables

Fox (1983) found graduate school background to be positively correlated with productivity. In contradiction, Williams et al. (2001) found no support for the type of graduate university. Also related to graduate training, Behymer (1974) found that subject matter area was significantly related to faculty members' productivity. Factors related to graduate school experience (courses in research methods,

work on research projects, working with other researchers, teaching research, discussion with other graduate students, help from advisers or researchers, research fellowship or grant, development of strong management skills by example of others) were found to be enabling experiences for faculty members (Kelly & Warmbrod, 1985).

Type and extent of previous employment were found to be related to research productivity. Gorman and Scruggs (1984), and Vasil (1992) found that previous employment in the form of the number of years of professional employment was related to faculty members' productivity.

Time Spent

Choices faculty members make about how they spend their time may affect productivity (Cohen & Gutek, 1991; Gmelch, Wilke, & Lovrich, 1986; Rebne, 1989; Rose, 1985; Vasil, 1992; Yogev, 1982). Faculty members' time can be spent or allocated for numerous duties: teaching, research, service, committee work, editing, advising, and administration. A report conducted by Oklahoma State Regents for Higher Education (1993) stated faculty members felt they spent too much time in administrative roles and not enough time in personal development activities.

Williams et al. (2001) found teaching, research, service and administrative time percentages explained a significant proportion of the variance found in research productivity, while work hours did not explain a significant proportion of variance. Bailey (1992) found an increase in research productivity was supported by amount of time spent on research activities. Liddle, Westergren, & Duke (1997) studied operalization of time spent in relation to publication productivity. Their study found time spent in research activities, time spent advising, and total hours worked significantly correlated with increased production of research, with the majority (78%) indicating they would prefer to spend more time in research. This study did experience limitations, for example, they only measured

frequency of publication over a 12-month period only and reported a low return rate (26%). Teodorescu (2000) found time spent on research significantly affected productivity in four countries including the United States. Conversely, Kotrlik et al. (2001) and Bartlett et al. (2001) found that time allocated to research did not significantly explain research productivity.

Faculty Opinion of Job and Research Environment

Faculty opinion may influence productivity whether it is an opinion of job satisfaction, research/training environment, funding adequacy, or freedom to collaborate. Pfeffer & Langton (1993) reported job satisfaction was positively related to productivity (noting it could be that more productive faculty members are more satisfied). DeMeuse (1987) found a strong relation between subjective opinions of program quality and the number of articles that a university published using Journal of Applied Psychology articles. Blackburn et al. (1991) reported characteristics of employing institution were not related to research productivity. While Williams et al. (2001) found organizational culture/support for research did not explain a significant proportion of the variance in research productivity.

An additional item found to be of importance to faculty members as related to research productivity is the freedom to collaborate. Research productivity was found to increase with the enhancement of the freedom to collaborate (Bland & Berquist, 1997; Cole & Cole, 1972; Landry, Traore, & Godin, 1996; Teodorescu, 2000). Opportunities to share work or communicate with peers have been shown to relate with research productivity (Christensen, 1991; Ito, 1994).

Interest in research has also been investigated. Blackburn et al. (1991) found this variable did not predict productivity. However, Behymer (1974) found research interest to be the best predictor of research productivity and Gottlieb et al. (1994) found personal preferences predicted productivity.

Ramsden (1994) found early interest in research to be correlated with research performance. Noser et al. (1996) found attitude toward research to be related to research productivity.

Lewis (1996) investigated commitment to research. He found faculty members with a primary commitment to research published more and obtained more research funds than those primarily committed to teaching.

Institutional Characteristics

These variables include, but are not limited to type of institution (Bailey, 1992; Behymer, 1974; Campbell and Morgan, 1987; Englebrecht et al., 1994; Milne and Vent, 1987); mission of respective institution (Street & Baril, 1994); institutional size (Dundar & Lewis, 1998; Gorman &Scruggs, 1984; Vasil, 1992); confidence in research abilities and self-efficacy (Dean, 1982; Vasil, 1992 &1996); and faculty size (Dundar & Lewis, 1998). Radhakrishna et al. (1994) reported previous research determined that faculty members in major research institutions published more than faculty members at four-year colleges. Bailey (1992) found an increase in research productivity from Liberal Arts II Colleges through Research I Universities. The Washington State Higher Education Coordinating Board (1994) found that as of 1991, faculty members at research universities produced twice the amount of publications as faculty members at 4-year colleges and universities. El-Khawas (1991) found there are a significantly lower number of senior members that participate in research at two-year colleges when compared to four-year colleges and comprehensive universities. Gottlieb et al. (1994), Ramsden (1994), and Noser et al. (1996) found the type of educational institution predicted productivity.

Bland and Ruffin (1992) found several characteristics of one's research environment to be associated with research productivity. These variables include clear goals, research emphasis, culture, positive group climate, assertive participative governance, decentralized organization, frequent

communication, accessible resources, sufficient size, age and diversity of the research groups, appropriate rewards, concentration on recruitment and selection, leadership with research expertise, and skill in initiating appropriate organizational structure, and using participatory management practices. Ramsden (1994) found membership in a highly active research department to be a predictor of an individual's research productivity, as well as the variables perception of degree to which the institution provides a cooperatively managed environment and dissatisfaction with promotions.

Noser et al. (1996) investigated size of the institution in respect to research output. They determined institution size to be significantly related to research output.

Salary

There have been studies that reported salary to be significantly related to research production (Jacobsen, 1992; Pfeffer and Langton, 1993; Rebne, 1989; Tornquist and Kallsen, 1992). However, nonresponse rates for salary are generally high.

Measurement of Research Productivity

This section will discuss various methods of measuring research productivity which have been utilized in past research efforts. The majority of methods measuring research productivity involve publications or measuring the number of journal articles published.

Radhakrishna and Jackson (1993) stated publishing in refereed journals was ranked as the most important factor by agricultural and extension education department heads. This faculty group was asked to rank 13 factors which could be used to evaluate research productivity. The results in rank order were publication of articles in refereed journals, presentation of papers in research meetings, number of articles published in refereed journals, presentation of papers at conferences, number of papers presented at research meetings, publication of articles in nonrefereed journals, number of papers

presented at conferences, being an editor of a journal, number of articles published in nonrefereed journals, being a discussant of paper presentations, being a reviewer of articles, publication of articles in international journals, and being a member on the editorial board of a journal.

Zamarripa (1994) discussed the importance and difficulty of defining research productivity. He included reporting grant funding as one of several criteria that could be used. His study surveyed 40 faculty from 40 universities (members of the Society of Research Administrators). He considered these individuals to be experts in this area. The survey asked the judges to score in importance 25 potential measures of research productivity - item examples included invited presentations by staff, publications in refereed journals, and grants awarded to each year. Results demonstrated the importance of refereed publications. Zamarripa (1994) recommended measuring the total number of publications, the number in refereed journals, the number of grants awarded each year, the number of graduate students working on research projects, and the number of papers presented at national meetings to determine research productivity. He did not exclude measuring any variable in particular, but did recommend measuring an array of variables focusing on those listed in the previous statement.

Print and Hattie (1997) discussed the value of publications as the most direct measure of research performance. They present a rank order table of factors constructed by the National Board of Employment, Education and Training (1994). Performance indicators are ranked as follows: articles in refereed journals, commercially published peer reviewed books, major refereed conference presentation, paper in refereed conference proceedings, articles weighted by journal citation impact, chapters in commercially published peer refereed journals, competitive peer reviewed grants, postgraduate research degrees supervised to completion, and editor/editorial board of recognized journals. To complete their study, research productivity was categorized into three major groups -

research grants, research students and publications over the past three years. The three major groups included the following divisions: number of major grants, number of minor grants, number of PhD students, number of masters students, number of books, number of monographs, number of textbooks, number of chapters, number of refereed journal articles, number of non-refereed journal articles, number of conference papers, number of creative works, number of curriculum related works, and number of reports.

Individual studies have selected a variety of research productivity measures. Bell et al. (1993) measured publications in major research journals. Read et al. (1998) utilized a publications index. Henthorne et al. (1998) measured specific years and journals only.

Kelly and Warmbrod (1985) used multiple variables to measure research productivity - number of presentations, books, journal articles, popular articles, research reports, and doctoral committees successfully chaired and completed. Bentley and Blackburn (1990) defined productivity as the amount of "articles produced, books published, and/or citations in other researchers' work" (p. 16). Teodorescu (2000) measured research productivity as self-reported number of journal articles and chapters in academic books published more than three years prior to his survey.

Porter and Umbach (2000) discussed past research measuring research productivity by utilizing presentations to journal publications and books to the amount of grant dollars. They finalized their measurement method to include the following dependent variables - publications over a two-year period and the dollar amount of external research funding; and the total external grant dollars for a specified academic year for which the faculty member was either principal or co-principal investigator.

Bailey (1992) discussed criteria for measurement including publication counts, citation counts, and/or peer or colleague ratings. He cited research by the Carnegie Foundation (1989) stating that the

majority of faculty members surveyed agreed that methods besides publications were needed, and by Creswell (1985) suggesting including research grants. Bailey (1992) finalized his measure of faculty members' productivity to include the number of articles published in academic or professional journals, the number of articles published in edited collections or volumes, the number of books or monographs published or edited alone, or in collaboration, the number of professional writings published or accepted for publication in the past two years, and the receipt of external research support within the last 12 months.

Little agreement exists on how to weight forms of publications. McNurlen and West (2000) discussed previous research by Print and Hattie (1997) utilizing a weighted measure of various indicators including refereed journal articles, peer reviewed books and major competitive research grants. However, McNurlen and West only utilize the number of book chapters and journal articles for their study.

Noser et al (1996) measured the number of publications in journals, paper presentations at national and regional meetings, and number of books. Two research scores were computed form this data - one by dividing the sum of all publications by length of career and the second by dividing a weighted value by the length of career.

Ramsden and Moses (1992) also defined an index of research productivity, but used more than five years in addition to an index of research activity. Research productivity was defined as three times the number of single or multi-author books plus the number of papers published in refereed journals plus the number of edited books plus the number of chapters in refereed books. Research activity was calculated by answers on a scale of activities over the past two years: received external competitive research grants, received internal competitive research grants, supervised one or more

honors/masters students, supervised one or more PhD students, held informal discussions with department colleagues about common research interests, participated in one or more joint research projects with colleagues, served as editor or on editorial board of an academic journal, reviewed one or more proposals for a funding agency, refereed one or more articles for a journal, delivered one or more conference papers in research area, and maintained professional contact with colleagues overseas.

Street and Baril (1994) measured publications in academic journals giving less weight to publishing in practitioner versus educational journals. Linsky and Straus (1975) constructed a publication total score based on a weighted summary of the number of articles and books published and a citation score. Aleamoni and Yimer (1973) utilized a method recommended by Stallings and Singhal (1970) of combining weighted and unweighted sum of books, articles, technical reports, bulletins, and book reviews. Moore et al. (2001) used a similar measurement method totaling publications (sum of books, manuscripts, journal articles) and assigning a level to first and second tier journals.

Kyvik and Smeby (1994) devised a productivity indicator measuring publications over a three-year period on four categories B articles in scientific and scholarly journals; articles in research books, text books and conference proceedings; published research books and text books; reports published in report series. All publications were regarded as equivalent to articles. An article in a journal or book had a value of one, a book a value of four, a report a value of one. Coauthored works were divided by two.

Kotrlik et al. (2001), Bartlett et al. (2001), and Williams et al. (2001) constructed a research productivity score. They assigned a credit of 1.0 for each refereed journal article published for which the respondent was a sole author; a credit of .50 for each refereed coauthored article for which the

respondent was the lead author; and a credit of .33 for each refereed coauthored article for which the respondent was not the lead author.

Research Productivity Research Utilizing a Theoretical Base

The literature review presented thus far represents the variables previously investigated in determining factors explaining faculty research productivity. However, only six of these studies have presented a theoretical base that was utilized to select variables to be investigated and then to explain results determined. These studies include Hunter and Kuh (1987), Butler and Cantrell (1989), Baldwin (1990), Blackburn et al. (1991), Olsen (1993), and Tien and Blackburn (1996). These studies are presented in detail separately from the literature above because the review of theoretical foundations presented in each of these studies assisted to narrow down the search for the theoretical base of this study.

Hunter and Kuh (1987) described factors related to the productivity of prolific contributors to higher education literature. This study posited that knowledge production was a function of personal characteristics and environmental factors. To investigate this statement, they utilized adult and career development, personality, and socialization perspectives. Hunter and Kuh (1987) began their discussion noting previous research that had determined positive associations between high publication activity and completion of the doctorate at an early age, with teaching at graduate level, and fewer years teaching experience before completion of the doctorate. They also reported findings of an early period of productivity before age 40 with a second period of productivity in the late 40's and early 50's.

Hunter and Kuh (1987) discussed personality profiles of creative individuals that have been empirically derived. They reported that creative individuals were suggested to be “confident, sensitive, open-minded, curios, flexible in their thinking, intellectually playful, willing to work long hours over long

periods of time, and have a well-developed sense of humor" (p. 444). Hunter and Kuh (1987) also reported reasons for engaging in research and publication activities to include "an interest in contributing to knowledge, facilitating promotion in academic rank, enhancing personal prestige, and fulfilling a sense of scholarly obligation" (p. 444). Socialization processes were reported by Hunter and Kuh (1987) to operate in favor of men and lower the productivity of women. Institutional rewards and opportunities, productive colleague networks, doctoral program (training), mentor or sponsorship, organizational leadership roles, and generative behavior (independent sponsorship and socialization of newcomers) were reported to be positively related to research and publication activity.

Factors related to exceptional output included experience publishing with faculty members in graduate school, collaboration with students on writing projects, employer expectations to engage in publishing, inquiry activity motivated by personal satisfaction, presence of a mentor or sponsor, good-natured, creative/diverse interests, and vocational satisfaction. Individual statements derived from this study regarding personal influences on productivity included spousal support of scholarly activities contributing indirectly to productivity as well as mentors in graduate school and early in career, and participation in professional groups. Hunter and Kuh (1987) closed their study by summarizing seven typical behaviors of prolific scholars:

1. Prolific scholars are motivated by an authentic enjoyment of and reverence for research activities.
2. Being "adopted" by a sponsor contributes to scholarly success.
3. The careers of prolific scholars do not follow a predictable, predetermined path.
4. Prolific scholars recognize and take advantage of fortuitous opportunities when presented.

5. A congenial work "environment" that encourages immersion in research activities and surrounds an academic with opportunities for research contributes to prolific scholarship.

6. A supportive home environment or personal life style contributes to prolific scholarship.

7. Membership in the "write-wing" seems to be related to certain socialization experiences that may militate against women and minorities.

Butler and Cantrell (1989) conducted an exploratory study to compare the valences of six extrinsic rewards (money, reduced teaching load, tenure, mobility, recognition, and promotion) and to relate these to business faculty members' research productivity. They utilized Vroom's (1964) expectancy theory to model motivation of this group. They used extrinsic rewards and shied away from intrinsic rewards because a list of extrinsic rewards could be agreed upon more readily, as well as definitions of extrinsic rewards, and extrinsic rewards were more controllable by administrators. Butler and Cantrell (1989) stated expectancy was not included in the model because "instrumentality and valence, alone, have been found to predict motivation and performance" (p. 343-344).

Results demonstrated that money and reduced teaching load were the most desirable rewards across the entire sample, with mobility, recognition and promotion as the least desirable outcomes for the entire sample. For nontenured faculty members, tenure was the most desirable reward, while tenured faculty members indicated that money and reduced teaching load were the most desirable. The correlation between money and productivity was significantly greater for assistant professors than for associate professors; whereas the correlation between productivity and mobility was significantly greater for associate professors than for assistant professors. Significant differences were also found across ranks between research productivity and both money and mobility.

Butler and Cantrell (1989) summarized their findings by discussing their relevance to both expectancy theory and need theory. They concluded their findings support need theories and report "... for lower-level needs, need strength is a negatively sloping function of need fulfillment. The less fulfilled lower-level needs are, the more they will be desired (that is, the higher their valences will be)" (p. 350). They related tenure to the lower-level need of security and existence and cite Maslow (1943) and Alderfer (1969), respectively. They further concluded that the higher valence of tenure for nontenured faculty members than for tenured faculty members is consistent with need theory, as well as the relationship between rank and the valence of tenure because nearly all assistant professors were nontenured. Butler and Cantrell (1989) explained the findings related to money and mobility between assistant and associate professors by referring to the higher starting salaries of assistant professors and the possibility that associate professors see mobility as their only means of increasing their salary.

Baldwin (1990) conducted a qualitative and exploratory study to identify individual and institutional/environmental factors to distinguish between "vital" professors and the "representative" cohort of their colleagues (p. 160). He referenced organizational behavior and career development literature. In discussing institutional/environmental factors, he referenced literature by Kanter (1977, 1979) suggesting that "environmental conditions, especially opportunities for career growth and advancement, influence the amount of effort employees exert and the degree of work commitment they feel" (p. 161). He also addressed literature presented by Austin and Gamson (1983) and Rice and Austin (1988) that indicated that extrinsic factors as well as organizational culture (teaching loads, administrative practices, rewards, and opportunity structures, clearly articulated mission, leadership, colleagueship, customs, and rituals) can influence faculty members' productivity. Baldwin (1990) posited that vitality may vary as a function of career development processes because career

development theory suggests that in many fields workers eventually reach a plateau following an initial period of career growth when they become less goal-directed. Baldwin and Blackburn (1981) supported this statement reporting that after achieving the highest academic status, many professors experience a career reassessment phase.

Baldwin (1990) found vital professors invest larger portions of their time in research and administrative and institutional service activities than do the representative cohort professors leading more diversified and balanced work lives. In addition, he found vital professors to be more involved in professional activities - presentations at meetings, consulting, publishing, collaborating, and applying for funding. A large percentage of vital professors stated they had revised their work roles at some point in their career. Vital professors had also reported a series of environmental factors which contributed to their career success - contributions by administrators (funds, equipment, reduced course loads, recognition, good relationship between administrator-faculty members, early support, administrators who assisted but allowed autonomy), obtaining grants, support for professional development, recognition, and rewards. Hindrances were reported more often by vital professors than cohort professors including insufficient working conditions (lab facilities, library collections), professional isolation, and administrators.

In summary, Baldwin (1990) stated six implications for policy and practice:

1. Foster diversified academic careers.
2. Encourage career planning.
3. Facilitate faculty collaboration, risk-taking, and role change.
4. Employ academic personnel policies flexibly.
5. Recognize and reward professors' achievements.

6. Train deans and department chairpersons to work as faculty developers.

Baldwin's (1990) findings and conclusions support organizational behavior, career development and leadership theories. Organizational behavior literature states that "... productive, engaged workers find continuing challenges and opportunities for growth in their positions . . . . [and] maintain a sense of progression in their work lives" (p. 175). Career development literature discusses career stages and hurdles throughout these stages. Leadership theories state the need for leaders who establish environments to ensure flexible policies, recognize and reward employees and evaluate on a situational basis.

Blackburn et al. (1991) utilized the framework of cognitive motivation theory to evaluate the role of selected personal and environmental motivational variables for faculty members' allocation of work effort given to research, scholarship and service. This study investigated the variables gender (sociodemographic), quality of graduate school attended, career age, rank (career); self-competence and self-efficacy regarding research, scholarship, and service and percent time preferred to give to research, scholarship, and service (self-valuations); and institutional preference, consensus and support, and colleague commitment to research, scholarship, and service (perception of the environment).

Blackburn et al. (1991) discussed need theory, life-stage theory, and socialization theory. They related demographic variables of gender and age as "ascribed characteristics that can be thought of as surrogates within need motivation theory" (p. 387). For gender, they argued that it is related to need theory because the inherent supportive and cooperative nature of women motivates women to favor teaching. Whereas males have an increased need for affiliation as they age and therefore, their interest in teaching increases as they proceed through the late stages of their lives. They presented this to be in

correlation with life-stage theory which posits that at successive points in time people have different needs and these needs motivate behavior.

Socialization theory as addressed by Blackburn et al. (1991) is related to field of specialization, education experience and characteristics of graduate institution, and characteristics of employing institution. They discussed how certain occurrences (e.g., earning a Ph.D.) would increase one's ability to conduct research, and earning such at a Research-I institution would instill greater values of research and teaching in that individual. This would bring relevance to the experiences in one's early career and the persistence of these activities later in one's career. Blackburn et al. (1991) also discussed the relevance of other motivators including organizational and institutional rewards and incentives - reward structures within the institution in the form of salary, promotions, distinguished titles. Cognitive motivation theory is discussed as "... the manner in which people differentially assess their personal abilities and interest interacts with their perceptions of the organization's priorities (what it supports) and causes them to engage extensively in some activities and less frequently in other activities" (p. 388) - and addressed as commitment to research/scholarship/service, level of research/service competence, impact on getting research accepted for publication, level of interest in research/scholarship/service, and percentage of effort preferred to give to each role.

Blackburn et al. (1991) found several variables to be strong predictors of publishing - self-competence, financial support through obtaining grants, career age, self-efficacy, self-valuations, and perceptions of environment. They stated that their theoretical base (need theory, life-stage theory, socialization theory, and cognitive motivation theory) was supported by their results and recommend that institutions create opportunities for faculty members to increase their competencies, and that faculty members' growth and performance can be enhanced by administrative leadership.

Olsen (1993) examined faculty members' development over the first three years of appointment to investigate work satisfaction and stress. Her theoretical framework was based on theories of socialization and career development. She discussed the role of socialization processes in work commitment, motivation, performance, productivity stress, satisfaction and turnover. She referenced Schein's (1968) socialization scheme where success early in one's career generates opportunities and desire for success later in one's career. In addition, she reported early socialization is important because it heightens the receptivity of individuals to norms and values of the organization and profession. This occurs in academia as those who "hit the ground running" are later successful and satisfied within academe (p. 454). Faculty literature states that intense socialization occurs in the early years following appointment.

Olsen (1993) continued to discuss rewards of a faculty member's career. Intrinsic rewards include opportunity for independent thought and action, feelings of worthwhile accomplishment, opportunities for personal growth and development, and job-related self-esteem. These rewards are more salient for individuals who "experience higher order need satisfaction on a continuing basis without the strength of desire for additional satisfaction of these needs diminishing" (Hackman & Lawler, 1971, p. 262). Following the theoretical prescriptions of Alderfer (1969), since these are higher order needs, it may be that "... additional satisfaction of higher order needs actually increases their strength" (p. 454). Extrinsic rewards or factors are reported by Olsen (1993) to have been reported as sources of faculty members' dissatisfaction. Examples included university support, salary, university structure and university reward system. In addition, certain leadership issues were also seen as a source of dissatisfaction - including participation in decision making (or lack there of).

Olsen (1993) referenced Feldman's works on career development stating that his "encounter" stage was related to that of the first three years of a faculty member's appointment and that this was a time of intense socialization where the faculty member learned what the profession was really like. This is a time when "role definition" occurs, however, junior faculty members are experiencing a substantial amount of role anxiety and are attempting to define their roles - including defining expectations for performance and prioritizing time and effort.

Olsen (1993) concluded that consistencies were found between the findings of this study and career development theory. A downward turn in faculty members' work satisfaction occurred over the first years of appointment as job related stress increased. Faculty members reported time and balance conflicts, issues of compensation, feedback, and job security. Factors related to work stress the first year included external support and recognition, and for the third year, intrinsic rewards of scholarly productivity. This supported Feldman's notional of shifting of career values and goals. Olsen recommended increased administrative support and recognition of new faculty members, mentors, collegiality between faculty members, faculty seminars, department defined faculty development grants, flexibility, better physical resources (library, lab, studio), more support staff, and funding for professional meetings.

Tien and Blackburn (1996) conducted a study investigating faculty rank system, research motivation and faculty member's research productivity. They began by discussing the lack of a theory base in traditional faculty studies and continue to formulate a basis for their study. They discussed behavioral reinforcement theory, cognitive evaluation theory and expectancy theory. Tien and Blackburn (1996) stated that faculty rank can be viewed as a reward system and a schedule of reinforcement from the behavioral reinforcement theory perspective. They posited that "... as a reward,

promotion has the greatest motivating effect when it is contingent upon performance" (p. 5). As a reinforcement schedule, the introduction and removal of promotion influences a publication rate and shapes the productivity curve. In discussing cognitive evaluation theory, they stated that this suggests extrinsic rewards may reduce intrinsic motivation; and therefore, this implies a "possible negative effect of extrinsic reward on faculty research productivity" (p. 6). Next, expectancy theory was noted as providing a rationale for how "... individual needs, values, and perceptions about the environment determine one's behavior" (p. 6). Based on expectancy theory, they stated that a faculty member's motivation to conduct research will be greatest when belief exists that research performance will lead to an outcome; that outcome is perceived to have value; and belief exists that with effort, one will be able to perform at the desired level.

Tien and Blackburn (1996) reported the use of behavioral reinforcement theory for the analysis of this study because of measurement constraints of cognitive evaluation and expectancy theory. They continued on to discuss rank from the perspective of behaviorism. They stated that promotion is considered as having a motivating effect on productivity from this perspective and the system of faculty ranks is viewed as an intermittent schedule of reinforcement. Publishing, the desirable behavior, is not always reinforced by a promotion under this schedule according to Tien and Blackburn (1996); therefore, they treated promotion as a fixed interval schedule assuming it would then influence the productivity curve. They then posited that the expected publication rate is low in the early period of the rank interval, but it increases as promotion comes closer, then declines after promotion is obtained.

Tien and Blackburn (1996) reported productivity rates to vary by discipline, and for the entire sample, full professors published significantly more research than assistant and associate professors. Associate professors did not produce more than assistant professors. Also, a greater variation

occurred in productivity as faculty members advanced in rank. Faculty members who remained in a rank position longer than six years had fewer publications that their colleagues at the same rank.

Tien and Blackburn (1996) concluded that behavioral reinforcement theory was not fully supported - neither the reinforcement schedule nor selection. The productivity curve of associate professors most closely fits behavioral reinforcement theory, and the rank group with the smallest variance is the assistant professor group. In an attempt to explain the results, Tien and Blackburn (1996) referenced multiple theories. First they discussed how cognitive evaluation theory suggests the importance of intrinsic motivation of productivity. Then they mentioned the emphasis on the critical role of resource acquisition by accumulative advantage theorists. And finally, they referenced behavioral reinforcement theory again because other external rewards (salary increases, peer recognition) may continue to operate during the full professorship. Lastly, they stated "Right now the most warranted conclusion is that motivation toward research productivity is neither purely intrinsic nor purely extrinsic. Rather, both appear to operate depending upon the circumstances of the individual, their values, and the social situation of the moment" (p. 19).

Theoretical Base

After reviewing literature and related theory presented thus far, and in consideration of the purpose of this research effort - to determine what drives an HRED postsecondary faculty member to demonstrate higher research productivity than fellow HRED faculty members - the researcher determined that motivation theory, specifically drawing from cognitive motivation theory, would be utilized as the theoretical framework for this research effort. This would allow the investigation of both individual and institutional factors to be considered as potential drivers or motivational antecedents to the research productivity of faculty members.

To begin the explanation and description of the theoretical base of this research effort and to lay the basis for the design of a faculty research productivity model, the concept of motivation is addressed first. To investigate, research on motivation was reviewed. Mounds of research and theory exist pertaining to motivation, from Campbell to Vroom. However, considering the uniqueness of postsecondary faculty, the research found to be the most logical fit and found to be of greatest interest to this research effort was that of Campbell, Thierry, Staw and Bandura.

Campbell (1990) presents a discussion of motivation and performance and a related model. Campbell defines performance as a behavior and states performance should be referenced specifically to the job, position, or role in an organization. He states that to have an understanding of job performance, one must "... have some understanding of the organizational goals to which the individual performance is supposed to contribute" (p. 704). Therefore, Campbell states that performance includes only the behaviors or actions relevant to the organization's goals.

Campbell (1990) further states that a job is very complex and is composed of a number of performance components. Campbell differentiates between performance, effectiveness and productivity. He states that effectiveness refers to "... the evaluation of the results of performance" and productivity "... is the ratio of effectiveness to the cost of achieving that level of effectiveness" (p. 705). In this study, faculty members' research productivity is considered a component of performance for the overall job of a faculty member in higher education.

Campbell (1990) states that there are three determinants of job performance components: declarative knowledge (knowledge about facts and things - what to do); procedural knowledge and skill (how to do it); and motivation (choice to expend effort, choice of level of effort to expend, and choice to persist in the expenditure of that level of effort). Campbell references cognitive expectancy

models that say certain specific thoughts govern these choices - expectancy, instrumentality or valence; whereas other models might see these as need for achievement.

Campbell continues his discussion to present a taxonomy of major performance components noting that all or any combination of these components may be utilized. The components include:

1. Job-specific task proficiency - "... the degree to which an individual can perform the core substantive or technical tasks central to his or her job" (p. 708-709).
2. Nonjob-specific task proficiency - tasks required that are not specific to the particular job.
3. Written and oral communication tasks - oral or written presentations.
4. Demonstrating effort - "... a direct reflection of the consistency of an individual's effort day by day, the degree to which he or she will expend extra effort when required and the willingness to keep working under adverse conditions" (p. 709).
5. Maintaining personal discipline - the degree to which negative behavior (infractions to rules) is avoided.
6. Facilitating peer and team performance - "... the degree to which the individual supports his or her peers, helps them with job problems, and acts as a de facto trainer" (p. 709).
7. Supervision - "... all behaviors directed at influencing the performance of supervisees through face-to-face interpersonal interaction and influence" (p. 709).
8. Management/administration - "... the major elements in management that are independent of direct supervision" (p. 710).

As referenced earlier, in his discussion, Campbell states that performance is relevant to an organization. Because Campbell's definitions and performance components are generic, they can be applied to both business/industry and educational type institutions. Therefore, since an educational

organization is the focus of this research effort, performance and motivation discussion should be relevant to a university/college setting, and to comply, Staw (1984) is visited.

Staw (1984) sets out to apply work motivation theories to educational institutions (universities/colleges). He states that organizational models of motivation are focused on more of a non-voluntary environment where principles of exchange dominate participation, whereas a university is a "... professional organization devoted to the pursuit of knowledge" (p. 63). Moreover, behavior in universities is generally more altruistic versus a more hedonistic behavior of organizations.

Staw (1984) notes that motivational theories cannot assure system performance because goals must be aligned so one's gain will not be at the expense of the educational system. In relating organizational motivation theory to educational institutions, Staw discusses the value of reinforcement principles to make a behavior more frequent - however, he notes that organizational priorities must be set first to decide which behaviors produce a most effective faculty member. Also, he states faculty must believe they can perform their roles effectively as well as perceive some benefit from their performance.

In addition, he references faculty rewards that are stronger and more salient to the individual may provide increased faculty motivation. Providing models of success may also assist. Staw (1984) warns that reward systems must be used carefully because much university behavior is "... voluntary in nature, sustained by intrinsic outcomes, and governed by norms of self rather than system control" (p. 73).

Another concern is that faculty may not always be interested in the outcomes provided by administrators. Universities must manage individual achievement and accomplishment of institutional

goals. Staw (1984) also discusses the potential role of prosocial behavior where the individual assumes roles in the university with benefit to the university and little to no individual benefit.

Staw (1984) then proposes a model of organizational motivation based on the concept that university motivation may be selfless and therefore a different type of motivational model than is produced for organizational research may be necessary. He suggests socialization practices which form an "included" sense within the organization by the individual and that encourage identification with the organization by the individual, and removing personal costs may increase organizationally motivated behavior.

Throughout his discussions, Staw (1984) presents information demonstrating potential differences in the application and outcomes of motivation theory between organizations and universities, as well as discussing the altruistic nature of universities. Therefore, since educational institutions are more individualistic and have potentially different outcomes with the application of motivational theory, the remainder of this discussion will be based on research focusing on individual cognitive process by Thierry and Bandura because these authors discuss the individual aspect of cognitive motivation and take into account environmental factors.

Thierry (1998) focuses on cognitive theory. He posits that when a person is actively processing information that person will perceive signals, interpret signals, store the information in memory and retrieve the information when needed; therefore influencing some behavior. Cognitive motivation as discussed by Thierry involves an individual's cognitive processing of multiple factors - including self (interests, skills, abilities, desires, and needs), environment (rewards, verbal and nonverbal, and punishments).

Thierry (1998) presents information on specific cognitive motivation theories which are based on particular sequences and produce specific outcomes. For example, he discusses theories by Deci, Adams, and Vroom - each of which include some processing of self and environment with resulting action, outcome or behavior. It is important to note, that within his postulates, Deci (1975) references the potential of extrinsic rewards to lower intrinsic motivation, i.e., individuals may cognitively appraise that they are working for a more salient extrinsic reward than for their intrinsic interest. This statement collaborates with discussion of selflessness by Staw (1984).

Throughout his presentation of cognitive theories, Thierry (1998) continually references the individual, his/her processing of information (internal and external), and the influence of this information processing on some outcome, action or behavior. Thierry's (1998) presentation of cognitive motivation is a broad overview and explanation of cognitive motivation theory and research proposed on the subject. To present a more specific discussion of interaction and processing within the individual and between the individual and the environment, this discussion will move to Bandura (1977) who presents a more detailed (and individualistic) discussion of the roles of individual and environment, and information processing to obtain some outcome.

Bandura (1977) discusses personal efficacy, initiation of coping behavior, effort expended, and sustainabilty. He discusses derivations of personal efficacy including performance accomplishments, vicarious experience, verbal persuasion, and psychological states. If viewed in a broad state, and in the sense of application to a work setting in which employee's self-efficacy and cognitive state as well as environmental inputs and barriers and subjection are present, this research effort is discussing cognitive motivation. Bandura (1977) presents a number of plausible discussions on the cognitive evaluation of

situations and personal abilities and skill, as well as desired outcomes of another (i.e., the organization), and leads to some explanation of behavior (i.e., performance outcome in the organizational sense).

Bandura (1977) posits that expectations of personal efficacy determine coping behavior, that is, initiation, effort expended, and sustained effort (essentially, motivation). He states that expectations of personal efficacies are derived from performance accomplishments, vicarious experience, verbal persuasion, and psychological states. Bandura (1977) postulates that "... cognitive processes mediate change but that cognitive events are induced and altered most readily by experience of mastery arising from effective performance," and adds that "... psychological changes can be produced through other means than performance accomplishments" (p. 191). He then begins a discussion on cognitive theories.

Bandura (1977) states that cognitive theories explain behavior in terms of "central processing of direct, vicarious and symbolic sources of information" (p. 192). He continues to discuss the influence of modeling on behavior. He states that behavior patterns are formed through observation of others and the observations later serve as a guide for action. That is, when a person perceives organizational priorities as one thing, those priorities perceived will later serve as a guide to the performance of that individual. And, these perceptions are later adjusted through feedback. Feedback may occur as consequences which then serve to inform individuals as to what they need to do to "gain beneficial outcomes and to avoid punishing ones" (p. 192). Therefore, an individual's observation affects their actions and then they behave accordingly. In addition to feedback and/or consequences, a schedule of reinforcement may be used. That is, the belief of a reward over the long term must be present to encourage continued behavior.

Bandura (1977) continues to discuss the role efficacy expectations serve in producing a behavior. He posits that expectations of personal efficacy are created and strengthened by

psychological procedures. That is, both the initiation and persistence of coping behavior are affected by personal mastery and that the "... strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations" (p. 193). In other words, people engage in behaviors when they judge their coping skills are sufficient, as well as determine the level of effort to expend and level of persistence. Therefore, it is efficacy that serves as a base of motivation, but is not the sole determinant of behavior. Component capabilities must be present (Bandura, 1977). Component capabilities are, in short, incentives. Bandura (1977) states that efficacy expectations are a major determinant of people's choice of activities, effort expended, and persistence when appropriate skills and adequate incentives are present.

Efficacy expectations may be derived from multiple sources including past experiences of success and failure (performance accomplishments), modeled behavior by others (vicarious experiences), leading people by suggestion (verbal persuasion), and anxiety and vulnerability to stress (emotional arousal) - therefore, a combination of personal and environmental factors (Bandura, 1977). Bandura (1977) posits that the strongest of the sources of efficacy expectations is performance accomplishments (i.e., personal success), while the other sources, although influencing, may not have as great and sustaining influence on efficacy expectations.

Bandura (1977) further states that although all of these experiences may be present, how the individual cognitively processes this information will have an impact on efficacy expectations. This would include "... social, institutional, and temporal circumstances under which events occur" (p. 200). Therefore, an individual will use some type of discrimination function when an event occurs in order to process the event. This will then influence the impact of the event and therefore the resulting behavior or outcome. In conclusion, people "... process, weigh, and integrate diverse sources of information

concerning their capability, and they regulate their choice behavior and effort expenditure accordingly," and these sources of information include performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal (Bandura, 1977, p. 212).

Considering the theoretical information presented above, a HRED Faculty Research Productivity Model was developed in an attempt to determine factors that drive HRED faculty members to demonstrate higher research productivity than fellow HRED faculty members. That is, what motivates a HRED faculty member to be a higher producer of research than other HRED faculty members? This model takes into consideration information provided by cognitive motivation theorists, accounts for the altruistic environment of a university, and the uniqueness of a postsecondary faculty member. The HRED Faculty Research Productivity Model is a mediated model constructed for the purpose of identifying factors driving HRED faculty research productivity in which environmental variables are controlled for, perceptions of organizational priorities are considered motivational antecedents, and personal interest/abilities are assumed to mediate the relationship between the motivational antecedents and the research productivity of HRED faculty members. The model follows:

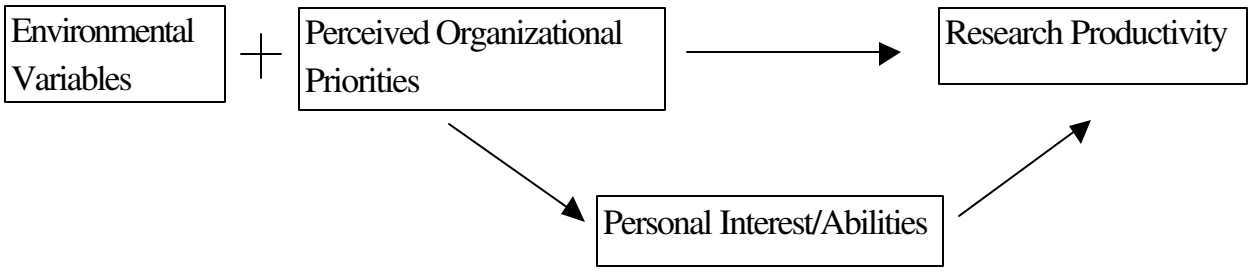

Figure 1. Human Resource Education and Development Faculty Research Productivity Model

Summary of Literature

The purpose of this study is to examine factors that drive HRED research productivity. This Chapter presented a review of research productivity literature as related to the purpose of this study.

Research productivity assumes multiple roles in postsecondary education. Institutions establish promotion, tenure and reward systems using research productivity as a basis for awarding each (Astin & Lee, 1967; Centra, 1977; Centra, 1983; Kotrlik et al., 2001; Read et al., 1998). An institution, a discipline, and a faculty member's ranking, performance and prestige are determined in part by research productivity (Creamer, 1998; Henthorne et al., 1998; Moore et al., 2001). Higher levels of knowledge dissemination and sharing throughout a discipline and to students are related to higher levels of research produced by faculty members (Henthorne et al., 1998; McKeachie, 1994). Faculty members who produce a higher level of research, become recognized as on the cutting edge of their field, knowledgeable about issues in their field, more powerful educators, and serve as a frame of reference for junior faculty members (Levine, 1997).

Numerous factors have been found to be associated with research productivity. Contradictory results were found for each personal variable: age, gender, and martial status (Bailey, 1992; Bartlett et al., 2001; Blackburn et al., 1991; Bland & Berquist, 1997; Gorman & Scruggs, 1984; Kotrlik et al., 2001; Sax et al., 1996; Smith et al., 1995). Institutional support variables including the number of teaching/research assistants assigned to a faculty member, the hours of assignment, the ratio of such hours allocated per faculty member, institutional and departmental support for research, administrative support, quality of computing facilities, size of libraries, and funds were all found to be associated with research productivity (Bland & Berquist, 1997; Dundar & Lewis, 1998; Johnes, 1988; Kelly & Warmbrod, 1986; Kotrlik et al., 2001; Snyder, et al., 1990; Tornquist & Kallsen, 1992; Williams et

al., 2001). Research on professional variables found tenure, rank, and amount of time in professional employment to produce mixed results; while involvement with graduate student research and financial support through obtaining grants were found to be associated with research productivity (Bailey, 1992; Blackburn et al., 1991; Butler & Cantrell, 1989; Dundar & Lewis, 1998; Gorman & Scruggs, 1984; Pfeffer & Langton, 1993; Radhakrishna et al., 1994; Vasil, 1992; Williams et al., 2001). Other professional variables that were not found in the literature but will be included in this study include instructional duties, principal activity, faculty status, department chair, and full/part-time status. Educational/training variables of graduate training and previous employment met with mixed results (Blackburn et al., 1991; Behymer, 1974; Gorman & Scruggs, 1984; Pfeffer & Langton, 1992; Williams et al., 2001). The majority of research on how faculty members spend their time reported this variable is associated with research productivity, however, there were two studies that found no association (Bartlett et al., 2001; Cohen & Gutek, 1991; Gmelch et al., 1986; Kotrlik et al., 2001; Liddle et al., 1997; Rebne, 1989; Vasil, 1992;). Faculty members' opinion variables of job satisfaction, research/teaching environment, funding adequacy, and freedom to collaborate for the most part were found to be associated with research productivity (Blackburn et al., 1991; Bland et al., 1972; Christensen, 1991; DeMeuse, 1987; Ito, 1994; Pfeffer & Langton, 1993; Rebne, 1989; Williams et al., 2001).

Research productivity has in general been measured using some combination and/or weighting of journal articles, books, technical reports, and book reviews (Aleamoni & Yimer, 1973; Bell et al., 1993; Henthorne et al., 1998; Kotrlik et al., 2001; Linsky & Straus, 1975; Moore et al., 2001; Read et al., 1998). The importance of refereed journal articles in explaining variance in research productivity has been exemplified by both Kelly and Warmbrod (1986) and Radhakrishna and Jackson (1993).

Only six studies have presented a theoretical base that was utilized to select variable to be investigated and then to explain results determined. These studies include Hunter and Kuh (1987), Butler and Cantrell (1989), Baldwin (1990), Blackburn et al. (1991), Olsen (1993), and Tien and Blackburn (1996). Areas of theory investigated include adult and career development, personality, socialization, expectancy theory, need theory, organizational behavior, leadership, cognitive motivation, and life-stage theory. Findings supported theories of career development theory, need theory, leadership, organizational behavior, life-stage, and cognitive motivation.

The theoretical base selected for this study was based on cognitive motivation theory. Discussions presented included Campbell (1990), Thierry (1998), Staw (1984), and Bandura (1977). Essentially, each researcher posited that a behavior, action or outcome was the result of an individual's cognitive processing of information within themselves and their environment.

CHAPTER III: NCES METHODOLOGY

Introduction

The National Center for Education Statistics (NCES) has conducted three national studies of post-secondary faculty, one in 1988-89, one in 1992-93, and a third study in 1998-99. These studies addressed a variety of institutional and faculty issues. The study reported in this dissertation will use the databases developed as part of the 1992-93 and 1998-99 studies, with the reasons for omitting the data from the 1988-89 study reported below (Appendix A, B, & C). The purpose of this study will be to determine the factors that drive HRED faculty member's research productivity, therefore, only variables related to the purpose and objectives of the study, as described in Chapters I and IV, will be utilized in this study.

This chapter (Chapter III) will describe the procedures used by NCES to conduct the 1992-93 and 1998-99 studies. Additional information about the 1992-93 or 1998-99 studies can be found on the NCES website in the 1992-93 and 1998-99 National Study of Postsecondary Faculty Methodology reports. Chapter IV will describe the procedures specific to analyzing NCES data for conducting this study of HRED faculty member's research productivity.

For the purpose of organization of information, the 1992-93 National Study of Postsecondary Faculty (NSOPF) will be presented first, followed by the 1998-99 NSOPF information. Differences between the 1992-93 and 1998-99 surveys will be cited.

Overview

The National Center for Educational Statistics (NCES) conducted a series of three studies titled NSOPF in 1988/89, 1992-93, and 1998-99. The goal of these studies was to determine relevant policy issues concerning higher education faculty and their institutions including:

1. Faculty background characteristics and current activities;

2. Faculty supply of and demand in postsecondary institutions;

3. Faculty as a resource and consumer of resources; and

4. Faculty attitudes and behaviors about key aspects of the higher education environment.

Data collected in studies conducted in 1992-93 and 1998-99 will be used for this research effort. The data collected in 1988-89 will not be used because, after review and comparison of the questionnaires and sample sizes achieved, as well as discussion with NCES officials, it was deemed that the 1988-89 study's questionnaire and sample sizes were not in congruence with those of the 1992-93 and 1998-99 studies. This coincides with the recommendation of NCES officials to omit the 1988-89 study's data in this research effort (Verbal discussion with Linda Zimbler, Project Officer, May, 2002).

Definitions

Faculty was defined in the NCES studies as full and part time faculty who provide instruction for credit, as well as non-instructional faculty, instructional faculty and staff. Institution was defined in the NCES studies as institution in the traditional sector of postsecondary education with accreditation at the college level recognized by the United States Department of Education.

1992-93 NSOPF Study

Population

The population and frame for this study was all full-time and part-time postsecondary faculty employed in institutions recognized by the United States Department of Education. The sampling procedure is described below.

Sampling

NCES completed exhaustive sampling efforts to meet sample guidelines. Their sampling procedures consisted of a two-stage process in which they first sampled institutions to determine a comprehensive faculty list, and then followed up with the second stage sampling of faculty members.

First Stage Sampling. The frame of institutions was derived from the Integrated Postsecondary Education Data System (IPEDS), which is a recurring set of surveys both developed and maintained by NCES. The selected institutions were stratified using a modified Carnegie classification system based on the highest degree institutions offer and the amount of federal research dollars they receive. Specifically, two levels of control (public and private) as well as nine types of institutions based on 1987 Carnegie classifications resulted (Research universities – combining Research I and II universities; Doctoral granting universities – combining Doctoral granting I and II; Comprehensive colleges and universities – combining Comprehensive I and II; Liberal Arts colleges – combining Liberal Arts I and II; Independent medical schools; Religious colleges; Non-profit, 2-year colleges; Other; Unknown). Carnegie classified those institutions that could not be classified using the 1987 Carnegie system as "Unknown". The 1992-93 NCES first stage sample consisted of 974 postsecondary institutions with 817 submitting faculty lists.

Second Stage Sampling. Sampling of faculty members occurred through a multi-step program designed to ensure adequate representation of particular faculty groups in accordance with National Science Foundation (NSF) and National Endowment for the Humanities (NEH) analytical objectives. The sampling methods were as follows:

1. An implicit list of faculty members was constructed from lists provided by the sampled postsecondary institutions.

2. The steps of the sampling included randomly assigning a target total sample size of either 41 or 42 (if fewer than 42, all faculty members were selected) to achieve a desired average cluster of 41.5. NCES did not provide information as to how this size was selected. It is assumed that the combination of efforts between groups acting to complete this survey and the evaluation of the IPEDS listing of institutions and faculty members was strongly utilized. Contact with NCES officials was attempted multiple times through email, but no response has been received.
3. Over sampling occurred when it was necessary to achieve greater sample sizes per institution due to the low representativeness of some groups. Groups over sampled include full-time females; black-non-Hispanics; Hispanics; Asian/Pacific Islanders; and faculty in philosophy/religion, foreign languages, English language and literature, and history disciplines.
4. Because some faculty members belonged to more than one group, faculty lists were processed sequentially so that a multi-group member was only assigned to one group. These procedures ensured that the sample would be stratified and not have a faculty member in more than one group.
5. The residual sample size (n minus the sum of the over sample sizes) was allocated across the five strata (Black, non-Hispanic, Hispanic, full-time female, faculty in NEH disciplines, Asian/Pacific Islander, none of the above) and simple random sampling without replacement then occurred with the sampling independent from one faculty stratum to the next.
6. These sampling efforts resulted in a sample of 33,354 faculty members selected across the disciplines included in the NCES study. Data was not provided in NCES reports as to sample sizes for individual disciplines, therefore the number presented is representative of the total number of faculty sampled across all disciplines. This sample was subject to two reduction

events. To begin, at random, 2000 faculty members were sub-sampled and then removed from the overall sample as a cost-saving measure resulting in a final sample of 31,354 faculty members. Then, 1590 faculty members were deemed ineligible by NCES to participate in the survey because they were no longer at their sampled employing institution. This resulted in a final eligible sample size of 29,764 faculty members.

Data Collection

Faculty member's data was collected through mailing self-administered faculty questionnaires in six waves. Questionnaires were mailed in waves to assist in data processing efforts, i.e., to avoid have an overly abundant amount of data returned at once and to better enable sampling of non-respondents. A mailed postcard and a second mailing of the questionnaire followed the initial mailings. Next, a follow-up to the targeted sample was conducted in which telephone reminders and computer-assisted telephone interviews were utilized. A specific group hired and trained to locate and reverse refusals conducted secondary telephone follow-ups. In addition, institutional coordinators' urged faculty members to complete the survey. The total faculty response rate was 86.6 percent or 25,780 faculty members.

This rate did not noticeably hamper the representativeness of the sample. NCES performed a discriminant analysis comparing faculty characteristics reported in one sample of the NSOPF-93 faculty sampling lists with faculty characteristics detailed in the IPEDS universe. This analysis showed no significant differences between the NSOPF-93 sampling lists and the IPEDS universe. NCES did not specify characteristics that were used in analyses. Table 1 presents a summary of data collection by response wave. It should be noted that the telephone interviews were conducted using a random sample of non-respondents.

Table 1.

1992-93 NSOPF Survey Response Rates by Response Wave

Initial mailing date/response wave	Eligible sample	Completed questionnaires		Total completed questionnaires	Faculty response rate
		Self-administered	Telephone interview		
January 29, 1993	9691	7536	1193	8729	90.1
February 26, 1993	6635	4986	899	5885	88.7
March 27, 1993	3034	2160	502	2662	87.7
April 24, 1993	3337	2239	590	2829	84.8
July 2, 1993	5769	3229	1435	4664	80.8
July 16, 1993	1298	635	376	1011	77.9
Total	29,764	20,785	4,995	25,780	86.6

Of these individuals sampled, 49 Human Resource Development (HRD), 47 Organizational Behavior (OB), and 59 Adult Education (AE) usable faculty member surveys were obtained equaling 155 HRED respondents.

Instrument Design

Development of Questionnaire Items. The instrument used in the 1992-93 study was designed as a self-administered questionnaire (SAQ). In addition, a CATI (computer-assisted telephone interview) version of the questionnaire was developed and used during the follow-up data collection effort.

The sources of initial 1992-93 questionnaire items included the 1988 questionnaire, other postsecondary education surveys, the NSOPF-93 National Technical Review Panel (NTRP), and project staff and consultants. Included in the literature reviewed for item development were studies produced by York University (1986), Harvard University (1967), the Higher Education Research

Institute (1989), the National Center for Research to Improve Postsecondary Teaching and Learning (1987), and the Carnegie Foundation for the Advancement of Teaching (1984 and 1987). Following the field test (that occurred in 1992) and recommendations from the NTRP, questionnaire items were further revised or deleted.

Field Test. The 1992-93-field test consisted of 636 faculty members at 136 institutions. A response rate of 89 percent was achieved for a total of 495 faculty members participating. The results derived from the field test were included in the design of the full study questionnaire and sampling procedures.

The 1992-93 NSOPF tested both the validity and reliability of its field test results. To test the validity, NCES selected faculty responses to the questionnaire and compared these with data from the institution in which the faculty member was employed during the fall of 1991 for the field test. The variables evaluated included gender, race/ethnicity, employment status, principal field of teaching discipline, and tenure status. The validity results found that gender, race/ethnicity and employment status were consistent in more than 90% of the sample cases. The principle discipline or field was consistent in slightly less than 70% of the cases.

Principle discipline inconsistencies were attributed to a lack of match between questions posed to faculty and to institutions as well as high rates of missing institutional data. More specifically, both the institutions and the faculty members were asked to answer the same questions; however, these questions were more likely to be correctly answered by the faculty than by the institution. For example, an institution would be less likely to correctly report the correct principle discipline of a faculty member, than would the faculty member.

The 1992-93 NSOPF field test reliability was examined by re-interviewing a sub-sample of 117 faculty members who responded to the questionnaire using a subset of questionnaire items including instructional duties, principal activities, field or discipline, degrees and honors, previous jobs, publications and presentations, funded research, and allocation of time. Each of the above listed categorical variables produced consistent results in more than 70 percent of the cases. Of the continuous variables, the majority produced test-retest correlations greater than 0.70. However, there were however some low correlations which were deemed to be due to the re-interview being conducted by telephone while the initial study was conducted by self-administered questionnaire, interviews only asking a subset of the original items, and small sample sizes and high rates of missing data.

Instrument Validity

To further investigate the validity of the 1992-93 instrument, a sample size of 495 cases of matched pairs (faculty members and employing institution) was selected. Three main characteristics evaluated were: gender, race/ethnicity, and employment status. These items were compared between the 1992-93 faculty and 1992-93 institution data sets. Cramer's V and percent inconsistent were two measures reported. NCES concluded from the statistical test results that the measures evaluated were valid. NCES did not report which convention for describing measures of association was utilized to determine conclusions reached; however, their conclusions are supported using Rea & Parker's conventions (strong association: .60 and under .80; very strong association: .80 to 1.0). Guidelines for evaluating percent inconsistent were not reported either. Specific values are presented in Table 2.

Table 2.

1992-93 NSOPF Full Scale Validity Results

Variable	Cramer's *V*	Percent inconsistent
Gender	.96*	1.82
Employment status	.87*	5.69
Race	.79*	3.39

*p<.001.

The mean item nonresponse for the 1992-93 full-scale study was reported by NCES as 10.3%. Due to this rate not superceding NCES concern guidelines (>20%), item nonresponse was assumed to be of insignificant concern by NCES.

Limitations of Study

After reviewing multiple reports focusing on this study as well as reviewing the data collected as a result of this study, the researcher determined the following study limitations:

1. Principle discipline or field responses were consistent in slightly less than 70% of the cases when compared between the institution and faculty questionnaires. To address this concern, NCES reported that the inconsistencies were attributed to a lack of match between questions posed to faculty members and to institutions as well as high rates of missing institutional data. More specifically, both the institutions and the faculty members were asked to answer the same questions; however, these questions were more likely to be correctly answered by the faculty members than by the institution. For example, an institution would be less likely to correctly report the correct principle discipline of a faculty member, than would the faculty member. Also, NCES did not report any such validity concerns following the execution of validity testing on the full-scale study.

2. NCES reported a field test finding of some low correlations of the continuous variables when measuring test-retest reliability. Neither the specific variables nor the correlation values were presented; only that the correlations were below 70%. NCES addressed this issue by reporting the lower correlations were due to the re-interview being conducted by telephone while the initial study was conducted by self-administered questionnaire, interviews only asking a subset of the original items, and small sample sizes and high rates of missing data.
3. NCES did not report 1992-93 NSOPF Full Scale reliability within the 1992-93 NSOPF Methodology report.

1998-99 NSOPF Study

Population

The population and frame for this study was all full-time and part-time postsecondary faculty employed in institutions recognized by the United States Department of Education. The sampling procedure is described below.

Sampling

NCES completed an exhaustive data collection effort to meet sample guidelines. Their sampling procedures consisted of a three-stage process in which they first sampled institutions to determine a comprehensive faculty list, then followed up with the second stage sampling of faculty, and lastly sub-sampled selected faculty members.

First Stage Sampling. The frame of institutions was derived from the 1997-98 Integrated Postsecondary Education Data system (IPEDS) Institutional Characteristics (IC) data files and the 1997 and 1995 IPEDS Fall Staffing files. Institutions were then classified into eight categories dependent upon the size, type and highest degree awarded by the institution (i.e., based on the 1994

Carnegie Classification System: Large Public Masters, Small Public Masters, Private-Not-For-Profit Masters, Public Baccalaureate, Private-Not-For-Profit Baccalaureate, Medical, Associates, and Research & Doctoral).

Sample size was determined by the estimated number of faculty per institution type (i.e., based on the 1994 Carnegie Classification System) found in the 1997 IPEDS data. The 1998-99 NCES first stage sample consisted of 960 postsecondary institutions, of which 819 institutions provided faculty lists whereas 817 provided faculty lists from the 1992-93 sample.

Second Stage Sampling. The second stage sampling procedure consisted of a number of steps:

1. Faculty was grouped into five strata: Hispanic, Black, Asian, Full time non- minority female, and all other faculty and instructional staff. This procedure was designed to allow over sampling of Hispanic, Black, Asian, and Full time non-minority female groups.
2. Faculty were sorted by academic program area and discipline.
3. Target allocation was used to set sample sizes to allow for separate analyses for small groups. Minimum sample sizes for selected groups to be over sampled were set as follows: Hispanic: 5.5%; Black: 8.7%; Asian: 7.1%; and Full-time females: 24.8%. The overall target sample was 29,883 individuals. NCES reported selecting percentages to allow separate analyses of selected groups (i.e., the five strata presented in step 1).
4. Samples were selected on a flow basis as institutions reported faculty lists. This selection was carried out for eight batches of institutions. To select a number of faculty from a particular institution, a sampling fraction was set that was proportional to the institution's weight according to IPEDS data across all cooperating sample institutions. This occurred to allow sample sizes to vary across institutions but at the same time, minimize the variation in weights

within the strata -- this was different from the 1992-93 study that set a target sample size per institution per strata. Faculty was then randomly selected within each sampled institution.

These sampling efforts resulted in a second stage sample of 28,576 faculty members. Of this sample, 1523 faculty members were ineligible to participate because they were not employed by the sampled institution in the 1998 Fall term. This resulted in a final second stage sample of 27,044 faculty members.

Third Stage Sampling. The 1998-99 study utilized a third stage sampling effort – this stage did not occur in the 1992-93 study. This effort was designed late in the data collection phase to increase response rate and decrease variation in final cluster sizes. To accomplish these objectives, a random sub-sample of faculty who had not responded at the designated time was selected for intensive follow-up efforts with a higher fraction selected from institutions with smaller numbers of initial faculty selections.

Data Collection

Faculty data was collected through mailing self-administered faculty questionnaires mailed in seven waves to assist in data processing efforts. A mailed postcard and a second mailing of questionnaires occurred, followed by telephone and e-mail reminders (for those with submitted e-mail addresses) and computer-assisted telephone interviewing (CATI). A web survey was also available for completion in lieu of the self-administered paper survey.

Extensive follow-up efforts were afforded through the use of a specific group hired to located and reverse refusals as well as institutional coordinators' efforts urging faculty members to complete the survey. For the 1998-99 survey, 17,600 faculty members completed questionnaires that were usable for an unweighted response rate of 65.1%. NCES reported a weighted response rate of 83.2% that

takes into account the reduction of the active sample through sub-sampling as discussed in the third-stage sampling section of Chapter III. Response rates were not provided by NCES by response wave, therefore, a table comparable to Table 1 demonstrating response rates by response wave of the 1992-93 survey cannot be produced. Of these individuals sampled, 31 HRD, 52 OB, and 53 AE faculty members' surveys were obtained. The total number of HRED respondents was 136.

Instrument Design

Development of Questionnaire Items. The instrument used in the study of post-secondary faculty was designed as a self-administered questionnaire (SAQ) and a web-based format of the survey. In addition, a CATI (computer-assisted telephone interview) version of the questionnaire was developed and used during follow-up data collection efforts. The question designs emphasized behavioral rather than attitudinal questions. This design factor was added in order to collect data on who the faculty members were, what they did, and to determine if the composition of the nation's faculty was changing and, if so, how and why.

The questionnaire was principally designed by Gallup. It was based upon the 1992-93 NSOPF questionnaire and input from NCES, NEH, and NSF. The NSOPF:99 NTRP and the results of the field test provided further input. The 1992-93 and 1998-99 surveys can be found in Appendices A and B, respectively.

Field Test. The 1998-99 field test consisted of 512 faculty members selected from 162 institutions. Of the faculty members, 471 were eligible to participate – all of whom were designated as faculty (full or part-time) whether or not their responsibilities included instruction. A response rate of 82% was achieved for a total of 386-faculty members participating (77% responded by mail; 8% by web; and 15% by CATI).

The primary objectives of the field test were to determine sampling procedures; evaluate completeness, accuracy, and quality of data; evaluate data collection procedures to assure maximized response rate; and evaluate adequacy of revised questionnaires. The results derived from the field test were included in the design of the Full Scale study questionnaire and sampling procedures.

Numerous findings resulted from the field test. First, some written complaints were received concerning the length, complexity and timing of the field test. NCES addressed each issue as well as the concern of low reliability on some items. The questionnaire was streamlined and presented in a different format to make it shorter and more user friendly. NCES determined the length of the questionnaire not to be a problem due to the low rates of item nonresponse in the last two sections of the questionnaire. NCES is not able to provide specific results as to the reliability of this study. NCES indicated that following the field-test procedures, the survey was adjusted as appropriate due to any reliability concerns. The complexity of several questions was reduced, some questions deleted, and some added. In addition, the 1998-99 study included a glossary of terms used throughout the survey, which was a difference from the 1992-93 survey.

The second major area of the field test was the item nonresponse rates. The overall item nonresponse rate for the field test was 22.2%. NCES states that any response rate over 20.0% is a concern (1999 NCES Field Test Report). For this reason, item nonresponse was stringently addressed by NCES. Main areas of concern and solutions to nonresponse will be presented below.

To begin, upon initial review of the data, NCES found Academic/Professional Background (items 1-2 below) had the highest item nonresponse rates (4.06%). In-depth evaluation of these areas revealed the following:

1. Highest degree earned: numerous respondents did not complete city and state; and did not complete beyond the 2nd highest degree earned.
2. Research/publications: This set showed a pattern of nonresponse with individuals not completing the second column describing their type of authorship (i.e., sole, co, etc.), as well as faculty members failing to fill in the zero categories if they did not have a publication in that area.

After addressing concerns, NCES assessed the questionnaire to be well designed and stated that respondents appeared to be interested in the content of the questionnaire. NCES determined that there were relatively few minor problems with the questionnaire as a whole and these were addressed in the final draft. Further, NCES recommended that once the items of concern were evaluated and recoded, nonresponse rates decreased substantially.

Instrument Evaluation

The actual survey reported a mean item nonresponse rate of 6.2 percent. More than 50% of the items had less than a 5% nonresponse rate; with critical items having a mean nonresponse rate of only 2.3%.

NCES found four categories to have a response rate of less than 70%: private not-for profit research (60.1%), private not-for-profit doctoral (64.6%), private comprehensive (67.4%), and public 2-year institutions (68.0%). Due to a concern of nonresponse bias based on these findings, NCES compared nonrespondents and respondents overall and within each stratum (i.e., the 1994 Carnegie Classification System) on sampling frame variables. Information on nonrespondents was obtained for use through the information presented by nonresponding faculty member's employing institutions. The overall distribution of respondents and nonrespondents were evaluated among the demographic variables gender, employment status, and race/ethnicity.

NCES found no significant differences in response rates between women and men (response rates of 86.3% and 85.6% respectively). Nonresponse by employment status was found to produce a more significant pattern with full time faculty members being significantly more likely to complete a questionnaire than part-time faculty members (response rates of 87.7% and 80.7% respectively). This was reported as a result of difficulties of institutions in providing current information about part-time faculty members as well as high refusal rates by part-time faculty members. Lastly, no differences emerged by race/ethnicity.

Second, NCES compared early and late respondents in the four categories on 10 strata:

1. Percentage indicating their principal activity was teaching,
2. Percentage teaching classes for credit,
3. Percentage of time spent teaching undergraduates,
4. Percentage of faculty who indicated their rank was assistant professor,
5. Percentage that held a Ph.D.,
6. Percentage of faculty in the humanities,
7. Percentage of faculty who indicated they were tenured, and
8. Mean age of faculty and instructional staff.

NCES performed significance testing comparing those who responded within the first 30 days of the initial mailing and those who responded 5 months after the initial mailing. They did not detect any bias between early and late respondents.

Limitations

After reviewing multiple reports focusing on this NSOPF study as well as reviewing the data collected for this study, the researcher determined the following study limitations:

1. Written complaints were received concerning the length, complexity and timing of the field test. To address these concerns, the questionnaire was streamlined and presented in a different format to make it shorter and more user friendly by NCES. NCES determined the length of the questionnaire not to be a problem due to the low rates of item nonresponse in the last two sections of the questionnaire.
2. Field test results demonstrated low reliability on some items. NCES is not able to provide specific results as to the reliability of the field test. NCES indicated that following the field-test procedures, the survey was adjusted as appropriate due to any reliability concerns. The complexity of several questions was reduced, some questions deleted, and some added. In addition, the 1999 study included a glossary of terms.
3. The overall item nonresponse rate for the field test was 22.2%. NCES addressed specific factors contributing to this value.
4. NCES field test results displayed two items in Academic/Professional Background (Highest degree earned and research publications) had the highest item nonresponse rates. NCES further investigated these variables and concluded for the variable highest degree earned numerous respondents did not complete city and state and did not complete beyond the 2nd highest degree earned. While research/publications showed a pattern of nonresponse with individuals not completing the second column describing their type of authorship (i.e., sole, co, etc.), as well as faculty members failing to fill in the zero categories if they did not have a

publication in that area. After addressing concerns, NCES assessed the questionnaire to be well designed and stated that respondents appeared to be interested in the content of the questionnaire. NCES determined that there were relatively few minor problems with the questionnaire as a whole and these were addressed in the final draft. Further, NCES recommended that once the items of concern were evaluated and recoded, nonresponse rates decreased substantially.

5. Following in-depth analyses of the full scale study, NCES reported employment status was found to produce a significant pattern of nonresponse with full time faculty members being significantly more likely to complete a questionnaire than part-time faculty members (response rates of 87.7% and 80.7% respectively). This was reported to have resulted from difficulties of institutions in providing current information about part-time faculty members as well as high refusal rates by part-time faculty members.

CHAPTER IV - METHODOLOGY

Population and Sample

The target population and frame for this study was all HRED (HRD, AE, and OB) full-time and part-time instructional and research faculty in colleges and universities across the United States who possess academic and/or research responsibilities. The sample consisted of 155 HRED faculty members (49 HRD faculty members, 59 AE faculty members, and 47 OB faculty members) for the 1992-93 survey, and 136 HRED faculty members (31 HRD faculty members, 53 AE faculty members, and 52 OB faculty members) for the 1998-99 survey for a total sample size of 291 faculty members. It should be noted that of the 291 total sample size, duplication of respondents may have occurred from the 1992-93 and 1998-99 surveys. This information was not available from NCES to determine the extent of potential duplication. However, due to the randomness of the sample selection procedure and the large pool of HRED faculty members which could have been drawn from, it is assumed that duplication of respondents is not a concern of this research effort.

Instrument

Validity and Reliability

Face and content validity of the 1992-93 and 1998-99 instruments were evaluated. A panel of experts reviewed the questions and instructions to determine if the potential existed to increase measurement error due to these items. The panel included a purposive sample of 20 HRED faculty members selected from the membership list of AHRD per survey. These individuals were selected on the basis that they have participated in research efforts utilizing survey research and would therefore possess an understanding of the concepts of validity (Appendix D & E).

To investigate reliability of the 1992-93 and 1998-99 instruments, internal consistency coefficients were calculated for the following scales: faculty opinion of institutional research resources, faculty satisfaction with instructional duties, and faculty satisfaction with other related job factors per survey. Cronbach's *alpha* was calculated for each scale as recommended by Carmines and Zeller (1979). Results were interpreted based on Robinson, Shaver & Wrightman's Standards of Reliability (1991) found in Appendix F.

Representativeness of Population

To generalize results to a population, the researcher must establish that the sample is representative of the population. To determine if this sample was representative of the population and to control for non-response error, research productivity scores were compared by sample response mode (mail versus phone follow-up) as recommended by Borg (1987) and Miller and Smith (1983) utilizing *t*-test procedures with an *alpha* level set a' priori at 0.05 per survey (1992-93 and 1998-99).

Data Collection

NCES collected data through a multistage process. This process is described in Chapter III.

Data Analysis

The remainder of this chapter will focus on the procedures that were utilized in analyzing data collected in the 1992-93 and 1998-99 NSOPF studies. NSOPF survey questions requested information from respondents as applicable for the fall term of 1992 for the 1992-93 study and for the fall term of 1998 for the 1998-99 study. This section will be organized as follows:

1. Research objectives; 2. Variables; and 3. Analyses by objective.

Research Objectives

1. Describe HRED faculty members on the following variables:

    a. Personal variables (age, gender)

    b. Institutional support variables:

        i. Number of teaching assistants: the cumulative number of teaching assistants for that individual

        ii. Opinion of institutional research resources: the supplies and/or resources an institution provides for its faculty members (opinion of: availability of research assistants, office space, secretarial support, and library holdings)

        iii. Sources of funding: sources of funding for that individual (institution, foundation, for profit business/industry, state or local government, federal government, and other)

    c. Professional variables:

        i. Instructional duties: presence of instructional duties

        ii. Tenure status: a faculty member's tenure status (tenured, on tenure track but not tenured, not on tenure track/although institution has a tenure system, no tenure system at this institution)

        iii. Department chair: whether or not a faculty member was department chair of his or her department

        iv. Principal activity: a faculty member's main activity (teaching, research, clinical service, administration, sabbatical, or other activity)

v. Part-time/full-time: whether a member was employed by that institution part-time or full-time

vi. Engaged in professional research/writing: whether or not a faculty member participated in professional research, proposal writing, creative writing or creative works either funded or nonfunded

vii. Type of professional research/writing: type of professional research/writing a faculty member participated in (basic research, applied or policy-oriented research or analysis, program/curriculum design and development, other)

viii. Academic rank/title/position: a faculty member's academic rank, title or position at that institution

ix. Time in academic rank/title/position/tenure: the length of time a faculty member has held current academic rank/title/position/tenure

x. Total funding from grants/contracts: the amount of funding from grants/contracts received from all sources

d. Educational/Training variables:

i. Highest degree held: highest degree a faculty member has received (first profession degree, doctoral degree, masters of fine arts or social work, other master degree, bachelor degree, associate degree, or certificate)

ii. Number of years since highest degree was earned

2. Describe the research productivity of HRED faculty members as follows:

a. Career research productivity (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or

creative works; books, textbooks, monographs, reports; and presentations and exhibitions).

b. Recent research productivity (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, reports; and presentations and exhibitions).

3. Describe differences in faculty members' actual time spent verses their preferred time spent teaching, at research, on professional growth, at administration, on service activity, and on consulting.

4. Describe faculty members' satisfaction with instructional duties. That is, the measurement of a faculty member's satisfaction with factors related to instructional duties scale (authority to decide course content, authority to decide courses taught, authority to make non-instructional job decisions, time available to advise students, quality of undergraduate students, and quality of graduate students).

5. Describe faculty members' satisfaction with other related job factors. That is, the measurement of a faculty member's satisfaction with job related factors scale (work load, job security, advancement opportunity, time to keep current in field, freedom to do consulting, salary, benefits, spouse employment opportunity, and job overall).

6. Describe faculty members' opinion of emphasis on research/teaching at their employing institution. That is, the measurement of a faculty member's opinion of emphasis of their institution on research/teaching scale (teaching as promotion criteria, research as promotion criteria, research rewarded versus teaching).

7. Determine if selected variables explain a significant proportion of the variance in the research productivity of HRED faculty members.

Variables

Due to the number of variables addressed in this study, it is necessary to discuss variables about which concerns were identified in Chapter III. One concern in the 1998-99 Field Test was the item nonresponse rates on highest degree earned and research/publications. These issues were not addressed in the NCES full study, and therefore will be presented here. The following item nonresponse rates presented were calculated by NCES on the entire data set. These rates are based on the entire data set and are therefore presented because the earlier discussions in the Chapter III Field Test section were based on the entire data set. This was the only data available to the researcher (i.e., the researcher did not have access nor was it possible for the researcher to obtain access to the data set from the field test).

1. Highest degree earned: after review of the full study data, the researcher deemed it acceptable to utilize this variable due to the item nonresponse rate for this variable of 2.79%. Only the highest degree earned data was utilized. The second, third, and fourth highest degree earned data was not utilized because of unacceptable item nonresponse rates for each of these variables.
2. Research/publications: after review of the full-scale study data, the researcher deemed it acceptable to utilize this variable due to the average item nonresponse rate of 5.82%. This item nonresponse rate is presented as an average because there are three subsections (Career, Recent Sole, Recent Joint) each with five sub-subsections (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of

books, articles, or creative works; and books, textbooks, monographs, reports; and presentations/exhibitions).

Analyses by Objective

The variables (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, and reports; and presentations and exhibitions) that comprised research productivity scores have been supported by past literature. Due to different opinions throughout the research literature on which variable is the best measure of research productivity and various study results, these selected variables were weighted by a panel.

To select a panel, a random sample of five institutions per NCES modified Carnegie ranks were selected for a total of 40 institutions. Once the institution list was obtained, a purposive sample of one individual in an HRED discipline from each institution, holding a position with a global view of promotion and tenure - such as department chair, department head, dean, or provost - was selected. These individuals were contacted through email and asked to participate in determining a weighted research productivity score (Appendix G & H). The results from the respondents are presented in Chapter V. Following this panel, a research productivity score for career publications and for recent (last 2 years) publications was computed (Appendix I) to be used in later analyses.

General data scanning procedures were utilized in SPSS to assure there were no profound outliers or incorrect values in the data. Following the removal values or cases (Appendix J), scales were developed for the rating of opinion of institutional research resources in Objective 1 and 7, faculty satisfaction with instructional duties in Objective 4, faculty satisfaction with other related job factors in Objective 5, and faculty opinion of emphasis on research/teaching at their employing institutions in

Objectives 6. See Objectives listed above or Appendix K for a listing of the statements composing each scale. To develop the scales, principal components factor analysis was applied evaluating one scale at a time. The factor loadings are presented in Chapter V with the scale results. Next, the scales were evaluated to determine internal consistency by using Cronbach's *alpha*. Internal consistency and scale grand means are reported in Chapter V. Internal consistency results were interpreted according to Robinson et al.'s Standards of Reliability (1991) – see Appendix F. The scale grand mean for opinion of institutional research resources was then utilized in the analysis of Objective 7.

Descriptive statistics were employed to analyze Objectives 1 – 6. These statistics included mean, standard deviation, minimum, maximum, frequency, and percentage.

Comparisons were conducted to describe differences in Objective 3 between actual time spent and preferred time spent teaching, at research, on professional growth, at administration, on service activity, and on consulting. These comparisons utilized *t*-test procedures with an *alpha* level set a' priori at 0.05. Cohen's *d* was computed to measure effect size and interpreted using descriptors in Cohen (1988) – see Appendix F.

Mediated hierarchical regression was utilized to analyze Objective 7. The *alpha* level was set a' priori at 0.05 with an entry level of 0.05. The recommended ratio of observations per variables of 10:1 was adhered to (Hair et al., 1994). R^2 was presented to represent effect size and was interpreted using the descriptors by Cohen (1988) – see Appendix F. To complete this procedure, first, the 1992-93 and 1998-99 data sets were compared to determine if there were significant differences between critical variables. To complete this task, the researcher evaluated the reliability of the "Opinion of Institutional Research Resources" scale, the representativeness of the population of the dependent variables by response mode (phone and mail), and the presence of significant differences between study

years for the independent and mediating variables utilized in the model. With the existence of sufficient reliability, representativeness of the population, and the majority of the independent and mediating variables of the two data sets not differing significantly, the data sets were to be combined into one data set to complete the analyses. Otherwise, the data sets were to be analyzed separately and differences presented and discussed.

Following this determination, regression assumptions and influential observations were evaluated. Assumptions and tests conducted were based on research by Hair et al. (1994) and Bates, Holton, and Burnett (1999). The following tests were conducted:

1. Run initial regression;
2. Test for violation of regression assumptions (linearality of relationship between criterion and predictor variables, homoscedasticity, normality) by examining scatterplots of studentized residuals against predicted variables, studentized residuals against predicted criterion values with a null plot, normal probability plot for data, and residual plots;
3. Test for multicollinearity by investigating condition index (greater than 30 and .90 or greater of variance for two or more coefficients), tolerance values, and VIF (greater than 10);
4. Test for individual influential observations (i.e., detecting outliers) by examining centered leverage values (value greater than (2*number of predictors+1)/n for sample size greater than 50 may be influential), dfbetas (plot dfbetas), Cook's distance (values greater than 1), and scatterplot of standardized predicted value versus dependent variable with line; and
5. Test for multiple influential observations: analyze maximum R^2 subset regression models.

Cases appearing to contribute to the violation of assumptions or acting as influential observations, were removed and documented. The details of this analysis are presented in Chapter V.

Next, the HRED Faculty Research Productivity Model was analyzed using mediated hierarchical regression. Mediated hierarchical regression was selected as the analysis tool for this research effort due to the previous research presented in Chapter II discussing the role of personal and environmental factors having potential influence on some type of outcome, behavior or action, and the lack of research in HRED and related fields presenting a specified relationship between these variables. Mediated regression was selected in particular because the researcher hypothesizes that the relationship between the independent and dependent variables in this study may be mediated by a third variable, i.e., it was determined by review of previous research that perception of personal interest/abilities may account for all or some of the relationship between the independent and dependent variables. In addition, this procedure allowed full and partial mediation to be tested for this model. Due to the limitation of variable selection, certain variables were utilized as surrogate variables. These relationships are explained as the model is explained below.

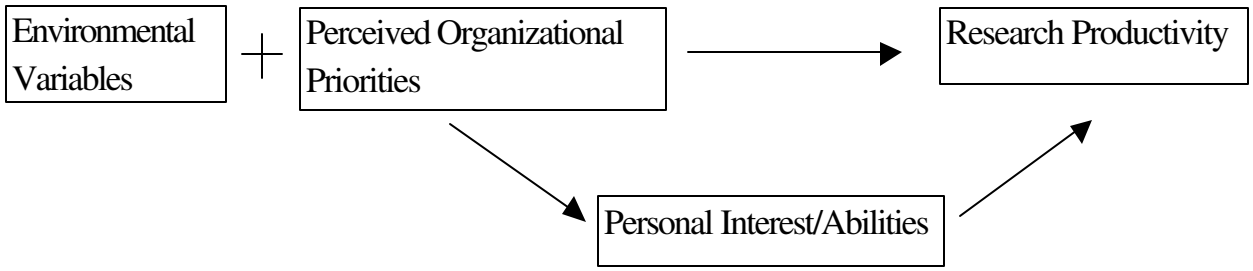

Figure 1. Human Resource Development and Education Faculty Research Productivity Model

Environmental variables were controlled for in this model. The variables considered environmental were Carnegie rank, age, and time spent teaching. These variables were selected as environmental because they are part of the environment that the person once in the job has the least amount of control over. Carnegie rank and time spent teaching are part of the job itself. They represent the priorities of the institution that do not have to be assumed, e.g., a particular Carnegie rank

has a particular research focus. Time spent teaching is generally controlled by the administrators of the institution, and there is no need for a faculty member to attempt to perceive what their teaching load will be, it is assigned to him or her. These two variables are part of what Campbell (1990) discusses as job specific. Age is present in the model as a variable controlled for due to the large amount of previous research stating that age has an effect on research productivity.

Perceived organizational priorities variables were the motivational antecedents in this model. The variables selected as motivational antecedents included presence of institutional funding for research, opinion of research resources provided by the institution, and agreement with the statements "Research/publications should be the primary criterion for promotion of college teachers at this institution," and "At this institution, research is rewarded more than teaching." These variables are surrogates of motivation because no direct measures of motivation were available in this data set. These variables served to address Bandura's (1977) references to vicarious experience, verbal persuasion, and psychological states. For example, what is rewarded in an institution can be observed through modeling and/or observation, as well as verbally reported. Also, the more or less satisfaction/agreement one possesses due to the promotion of certain activities within his or her work environment, the more or less emotional arousal that individual will exhibit which may then affect his or her performance, behavior or actions. These variables are present also due to discussion by Thierry (1998) of an individual's perception of and interpretation of signals. Additionally, the discussion by Bandura (1977) and Staw (1984) pertaining to rewards influencing behavior or outcomes is demonstrated by the variables selected. In other words, if rewards are recognized, do they have some impact on the person's research productivity?

Personal abilities/interests was represented by a single variable in this study - preferred time spent in research. This variable served as a mediator in the model presented and acted as a surrogate to one's personal abilities/interests. This variable was selected because it represents both Staw's (1984) discussion of the altruistic environment, and advancement of self-goals. This variable is also representative of Bandura's (1977) performance accomplishments. It is the personal aspect of research productivity. Whereas the organizational priority variables serve as the person's processing of the environment, this is the persons processing of preference and skill level within him/herself. This variable is presented as a mediator due to discussion by Bandura (1977) stating that of the four factors potentially influencing personal efficacy, the factor of performance accomplishments provides the greatest influence.

Research productivity was selected as the dependent variable for this study. Three variations of the dependent variable were utilized - recent research productivity score, career research productivity score and time spent in research. These variables were selected to represent the persons outcome, action or behavior - i.e., the demonstration of the end result of the individual taking in and processing environmental and personal variables and then reacting.

To perform mediated hierarchical regression, each dependent variable underwent a series of steps to determine if mediation existed and if that mediation was partial or full. Research by Hair et al. (1994), Bates and Khasawneh (2002), and Baron and Kenny (1986) were applied. The steps are as follows:

1. The control variables were entered into the model as block one, then the independent variables (X) were entered into the model as block two, and regressed on the dependent variable (Y).

2. The control variables were entered into the model as block one, then the mediator variable (Z) was entered into the model as block two, and regressed on the dependent variable (Y).
3. The control variables were entered into the model as block one, then the independent variables (X) were entered into the model as block two, and regressed on the mediator variable (Z).
4. If steps 1 - 3 produced significant models, control variables were entered into the model as block one, then the mediator variable (Z) was entered into the model as block two, then the independent variables (X) were entered into the model as block three, and regressed on the dependent variable (Y).

If a significant model for step four resulted, partial mediation existed, whereas, if a nonsignificant model resulted, full mediation existed. If full mediation was found to exist, the effect of X on Y would be mediated or altered by Z, i.e., when Z is controlled for, the effect of X on Y will no longer be significant (Baron & Kenny, 1986).

CHAPTER V: FINDINGS

This section will be organized as follows: validity and reliability investigations, representativeness of the population, calculation of the research productivity score, factor analysis of the scales and Cronbach's *alpha* values, descriptive statistics, comparisons of time spent verses time preferred, and regressions. Following the application of data scanning procedures in SPSS, 12 values were removed between the 1992-93 and 1998-99 data sets. The entire cases were not removed because these values were spread throughout the data and not concentrated in a single case. These values were treated as missing values in the data analysis of Objectives 1-7. See Appendix J for values.

Validity and Reliability

Validity and reliability testing sought to determine if the instruments possessed validity and reliability to support the claims of the existence of validity and reliability of the surveys reported by NCES. To address the face and content validity, a purposive sample of 40 (20 to address the 1992-93 survey and 20 to address the 1998-99 survey) was selected from HRED faculty in colleges and universities across the nation (see Appendix D and E for respondent letters). Five individuals responded (three for the 1992-93 and two for the 1998-99 surveys). All respondents for both surveys stated that the instruments appeared to have face validity.

Due to restrictions on determining content validity – the individual determining the validity must be an expert in that area, and the individual must be familiar with the design and objectives of the study – a limited number of individuals were able to attest to the content validity of this instrument. Four individuals reported on the content validity of the instruments (two on the 1992-93 and two on the 1998-99 surveys). All of these individuals stated that content validity does exist for the instrument reviewed.

To investigate reliability issues, internal consistency coefficients (Cronbach's *alpha*) were calculated for each of the scales derived from the instrument. Table 3 presents the *alpha* coefficients for three scales (Opinion of Institutional Research Resources, Satisfaction with Instructional Duties, and Satisfaction with Other Related Job Factors). The three scales presented were determined to have reliability coefficients ranging from .60 to .82. Using Robinson et al.'s descriptors, the "Satisfaction with Instructional Duties" and "Opinion of Institutional Research Resources" scales in 1992-93 possess moderate reliability, while all other scales for both surveys possessed extensive to exemplary reliability.

Table 3.

Internal Consistency Coefficients for Scales (1992-92 and 1998-99)

Scale	Reliability coefficient	Interpretation[a]
1992-93 Survey		
Opinion of institutional research resources	.60	Moderate
Satisfaction with instructional duties	.69	Moderate
Satisfaction with other related job factors	.81	Exemplary
1998-99 Survey		
Opinion of institutional research resources	.72	Extensive
Satisfaction with instructional duties	.76	Extensive
Satisfaction with other related job factors	.82	Exemplary

[a]Description is based on standards of comparison by Robinson, et al. (1991): Exemplary=.80 or better, Extensive=.70-.79, Moderate=.60-.69, Minimal<.60.

Representativeness of Population

Representativeness of the population sought to determine if the sample was representative of the population and to control for non-response error. To accomplish this task, research productivity scores (recent and career) were compared by response mode (mail versus phone follow-up) utilizing *t*-test procedures. Table 4 presents the findings of the comparisons by response mode for the research

productivity scores (recent and career). No significant differences were found in either the 1992-93 or the 1998-99 comparisons and therefore, from these tests, the sample was deemed representative of the population and non-response error was not present.

Table 4.

Recent and Career Research Productivity Score Comparison by Response Mode

Score	Mail		Phone		Comparison		
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
1992-93 Recent research productivity score mean	1.05	1.79	1.02	2.43	.07	152	.94
1998-99 Recent research productivity score mean	1.78	2.72	1.62	2.42	-.20	96	.80
1992-93 Career research productivity score mean	.49	.74	.34	.70	.85	152	.40
1998-99 Career research productivity score mean	.65	.94	.62	1.05	-.10	95	.92

Research Productivity Score

To compute a research productivity score, a random sample of five institutions per NCES modified Carnegie Rank were selected by the researcher for a total of 40 institutions. An HRED individual in a position such as dean or department chair was sampled from each institution for a total sample of 40 individuals - see Appendix G for request letter. Each individual was asked to weight five factors (0 to 100%, so that the sum of the factor weights would total 100%) to be used to determine a faculty member's recent and career research output or productivity score. The factors were: articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles or creative works; books, textbooks, monographs, and reports; and presentations and exhibitions. The response rate was 20% (n=8). Follow-up to the non-respondents was conducted through email and phone, however no further individuals responded mainly due to the short time frame allowed. Table 5 provides the minimum and maximum percentages assigned to each

component of the score, and the mean weight of each component that was used in the calculation of research productivity scores. The formulas for calculating the research productivity scores are found in Appendix I.

Table 5.

Research Productivity Score Component Averages

Component	Minimum	Maximum	*M*
Articles/creative works in refereed/juried media	25	100	48.33
Books, textbooks, monographs, and reports	0	30	15.00
Articles/creative works in nonrefereed/nonjuried media	0	25	12.67
Presentations or exhibitions	0	20	12.33
Reviews of books, articles or creative works	0	20	11.67

Factor Analysis of Instructional Duties, Research Resources and Environment Scales

Factor analysis was performed to establish scales for use in further analyses in this study. Principal components analysis was preformed evaluating one component at a time on four components. Three of the four proposed scales were found to exist. Namely, the items selected to measure the construct "Opinion of Institutional Research Resources" were found to do so, as were the items selected to measure "Satisfaction With Instructional Duties," and "Satisfaction with Other Related Job Factors." The factor loadings for all items in each scale exhibit practical significance, i.e., +/-.50 or greater (Hair et al., 1994, p. 385). In addition, all Cronbach's *alpha* values exhibited moderate to exemplary reliability (Robinson et al., 1991, p. 12-13) demonstrating the three scales exist. See Tables 6 and 7 for factor loadings, *alpha* values and descriptive statistics of these three scales for 1992-93 and 1998-99 survey, respectively. Discussion on the items that did not conform to measure the fourth scale is presented following Table 7.

Table 6.

1992-93 Factor Loadings, *Alpha* Values and Descriptive Statistics of Scales

Item	Factor loading	Corrected item-total correlation	Cronbach's *alpha* if item deleted	Cronbach's *alpha* for factor	*M*	*SD*
Opinion of institutional research resources[a]				.60	2.79	.63
Secretarial support	.79	.48	.45		2.92	.85
Availability of research assistants	.68	.37	.54		2.42	.88
Library holdings	.65	.37	.54		2.89	.79
Office space	.56	.31	.58		2.70	.89
Satisfaction with instructional duties[b]				.69	3.25	.49
Quality of undergraduate students	.68	.48	.63		2.90	.86
Quality of graduate students	.67	.46	.64		3.13	.82
Authority to decide courses taught	.66	.45	.65		3.34	.76
Time available to advise students	.63	.42	.65		3.15	.77
Authority to decide course content	.60	.39	.67		3.73	.57
Authority to make other job decisions	.55	.35	.68		3.13	.83
Satisfaction with other related job factors[c]				.81	2.93	.59
Job overall	.77	.66	.78		3.27	.70
Advancement opportunity	.74	.62	.78		2.74	1.03
Salary	.68	.55	.79		2.59	.96
Freedom to do outside consulting	.63	.52	.79		3.32	.83
Job security	.62	.51	.79		2.97	1.08
Time keeping current in field	.62	.48	.80		2.71	.90
Spouse employment opportunity	.57	.44	.80		3.03	1.01
Work load	.56	.42	.80		3.15	.81
Benefits	.55	.43	.80		2.63	1.01

[a]Opinion of institutional research resources: 1=poor, 2=fair, 3=good, 4=excellent. [b]Satisfaction with instructional duties:1=very dissatisfied, 2=somewhat dissatisfied, 3=somewhat satisfied, 4=very satisfied. [c]Satisfaction with other related job factors: 1=very dissatisfied, 2=somewhat dissatisfied, 3=somewhat satisfied, 4=very satisfied.

Table 7.

1998-99 Factor Loadings, *Alpha* Values and Descriptive Statistics of Scales

Item	Factor loading	Corrected item-total correlation	Cronbach's *alpha* if item deleted	Cronbach's *alpha* for factor	*M*	*SD*
Opinion of institutional research resources[a]				.72	3.21	1.01
Secretarial support	.84	.63	.59		3.16	1.29
Availability of research assistants	.71	.48	.69		3.54	1.64
Library holdings	.66	.42	.70		3.10	1.24
Office space	.76	.53	.65		3.12	1.27
Satisfaction with instructional duties[b]				.77	3.18	.65
Quality of undergraduate students	.87	.39	.77		2.96	.84
Quality of graduate students	.81	.38	.77		3.29	.76
Authority to decide courses taught	.64	.66	.70		3.20	.95
Time available to advise students	.64	.47	.75		3.01	.94
Authority to decide course content	.55	.46	.75		3.68	.73
Authority to make other job decisions	.54	.75	.66		2.94	1.03
Satisfaction with other related job factors[c]				.82	2.94	.66
Job overall	.74	.62	.80		3.18	.79
Advancement opportunity	.73	.64	.79		2.68	1.10
Salary	.52	.42	.82		2.55	1.00
Freedom to do outside consulting	.71	.58	.80		3.24	.84
Job security	.60	.48	.81		3.10	1.06
Time keeping current in field	.66	.53	.81		2.65	.97
Spouse employment opportunity	.65	.52	.81		3.10	.98
Work load	.69	.56	.80		3.15	.83
Benefits	.53	.44	.82		2.81	1.01

[a]Opinion of institutional research resources: 1=poor, 2=fair, 3=good, 4=excellent. [b]Satisfaction with instructional duties:1=very dissatisfied, 2=somewhat dissatisfied, 3=somewhat satisfied, 4=very satisfied. [c]Satisfaction with other related job factors: 1=very dissatisfied, 2=somewhat dissatisfied, 3=somewhat satisfied, 4=very satisfied.

Three items were selected to form the scale "Perception of Research Environment." The items were "At this institution, research is rewarded more than teaching," also, "Research/publications should be the primary criterion for promotion of faculty/instructional staff a this institution," and "Teaching

effectiveness should be the primary criterion for promotion of faculty/instructional staff at this institution." These items did not form a scale. Both the 1992-93 and 1998-99 surveys produced strong but negative factor loadings for the item "Teaching effectiveness should be the primary criterion for promotion of college teachers at this institution," -.77 and -.62, respectively. The factor loadings for the items "At this institution, research is rewarded more than teaching," and "Research/publications should be the primary criterion for promotion of faculty/instructional staff a this institution," were .73 and .65, respectively, for the 1992-93 survey, and .74 and .70, respectively, for the 1998-99 survey. Following the factor analysis, "Teaching effectiveness should be the primary criterion for promotion of college teachers at this institution" was recoded and entered into the scale to determine a reliability coefficient using Cronbach's *alpha*. The *alpha* values were .52 and .43 for the 1992-93 and 1998-99 surveys, respectively. Due to the minimal values of these coefficients (interpreted using standards of comparison by Robinson et al., 1991) and the potential contamination of this scale because of wording differences between the items within the scale, this scale will not be used in further analyses.

However, the items "At this institution, research is rewarded more than teaching" and "Research/publications should be the primary criterion for promotion of faculty/instructional staff at this institution" were included in further analyses as separate items. That is, the items could each potentially contribute to the explained variance in research productivity as measures independent of each other representing what is rewarded at an institution and what is promotion criteria at an institution. It is understood that research productivity could be both rewarded and used as the primary criterion for promotion at an institution; rewarded but not used as a promotion criteria; used as a promotion criteria but not rewarded; or neither. This suggested the use of these two items separately because each could possibly lead to different outcomes. Content and face validity of these items exist due to the claims of

survey validity by NCES, the review of the survey by an independent panel, and review of the items by the researcher. The wording of the items is appropriate as opinion items to determine if research is rewarded more than teaching, and to determine if research/publications should be the primary criterion for promotion of faculty/instructional staff at that institution. Reliability of the survey items was claimed by NCES.

Description of HRED Faculty

Objective 1 set out to describe HRED faculty member's personal variables, institutional support variables, professional variables, and education/training variables. A series of tables reporting findings are presented below.

Personal Variables

Table 8 presents the demographic variables gender and marital status. The 1992-93 survey was reportedly composed of 51.6% female respondents and 48.4% male respondents; while the 1998-99 survey was reportedly composed of 51.5% male respondents and 48.5% female respondents.

Table 8.

Gender of HRED Respondents

Demographic	1992-93		1998-99	
	Frequency	**Percent**	**Frequency**	**Percent**
Gender				
Male	75	48.4	70	51.5
Female	80	51.6	66	48.5
Total	155	100.0	136	100.0

Table 9 presents the demographic statistics for age. The average reported age of respondents for 1992-93 was 47.43 (*SD*=10.48). The average reported age for 1998-99 respondents was 49.88 (*SD*=10.20).

Table 9.

Age of HRED Respondents

Demographic	Minimum	Maximum	*M*	*SD*
1992-93 Survey	25	77	47.43	10.48
1998-99 Survey	26	76	49.88	10.20

Note. 1992-93 *n*=155; 1998-99 *n*=136.

Institutional Support Variables

Opinion of HRED faculty members was measured pertaining to institutional research resources (availability of research assistants, office space, secretarial support, and library holdings). These items were combined to form a scale to represent opinion of institutional research resources. The measurement scale for the items was poor=1, fair=2,good=3, and excellent=4. Therefore, mean values from 1to1.49 will be described as poor, from 1.5 to 2.49 as fair, 2.5 to 3.4 as good, and 3.5 to 4 as excellent. In 1992-93, respondents reported their opinion of institutional research resources was good (*M*=2.79), as it was in 1998-99 (*M*=3.21). See Tables 6 and 7 for factor loadings and Table 3 for internal consistency coefficients.

Table 10 represents the institutional support variable number of teaching assistants. The reported range of teaching assistants provided to respondents by their institution for the 1992-93 survey was 0 to 3, and was 0 to 9 for the 1998-99 survey.

Table 10.

Number of Teaching Assistants Provided to HRED Respondents

Number of teaching assistants	Minimum	Maximum	*M*	*SD*
1992-93 Survey	0	3	.18	.53
1998-99 Survey	0	9	.44	1.39

Note. 1992-93 *n*=155; 1998-99 *n*=136.

Table 11 presents information describing the different research funding sources of respondents (institutional, foundations, business/industry, state/local government, federal government, and other). In total, 27 respondents from the 1992-93 survey and 25 respondents from the 1998-99 survey reported receiving some type of funding. Of these individuals, some reported receiving more than one type of funding. Respondents to the 1992-93 survey reported the most received type of funding as funding from their institution (*n*=15) with the least received type of funding stemming from business and industry (*n*=3). Respondents to the 1998-99 survey reported the most received type of funding as funding from their institution (*n*=12) with funding from the federal government falling close behind (*n*=10), and the least received type of funding from business and industry (*n*=4).

Table 11.

Research Funding Sources of HRED Respondents

Funding source	1992-93		1998-99	
	Frequency	**Percent**	**Frequency**	**Percent**
This institution				
Yes	15	9.70	12	8.82
No	140	90.30	124	91.18
Total	155	100.00	136	100.00
Foundations				
Yes	8	5.16	5	3.68
No	147	94.83	131	96.32
Total	155	100.00	136	100.00
Business/industry				
Yes	3	1.94	3	2.21
No	152	98.06	133	97.79
Total	155	100.00	136	100.00
State/local government				
Yes	5	3.23	5	3.68
No	150	96.77	131	96.32
Total	155	100.00	136	100.00

(table con'd.)

Funding source	1992-93		1998-99	
	Frequency	Percent	Frequency	Percent
Federal government				
Yes	6	3.87	10	7.35
No	149	96.13	126	92.65
Total	155	100.00	136	100.00
Other				
Yes	2	1.29	2	1.47
No	153	98.71	134	98.53
Total	155	100.00	136	100.00

Professional Variables

Table 12 presents the professional variable instructional duties, chair of a department, and full/part-time employment status for 1992-93 and 1998-99. Of respondents of the 1992-93 and 1998-99 survey, the majority reported having instructional duties. Only 5.8% of respondents in 1992-93 reported serving as a chair of a department. Of the 1998-99 respondents, 9.6% reported serving as chair of a department. Of respondents in 1992-93, 54.2% reported maintaining full-time employment at that institution while 45.8% reported maintaining only part-time employment at that institution. Respondents in 1998-99 reported maintaining 64% in full-time employment with 36% reporting part-time employment at their respective institutions.

Table 12.

Descriptive Statistics of HRED Respondent Employment Variables

Variable	1992-93		1998-99	
	Frequency	Percent	Frequency	Percent
Instructional duties				
Yes	146	94.2	132	97.1
No	9	5.8	4	2.9

(table con'd.)

Variable	1992-93		1998-99	
	Frequency	Percent	Frequency	Percent
Total	155	100.0	136	100.0
Chair of a department				
Yes	9	5.8	13	9.6
No	146	94.2	123	90.4
Total	155	100.0	136	100.0
Employment (part-time/full-time)				
Part-time	71	45.8	49	36.0
Full-time	84	54.2	87	64.0
Total	155	100.0	136	100.0

Table 13 reports the variable tenure status. Of 1992-93 respondents, 19.4% reported possessing tenure with 16.1% reporting being on a tenure track. Of 1998-99 respondents, 32.4% reported possessing tenure with 12.5% reporting being on a tenure track.

Table 13.

Tenure Status of HRED Respondents

Tenure status	Frequency	Percent
1992-93 Survey		
Tenured	30	19.4
Tenure track	25	16.1
Not tenure track	50	32.3
No tenure for that faculty status	33	21.3
No tenure system	17	11.0
Total	155	100.0
1998-99 Survey		
Tenured	44	32.4
On tenure track, but not tenured	17	12.5

(table con'd.)

Tenure status	Frequency	Percent
Not on tenure track, although institution has a tenure system	56	41.2
No tenure system at this institution	19	14.0
Total	136	100.0

Table 14 presents the various types of principal activities the respondents of the 1992-93 and 1998-99 surveys reported. In 1992-93, 80.6% of respondent's reported their principal activity was teaching, while 5.2% of respondent's reported their principal activity was director/coordinator, and 4.5% reported researcher as their principle activity. In 1998-99, 77.2% of respondent's reported their principal activity was teaching followed by 8.1% reporting director/coordinator and 5.9% reporting researcher.

Table 14.

Principal Activity of HRED Respondents

Principal activity	Frequency	Percent
1992-93 Survey		
Teaching	125	80.6
Director/coordinator	8	5.2
Research	7	4.5
Dean	3	1.9
Advisor/counselor	2	1.3
Subsidized/other	2	1.3
Sabbatical	2	1.3
Administrator/manager	2	1.3
Vice president	1	.6
Clinical service	1	.6
Other administration	1	.6
Chair	1	.6

(table con'd.)

Principal activity	Frequency	Percent
Total	155	100.0
1998-99 Survey		
Teaching	105	77.2
Director/coordinator	11	8.1
Research	8	5.9
Technical	3	2.2
Dean	3	2.2
Chair	2	1.5
Other administration	1	.7
Administrator/manager	1	.7
Chancellor/provost	1	.7
Sabbatical	1	.7
Total	136	100.0

Table 15 presents whether or not respondents were engaged in research, writing, and/or creative work, and the types of research and writing in which respondents were engaged. Of the respondents from the 1992-93 survey, 47.1% reported being engaged in some type of research, writing and/or creative work; and the majority of these individuals reported involvement in applied research (53.4%). Of the respondents from the 1998-99 survey, 50.7% reported being engaged in some type of research, writing and/or creative work; and the majority of these individuals reported involvement in applied or policy-oriented research or analysis (43.5%).

Table 15.

Engagement In and Type of Research, Writing, and Creative Work of HRED Respondents

Variable	Frequency	Percent
1992-93 Survey		
Engaged in research, writing, and/or creative work		
Yes	73	47.1
No	82	52.9
Total	155	100.0
Type of research		
Applied research	39	53.4
Program design/development	11	15.1
Pure/basic research	10	13.7
Policy research	6	8.2
Literary work	5	6.8
Other	2	2.7
Total	73	100.0
1998-99 Survey		
Engaged in research, writing, and/or creative work		
Yes	69	50.7
No	67	49.3
Total	136	100.0
Type of research		
Applied or policy-oriented research or analysis	30	43.5
Program/curriculum design and development	17	24.6
Basic research	17	24.6
Literary, performance or exhibitions	4	5.8
Other	1	1.4
Total	69	100.0

Table 16 presents the variable academic rank, title or position. In 1992-93, 41.3% of respondents reported holding the rank of instructor, 14.8% of professor and assistant professor, and

11.0% of associate professor. In 1998-99, 33.1% of respondents reported holding the rank of instructor, 25.7% of associate professor, 14.7% of professor, and 8.8% of assistant professor.

Table 16.

Academic Rank, Title, or Position of HRED Respondents

Rank, title, or position	Frequency	Percent
1992-93 Survey		
Instructor	64	41.3
Assistant professor	23	14.8
Professor	23	14.8
Associate professor	17	11.0
Lecturer	7	4.5
Adjunct faculty/teacher	3	1.9
Director/coordinator	3	1.9
Management/supervisor	2	1.3
Administration	1	.6
Other	2	1.3
Not applicable	10	6.5
Total	155	100.0
1998-99 Survey		
Instructor	45	33.1
Associate professor	35	25.7
Professor	20	14.7
Assistant professor	12	8.8
Adjunct faculty/teacher/or unspecified	9	6.6
Lecturer	6	4.4
Director/head/coordinator/executive	2	1.5
Management/supervisor	1	.7
Dean	1	.7
Teacher/faculty	1	.7

(table con'd.)

Rank, title, or position	Frequency	Percent
Extension/outreach agent/specialist/services	1	.7
Administration/administrator	1	.7
Not applicable	2	1.5
Total	136	100.0

Table 17 presents the variables number of years tenured, number of years since achieved current rank, time in current position, and total research funding. In 1992-93, the mean number of years tenured was reported as 10.10 (*SD*=8.06), while the mean number of years since achieved current rank was reported as 5.87 (*SD*=5.41), and the time in current position's mean was reported as 6.73 (*SD*=6.29). The average total funding received for 1992-93 was reported as $4194 (*SD*=$14,452). In 1998-99, the mean number of years tenured was reported as 8.39 (*SD*=6.61), while the mean number of since current rank was achieved was reported as 6.08 (*SD*=5.62), and the mean time in current position was reported as 8.61 (*SD*=6.68). The average total research funding received for 1998-99 was reported as $9638 (*SD*=$39,548).

Table 17.

Years Tenured and Since Rank, Time in Current Position, and Total Research Funding of HRED Respondents

Variable	*n*	Minimum	Maximum	*M*	*SD*
1992-93 Survey					
Number of years tenured	30	1	29	10.10	8.06
Number of years since rank achieved	155	1	26	5.87	5.41
Time in current position	155	1	37	6.73	6.29
Total research funding (dollars)	27	0	101,075	4194.66	14,452.48
1998-99 Survey					

(table con'd.)

Variable	*n*	Minimum	Maximum	*M*	*SD*
Number of years tenured	44	1	27	8.39	6.61
Number of years since rank achieved	136	1	30	6.08	5.62
Time in current position	136	1	30	8.61	6.68
Total research funding (dollars)	25	0	263,326	9637.74	39,548.28

Education and Training Variables

Table 18 presents the variable highest degree held. In 1992-93, 40.3% of respondents reported earning a masters degree and 39.6% a doctoral degree. In 1998-99, 51.1% of respondents reported earning a doctorate and 34.1% a masters degree.

Table 18.

Highest Degree Held of HRED Respondents

Highest degree held	Frequency	Percent
1992-93 Survey		
Masters degree	62	40.3
Doctoral	61	39.6
Bachelors degree	24	15.6
Professional	3	1.9
Associates degree	2	1.3
1 year certificate or diploma	2	1.3
Total	154	100.0
1998-99 Survey		
Doctoral	69	50.7
Masters degree	46	33.8
Bachelors degree	16	11.8
Professional	2	1.5
Associates degree	2	1.5
Total	135	99.3

Table 19 presents the number of years that have elapsed since respondents received their highest degrees. In 1992-93, the average number of years since respondents received their highest degree was reported as 13.03 (*SD*=10.48). In 1998-99, the average number of years since respondents received their highest degree was reported as 14.13 (*SD*=9.99).

Table 19.

Years Since Received Highest Degree of HRED Respondents

Years since received highest degree	**Minimum**	**Maximum**	***M***	***SD***
1992-93 Survey	1	53	13.03	10.48
1998-99 Survey	1	44	14.13	9.99

Note. 1992-93 *n*=154; 1998-99 *n*=135.

Research Productivity

Objective 2 was to describe career and recent research productivity of HRED faculty. To describe research productivity, articles/creative work in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, or reports; and presentations/exhibitions were utilized. Recent research productivity will be discussed first, followed by career research productivity.

Table 20 presents recent research productivity item values. In 1992-93, the most common form of research produced over the past two years was reported as presentations and exhibitions (*M*=3.03, *SD*=5.3265), followed by refereed articles/juried media (*M*=1.13, *SD*=2.90). In 1998-99, the most common form of research produced over the past two years was reported as presentations and exhibitions (*M*=5.25, *SD*=7.49), followed by nonrefereed articles/nonjuried media (*M*=2.38, *SD*=6.42).

Table 20.

Items Composing Recent Research Productivity Scores of HRED Respondents

Item	Minimum	Maximum	*M*	*SD*
1992-93 Survey				
Recent presentations, exhibitions	0	65	3.66	8.12
Recent refereed articles/juried media	0	18	1.13	2.90
Recent nonrefereed articles/nonjuried media	0	18	.59	2.01
Recent books, textbooks, monographs, reports	0	6	.21	.83
Recent published reviews	0	14	.18	1.18
1998-99 Survey				
Recent presentations, exhibitions	0	40	5.25	7.49
Recent nonrefereed articles/nonjuried media	0	50	2.38	6.42
Recent refereed articles/juried media	0	16	1.72	3.31
Recent books, textbooks, monographs, reports	0	25	.99	3.18
Recent published reviews	0	25	.75	2.52

Note. 1992-93 *n*=155; 1998-99 *n*=135.

Table 21 presents career research productivity item values. In 1992-93, most common form of research produced over the respondent's career was reported as presentations and exhibitions (*M*=17.36, *SD*=35.27), followed by refereed articles/juried media (*M*=5.65, *SD*=13.76). In 1998-99, the most common form of research produced over the respondent's career was reported as presentations and exhibitions (*M*=21.53, *SD*=32.80), followed by refereed articles/juried media (*M*=6.62, *SD*=19.32).

Table 21.

Items Composing Career Research Productivity Scores of HRED Respondents

Item	Minimum	Maximum	*M*	*SD*
1992-93 Survey				
Career presentations, exhibitions	0	258	19.03	40.22
Career refereed articles/juried media	0	100	5.65	13.76
Career nonrefereed articles/nonjuried media	0	41	2.70	6.26
Career books, textbooks, monographs, reports	0	20	1.03	3.07
Career published reviews	0	20	.66	2.28
1998-99 Survey				
Career presentations, exhibitions	0	200	21.53	32.80
Career refereed articles/juried media	0	200	6.62	19.32
Career nonrefereed articles/nonjuried media	0	106	6.07	13.86
Career books, textbooks, monographs, reports	0	30	2.26	5.11
Career published reviews	0	75	2.18	8.23

Note. 1992-93 *n*=155; 1998-99 *n*=135.

Table 22 presents the research productivity scores of both 1992-93 and 1998-99 surveys. Weighted formulas were utilized to compute these scores. The weights in the formula were derived from the panel selected to weight the value of items to be used to measure research productivity. See Chapter III, p. 75 for details. The formula used to calculate the recent research productivity score (RRPS) was RRPS = (.123333*recent presentations/exhibitions) + (.483333*recent refereed articles/juried media) + (.126667*recent nonrefereed articles/nonjuried media) + (.15*recent books, textbooks, monographs, reports) + (.116667*recent published reviews). The formula used to calculate

the career research productivity (CP) was CP = (.123333*career presentations/exhibitions) + (.483333*career refereed articles/juried media) + (.126667*career nonrefereed articles/nonjuried media) + (.15*career books, textbooks, monographs, reports) + (.116667*career published reviews). The CP value was then processed one step further to obtain the career research productivity score (CRPS), therefore, CRPS = CP/years since received highest degree. Once calculated, the research productivity scores were scanned for inappropriate values. There were two research productivity score contributing item values in 1992-93 and six in 1998-99 that were removed and treated as missing values because the values were deemed to be inappropriate for that individual and were causing unusually high research productivity scores (see Appendix J for values). The values used to compute research productivity scores were those reported by respondents in reference to the type and quantity of research each had produced over the past two years and over their career. In 1992-93, the mean recent research productivity score was 1.04, while the career research productivity score was 0.47. In 1998-99, the mean recent research productivity score was 2.02, while the career research productivity score was 0.66.

Table 22.

Recent and Career Research Productivity Scores of HRED Respondents

Score	Minimum	Maximum	*M*	*SD*
1992-93 Survey				
Recent research productivity score	0	11.04	1.04	1.88
Career research productivity score	0	4.25	.47	.73
1998-99 Survey				
Recent research productivity score	0	13.52	2.02	2.80
Career research productivity score	0	4.70	.66	.91

Note. 1992-93 *n*=155; 1998-99 *n*=135.

Time Spent

Objective 3 was to describe differences between actual time spent and preferred time spent teaching, at research, on professional growth, at administration, on service activity, and on consulting. In 1992-93, from a statistical standpoint (the evaluation of significant *t*-test values), respondents reported preferring to spend a significantly less amount of time teaching, preforming administrative duties, and participating in professional growth; whereas, respondents reported preferring to spend a significantly more amount of time conducting research. From a practical standpoint, i.e., the evaluation of Cohen's *d* values for each significant *t* value, the results for administration, research and professional growth demonstrate practical significance, although only a small amount of such. The descriptive statistics, *t*-test results and Cohen's *d* values are presented in Table 23.

Table 23.

1992-93 Time Spent Descriptive Statistics and Comparisons of HRED Respondents

Time spent	Actual		Preferred		Comparison			
	M	***SD***	***M***	***SD***	***t***	***df***	***p***	**Cohen's *d*[a]**
Teaching	52.71	33.86	49.74	28.57	2.20	154	.03	.09
Administration	13.89	26.07	9.13	18.40	4.71	154	<.01	.21
Research	11.76	15.91	16.72	18.26	-6.24	154	<.01	.29
Professional growth	8.85	9.38	5.73	9.26	-4.23	154	<.01	.35
Consulting	7.48	19.17	7.68	16.80	-.32	154	.75	NA
Service activity	7.14	14.62	6.59	12.41	.72	154	.47	NA

[a]Cohen's *d* descriptors: large effect size=.80, medium effect size=.50, small effect size=.20.

In 1998-99, from both a statistical standpoint (the evaluation of significant *t*-test values), respondents reported preferring to spend a significantly less amount of time preforming administrative duties; whereas, respondents reported preferring to spend a significantly more amount of time

conducting research and participating in professional growth. From a practical standpoint, i.e., the evaluation of Cohen's *d* values for each significant *t* value, the results for administration, research and professional growth demonstrate practical significance, however, only a small amount. The descriptive statistics, *t*-test results and Cohen's *d* values are presented in Table 24.

Table 24.

1998-99 Time Spent Descriptive Statistics and Comparisons of HRED Respondents

Time spent	Actual		Preferred		Comparison			
	M	***SD***	***M***	***SD***	***t***	***df***	***p***	**Cohen's *d***
Teaching	54.38	31.62	53.20	31.34	.71	135	.48	NA
Administration	16.19	25.32	11.32	22.24	4.26	135	<.01	.20
Consulting	10.45	22.92	10.02	20.37	.50	135	.62	NA
Research	9.88	15.85	14.17	18.80	-4.88	135	<.01	.25
Professional growth	4.69	7.41	6.06	6.95	-2.23	135	.03	.19
Service activity	4.42	8.67	5.24	12.31	-.92	135	.36	NA

Satisfaction with Instructional Duties

Objective four was to describe the measurement of a faculty members' satisfaction with factors related to instructional duties (authority to decide course content, authority to decide courses taught, authority to make non-instructional job decisions, time available to advise students, quality of undergraduate students, and quality of graduate students). These items were combined to form a scale to represent satisfaction with instructional duties. The measurement scale for the items was very dissatisfied=1, somewhat dissatisfied=2, somewhat satisfied=3, and very satisfied=4. Therefore, mean values from 1to1.49 will be described as very dissatisfied, from 1.5 to 2.49 as somewhat dissatisfied, 2.5 to 3.4 as somewhat satisfied, and 3.5 to 4 as very satisfied. In 1992-93, respondents reported

being somewhat satisfied with their instructional duties (*M*=3.25), as did respondents in 1998-99 (*M*=3.18). See Tables 6 and 7 for factor loadings and Table 3 for internal consistency coefficients.

Satisfaction with Other Related Job Factors

Objective five was to describe the measurement of a faculty members' satisfaction with other related job factors (work load, job security, advancement opportunity, time to keep current in field, freedom to do consulting, salary, benefits, spouse employment opportunity, and job overall). These items were combined to form a scale to represent satisfaction with other related job factors. The measurement scale for the items was very dissatisfied=1, somewhat dissatisfied=2, somewhat satisfied=3, and very satisfied=4. Therefore, mean values from 1to1.49 will be described as very dissatisfied, from 1.5 to 2.49 as somewhat dissatisfied, 2.5 to 3.4 as somewhat satisfied, and 3.5 to 4 as very satisfied. In 1992-93, respondents reported being somewhat satisfied with their other job related duties (*M*=2.93), as did respondents in 1998-99 (*M*=2.94). See Tables 6 and 7 for factor loadings and Table 3 for internal consistency coefficients.

Research Environment

Objective six was to describe a faculty members' opinion of the research environment of their institution. This objective initially set out to investigate a faculty member's opinion of research environment scale, however, the three items selected did not form a scale. Therefore, the items "At this institution, research is rewarded more than teaching" (*M*=2.26, *SD*=1.11 for 1992-93, and *M*=2.40, *SD*=.99 for 1998-99),and "Research/ publications should be the primary criterion for promotion of college teachers at this institution" (*M*=2.01, *SD*=.90 for 1992-93, and *M*=2.1, *SD*=.75 for 1998-99) were selected for evaluation to meet this objective. The remaining item was not selected because of its wording and the fact that the focus of this study and objective is research. The measurement scale for

the items was disagree strongly=1, disagree somewhat=2, agree somewhat=3, and agree strongly=4. Therefore, mean values from 1to1.49 will be described as disagree strongly, from 1.5 to 2.49 as disagree somewhat, 2.5 to 3.4 as agree somewhat, and 3.5 to 4 as agree strongly. Therefore, in describing a HRED faculty member's opinion of their research environment, 1992-93 respondents reported disagreeing somewhat with the statement that research was rewarded more than teaching at their institution, and disagreeing somewhat with the statement that research/publications should be the primary criterion for promotion of college teachers at their institution. While respondents in 1998-99 reported disagreeing somewhat with both statements as well.

Evaluation of HRED Faculty Research Productivity Model

Objective seven was to determine if selected variables explain a significant proportion of the variance in the research productivity of HRED faculty members. The research productivity scores were calculated using a weighted formula. Five groups of publications were utilized in the formula (articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; and books, textbooks, monographs, reports; and presentations/exhibitions). See Tables 20-22 for means and standard deviations.

To analyze this objective, the following model was evaluated:

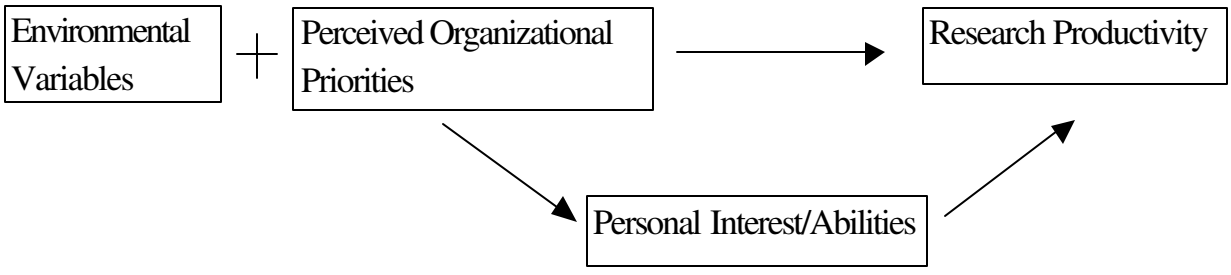

Figure 1. Human Resource Education and Development Faculty Research Productivity Model

Variables selected for evaluation were:

- Environmental Variables (control variables): Carnegie rank, age, time spent teaching;
- Perceived Organizational Priorities (motivational antecedents): Opinion of institutional research resources, presence of institutional funding, agreement with the statements "Research/publications should be the primary criterion for promotion of college teachers at this institution," and "At this institution, research is rewarded more than teaching;"
- Personal Interests/Abilities (mediator): Preferred time spent in research; and
- Research Productivity (dependent variables): Career research productivity score, recent research productivity score, and time spent in research.

It should be noted that although other variables were present in the data set that could have functioned appropriately as control, independent or mediating variables (e.g., academic rank or education level) these variables were not included due to one of three reasons. First, multicollinearity was expected to exist between these and other variables included; second, the variables were inconsistently measured between the 1992-93 and 1998-99 surveys; and/or third, the variables selected were deemed to be the most appropriate for representation of the model due to review of past literature.

Due to the inability to determine changes over a five year period, and the lack of any drastic changes in postsecondary education between 1992 and 1998, the researcher deemed it more appropriate to obtain a larger and more representative data set, by combining the 1992-93 and 1998-99 data sets (if feasible).

To determine if the data sets from 1992-93 and 1998-99 could be combined to form an overall data set encompassing a larger sample, the researcher evaluated the reliability of the "Opinion of

Institutional Research Resources" scale for the overall data set, the representativeness of the population of the dependent variables by response mode (phone and mail), and the presence of significant differences between study year for the independent and mediating variables utilized in the model. As stated in Chapter IV, if there was sufficient evidence that reliability was present, representativeness of the population existed, and the majority of the independent and mediating variables of the two data sets did not differ significantly, the data sets would be combined into one data set to complete the analyses.

The 1992-93 and 1998-99 data sets were combined using "study year" as an identification variable for these analyses. The results of these analyses lead the researcher to combine the two data sets into one overall data set to be utilized in the evaluation of the HRED Faculty Research Productivity Model. The results of these analyses are found in Tables 25, 26, and 27.

Table 25 reports the reliability of the "Opinion of Institutional Research Resources" scale. Before reliability was examined, a factor analysis was preformed on the scale items to ensure the items would load onto one factor in the overall data set. The scale was found to maintain its integrity with factor loadings of .72 for availability of research assistants, .75 for office space, .82 for secretarial support, and .67 for library holdings. Next, to determine reliability of this scale, Cronbach's *alpha* was determined for this scale in the overall data set. Reliability was found to exist with an *alpha* value of .72 which is considered to possess "extensive" reliability according to the standards of comparison by Robinson, et al. (1991).

Table 26 presents the *t*-test results for the determination of representativeness of the population by the dependent variables for the overall data set. Comparison of career research productivity score by response mode, recent research productivity score by response mode, and percent of time spent in

research by response mode (phone and mail) were conducted. No significant differences existed between response mode for any of the three dependent variables.

Table 25.

Reliability of the "Opinion of Institutional Research Resources" Scale

Factors	Cronbach's *alpha* for factor	Corrected item-total correlation	Cronbach's *alpha* if item deleted
Opinion of institutional research[a]	.72		
Secretarial support		.61	.59
Office space		.52	.65
Availability of research assistants		.49	.68
Library holdings		.44	.69

[a]Opinion of institutional research resources measurement scale: 1=poor, 2=fair, 3=good, 4=excellent.

Table 26.

Comparison of Overall Research Productivity Variables by Response Mode (Mail and Phone)

Score	Mail		Phone		Comparisons		
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Career research productivity score	.55	.82	.50	.91	.41	251	.68
Recent research productivity score	1.31	2.19	1.34	2.42	-.09	251	.93
Percent of time spent in research	11.27	16.27	7.78	13.04	1.40	251	.18

Table 27 represents the results of the comparison between study year for the variables in the HRED Faculty Research Productivity Model. Of the five variables evaluated, only institutional research support was found to demonstrate the presence of significant differences between study years. Further

investigating this variable revealed that respondents from both years, although one at a higher level than the other, reported their opinion of institutional research resources as good (1992-93 *M*=2.79, 1998-99 *M*=3.22). Also, the Cohen's *d* value (*d*=.08) demonstrated this difference was not of practical significance. Reviewing the evidence found from the analyses, and referring back to the original factors to determine if the data sets could be combined (the majority of the variables investigated between study years were not significantly different, sufficient evidence was present that reliability existed, and the variables investigated demonstrated representativeness of the population), the stipulations were met and therefore, the data sets were combined into one data set to complete the analyses.

Table 27.

Differences in Independent and Mediating Model Variables by Study Year

Variable	1992-93		1998-99		Comparisons		
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Percent of time preferred to be spent in research	16.72	18.26	14.17	18.80	1.17	289	.24
Opinion of institutional research support	2.79	.63	3.22	1.01	-4.32	277	<.01
Presence of institutional funding[a]	1.90	.30	1.91	.29	-.25	289	.80
Research/publications should be the primary criterion for promotion of college teachers at this institution	2.01	.90	2.10	.75	-.92	289	.36
At this institution, research is rewarded more than	2.26	1.11	2.40	.99	-1.18	289	.24

[a]This variable is categorical, therefore, Mann-Whitney U test was performed and the value in the "*t*" column is actually a "*z*" value.

Next, the two categorical variables (Carnegie rank, presence of institutional funding) to be utilized in the regression were dummy coded. This procedure was performed due to the inability of SPSS to properly handle nominal variables as independent variables in regression equations. In order to stay within the ratio of observations to variables, the variable Carnegie rank was collapsed from 9 categories (public research, private research, public Ph.D./medical, private Ph.D./medical, public

comprehensive, private comprehensive, private liberal arts, public two-year and other) to 2 categories (high rank and low rank). The collapsing of the categories was based on the mean career and recent research productivity scores and mean time spent in research value. Those categories with individual mean values above those of the overall mean career and recent research productivity and time spent in research values were included in the high rank group, while those with below average individual mean values were placed in the low rank group. For example, the mean value of career research productivity was .50; therefore, all categories with individual mean career research productivity scores .50 or above were included in the high rank group and all those less than .50 were included in the low rank group. The division was the same across all three dependent variables: high rank included the categories public research, private research, public Ph.D./medical, private Ph.D./medical, public comprehensive, and private comprehensive; while low rank included the categories private liberal arts, public two-year and other. Institutional funding categories included if research funding was present or was not present.

Before the model could be evaluated, regression assumptions and influential observations were tested following the description in Chapter IV. Assumptions and tests conducted were based on research by Hair et al. (1994) and Bates et al. (1999). The following tests were conducted per dependent variable (career research productivity score, recent research productivity score, and time spent in research):

1. Ran an initial linear regression using combined data set; entering Carnegie rank, age, time spent teaching, percent of time preferred to be spent in research, opinion of institutional research support, presence of institutional funding, research/publications should be the primary criterion for promotion of college teachers at this institution, and at this institution, research is rewarded more than teaching variables as independent variables;

2. Tested violation of regression assumptions (linearality of relationship between criterion and predictor variables, homoscedasticity, normality) by examining scatterplots of studentized residuals against predicted variables, studentized residuals against predicted criterion values with a null plot, normal probability plot for data, and residual plots;
3. Tested multicollinearity by investigating condition index (greater than 30 and .90 or greater of variance for two or more coefficients), tolerance values, and VIF (greater than 5.3);
4. Tested individual influential observations (i.e., detecting outliers) by examining centered leverage values (value greater than (2*#of predictors+1)/n for sample size greater than 50 may be influential, dfbetas (plot dfbetas), Cook's distance (values greater than 1), and scatterplot of standardized predicted value verses dependent variable with line; and
5. Tested multiple influential observations: analyzed maximum R^2 subset regression models.

As noted above, each test was performed for each dependent variable. Cases were present for each dependent variable that appeared to contribute to the violation of assumptions or acted as influential observations. These cases were documented and removed, creating a data set unique to each dependent variable. Following the removal of the cases, the regression assumptions per dependent variable were again tested within the specified data set for that dependent variable, and there was no violation of assumptions present, nor was multicollinearity present for any of the dependent variables. The cases that were removed are presented below in the discussion of model evaluation per dependent variable.

Following the cleaning of the data as describe above, utilizing the statistical technique mediated hierarchical regression, three variations of the HRED Faculty Research Productivity Model were examined in which all control, independent, and mediating variables were consistent, however, the

dependent variable changed. To complete this procedure, research by Hair et al. (1994), Bates and Khasawneh(2002), and Baron and Kenny (1986) was applied. Each dependent variable underwent a series of steps to determine if mediation existed and if that mediation was partial or full. First, the dependent variable of career research productivity score was evaluated, then recent research productivity score, and lastly, time spent in research. The results of the model evaluations are organized by dependent variable and are presented below.

Career Research Productivity Score (CRPS)

Following the evaluation of the regression assumptions and influential observations for the dependent variable CRPS, the following cases were removed: 31, 164, 166, 197, 81, 190, 169, 219, 68, 282, and 269 due to the presence of outliers in dfbeta plots, residual plots, and scatter plots, centered leverage values greater than .061, and significant findings of multiple influential observations. Removing these cases reduced the CRPS overall data set to 281 cases or respondents. Once these cases were removed, regression assumptions were again evaluated and no violation of assumptions was present. Also, the condition of multicollinearity was not present.

Once the CRPS overall data set was corrected, descriptive statistics of model variables were calculated. Tables 28 and 29 present the descriptive statistics for the CRPS overall data set.

The evaluation of the HRED Faculty Research Productivity Model utilizing CRPS as the dependent variable is broken down into the four steps of testing a mediated model. The results of each step are presented with "C" representing the control variable, "X" representing the independent variables, "Z" representing the mediating variable, and "Y" representing the dependent variable.

Table 28.

Descriptive Statistics for Interval Model Variables from CRPS Overall Data Set

Variable	Minimum	Maximum	*M*	*SD*
Career research productivity score	0	4.67	.50	.72
Percent of time spent teaching	0	100	53.51	32.71
Age	25	77	48.63	10.35
Research is rewarded more than teaching at this	1	4	2.31	1.06
Research should be promotion criteria at this	1	4	2.04	.83
Institutional research support scale	1	5	2.99	.87
Percent of time preferred to be spent in research	0	70	14.79	17.34

Note. *N*=281.

Table 29.

Descriptive Statistics for Categorical Model Variables from CRPS Overall Data Set

Variable	Frequency	Percent
Carnegie rank[a]		
High rank	158	56.2
Low rank	123	43.8
Total	281	100.0
Presence of institutional funding		
Funding present	25	8.9
Funding not present	256	91.1
Total	281	100.0

[a]Carnegie rank was divided according to the procedures described on p110-111.

The four steps in the hierarchical regression produced statistically significant models. The steps are presented below.

1. C+X=Y: Step 1 produced a statistically significant model (p<.001), R^2=.309.

2. C+Z=Y: Step 2 produced a statistically significant model (p<.001), R^2=.383.

3. C+X=Z: Step 3 produced a statistically significant model (p<.001), R^2=.258. Due to the significance of the models in Steps 1 through 3, Step 4 was conducted.

4. C+Z+X=Y: Step 4 produced a statistically significant model (p=.029), R^2=.412. See Appendix L for correlation matrix.

Tables 30 (model summary) and 31 (ANOVA) present the results of Step 1 (C+X=Y). The variables with significant *betas* were percent of time spent teaching (p=.004), low rank (p<.001), research should be a promotion criteria at this institution (p<.001), and research is rewarded more than teaching (p=.044).

Table 30.

Career Research Productivity Score Model Summary: Step 1 (C+X=Y)

Model[c]	**Cumulative R^2**	**Adjusted R^2**	**R^2 change**	**SE**	***df***	***p***
1	.239[a]	.231	.239	.64	265	<.001
2	.309[b]	.290	.070	.61	261	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]CRPS.

Table 31.

Career Research Productivity Score Regression ANOVA: Step 1 (C+X=Y)

Model[c]	**Source of variation**	***SS***	***df***	***MS***	***F***	***p***
1	Regression	33.83	3	11.28	27.78	<.001[a]
	Residual	107.57	265	.41		
	Total	141.40	268			

(table con'd.)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
2	Regression	43.67	7	6.24	16.66	<.001[b]
	Residual	97.73	261	.37		
	Total	141.40	268			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]CRPS.

Tables 32 and 33 present the results of Step 2 (C+Z=Y). The variables with significant *betas* were percent of time spent teaching (p=.011), low rank (p<.001), and percent of time preferred to be spent in research (p<.001).

Table 32.

Career Research Productivity Score Model Summary: Step 2 (C+Z=Y)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.227[a]	.219	.227	.63	277	<.001
2	.383[b]	.375	.156	.57	276	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]CRPS.

Table 33.

Career Research Productivity Score Regression ANOVA: Step 2 (C+Z=Y)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	32.75	3	10.92	27.18	<.001[a]
	Residual	111.25	277	.40		
	Total	144.00	280			
2	Regression	55.22	4	13.81	42.92	<.001[b]
	Residual	88.78	276	.32		
	Total	140.00	280			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]CRPS.

Tables 34 and 35 present the results of Step 3 (C+X=Z). The variables with significant *betas* were low rank (p<.001), research should be a promotion criteria at this institution (p<.001), research rewarded more than teaching (p=.031), and institutional research support scale (p=.016). Due to the significance of the models in Steps 1 through 3, a mediated model exists for the CRPS dependent variable. Step 4 was performed to determine if the model was fully or partially mediated.

Table 34.

Career Research Productivity Score Model Summary: Step 3 (C+X=Z)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.158[a]	.149	.158	16.13	265	<.001
2	.258[b]	.238	.100	15.26	261	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Table 35.

Career Research Productivity Score Regression ANOVA: Step 3 (C+X=Z)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	12967.37	3	4322.46	16.61	<.001[a]
	Residual	68958.77	265	260.22		
	Total	81926.14	268			
2	Regression	21148.85	7	3021.26	12.97	<.001[b]
	Residual	60777.30	261	232.86		
	Total	81926.15	268			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Tables 36 and 37 present the results of Step 4 (C+Z+X=Y). The significant *betas* of the variables percent of time spent teaching (p=.007), low rank (p<.001), percent of time preferred to be spent in research (p<.001), and research should be a promotion criteria at this institution (p=.007) demonstrate their relative importance to this model. A partially mediated model exists due to the significant result (p=.029) of Step 4, and R^2 value demonstrates a large effect size according to descriptors by Cohen (1988) denoting the model's strength, as well as practical significance. Therefore, personal interest/abilities (measured by preferred time spent in research) alters the relationship between perceived organizational priorities and career research productivity score. After controlling for the mediating variable, the relationship between the dependent and independent variables is reduced but not to nonsignificance. All standardized beta values for CRPS regression models (steps 1 through 4) are presented in Table 38.

Table 36.

Career Research Productivity Score Model Summary: Step 4 (C+Z+X=Y)

Model[d]	**Cumulative R^2**	**Adjusted R^2**	**R^2 change**	**SE**	***df***	***p***
1	.239[a]	.231	.239	.64	265	<.001
2	.387[b]	.378	.148	.57	264	<.001
3	.412[c]	.394	.025	.57	260	.098

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]CRPS.

Table 37.

Career Research Productivity Score Regression ANOVA: Step 4 (C+Z+X=Y)

Model[d]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	33.83	3	11.28	27.78	<.001[a]
	Residual	107.57	265	.41		
	Total	141.40	268			
2	Regression	54.70	4	13.68	41.64	<.001[b]
	Residual	86.70	264	.33		
	Total	141.40	268			
3	Regression	58.21	8	7.28	22.74	<.001[c]
	Residual	83.19	260	.32		
	Total	141.40	268			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]CRPS.

Table 38.

CRPS Steps 1, 2, 3, and 4 Standardized Betas

Variables	Standardized betas			
	Step 1 (C+X=Y)	**Step 2 (C+Z=Y)**	**Step 3 (C+X=Z)**	**Step 4 (C+Z+X=Y)**
Percent of time spent teaching	-.15*	-.12*	-.05	-.13*
Age of respondent	-.08	-.09	-.04	-.07
Low rank	-.32*	-.24*	-.25*	-.23*
High rank	–	–	–	–
Funding present	–	NA	–	–
Funding not present	-.01	NA	-.11	-.04

(table con'd.)

Variables	Standardized betas			
	Step 1 (C+X=Y)	**Step 2 (C+Z=Y)**	**Step 3 (C+X=Z)**	**Step 4 (C+Z+X=Y)**
Research should be primary promotion criteria	.22*	NA	.22*	.14*
Research is rewarded more than teaching	.12*	NA	.13*	.07
Opinion of institutional research resources scale	-.07	NA	-.13*	-.02
Preferred amount of time spent in research	NA	.43*	NA	.37*

Note. "NA" represents not applicable, i.e., that variable was not entered into that step. Variables that were entered into a step, but did not meet the minimum value for entry are coded "–".
*p<.05.

Recent Research Productivity Score (RRPS)

Following the evaluation of the regression assumptions and influential observations as stated in Chapter IV, the following cases were removed: 186, 164, 214, 190, 195, 68, 60, 254, 243, 169, 61, 231, 207, 39, 201, 27, and 213 due to the presence of outliers in dfbeta plots, residual plots, and scatter plots, centered leverage values greater than .0609, and significant findings of multiple influential observations. Removing these cases reduced the RRPS overall data set to 274 cases or respondents. Once these cases were removed, regression assumptions were again evaluated and no violation of assumptions was present. Also, the condition of multicollinearity was not present.

Once the RRPS overall data set was corrected, descriptive statistics of model variables were calculated. Tables 39 and 40 present the descriptive statistics for the RRPS overall data set.

Table 39.

Descriptive Statistics for Interval Model Variables from RRPS Overall Data Set

Variable	Minimum	Maximum	*M*	*SD*
Recent research productivity score	0	7.40	1.11	1.60
Percent of time spent teaching	0	100	54.48	32.83
Age	25	77	48.80	10.39
Research is rewarded more than teaching at this institution	1	4	2.30	1.06
Research should be promotion criteria at this institution	1	4	2.03	.82
Institutional research support scale	1	5	2.98	.85
Percent of time preferred to be spent in research	0	70	13.85	16.60

Note. *N*=274.

Table 40.

Descriptive Statistics for Categorical Model Variables from RRPS Overall Data Set

Variable	Frequency	Percent
Carnegie rank[a]		
High rank	150	54.7
Low rank	124	45.3
Total	274	100.0
Presence of institutional funding		
Funding present	25	9.1
Funding not present	249	90.9
Total	274	100.0

[a]Carnegie rank was divided according to the procedures described on p110-111.

The evaluation of the HRED Faculty Research Productivity Model utilizing RRPS as the dependent variable is broken down into the four steps of testing a mediated model. The results of each step are presented below with "C" representing the control variable, "X" representing the independent

variables, "Z" representing the mediating variable, and "Y" representing the dependent variable.

1. C+X=Y: Step 1 produced a statistically significant model (p<.001), R^2=.269.

2. C+Z=Y: Step 2 produced a statistically significant model (p<.001), R^2=.302.

3. C+X=Z: Step 3 produced a statistically significant model (p<.001), R^2=.245. Due to the significance of the models in Steps 1 through 3, Step 4 was conducted.

4. C+Z+X=Y: Step 4 did not produce a statistically significant model (p=.101), R^2=.336. See Appendix M for RRPS Step 4 correlation matrix.

Tables 41 (model summary) and 42 (ANOVA) present the results of Step 1 (C+X=Y). The variables with significant *betas* were low rank (p<.001) and research should be a promotion criteria at this institution (p<.001).

Table 41.

Recent Research Productivity Score Model Summary: Step 1 (C+X=Y)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.207[a]	.198	.207	1.45	258	<.001
2	.269[b]	.249	.062	1.40	254	.004

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]RRPS.

Table 42.

Recent Research Productivity Score Regression ANOVA: Step 1 (C+X=Y)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	141.04	3	47.01	22.50	<.001[a]
	Residual	539.02	258	2.09		
	Total	680.06	261			

(table con'd.)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
2	Regression	182.97	7	26.14	13.36	<.001[b]
	Residual	497.09	254	1.96		
	Total	680.06	261			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]RRPS.

Tables 43 and 44 present the results of Step 2 (C+Z=Y). The variables with significant *betas* were low rank (p<.001), and percent of time preferred to be spent in research (p<.001).

Table 43.

Recent Research Productivity Score Model Summary: Step 2 (C+Z=Y)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.190[a]	.181	.190	1.45	270	<.001
2	.302[b]	.292	.112	1.35	269	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to spend in research. [c]RRPS.

Table 44.

Recent Research Productivity Score Regression ANOVA: Step 2 (C+Z=Y)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	132.56	3	44.19	21.10	<.001[a]
	Residual	565.35	270	2.09		
	Total	697.91	273			
2	Regression	210.77	4	52.69	29.10	<.001[b]
	Residual	487.13	269	1.81		
	Total	697.90	273			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to spend in research. [c]RRPS.

Tables 45 and 46 present the results of Step 3 (C+X=Z). The variables with significant *betas* were low rank (p=.001), funding not present (p=.013), research should be a promotion criteria at this institution (p<.001), research rewarded more than teaching (p=.019), and institutional research support scale (p=.096). Due to the significance of the models in Steps 1 through 3, a mediated model exists for the RRPS dependent variable. Step 4 was performed to determine if the model was fully or partially mediated.

Table 45.

Recent Research Productivity Score Model Summary: Step 3 (C+X=Z)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.129[a]	.119	.129	15.72	258	<.001
2	.245[b]	.224	.116	14.75	254	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Table 46.

Recent Research Productivity Score Regression ANOVA: Step 3 (C+X=Z)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	9447.11	3	3149.04	12.75	<.001[a]
	Residual	63744.59	258	247.07		
	Total	73191.70	261			
2	Regression	17942.21	7	2563.17	11.78	<.001[b]
	Residual	55249.49	254	217.52		
	Total	73191.70	261			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Tables 47 and 48 present the results of Step 4 (C+Z+X=Y). The significant *betas* of the variables low rank (p<.001), percent of time preferred to be spent in research (p<.001), and research should be a promotion criteria at this institution (p=.011) demonstrate their relative importance to this model. A fully mediated model exists due to the nonsignificant result (p=.101) of Step 4, and the R^2 value demonstrates a large effect size according to descriptors by Cohen (1988) denoting the model's strength, as well as practical significance. Therefore, personal interest/abilities (measured by preferred time spent in research) alters the relationship between perceived organizational priorities and recent research productivity score. Therefore, after controlling for the mediating variable (preferred time spent in research), the relationship between the dependent and independent variables is removed or reduced to nonsignificance. All standardized beta values for CRPS regression models (steps 1 through 4) are presented in Table 49.

Table 47.

Recent Research Productivity Score Model Summary: Step 4 (C+Z+X=Y)

Model[d]	**Cumulative R^2**	**Adjusted R^2**	**R^2 change**	**SE**	***df***	***p***
1	.207[a]	.198	.207	1.45	258	<.001
2	.315[b]	.304	.108	1.35	257	<.001
3	.336[c]	.315	.021	1.34	253	.101

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]RRPS.

Table 48.

Recent Research Productivity Score Regression ANOVA: Step 4 (C+Z+X=Y)

Model[d]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	141.04	3	47.01	22.50	<.001[a]
	Residual	539.02	258	2.09		
	Total	680.06	261			
2	Regression	214.25	4	53.56	29.55	<.001[b]
	Residual	465.81	257	1.81		
	Total	680.06	261			
3	Regression	228.25	8	28.53	15.98	<.001[c]
	Residual	451.81	253	1.79		
	Total	680.06	261			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]RRPS.

Table 49.

RRPS Steps 1, 2, 3, and 4 Standardized Betas

Variables	Standardized betas			
	Step 1 (C+X=Y)	**Step 2 (C+Z=Y)**	**Step 3 (C+X=Z)**	**Step 4 (C+Z+X=Y)**
Percent of time spent teaching	-.07	-.05	-.03	-.06
Age of respondent	.07	.04	-.03	.07
Low rank	-.35*	-.29*	-.21*	-.29*
High rank	–	–	–	–
Funding present	–	NA	–	–
Funding not present	-.08	NA	-.14*	-.03

(table con'd.)

Variables	Standardized betas			
	Step 1 (C+X=Y)	**Step 2 (C+Z=Y)**	**Step 3 (C+X=Z)**	**Step 4 (C+Z+X=Y)**
Research should be primary promotion criteria	.21*	NA	.23*	.14*
Research is rewarded more than teaching	.07	NA	.15*	.03
Opinion of institutional research resources scale	-.09	NA	-.15*	-.05
Preferred amount of time spent in research	NA	.36*	NA	.30*

Note. "NA" represents not applicable, i.e., that variable was not entered into that step. Variables that were entered into a step, but did not meet the minimum value for entry are coded "–".
*p<.05.

Time Spent in Research (TSR)

Following the evaluation of the regression assumptions and influential observations as stated in Chapter IV, the following cases were removed: 19, 68, 190, 24, 90, 102, 156, 207, 219, 276, 31, 130, and 213 due to the presence of outliers in dfbeta plots, residual plots, and scatter plots, centered leverage values greater than .061, and significant findings of multiple influential observations. Removing these cases reduced the TSR overall data set to 278 cases or respondents. Once these cases were removed, regression assumptions were again evaluated and no violation of assumptions was present. Also, the condition of multicollinearity was not present.

Once the TSR overall data set was corrected, descriptive statistics of model variables were calculated. Tables 50 and 51 present the descriptive statistics for the TRS overall data set.

Table 50.

Descriptive Statistics for Interval Model Variables from TSR Overall Data Set

Variable	Minimum	Maximum	*M*	*SD*
Percent of time spent in research	0	59	9.78	13.56
Percent of time spent teaching	0	100	53.82	32.73
Age	25	77	48.74	10.31
Research is rewarded more than teaching at this institution	1	4	2.30	1.06
Research should be promotion criteria at this institution	1	4	2.03	.83
Institutional research support scale	1	5	2.99	.86
Percent of time preferred to be spent in research	0	70	13.94	16.54

Note. *N*=278.

Table 51.

Descriptive Statistics for Categorical Model Variables from TSR Overall Data Set

Variable	Frequency	Percent
Carnegie rank[a]		
High rank	158	56.8
Low rank	120	43.2
Total	278	100.0
Presence of institutional funding		
Funding present	25	9.0
Funding not present	253	91.0
Total	278	100.0

[a]Carnegie rank was divided according to the procedures described on p110-111.

The evaluation of the HRED Faculty Research Productivity Model utilizing TSR as the dependent variable is broken down into the four steps of testing a mediated model. The results of each

step are presented below with "C" representing the control variable, "X" representing the independent variables, "Z" representing the mediating variable, and "Y" representing the dependent variable.

1. C+X=Y: Step 1 produced a statistically significant model (p=.000), R^2=.330.
2. C+Z=Y: Step 2 produced a statistically significant model (p<.000), R^2=.786.
3. C+X=Z: Step 3 produced a statistically significant model (p<.000), R^2=.289. Due to the significance of the models in Steps 1 through 3, Step 4 was conducted.
4. C+Z+X=Y: Step 4 produced a statistically significant model (p=.009), R^2=.794. See Appendix N for TSR Step 4 correlation matrix.

Tables 52 (model summary) and 53 (ANOVA) present the results of Step 1 (C+X=Y). The variables with significant *betas* were low rank (p=.001), funding not present (p=.002), research should be a promotion criteria at this institution (p<.001), research rewarded more than teaching (p=.004), and opinion of institutional research resources scale (p=.007).

Table 52.

Time Spent in Research Model Summary: Step 1 (C+X=Y)

Model[c]	**Cumulative R^2**	**Adjusted R^2**	**R^2 change**	**SE**	***df***	***p***
1	.168[a]	.159	.168	12.58	262	<.001
2	.330[b]	.312	.162	11.38	258	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]TSR.

Table 53.

Time Spent in Research Regression ANOVA: Step 1 (C+X=Y)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	8397.25	3	2799.08	17.69	<.001[a]
	Residual	41457.80	262	158.26		
	Total	49855.05	265			
2	Regression	16474.59	7	2353.51	18.19	<.001[b]
	Residual	33380.47	258	129.38		
	Total	49855.05	265			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]TSR.

Tables 54 and 55 present the results of Step 2 (C+Z=Y). The variables with significant *betas* were percent of time in teaching (p=.007) and percent of time preferred to be spent in research (p<.001).

Table 54.

Time Spent in Research Model Summary: Step 2 (C+Z=Y)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.165[a]	.156	.165	12.46	274	<.001
2	.786[b]	.783	.621	6.32	273	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to spend in research. [c]TSR.

Table 55.

Time Spent in Research Regression ANOVA: Step 2 (C+Z=Y)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	8421.46	3	2807.15	18.10	<.001[a]
	Residual	42504.16	274	155.13		
	Total	50925.62	277			
2	Regression	40035.69	4	10008.92	250.91	<.001[b]
	Residual	10889.92	273	39.89		
	Total	50925.61	277			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to spend in research. [c]TSR.

Tables 56 and 57 present the results of Step 3 (C+X=Z). The variables with significant *betas* were low rank (p<.001), funding not present (p=.014), research should be a promotion criteria at this institution (p<.001), research rewarded more than teaching (p=.018), and institutional research support scale (p=.0139. Due to the significance of the models in Steps 1 through 3, a mediated model exists for the TSR dependent variable. Step 4 was performed to determine if the model was fully or partially mediated.

Table 56.

Time Spent in Research Model Summary: Step 3 (C+X=Z)

Model[c]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.161[a]	.151	.161	15.37	262	<.001
2	.289[b]	.270	.128	15.26	258	<.001

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Table 57.

Time Spent in Research Regression ANOVA: Step 3 (C+X=Z)

Model[c]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	11837.75	3	3945.92	16.70	<.001[a]
	Residual	61891.67	262	236.23		
	Total	73729.42	265			
2	Regression	21299.93	7	3042.85	14.97	<.001[b]
	Residual	52429.49	258	203.22		
	Total	73729.42	265			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [c]Time preferred to be spent in research.

Tables 58 and 59 present the results of Step 4 (C+Z+X=Y). The significant *betas* of the variables percent of time spent teaching (p=.010), percent of time preferred to be spent in research (p<.001), and research should be a promotion criteria at this institution (p=.026) demonstrate their relative importance to this model. A partially mediated model exists due to the significant result (p=.009) of Step 4, and the R^2 value demonstrates a large effect size according to descriptors by Cohen (1988) denoting the model's strength, as well as practical significance. Therefore, personal interest/abilities (measured by preferred time spent in research) alters the relationship between the time spent in research and perceived organizational priorities. After controlling for the mediating variable, the relationship between the dependent and independent variables is reduced, but not to nonsignificance. All standardized beta values for CRPS regression models (steps 1 through 4) are presented in Table 60.

Table 58.

Time Spent in Research Model Summary: Step 4 (C+Z+X=Y)

Model[d]	Cumulative R^2	Adjusted R^2	R^2 change	SE	*df*	*p*
1	.168[a]	.159	.168	12.58	262	<.001
2	.782[b]	.779	.614	6.45	261	<.001
3	.794[c]	.787	.011	6.33	257	.009

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]TSR.

Table 59.

Time Spent in Research Regression ANOVA: Step 4 (C+Z+X=Y)

Model[d]	Source of variation	*SS*	*df*	*MS*	*F*	*p*
1	Regression	8397.25	3	2799.08	17.69	<.001[a]
	Residual	41457.80	262	158.24		
	Total	49855.05	265			
2	Regression	39008.98	4	9752.25	234.67	<.001[b]
	Residual	10846.07	261	41.56		
	Total	49855.05	265			
3	Regression	39565.31	8	4945.66	123.53	<.001[c]
	Residual	10289.74	257	40.04		
	Total	49855.05	265			

[a]Age, percent of time spent teaching, low rank. [b]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research. [c]Age, percent of time spent teaching, low rank, percent of time preferred to be spent in research, institutional research support scale, funding not present, research should be promotion criteria at this institution, and research is rewarded more than teaching at this institution. [d]TSR.

Table 60.

TSR Steps 1, 2, 3, and 4 Standardized Betas

Variables	Standardized betas			
	Step 1 (C+X=Y)	**Step 2 (C+Z=Y)**	**Step 3 (C+X=Z)**	**Step 4 (C+Z+X=Y)**
Percent of time spent teaching	-.10	-.08*	-.03	-.08*
Age of respondent	-.05	-.01	-.05	-.01
Low rank	-.20*	-.03	-.24*	-.01
High rank	–	–	–	–
Funding present	–	NA	–	–
Funding not present	-.17*	NA	-.14*	-.06
Research should be primary promotion criteria	.28*	NA	.26*	.07*
Research is rewarded more than teaching	.17*	NA	.14*	.05*
Opinion of institutional research resources scale	-.14*	NA	-.13*	-.04
Preferred amount of time spent in research	NA	.86*	NA	.81*

Note. "NA" represents not applicable, i.e., that variable was not entered into that step. Variables that were entered into a step, but did not meet the minimum value for entry are coded "–".
*p<.05.

CHAPTER VI: CONCLUSIONS

Summary of Purpose and Objectives

The purpose of this research effort was to investigate what drives a HRED postsecondary faculty member to demonstrate higher research productivity than fellow HRED faculty members.

The specific objectives were to:

1. Describe HRED faculty members' personal variables (age, gender), institutional support variables (number of teaching assistants, opinion of institutional research resources, sources of funding), professional variables (instructional duties, principal activity, part-time/full-time, department chair, tenure status, academic rank/title/position, time in academic rank/title/position, engaged in professional research/writing, type of professional research/writing, total funding from grants/contracts), educational/training variables (highest degree held, number of years since highest degree was earned);
2. Describe the research productivity of HRED faculty members (career and recent research productivity - articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, reports; and presentations and exhibitions);
3. Describe differences in faculty members' actual time spent verses preferred time spent teaching, at research, on professional growth, at administration, on service activity, and on consulting;
4. Describe faculty members' satisfaction with instructional duties;
5. Describe faculty members' satisfaction with other related job factors;
6. Describe faculty members' opinion of emphasis on research/teaching at their employing institution; and

7. Determine if selected variables explain a significant proportion of the variance in the research productivity of HRED faculty members.

Research Productivity was defined as any scholarly research produced by a faculty member that contributes to the knowledge base of a discipline. This research included articles/creative works in refereed/juried media; articles/creative works in nonrefereed/nonjuried media; reviews of books, articles, or creative works; books, textbooks, monographs, and reports; and presentations and exhibitions.

Summary of Review of Literature

Higher education promotion and tenure systems, as well as reward systems are based on research, teaching and service (Astin & Lee, 1967; Centra, 1977; Centra, 1983; Kotrlik et al., 2001; Read et al., 1998). Institutions, departments and faculty members are evaluated based on the research productivity of faculty members for the purpose of prestige, federal funding, attraction of students, quality of programs, esteem, rewards, promotion and tenure. Numerous groups of variables have been found in past studies of faculty members' research productivity to be correlated with or to explain variance in research productivity including personal variables, institutional support variables, professional variables, education and training variables, how time is spent, and institutional characteristics.

Numerous methods have been proposed to measure research productivity (Print & Hattie, 1997; Zamarripa, 1994). Methods include measuring the quantity and quality of research produced, measuring the authorship (sole, co-author), and measuring some weighted version of variables (articles, presentations, grants).

The theoretical base selected for this study was based on cognitive motivation theory. Discussions presented included Campbell (1990), Thierry (1998), Staw (1984), and Bandura (1977). Essentially, each researcher posited that a behavior, action or outcome was the result of an individual's cognitive processing of information within themselves and their environment.

Summary of Methodology

The target population and frame for this study was all HRED (HRD, AE, and OB) full-time and part-time full and part-time faculty in colleges and universities across the United States who possess academic and/or research responsibilities. The sample consisted of 155 HRED faculty members (49 HRD faculty members, 59 AE faculty members, and 47 OB faculty members) for the 1992-93 survey, and 136 HRED faculty members (31 HRD faculty members, 53 AE faculty members, and 52 OB faculty members) for the 1998-99 survey for a total sample size of 291 faculty members.

The instrument used in the 1992-93 study was designed as a self-administered questionnaire (SAQ). In addition, a CATI (computer-assisted telephone interview) version of the questionnaire was developed and used during the follow-up data collection effort. The instrument used in the 1998-99 study of post-secondary faculty was designed as a self-administered questionnaire (SAQ) and a web-based format of the survey. In addition, a CATI (computer-assisted telephone interview) version of the questionnaire was developed and used during follow-up data collection efforts. The instruments were selected to present a broad view of HRED faculty members across the nation.

To analyze the objectives of this research effort, the following procedures were utilized: descriptive statistics and *t*-test procedures in Objectives 1 – 6, and mediated hierarchical regression in Objective 7.

Summary of Findings

Face and content validity was found to exist through the recommendation of an expert panel. Reliability was determined to exist through the examination of reliability coefficients of scale means (opinion of institutional research resources, satisfaction with instructional duties, satisfaction with other related job factors) - see Table 3. These findings support the claims by NCES that validity and reliability are present in the 1992-93 and 1998-99 surveys.

Representativeness of the population was investigated by comparing research productivity scores by response mode. The evaluation of the research productivity scores by mode produced no significant differences utilizing *t*-test procedures.

Research productivity scores were computed utilizing weights provided by a select panel of HRED professionals. The weights derived are presented in Table 5 and the formulas in Appendix I.

Factor analysis was preformed on four individual sets of items using principal components analysis. This data reduction technique was successful for three of the four sets of items (opinion of institutional research resources, satisfaction with instructional duties, and satisfaction with other related job factors) - see Tables 6 and 7 for factor loadings and for scale and item means.

Personal variables of HRED faculty were presented in Tables 8 and 9. Gender was divided approximately evenly amongst males and females for both years. The average age for 1992-93 respondents was 47.43 and for 1998-99 was 49.88.

Institutional support variables were presented in Tables 10 and 11. The number of teaching assistants in 1992-93 ranged from 0 to 3 and in 1998-99 ranged from 0 to 9. In 1992-93, 17.41% of respondents received funding of some type (mainly from their institution), and in 1998-99, 18.38% of respondents received funding of some type (again, mainly from their institution).

Professional variables were presented in Tables 12 - 17. The majority of respondents in 1992-93 and 1998-99 possessed instructional duties. A greater number of respondents were not on a tenure track even though such was present at their institution. The majority of individuals did not serve as a department chair, and the most common principal activity for both 1992-93 and 1998-99 was teaching. Slightly more than half of the respondents in 1992-93 were full-time, and in 1998-99, approximately two-thirds of respondents were full-time. In 1992-93, 47.1% of respondents were engaged in research/writing/ and/or creative works, mainly applied research; while in 1998-99, 50.7% were engaged in research/writing/ and/or creative works, mainly in applied or policy-oriented research or analysis.

More respondents held the rank of instructor than any other in both 1992-93 and 1998-99. The average number of years tenured in 1992-93 was 10.10 years, while in 1998-99, it was 8.39 years. The average number of years since the respondent achieved their rank, title or position was 5.87 years in 1992-93 and 6.08 years in 1998-99. Time in current position average 6.73 years in 1992-93 and 8.61 years in 1998-99. The total funding average was $4,195 in 1992-93 and $9,638 in 1998-99.

Education and training variables were presented in Tables 18 and 19. In 1992-93 and 1998-99, the two predominant types of highest degrees held by respondents were doctorate and masters. The average number of years since the respondent received the degree was 13.03 years for 1992-93 and 14.14 years for 1998-99.

Research productivity descriptive statistics were presented in Tables 20 and 21. The item with the highest recent research productivity mean value in 1992-93 and 1998-99 was recent presentations

and exhibitions. The same holds for career research productivity mean values in 1992-93 and 1998-99. Research productivity scores were presented in Table 22.

Time spent statistics were presented in Tables 23 and 24. The majority of time spent in 1992-93 and 1998-99 was in teaching, with the highest preferred amount of time to be spent in teaching. Significant differences were found for the 1992-93 respondents between time spent in teaching and time preferred in teaching, time spent in research and time preferred in research, time spent in professional growth and time preferred in professional growth, and time spent in administration and time preferred in administration. Significant differences were found in 1998-99 between time in research and time preferred in research, time in professional growth and time preferred n professional growth, and time in administration and time preferred in administration. HRED faculty preferred to spend less time in teaching than they were spending, more time in research than they were spending, more time in professional growth, and less time in administration.

The scale grand mean of satisfaction with instructional duties was 3.25 for 1992-93 and 3.18 for 1998-99, both values interpreted as the respondents were satisfied with instructional duties. The scale grand mean for satisfaction with other related job factors was 2.93 for 1992-93 and 2.94 for 1998-99, both values indicating the respondents were somewhat satisfied with the factors other factors related to their job. The mean for "At this institution, research is rewarded more than teaching" was 2.26 for 1992-93, and 2.40 for 1998-99,and for "Research/ publications should be the primary criterion for promotion of college teachers at this institution" was 2.01 for 1992-93, and 2.1 for 1998-99. Indicating respondents disagreed somewhat with these statements.

Tables 25, 26 and 27 present information pertaining to the combination of the 1992-93 and 1998-99 data sets into an overall data set which was employed to investigate the HRED Faculty

Research Productivity Model. Three dependent variables were utilized in investigating this model. The Career Research Productivity Score Model was a partially mediated model with percent of time spent teaching (p=.007), low Carnegie rank (p<.001), preferred percent of time spent in research (p<.001), and research should be a promotion criteria at this institution (p=.007) resulting with significant *betas*. The Recent Research Productivity Model was a fully mediated model with low Carnegie rank (p<.001), preferred percent of time spent in research (p<.001), and research should be a promotion criteria at this institution (p=.011) resulting with significant *betas*. The Time Spent in Research Model was a partially mediated model with percent of time spent teaching (p=.010), preferred percent of time spent in research (p<.001), and research should be a promotion criteria at this institution (p=.026) resulting with significant *betas*. All models produced R^2's of large effect size.

Conclusions

Although the descriptive analyses of the sample collected in this study are in accordance with a previous study by Williams et al. (2001), validity and reliability were found to exist, and data was found to be representative of the population through statistical analyses, limitations are present resulting from missing procedural information in the NCES 1992-93 and 1998-99 Methodology Reports, and the 1998-99 NCES Field Test Report. It is therefore concluded that care should be taken when attempting to generalize the findings and conclusions beyond the sample used in this study.

Objective one was to describe HRED faculty members' personal variables, institutional support variables, professional variables, and education/training variables. The HRED faculty was represented by males and females who ranged in age from mid 30's to upper 50's, who held masters and doctoral degrees. Institutional support was present in the form of the provision of teaching assistant support, the presence of research resources (research assistants, office space, secretarial support and library

holdings), and the availability of research funding both in and out of institution. Some HRED faculty engaged in research, writing, and/or creative writing. The faculty assumed a variety of roles from instructors to administrators with duties spanning from teaching to research to service activities. Institutions offered tenure track positions and the average range of years tenured faculty had held tenure was 8 to 10 years.

The second objective was to describe the research productivity of HRED faculty members. Presentations and exhibitions, refereed articles and/or juried media, nonrefereed articles and/or nonjuried media, and reviews and books contributed to the recent and career research productivity scores of HRED faculty members. Due to the inclusion of an additional variable (years since highest degree received) in computing the career research productivity score, the recent and career research productivity scores could not be compared. However, both scores demonstrated HRED faculty members produced research in a variety of media.

The third objective was to describe differences in faculty member's actual time spent versus preferred time spent in teaching, research, service, professional growth, administration and consulting. HRED faculty members' preferences concerning how their time was spent differed from how they actually spent their time in teaching, research, professional growth and administration. Throughout the sample, HRED faculty members preferred to spend more time in research and less time in administration.

The fourth, fifth and sixth objectives were to describe HRED faculty members' satisfaction with instructional duties, satisfaction with other related job factors, and their opinion of the reward focus of their institution (research or teaching). HRED faculty members were somewhat satisfied with their instructional duties and with their other related job factors. HRED faculty members disagreed

somewhat that research was rewarded more than teaching at their institution and disagreed somewhat that research should be the primary criterion for promotion of college teachers at their institution. It is unclear by these items if teaching was the primary reward and promotion criterion, if research and teaching were equally rewarded and utilized as promotion criteria, or if other factors were present. However, the perception that research itself was not the primary promotion criteria and was not rewarded more than teaching, may have led to the perception of a lack of research focus of their institution.

Objective seven was to determine if selected variables explain a significant proportion of the variance in the research productivity of HRED faculty members. The blocks of variables - environmental, perceived organizational priorities, and personal interest/abilities - are significant predictors of each dependent variable (time spent in research, career research productivity score, and recent research productivity score) suggesting the existence of a mediated relationship. A fully mediated relationship existed for the dependent variable of recent research productivity score, while partially mediated relationships existed for the dependent variables career research productivity score and time spent in research. These results indicated that, after controlling for personal interests/abilities, the significant relationship between the independent variables (perception of organizational priorities) and dependent variables (research productivity measures) was reduced to nonsignificance for recent research productivity score, but was not reduced to nonsignificance for career research productivity score and time spent in research.

The HRED Faculty Research Productivity Model was proposed as a mediated model based on cognitive theory. This model received support by the analyses conducted in this study. First, for the models utilizing career research productivity score and time spent in research to represent research

productivity, HRED faculty members processed multiple factors including their environment and organizational priorities and their self (interests/abilities), storing this information and producing some outcome, action or behavior, i.e., the quantity of career research output and the amount of time spent in research. Research by Thierry (1998) and Bandura (1977) is supported by this model. In this HRED Faculty Research Productivity Model, the faculty member's perception of organizational priorities and personal interest/abilities significantly affect the amount of career research produced and the amount of time spent in research. Organizational priorities may represent incentives or component capabilities as stated by Bandura (1977) that are encouraging individuals to spend more time in research and produce more research over their careers, i.e., HRED faculty may be evaluating organizational priorities in a long range sense to achieve benefit over their careers. HRED faculty with higher personal interests/abilities in research spend more time in research and produce a higher quantity of research over their careers. This variable may represent performance accomplishments (Bandura, 1977) or internal focus on an individual (Staw, 1984), again contributing to increased time spent in research and career research output.

Second, for the model utilizing recent research productivity score to represent research productivity, HRED faculty members evaluated their environment and their organization's priorities, however, their perception of their personal abilities/interests (i.e., preferred time spent in research) served as a more influential driver or contributor to their research productivity scores. Individual faculty member's perception of personal interest/abilities may be resulting from their performance accomplishments within research which is satisfying their individual goals, therefore, increasing their perception of their research interests/abilities and later, their research productivity. A circle is begun and builds which is present with or without the support of their institution. As Bandura (1977) states,

"cognitive processes mediate change but those cognitive events are induced and altered most readily by experience of mastery arising from effective performance" (p. 191).

Overall, an HRED faculty member's perception of their abilities/interests is driving their research productivity, and their perception of organizational priorities is contributing to the determination of the amount of time spent in research and research output. These factors, therefore, influence the choice of effort to expend, choice of level of effort to expend, and choice to persist in the expenditure of that level of effort (i.e., motivation - to spend time in research, produce and continue to produce research).

By examining the beta weights of the predictor variables their relative importance in a study is evaluated. "Research should be the primary criterion for promotion of college teachers at their institution" was the only independent variable with significant beta values across all outcome variables. Time spent teaching possessed a significant beta value for the outcome variables career research productivity score and time spent in research. Low Carnegie rank possessed significant beta values for recent and career research productivity scores. The mediating variable "preferred time spent in research" possessed significant beta values for all outcome variables.

Negative moderate correlations existed between low Carnegie rank (private liberal arts and public two-year, and other) and the career and recent research productivity score dependent variables of this model, demonstrating that HRED faculty members of lower ranked Carnegie institutions produced less research than did those HRED faculty from higher ranked Carnegie institutions. This is as would be expected, therefore, it is appropriate to consider Carnegie rank as a control variable in this model, as well as to recognize its potential influence on the research productivity of the members of institutions within certain ranks.

"Research should be the primary criterion for promotion of college teachers at their institution" possessed a positive significant moderate to low correlation between itself and all dependent variables. As the opinion that research should be the primary criterion for promotion at that institution increased, research productivity increased. It is logical that the individuals agreeing with this statement would spend more time in research and have higher research productivity scores.

Time spent teaching possessed low negative correlations with career research productivity score and time spent in research and is therefore of significance for the career research productivity score and time spent in research dependent variables because, as expected, as time spent teaching increased, the career research productivity decreased as did time spent in research. With the majority of this sample holding the same position for an average of five years, time spent teaching is not likely to have varied over the past two years. In addition, for the incoming members of this sample, not enough time has expended for initial responsibilities to have changed greatly. However, time spent teaching may vary a great deal over one's career, which may demonstrate a long term relationship between increased time spent teaching and decreased career research productivity.

The significance of preferred percent of time spent in research as a mediating variable across all dependent variables is highlighted by the moderate to very strong positive correlations between this variable and the dependent variables. Preferred time spent in research is a surrogate variable to represent the individual's perception of his or her research interests, skills and abilities. Therefore, a HRED faculty member's perception of their personal interests/abilities in research is a crucial factor to their success in research productivity.

Variables possessing non-significant beta values can also contribute to the value of a research effort and deserved to be discussed. For this effort, these variables include age, research was

rewarded more than teaching at their institution, presence of institutional funding, and opinion of institutional research resources (library holdings, secretarial support, availability of research assistants and office space). These variables have been found by previous research to significantly contribute to research productivity.

The variable age, although influential in some past research efforts, has positive and negative correlations with research productivity, so the nonsignificant beta is not surprising. Age is negatively correlated with time spent in research and career research productivity score, but these correlations, although significant, possess negligible association. This supports research by Williamson and Cable (2003) who stated that age was not a significant predicator in early career research productivity.

The perceived organizational priority variable "research was rewarded more than teaching at their institution," did not have a significant beta value, but it possessed a positive correlation with moderate to low strength of association with research productivity. Faculty members whose institutions rewarded research more than teaching had higher career and recent research productivity scores and spent more time in research. This variable may not have met the level of relative importance to possess a significant beta value because it may not have been a salient variable to HRED faculty members, and therefore is not strongly correlated to the dependent variables. HRED faculty members disagreed somewhat that research was rewarded more than teaching at their institution. Additionally, due to the substantial positive correlation between preferred time spent in research and the dependent variables, as well as its level of significance in contributing to the dependent variables, research productivity for HRED faculty may be more of a voluntary, intrinsically motivated outcome verses one that the administration mandates. Staw (1984) states that for variables to influence productivity in a

postsecondary educational environment, they must be of value to the faculty members and governed by the norms of self rather than controlled by the system.

The perceived organizational priority variable "presence of institutional funding" did not have a significant beta value, but was correlated with the dependent variables. The correlation value reflected a low amount of association. HRED faculty members from institutions with the presence of institutional funding exhibited higher research productivity and without exhibited lower research productivity. This variable's significance in this model may have been increased if more institutions would have provided funding.

The perceived organizational priority variable "satisfaction with institutional resources" did not have a significant beta value, and was negatively correlated with the dependent variables recent research productivity score and time spent in research. The correlation values reflected very little to a low amount of association. HRED faculty rated the institutional resources of their institutions as "good," therefore, this variable's significance in this model may have been increased if the resources present were perceived as higher quality resources. In reference to Staw (1984), resources may be perceived as higher quality if they are specifically more salient to that HRED faculty member.

Recommendations

Institutions housing HRED faculty and desiring to increase faculty members research output and time spent in research, should utilize research as the primary promotion criteria. These institutions should ensure that this is communicated to their faculty. If these institutions are lower Carnegie rank universities (e.g., private liberal arts or public two-year), their desire for faculty to produce research should be clearly communicated to override the general assumption that their institution is one of a

Carnegie rank that would not expect research production. These institutions should also strive to reduce teaching loads.

Further, to assist in the development current HRED faculty's personal interests/abilities in research and therefore to increase research productivity, these institutions should also set up programs to increase current faculty members' personal interests/abilities in research. For example, a mentoring program could be developed to assist faculty in increasing their research abilities. Institutions could also encourage participation in research conferences by provision of funding.

Institutions desiring to establish hiring structures to select individuals who will be high producers of research should evaluate the personal interest/abilities in research of their applicants. This can be accomplished through the evaluation of previous research produced by the applicants - both publications and presentations. If the applicant is a recent graduate, his or her previous research productivity (publications and presentations), advisor's research productivity and the department's scholarly output of their academic origin can be evaluated (Williamson and Cable, 2003).

Recommendations for Further Research

The HRED Faculty Research Productivity Model is the first attempt at such a model in the HRED discipline. Further research on this model should be conducted utilizing, if possible, a variety of motivational antecedents to describe an organization's commitment to research. NCES instruments should not be used. Instruments should be developed following an in-depth study of the population which will be sampled. For example, interviews and focus groups should be conducted to gain a clear view of items rewarded and perceived to be costs by institutions and faculty. Methodology should be clearly stated. This will allow for more definitive measures to be selected and stronger variables to be added to the model and tested.

For example, measures such as identification with the organization, research self-efficacy, specific outcomes of interest, methods currently utilized by institutions to manage both individual achievement and accomplishment of institutional goals, felt personal costs, modeling, faculty desires and needs, and other measures of research productivity. More definitive measures of research productivity should be utilized, e.g., the inclusion of grants, the quality of research, and sole or joint authorship. Methods of checking self-report data quality should be implemented. Also, qualitative questions investigating personal interest/abilities in research should be included. To analyze data, SEM should be utilized to evaluate the model to produce more conclusive results and to lower the risk of underestimation of the mediated effects. Lastly, this model should be applied to other faculty groups to determine if similar factors drive faculty motivation between faculty groups.

Other studies should be conducted related to this topic. One such study would be comparison of early versus late productivity in this data set. A second study would be to compare levels of research productivity using tenure status as a moderator.

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APPENDIX A -

1992-93 NSOPF SURVEY

OMB No. 1850-0608
Expiration Date: 12/93

U.S. Department of Education
Office of Educational Research and Improvement

National Center for Education Statistics

1993 NATIONAL STUDY OF POSTSECONDARY FACULTY

FACULTY
QUESTIONNAIRE

All information on this form will be kept confidential and will not be disclosed or released to your institution or any other group or individual.

Co-sponsored by: National Science Foundation
National Endowment for the Humanities

Contractor: National Opinion Research Center (NORC)
University of Chicago
Mailing Address:
1525 East 55th Street
Chicago, Illinois 60615
Toll-Free Number: 1-800-733-NORC

NATIONAL STUDY OF POSTSECONDARY FACULTY

Instructions for Completing Faculty Questionnaire

Many of our questions ask about your activities during the 1992 Fall Term. By this, we mean whatever academic term was in progress on October 15, 1992.

All questions that ask about your position at "this institution" refer to your position during the 1992 Fall Term ***at the institution listed on the label on the back cover of the questionnaire.***

This questionnaire was designed to be completed by both full-time and part-time instructional faculty and staff, and non-instructional faculty, in 2- and 4-year (and above) higher education institutions of all types and sizes. Please read each question carefully and follow all instructions. Some of the questions may not appear to fit your situation precisely; if you have a response other than those listed for a particular question, write in that response.

Most questions ask you to circle a number to indicate your response. Circle the number in front of your response and not the response itself. Other questions ask you to fill in information; write in the information in the space provided.

Mailing instructions for returning the completed questionnaire are on page 25.

If you have any questions on how to proceed, please call NORC toll-free at 1-800-733-NORC.

NATIONAL STUDY OF POSTSECONDARY FACULTY:
Faculty Questionnaire

1. **During the 1992 Fall Term, did you have any instructional duties at this institution (e.g., teaching one or more courses, or advising or supervising students' academic activities)?** *(CIRCLE ONE NUMBER)*

1. Yes (ANSWER 1A) 2. No (SKIP TO QUESTION 2)

1A. **During the 1992 Fall Term, were . . .** *(CIRCLE ONE NUMBER)*

1. *all* of your instructional duties related to credit courses,
2. some of your instructional duties related to credit courses or advising or supervising academic activities for credit, or
3. *all* of your instructional duties related to *non*credit courses or advising or supervising *non*credit academic activities?

2. **What was your principal activity at this institution during the 1992 Fall Term? If you have equal responsibilities, please select one.** *(CIRCLE ONE NUMBER)*

1. Teaching
2. Research
3. Technical activities (e.g., programmer, technician, chemist, engineer, etc.)
4. Clinical service
5. Community/public service
6. Administration
   (WRITE IN TITLE OR POSITION) _____
7. On sabbatical from this institution
8. Other (subsidized performer, artist-in-residence, etc.)

3. **During the 1992 Fall Term, did you have faculty status at this institution?** *(CIRCLE ONE NUMBER)*

1. Yes
2. No, I did not have faculty status
3. No, no one has faculty status at this institution

SECTION A. NATURE OF EMPLOYMENT

4. **During the 1992 Fall Term, did this institution consider you to be employed part-time or full-time?** *(CIRCLE ONE NUMBER)*

1. Part-time **(ANSWER 4A)** 2. Full-time **(SKIP TO QUESTION 5)**

4A. **Did you hold a part-time position at this institution during the 1992 Fall Term because . . .** *(CIRCLE "1" OR "2" FOR EACH REASON)*

Yes	No	
1	2	a. you preferred working on a part-time basis?
1	2	b. a full-time position was not available?
1	2	c. you were supplementing your income from other employment?
1	2	d. you wanted to be part of an academic environment?
1	2	e. you were finishing a graduate degree?
1	2	f. of other reasons?

5. **Were you chairperson of a department or division at this institution during the 1992 Fall Term?** *(CIRCLE ONE NUMBER)*

1. Yes
2. No

6. **In what year did you begin the job you held at this institution during the 1992 Fall Term? Include promotions in rank as part of your Fall 1992 job.** *(WRITE IN YEAR)*

19☐☐

7. **What was your tenure status at this institution during the 1992 Fall Term?** *(CIRCLE ONE NUMBER)*

1. Tenured → **7A. In what year did you achieve tenure at this institution?** 19☐☐
2. On tenure track but not tenured **(SKIP TO QUESTION 9)**
3. Not on tenure track
4. No tenure system for my faculty status
5. No tenure system at this institution

8. **During the 1992 Fall Term, what was the duration of your contract or appointment at this institution?** *(CIRCLE ONE NUMBER)*

1. One academic term
2. One academic/calendar year
3. A limited number of years (i.e., two or more academic/calendar years)
4. Unspecified duration
5. Other

9. **Which of the following best describes your academic rank, title, or position at this institution during the 1992 Fall Term?** *(CIRCLE ONE NUMBER, OR "NA")*

NA. Not applicable: no ranks designated at this institution **(SKIP TO QUESTION 11)**

1. Professor
2. Associate Professor
3. Assistant Professor
4. Instructor
5. Lecturer
6. Other *(WRITE IN)* _____

10. **In what year did you first achieve this rank?**
(WRITE IN YEAR)

19☐☐

11. **During the 1992 Fall Term, which of the following kinds of appointments did you hold at this institution?**
(CIRCLE ALL THAT APPLY)

1. Acting
2. Affiliate or adjunct
3. Visiting
4. Assigned by religious order
5. Clinical
(WRITE IN TITLE OR POSITION) _____
6. Research
(WRITE IN TITLE OR POSITION) _____
7. None of the above

12. **What is your principal field or discipline of teaching?** *(REFER TO THE LIST OF MAJOR FIELDS OF STUDY ON PAGES 5 AND 6 AND ENTER THE APPROPRIATE CODE NUMBER AND NAME BELOW. IF YOU HAVE NO FIELD OF TEACHING, CIRCLE "NA").*

NA. Not Applicable

CODE FOR FIELD OR DISCIPLINE: _____ NAME OF PRINCIPAL FIELD/DISCIPLINE _____

13. **What is your principal area of research? If equal areas, select one.** *(IF YOU HAVE NO RESEARCH AREA, CIRCLE "NA").*

NA. Not Applicable

CODE FOR FIELD OR DISCIPLINE: _____ NAME OF PRINCIPAL FIELD/DISCIPLINE _____

CODES FOR MAJOR FIELDS OF STUDY AND ACADEMIC DISCIPLINES

AGRICULTURE
101 Agribusiness & Agricultural Production
102 Agricultural, Animal, Food, & Plant Sciences
103 Renewable Natural Resources, including Conservation, Fishing, & Forestry
110 Other Agriculture

ARCHITECTURE & ENVIRONMENTAL DESIGN
121 Architecture & Environmental Design
122 City, Community, & Regional Planning
123 Interior Design
124 Land Use Management & Reclamation
130 Other Arch. & Environmental Design

ART
141 Art History & Appreciation
142 Crafts
143 Dance
144 Design (other than Arch. or Interior)
145 Dramatic Arts
146 Film Arts
147 Fine Arts
148 Music
149 Music History & Appreciation
150 Other Visual & Performing Arts

BUSINESS
161 Accounting
162 Banking & Finance
163 Business Administration & Management
164 Business Administrative Support (e.g., Bookkeeping, Office Management, Secretarial)
165 Human Resources Development
166 Organizational Behavior
167 Marketing & Distribution
170 Other Business

COMMUNICATIONS
181 Advertising
182 Broadcasting & Journalism
183 Communications Research
184 Communication Technologies
190 Other Communications

COMPUTER SCIENCE
201 Computer & Information Sciences
202 Computer Programming
203 Data Processing
204 Systems Analysis
210 Other Computer Science

EDUCATION
221 Education, General
222 Basic Skills
223 Bilingual/Cross-cultural Education
224 Curriculum & Instruction
225 Education Administration
226 Education Evaluation & Research
227 Educational Psychology
228 Special Education
229 Student Counseling & Personnel Svcs.
230 Other Education

TEACHER EDUCATION
241 Pre-Elementary
242 Elementary
243 Secondary
244 Adult & Continuing
245 Other General Teacher Ed. Programs
250 Teacher Education in Specific Subjects

ENGINEERING
261 Engineering, General
262 Civil Engineering
263 Electrical, Electronics, & Communication Engineering
264 Mechanical Engineering
265 Chemical Engineering
270 Other Engineering
280 Engineering-Related Technologies

ENGLISH AND LITERATURE
291 English, General
292 Composition & Creative Writing
293 American Literature
294 English Literature
295 Linguistics
296 Speech, Debate, & Forensics
297 English as a Second Language
300 English, Other

	FOREIGN LANGUAGES
311	Chinese (Mandarin, Cantonese, or Other Chinese)
312	French
313	German
314	Italian
315	Latin
316	Japanese
317	Other Asian
318	Russian or Other Slavic
319	Spanish
320	Other Foreign Languages
	HEALTH SCIENCES
331	Allied Health Technologies & Services
332	Dentistry
333	Health Services Administration
334	Medicine, including Psychiatry
335	Nursing
336	Pharmacy
337	Public Health
338	Veterinary Medicine
340	Other Health Sciences
350	HOME ECONOMICS
360	INDUSTRIAL ARTS
370	LAW
380	LIBRARY & ARCHIVAL SCIENCES
	NATURAL SCIENCES: BIOLOGICAL SCIENCES
391	Biochemistry
392	Biology
393	Botany
394	Genetics
395	Immunology
396	Microbiology
397	Physiology
398	Zoology
400	Biological Sciences, Other
	NATURAL SCIENCES: PHYSICAL SCIENCES
411	Astronomy
412	Chemistry
413	Physics
414	Earth, Atmosphere, and Oceanographic (Geological Sciences)
420	Physical Sciences, Other
430	MATHEMATICS
440	STATISTICS
450	MILITARY STUDIES
460	MULTIDISCIPLINARY STUDIES
470	PARKS & RECREATION
480	PHILOSOPHY AND RELIGION
490	THEOLOGY
500	PROTECTIVE SERVICES (e.g., Criminal Justice, Fire Protection)
510	PSYCHOLOGY
520	PUBLIC AFFAIRS (e.g., Community Services, Public Administration, Public Works, Social Work)
530	SCIENCE TECHNOLOGIES
	SOCIAL SCIENCES AND HISTORY
541	Social Sciences, General
542	Anthropology
543	Archeology
544	Area & Ethnic Studies
545	Demography
546	Economics
547	Geography
548	History
549	International Relations
550	Political Science & Government
551	Sociology
560	Other Social Sciences
	VOCATIONAL TRAINING
	CONSTRUCTION TRADES
601	Carpentry
602	Electrician
609	Plumbing
610	Other Construction Trades
	CONSUMER, PERSONAL, & MISC. SERVICES
671	Personal Services (e.g., Barbering, Cosmetology)
690	Other Consumer Services
	MECHANICS AND REPAIRERS
641	Electrical & Electronics Equipment Repair
642	Heating, Air Conditioning, & Refrigeration Mechanics & Repairers
643	Vehicle & Mobile Equipment Mechanics & Repairers
644	Other Mechanics & Repairers
	PRECISION PRODUCTION
661	Drafting
662	Graphic & Print Communications
663	Leatherworking & Upholstering
664	Precision Metal Work
665	Woodworking
670	Other Precision Production Work
	TRANSPORTATION AND MATERIAL MOVING
681	Air Transportation (e.g., Piloting, Traffic Control, Flight Attendance, Aviation Management)
682	Land Vehicle & Equipment Operation
683	Water Transportation (e.g., Boat & Ship Operations, Deep Water Diving, Marine Operations, Sailors & Deckhands)
690	Other Transportation & Material Moving
900	**OTHER** ***(IF YOU USE THIS CODE, BE SURE TO WRITE IN A COMPLETE DESCRIPTION AT QUESTIONS 12-13, AND 16)***

SECTION B. ACADEMIC/PROFESSIONAL BACKGROUND

14. Which of the following undergraduate academic honors or awards, if any, did you receive? *(CIRCLE ALL THAT APPLY)*

1. National academic honor society, such as Phi Beta Kappa, Tau Beta Pi, or other field-specific national honor society
2. Cum laude or honors
3. Magna cum laude or high honors
4. Summa cum laude or highest honors
5. Other undergraduate academic achievement award
6. None of the above

15. When you were in graduate school, which of the following forms of financial assistance, if any, did you receive? *(CIRCLE ALL THAT APPLY, OR CIRCLE "NA")*

NA. Not applicable; did not attend graduate school **(GO TO QUESTION 16)**

1. Teaching assistantship
2. Research assistantship
3. Program or residence hall assistantship
4. Fellowship
5. Scholarship or traineeship
6. Grant
7. G.I. Bill or other veterans' financial aid
8. Federal or state loan
9. Other loan
10. None of the above

16. **Please list below the degrees or other formal awards that you hold, the year you received each one, the field code (from pages 5-6) that applies, name of the field, and the name and location of the institution from which you received each degree or award. Do not list honorary degrees.** *(COMPLETE ALL COLUMNS FOR EACH DEGREE)*

CODES FOR TYPE OF DEGREE

1 Professional degree (M.D., D.D.S., L.L.B., etc.)
2 Doctoral degree (Ph.D., Ed.D., etc.)
3 Master's degree or equivalent
4 Bachelor's degree or equivalent
5 Certificate, diploma, or degree for completion of undergraduate program of more than 2 years but less than 4 years in length
6 Associate's degree or equivalent
7 Certificate, diploma, or degree for completion of undergraduate program of at least 1 year but less than 2 years in length

	A. Degree Code (see above)	B. Year Received	C. Field Code (from pp. 5-6)	D. Name of Field (from pp. 5-6)	E. Name of Institution (a) and City and State/Country of Institution (b)
(1) Highest	_____	19_____	_____	_____	a. _____
					b. _____
(2) Next Highest	_____	19_____	_____	_____	a. _____
					b. _____
(3) Next Highest	_____	19_____	_____	_____	a. _____
					b. _____
(4) Next Highest	_____	19_____	_____	_____	a. _____
					b. _____

17. **During the 1992 Fall Term, were you employed only at this institution, or did you also have other employment including any outside consulting or other self-owned business, or private practice?** *(CIRCLE ONE NUMBER)*

1. Employed only at this institution **(SKIP TO QUESTION 19)**
2. Had other employment, consulting, self-owned business, or private practice

17A. **How many different jobs, other than your employment at this institution, did you have during the 1992 Fall Term? Include all outside consulting, self-owned business, and private practice.** *(WRITE IN NUMBER)*

_____ Number of Jobs

18. **Not counting any employment at this institution, what was the employment sector of the main other job you held during Fall 1992?** *(CIRCLE ONE NUMBER)*

1. 4-year college or university, graduate or professional school
2. 2-year or other postsecondary institution
3. Elementary or secondary school
4. Consulting, freelance work, self-owned business, or private practice
5. Hospital or other health care or clinical setting
6. Foundation or other nonprofit organization other than health care organization
7. For-profit business or industry in the private sector
8. Federal government, including military, or state or local government
9. Other *(WRITE IN)* _____

18A. **What year did you begin that job?** *(WRITE IN YEAR)*

19☐☐

18B. **What was your primary responsibility in that job?** *(CIRCLE ONE NUMBER)*

1. Teaching
2. Research
3. Technical activities (e.g., programmer, technician, chemist, engineer, etc.)
4. Clinical service
5. Community/public service
6. Administration
7. Other

18C. **Was that job full-time or part-time?** *(CIRCLE ONE NUMBER)*

1. Full-time
2. Part-time

19. **The next questions ask about jobs that ended before the beginning of the 1992 Fall Term. For the three most recent and significant main jobs that you held during the past 15 years, indicate below the year you began and the year you left each job, the employment sector, your primary responsibility, and whether you were employed full-time or part-time.**

- **Do not list promotions in rank at one place of employment as different jobs.**
- **Do not include temporary positions (i.e., summer positions) or work as a graduate student.**
- **List each job (other than promotion in rank) separately.**

If not applicable, circle "NA" ——▯	NA	NA	NA
(1) YEARS JOB HELD	A. MOST RECENT MAIN JOB (PRIOR TO FALL 1992)	B. NEXT MOST RECENT MAIN JOB	C. NEXT MOST RECENT MAIN JOB
FROM:	19_____	19_____	19_____
TO:	19_____	19_____	19_____
(2) EMPLOYMENT SECTOR	*(CIRCLE ONE)*	*(CIRCLE ONE)*	*(CIRCLE ONE)*
4-year college or university, graduate or professional school	1	1	1
2-year or other postsecondary institution	2	2	2
Elementary or secondary school	3	3	3
Consulting, freelance work, self owned business, or private practice	4	4	4
Hospital or other health care or clinical setting	5	5	5
Foundation or other nonprofit organization other than health care organization	6	6	6
For-profit business or industry in the private sector	7	7	7
Federal government, including military, or state or local government	8	8	8
Other	9	9	9
(3) PRIMARY RESPONSIBILITY	*(CIRCLE ONE)*	*(CIRCLE ONE)*	*(CIRCLE ONE)*
Teaching	1	1	1
Research	2	2	2
Technical activities (e.g., programmer, technician, chemist, engineer, etc.)	3	3	3
Clinical service	4	4	4
Community/public service	5	5	5
Administration	6	6	6
Other	7	7	7
(4) FULL-TIME/PART-TIME	*(CIRCLE ONE)*	*(CIRCLE ONE)*	*(CIRCLE ONE)*
Full-time	1	1	1
Part-time	2	2	2

20. **About how many of each of the following have you presented/published/etc. during your entire career and during the last 2 years? For publications, please include only works that have been accepted for publication. Count multiple presentations/publications of the same work only once.** *(CIRCLE "NA" IF YOU HAVE NOT PUBLISHED OR PRESENTED)*

NA. No presentations/publications/etc. **(GO TO QUESTION 21)**

(WRITE IN A NUMBER ON EACH LINE; IF NONE, WRITE IN "0")

Type of Presentation/Publication/etc.	A. Total during career	B. Number in past 2 years
(1) Articles published in refereed professional or trade journals	_____	_____
(2) Articles published in nonrefereed professional or trade journals	_____	_____
(3) Creative works published in juried media	_____	_____
(4) Creative works published in nonjuried media or in-house newsletters	_____	_____
(5) Published reviews of books, articles, or creative works	_____	_____
(6) Chapters in edited volumes	_____	_____
(7) Textbooks	_____	_____
(8) Other books	_____	_____
(9) Monographs	_____	_____
(10) Research or technical reports disseminated internally or to clients	_____	_____
(11) Presentations at conferences, workshops, etc.	_____	_____
(12) Exhibitions or performances in the fine or applied arts	_____	_____
(13) Patents or copyrights (excluding thesis or dissertation)	_____	_____
(14) Computer software products	_____	_____

SECTION C. INSTITUTIONAL RESPONSIBILITIES AND WORKLOAD

21. **During the 1992 Fall Term, how many undergraduate or graduate thesis or dissertation committees, comprehensive exams, orals committees, or examination or certification committees did you chair and/or serve on at this institution?**
(CIRCLE "NA" IF YOU DID NOT SERVE ON ANY COMMITTEES)

NA. Did not serve on any undergraduate or graduate committees **(GO TO QUESTION 22)**

(WRITE IN A NUMBER ON EACH LINE; IF NONE, WRITE IN "0")

Type of Committee	A. Number served on	B. Of that number, how many did you chair?
(1) Undergraduate thesis or dissertation committees	_____	_____
(2) Undergraduate comprehensive exams or orals committees (other than as part of thesis/dissertation committees)	_____	_____
(3) Undergraduate examination/certification committees	_____	_____
(4) Graduate thesis or dissertation committees	_____	_____
(5) Graduate comprehensive exams or orals committees (other than as part of thesis/dissertation committees)	_____	_____
(6) Graduate examination/certification committees	_____	_____

22. **During the 1992 Fall Term, what was the total number of classes or sections you taught at this institution? Do not include individualized instruction, such as independent study or individual performance classes. Count multiple sections of the same course as a separate class, but not the lab section of a course.**
(WRITE IN A NUMBER, OR CIRCLE "0")

0. No classes taught **(SKIP TO QUESTION 25)**

_____ Number of classes/sections **(ANSWER 22A)**

22A. **How many of those classes were classes for credit?**

0. No classes for credit **(SKIP TO QUESTION 25)**

_____ Number of classes/sections for credit **(ANSWER QUESTION 23 ON THE NEXT PAGE)**

23. For each class or section that you taught for credit at this institution during the 1992 Fall Term, please answer the following items. Do not include individualized instruction, such as independent study or individual one-on-one performance classes.

If you taught multiple sections of the same course, count them as separate classes, but do not include the lab section of the course as a separate class. For each class, enter the code for the academic discipline of the class. (Refer to pages 5-6 for the codes. Please enter the code rather than the course name.)

	A. FIRST FOR-CREDIT CLASS	B. SECOND FOR-CREDIT CLASS
(1) CODE FOR ACADEMIC DISCIPLINE OF CLASS (from pp. 5-6)		
(2) DURING 1992 FALL TERM		
Number of weeks the class met?	a. _____	a. _____
Number of credit hours?	b. _____	b. _____
Number of hours the class met per week?	c. _____	c. _____
Number of teaching assistants, readers?	d. _____	d. _____
Number of students enrolled?	e. _____	e. _____
Was this class team taught?	f. 1. Yes 2. No	f. 1. Yes 2. No
Average # hours per week *you* taught the class?	g. _____	g. _____
(3) PRIMARY LEVEL OF STUDENTS	*(CIRCLE ONE)*	*(CIRCLE ONE)*
Lower division students (first or second year postsecondary) or	1	1
Upper division students (third or fourth year postsecondary) or	2	2
Graduate or any other post-baccalaureate students, or	3	3
All other students?	4	4
(4) PRIMARY INSTRUCTIONAL METHOD USED	*(CIRCLE ONE)*	*(CIRCLE ONE)*
Lecture	1	1
Seminar	2	2
Discussion group or class presentations	3	3
Lab, clinic or problem session	4	4
Apprenticeship, internship, field work, or field trips	5	5
Role playing, simulation, or other performance (e.g., art, music, drama)	6	6
TV or radio	7	7
Group projects	8	8
Cooperative learning groups	9	9

C.	D.	E.	
THIRD FOR-CREDIT CLASS	FOURTH FOR-CREDIT CLASS	FIFTH FOR-CREDIT CLASS	
a. _____	a. _____	a. _____	a. Number of weeks the class met
b. _____	b. _____	b. _____	b. Number of credit hours
c. _____	c. _____	c. _____	c. Number of hours the class met per week
d. _____	d. _____	d. _____	d. Number of teaching assistants, readers
e. _____	e. _____	e. _____	e. Number of students enrolled
f. 1. Yes 2. No	f. 1. Yes 2. No	f. 1. Yes 2. No	f. Was this class team taught
g. _____	g. _____	g. _____	g. Average # hours per week you taught
(CIRCLE ONE)	*(CIRCLE ONE)*	*(CIRCLE ONE)*	
1	1	1	Lower division students
2	2	2	Upper division students
3	3	3	Graduate, post-baccalaureate students
4	4	4	All other students
(CIRCLE ONE)	*(CIRCLE ONE)*	*(CIRCLE ONE)*	
1	1	1	Lecture
2	2	2	Seminar
3	3	3	Discussion groups or class presentations
4	4	4	Lab, clinic or problem session
5	5	5	Apprenticeship, internship, etc.
6	6	6	Role playing, simulation, performance, etc.
7	7	7	TV or radio
8	8	8	Group projects
9	9	9	Cooperative learning groups

24. **Did you teach any undergraduate courses <u>for credit</u> during the 1992 Fall Term at this institution?**

1. Yes **(ANSWER 24A)** 2. No **(SKIP TO QUESTION 25)**

24A. **In how many of the undergraduate courses that you taught <u>for credit</u> during the 1992 Fall Term did you use . . .** *(CIRCLE ONE NUMBER FOR EACH ITEM)*

None	Some	All		
1	2	3	a.	Computational tools or software?
1	2	3	b.	Computer-aided or machine-aided instruction?
1	2	3	c.	Student presentations?
1	2	3	d.	Student evaluations of each other's work?
1	2	3	e.	Multiple-choice midterm and/or final exam?
1	2	3	f.	Essay midterm and/or final exams?
1	2	3	g.	Short-answer midterm and/or final exams?
1	2	3	h.	Term/research papers?
1	2	3	i.	Multiple drafts of written work?
1	2	3	j.	Grading on a curve?
1	2	3	k.	Competency-based grading?

25. **For each type of student listed below, please indicate how many students received individual instruction from you during the 1992 Fall Term, (e.g., independent study or one-on-one instruction, including working with individual students in a clinical or research setting), and the total number of contact hours with these students per week. Do not count regularly scheduled office hours.** *(WRITE IN A NUMBER ON EACH LINE; IF NONE, WRITE IN "0")*

Type of students receiving **Formal Individualized Instruction**	A. Number of students	B. Total contact hours per week
(1) Lower division students (first or second year postsecondary)	_____	_____
(2) Upper division students (third or fourth year postsecondary)	_____	_____
(3) Graduate or any other post-baccalaureate students	_____	_____
(4) All other students	_____	_____

26. **During the 1992 Fall Term, how many regularly scheduled office hours did you have per week?** *(WRITE IN A NUMBER; IF NONE, WRITE IN "0")*

_____ Number of hours per week

27. **During the 1992 Fall Term, how much informal contact with students did you have each week outside of the classroom? Do <u>not</u> count individual instruction, independent study, etc., <u>or</u> regularly scheduled office hours.** *(WRITE IN A NUMBER; IF NONE, WRITE IN "0")*

_____ Number of hours per week

28. **During the 1992 Fall Term, were you engaged in any professional research, writing, or creative works?**

1. Yes **(ANSWER QUESTION 29)** 2. No **(SKIP TO QUESTION 34)**

29. How would you describe your primary professional research, writing, or creative work during the 1992 Fall Term? *(CIRCLE ONE NUMBER)*

1. Pure or basic research
2. Applied research
3. Policy-oriented research or analysis
4. Literary or expressive
5. Program/Curriculum design and development
6. Other

30. During the 1992 Fall Term, were you engaged in any funded research or funded creative endeavors? Include any grants, contracts, or institutional awards. **Do not include consulting services.** *(CIRCLE ONE NUMBER)*

1. Yes
2. No **(SKIP TO QUESTION 34)**

31. During the 1992 Fall Term, were you a principal investigator (PI) or co-principal investigator (Co-PI) for any grants or contracts? *(CIRCLE ONE NUMBER)*

1. Yes
2. No **(SKIP TO QUESTION 33)**

32. During the 1992 Fall Term, how many individuals other than yourself were supported by all the grants and contracts for which you were PI or Co-PI? *(WRITE IN NUMBER; IF NONE, WRITE IN "0")*

_____ Number of individuals

33. Fill out the information below for each funding source during the 1992 Fall Term. If not sure, give your best estimate.

A. Funding source *(CIRCLE "1" OR "2" FOR EACH SOURCE)*		B. Number of Grants/ Contracts	C. Work done as... *(CIRCLE ALL THAT APPLY)*	D. Total funds for 1992-93 academic year	E. How funds were used *(CIRCLE ALL THAT APPLY)*
(1) This institution?	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other
(2) Foundation or other nonprofit organization?	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other
(3) For profit business or industry in the private sector?	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other
(4) State or local government?	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other
(5) Federal Government?	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other
(6) Other source? *(WRITE IN)* _____	1. Yes ☐ 2. No	_____	1. PI 2. Co-PI 3. Staff	$ _____	1. Research 2. Program/curriculum development 3. Other

34. How would you rate each of the following facilities or resources at this institution that were available for your own use during the 1992 Fall Term? *(CIRCLE ONE NUMBER, OR "NA," ON EACH LINE)*

Not Available/ Not Applicable	Very Poor	Poor	Good	Very Good	
NA	1	2	3	4	a. Basic research equipment/instruments
NA	1	2	3	4	b. Laboratory space and supplies
NA	1	2	3	4	c. Availability of research assistants
NA	1	2	3	4	d. Personal computers
MA	1	2	3	4	e. Centralized (main frame) computer facilities
NA	1	2	3	4	f. Computer networks with other institutions
NA	1	2	3	4	g. Audio-visual equipment
NA	1	2	3	4	h. Classroom space
NA	1	2	3	4	i. Office space
NA	1	2	3	4	j. Studio/performance space
NA	1	2	3	4	k. Secretarial support
NA	1	2	3	4	l. Library holdings

35. Listed below are some ways that institutions and departments may use internal funds for the professional development of faculty.

A. Was institutional or department funding available for your use during the past two years for . . .		B. Did you use any of those funds at this institution?	C. Were those funds adequate for your purposes?
(1) tuition remission at this or other institutions?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No
(2) professional association memberships and/or registration fees?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No
(3) professional travel?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No
(4) training to improve research or teaching skills?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No
(5) retraining for fields in higher demand?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No
(6) sabbatical leave?	1. Yes → ☐ 2. No DK. Don't know	1. Yes → ☐ 2. No	1. Yes 2. No

36. On the average, how many hours per week did you spend at each of the following kinds of activities during the 1992 Fall Term? *(IF NOT SURE, GIVE YOUR BEST ESTIMATES)*

Average number hours per week during the 1992 Fall Term

_____ a. All paid activities at this institution (teaching, research, administration, etc.)

_____ b. All unpaid activities at this institution

_____ c. Any other paid activities outside this institution (e.g., consulting, working on other jobs)

_____ d. Unpaid (pro bono) professional service activities outside this institution

37. **In column A, we ask you to allocate your <u>total</u> work time in the Fall of 1992 (as reported in Question 36) into several categories. We realize that they are not mutually exclusive categories (e.g., research may include teaching; preparing a course may be part of professional growth). We ask, however, that you allocate as best you can the proportion of your time spent in activities whose primary focus falls within the indicated categories. In column B, indicate what percentage of your time you would <u>prefer</u> to spend in each of the listed categories.**

A. % of Work Time Spent	*(WRITE IN A PERCENTAGE ON EACH LINE. IF NOT SURE, GIVE YOUR BEST ESTIMATE. IF NONE, WRITE IN "0")*	B. % of Work Time Preferred
_____%	a. **Teaching** (including teaching, grading papers; preparing courses; developing new curricula; advising or supervising students; working with student organizations or intramural athletics)	_____%
_____%	b. **Research/Scholarship** (including research; reviewing or preparing articles or books; attending or preparing for professional meetings or conferences; reviewing proposals; seeking outside funding; giving performances or exhibitions in the fine or applied arts, or giving speeches)	_____%
_____%	c. **Professional Growth** (including taking courses, pursuing an advanced degree; other professional development activities, such as practice or activities to remain current in your field)	_____%
_____%	d. **Administration**	_____%
_____%	e. **Outside Consulting or Freelance Work**	_____%
_____%	f. **Service/Other Non-Teaching Activities** (including providing legal or medical services or psychological counseling to clients or patients; paid or unpaid community or public service; service to professional societies/associations; other activities or work not listed in a-e)	_____%
100%	PLEASE BE SURE THAT THE PERCENTAGES YOU PROVIDE ADD UP TO 100% OF THE TOTAL TIME.	100%

38. Are you a member of the union (or other bargaining association) that represents faculty at this institution?

1. Union is available, but I am not eligible
2. I am eligible, but not a member
3. I am eligible, and a member
4. Union is not available at this institution

SECTION D. JOB SATISFACTION ISSUES

39. How satisfied or dissatisfied are you with each of the following aspects of your instructional duties at this institution? *(CIRCLE "NA" IF YOU HAD NO INSTRUCTIONAL DUTIES)*

NA. No instructional duties **(GO TO QUESTION 40)**

(CIRCLE ONE NUMBER FOR EACH ITEM; IF AN ITEM DOES NOT APPLY TO YOU, WRITE IN "NA" NEXT TO THE ITEM)

Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied	
1	2	3	4	a. The authority I have to make decisions about content and methods in the courses I teach
1	2	3	4	b. The authority I have to make decisions about other (non-instructional) aspects of my job
1	2	3	4	c. The authority I have to make decisions about what courses I teach
1	2	3	4	d. Time available for working with students as an advisor, mentor, etc.
1	2	3	4	e. Quality of undergraduate students whom I have taught here
1	2	3	4	f. Quality of graduate students whom I have taught here

40. How satisfied or dissatisfied are you with the following aspects of your job at this institution? *(CIRCLE ONE NUMBER FOR EACH ITEM)*

Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied	
1	2	3	4	a. My work load
1	2	3	4	b. My job security
1	2	3	4	c. Opportunity for advancement in rank at this institution
1	2	3	4	d. Time available for keeping current in my field
1	2	3	4	e. Freedom to do outside consulting
1	2	3	4	f. My salary
1	2	3	4	g. My benefits, generally
1	2	3	4	h. Spouse or partner employment opportunities in this geographic area
1	2	3	4	i. My job here, overall

41. **During the next three years, how likely is it that you will leave this job to . . .**
(CIRCLE ONE NUMBER FOR EACH ITEM)

Not At All Likely	Somewhat Likely	Very Likely		
1	2	3	a.	accept a part-time job at a different postsecondary institution?
1	2	3	b.	accept a full-time job at a different postsecondary institution?
1	2	3	c.	accept a part-time job not at a postsecondary institution?
1	2	3	d.	accept a full-time job not at a postsecondary institution?
1	2	3	e.	retire from the labor force?

42. **At what age do you think you are most likely to stop working at a postsecondary institution?**
(WRITE IN AGE, OR CIRCLE "DK")

_____ Years of age

DK. Don't know

43. **If you were to leave your current position in academia to accept another position inside or outside of academia, how important would each of the following be in your decision?** *(CIRCLE ONE NUMBER FOR EACH ITEM)*

Not Important	Somewhat Important	Very Important		
1	2	3	a.	Salary level
1	2	3	b.	Tenure-track/tenured position
1	2	3	c.	Job security
1	2	3	d.	Opportunities for advancement
1	2	3	e.	Benefits
1	2	3	f.	No pressure to publish
1	2	3	g.	Good research facilities and equipment
1	2	3	h.	Good instructional facilities and equipment
1	2	3	i.	Good job or job opportunities for my spouse or partner
1	2	3	j.	Good geographic location
1	2	3	k.	Good environment/schools for my children
1	2	3	l.	Greater opportunity to teach
1	2	3	m.	Greater opportunity to do research
1	2	3	n.	Greater opportunity for administrative responsibilities

44. **If you could elect to draw on your retirement and still continue working at your institution on a part-time basis, would you do so?** *(CIRCLE ONE)*

1. Yes
2. No

DK. Don't know

45. **If an early retirement option were offered to you at your institution, would you take it?** *(CIRCLE ONE)*

1. Yes
2. No

DK. Don't know

46. **At which age do you think you are most likely to retire from all paid employment?** *(WRITE IN AGE, OR CIRCLE "DK")*

_____ Years of age

DK. Don't know

SECTION E. COMPENSATION

Note: Your responses to these items as with all other items in this questionnaire are voluntary and strictly confidential. They will be used only in statistical summaries, and will not be disclosed to your institution or to any individual or group. Furthermore, all information that would permit identification of individuals or institutions will be removed from the survey files.

47. **For the calendar year 1992, estimate your gross compensation before taxes from each of the sources listed below.**

(IF NOT SURE, GIVE YOUR BEST ESTIMATES; IF NO COMPENSATION FROM A SOURCE, WRITE IN "0")

Compensation from this institution:

$ _____ a. Basic salary –□ b. **Type of appointment (e.g., 9 months)** □ # of months

$ _____ c. Other teaching at this institution not included in basic salary (e.g., for summer session)

$ _____ d. Supplements not included in basic salary (for administration, research, coaching sports, etc.)

$ _____ e. Non-monetary compensation, such as food, housing, car (Do not include employee benefits such as medical, dental, or life insurance)

$ _____ f. Any other income from this institution

Compensation from other sources:

$ _____ g. Employment at another academic institution

$ _____ h. Legal or medical services or psychological counseling

$ _____ i. Outside consulting, consulting business or freelance work

$ _____ j. Self-owned business (other than consulting)

$ _____ k. Professional performances or exhibitions

$ _____ l. Speaking fees, honoraria

$ _____ m. Royalties or commissions

$ _____ n. Any other employment

$ _____ o. Non-monetary compensation, such as food, housing, car (Do not include employee benefits such as medical, dental, or life insurance)

Other sources of earned income *(WRITE IN BELOW):*

$ _____ p. _____

$ _____ q. _____

48. **For the calendar year 1992, how many persons were in your household including yourself?**

_____ Total number in household

49. **For the calendar year 1992, what was your total household income?**

$ _____ Total household income

50. **For the calendar year 1992, how many dependents did you have? Do not include yourself. (A dependent is someone receiving at least half of his or her support from you.)**

_____ Number of dependents

SECTION F. SOCIODEMOGRAPHIC CHARACTERISTICS

51. Are you . . .

1. male, or
2. female?

52. **In what month and year were you born?**
(WRITE IN MONTH AND YEAR)

☐☐ 19☐☐
MONTH YEAR

53. **What is your race?** *(CIRCLE ONE NUMBER)*

1. American Indian or Alaskan Native
2. Asian or Pacific Islander **(ANSWER 53A)**
3. African American/Black
4. White
5. Other *(WRITE IN BELOW)*

_____

54. **Are you of Hispanic descent?**
(CIRCLE ONE NUMBER)

1. Yes **(ANSWER 54A)**
2. No **(SKIP TO QUESTION 55)**

☐ **54A.** **What is your Spanish/Hispanic origin? If more than one, circle the one you consider the most important part of your background.**

1. Mexican, Mexican-American, Chicano
2. Cuban, Cubano
3. Puerto Rican, Puertorriqueno, or Boricuan
4. Other *(WRITE IN BELOW)*

_____

55. **What is your current marital status?**
(CIRCLE ONE NUMBER)

1. Single, never married
2. Married
3. Living with someone in a marriage-like relationship
4. Separated
5. Divorced
6. Widowed

☐ **53A.** **What is your Asian or Pacific Islander origin? If more than one, circle the one you consider the most important part of your background.** *(CIRCLE ONE NUMBER)*

1. Chinese
2. Filipino
3. Japanese
4. Korean
5. Southeast Asian (Vietnamese, Laotian, Cambodian/Kampuchean, etc.)
6. Pacific Islander
7. Other *(WRITE IN BELOW)*

_____

(SKIP TO QUESTION 55)

56. **In what country were you born?**
(CIRCLE ONE NUMBER)

1. USA
2. Other *(WRITE IN)*_____

57. **What is your citizenship status?**
(CIRCLE ONE NUMBER)

1. United States citizen, native
2. United States citizen, naturalized
3. Permanent resident of the United States (immigrant visa)

_____
COUNTRY OF PRESENT CITIZENSHIP

4. Temporary resident of United States (non-immigrant visa)

_____
COUNTRY OF PRESENT CITIZENSHIP

58. **What is the highest level of formal education completed by your mother and your father?**
(CIRCLE ONE FOR EACH PERSON)

A. Mother	B. Father		
1	1	a.	Less than high school diploma
2	2	b.	High school diploma
3	3	c.	Some college
4	4	d.	Associate's degree
5	5	e.	Bachelor's degree
6	6	f.	Master's degree
7	7	g.	Doctorate or professional degree (e.g., Ph.D., M.D., D.V.M., J.D./L.L.B.)
8	8	h.	Other
DK	DK	i.	Don't know

59. **Please indicate the extent to which you agree or disagree with each of the following statements.** *(CIRCLE ONE NUMBER FOR EACH STATEMENT)*

Disagree Strongly	Disagree Somewhat	Agree Somewhat	Agree Strongly	
1	2	3	4	a. Teaching effectiveness should be the primary criterion for promotion of college teachers at this institution.
1	2	3	4	b. Research/publications should be the primary criterion for promotion of college teachers at this institution.
1	2	3	4	c. At this institution, research is rewarded more than teaching.
1	2	3	4	d. State or federally mandated assessment requirements will improve the quality of undergraduate education.
1	2	3	4	e. Female faculty members are treated fairly at this institution.
1	2	3	4	f. Faculty who are members of racial or ethnic minorities are treated fairly at this institution.
1	2	3	4	g. If I had it to do over again, I would still choose an academic career.

60. **Please indicate your opinion regarding whether each of the following has worsened, stayed the same, or improved in recent years at this institution.** *(CIRCLE ONE FOR EACH ITEM)*

Worsened	Stayed the Same	Improved	Don't Know	
1	2	3	DK	a. The quality of students who choose to pursue academic careers in my field
1	2	3	DK	b. The opportunities junior faculty have for advancement in my field
1	2	3	DK	c. The professional competence of individuals entering my academic field
1	2	3	DK	d. The ability of this institution to meet the educational needs of entering students
1	2	3	DK	e. The ability of faculty to obtain external funding
1	2	3	DK	f. Pressure to increase faculty workload at this institution
1	2	3	DK	g. The quality of undergraduate education at this institution
1	2	3	DK	h. The atmosphere for free expression of ideas
1	2	3	DK	i. The quality of research at this institution

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Return this completed questionnaire in the enclosed prepaid envelope to:

National Opinion Research Center (NORC)
University of Chicago
1525 East 55th Street
Chicago, Illinois 60615

APPENDIX B -

1998-99 NSOPF SURVEY

OMB Clearance No. 1850-0636
Expiration Date: 7/28/2001

U.S. Department of Education
Office of Educational Research and Improvement

National Center for Education Statistics

1999 National Study of Postsecondary Faculty

Faculty Questionnaire

All information that would permit identification of individuals will be kept confidential.

Sponsored by: National Center for Education Statistics

Supported by: National Science Foundation
National Endowment for the Humanities

Contractor: The Gallup Organization
Government & Education Division

Mailing Address: The Gallup Organization
Survey Processing Center
P.O. Box 5700
Lincoln, Nebraska 68505-9926

Survey Contact: Brian Kuhr
E-mail: NSOPF99@gallup.com
Toll-Free Number: 1-800-633-0209

INSTRUCTIONS

General Instructions. Many of our questions ask about your activities during the *1998 Fall Term*. By this, we mean whatever academic term that was in progress on November 1, 1998.

All questions that ask about your position at "this institution" refer to your position during the 1998 Fall Term at the institution listed on the label on the back cover of the questionnaire.

This questionnaire was designed to be completed by both full-time and part-time faculty and instructional staff, in 2- and 4-year (and above) higher education institutions of all types and sizes. If you are a research assistant or a teaching assistant, please note this on the cover of the questionnaire and return it without completing the questionnaire.

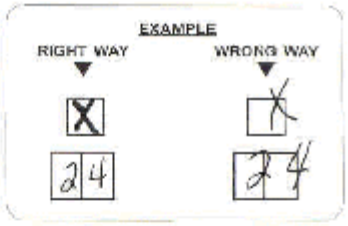
Electronic questionnaire. This questionnaire is available on the World Wide Web (WWW). We strongly urge you to use the electronic version because it is user friendly and takes less time to complete than the paper version. To access the WWW version of the questionnaire, go to http://www.faculty.gallup.com. Your individual Personal Identification Number (PIN) is on the label on the back of the questionnaire.

Returning the questionnaire. Mailing instructions for returning the completed questionnaire appear on the last page of the questionnaire.

Questions. If you have any questions about the study, please contact Brian Kuhr of The Gallup Organization toll-free at 1-800-633-0209 or via e-mail at NSOPF99@gallup.com.

Survey Instructions. This is a scannable questionnaire. Please follow the steps below carefully when completing this questionnaire. It will make it easier to read your results.

- Use a blue or black ink pen only.
- Do not use ink that soaks through the paper.
- Make solid marks that fit in the response boxes.
- To answer the survey questions, please mark the appropriate answer in each box.



ASSURANCE OF CONFIDENTIALITY

All information that permits the identification of individuals will be kept strictly confidential. Individual responses, and all responses that permit the identification of individuals, will be protected by the National Education Statistics Act, Public Law 103-382 [20 U.S.C. 9001 *et seq.*], the Carl D. Perkins Vocational Education Act, and the Privacy Act of 1974 [5 U.S.C. 552a].

SECTION A:
NATURE OF EMPLOYMENT

1. **During the 1998 Fall Term, did you have any instructional duties at this institution (e.g., teaching one or more courses, or advising or supervising students' academic activities)?** *(Mark [x] one box.)*

- ☐ Yes
- ☐ No *(SKIP TO QUESTION 3)*

2. **During the 1998 Fall Term, were ...** *(Mark [x] one box.)*

- ☐ *all* of your instructional duties related to credit courses, or advising or supervising academic activities for which students received credit
- ☐ some of your instructional duties related to credit courses or advising or supervising academic activities for which students received credit

  OR
- ☐ *all* of your instructional duties related to *noncredit* courses or advising or supervising noncredit academic activities

3. **What was your *principal* activity at this institution during the 1998 Fall Term? If you had equal responsibilities, please select one.** *(Mark [x] one box.)*

- ☐ Teaching
- ☐ Research
- ☐ Clinical service
- ☐ Administration *(Write in title or position.)*
  _____
- ☐ On sabbatical from this institution
- ☐ Other activity (e.g., technical activity such as programmer or technician; other institutional activities such as library services, community/public service; subsidized performer, artist in-residence, etc.)

4. **During the 1998 Fall Term, did you have faculty status at this institution?** *(Mark [x] one box.)*

- ☐ Yes
- ☐ No

5. **During the 1998 Fall Term, did this institution consider you to be employed part-time or full-time?** *(Mark [x] one box.)*

- ☐ Part-time
- ☐ Full-time *(SKIP TO QUESTION 7)*

6. **Did you hold a part-time position at this institution during the 1998 Fall Term because...** *(Mark [x] "Yes" or "No" for each item)*

	Yes ▼	No ▼
a. You preferred working on a part-time basis?	☐	☐
b. A full-time position was not available?	☐	☐

7. **In what year did you begin the job you held at this institution during the 1998 Fall Term? Consider promotions in rank as part of the same job.** *(Write in year.)*

19 ☐☐

8. **Which of the following best describes your academic rank, title, or position at this institution during the 1998 Fall Term?** *(Mark [x] one box. If no ranks are designated at your institution, mark the "NA," Not Applicable box.)*

- ☐ NA. Not applicable: no ranks designated at this institution *(SKIP TO QUESTION 10, PAGE 2)*
- ☐ Professor
- ☐ Associate Professor
- ☐ Assistant Professor
- ☐ Instructor
- ☐ Lecturer
- ☐ Other title *(Please specify below.)*
  _____

9. **In what year did you first achieve this rank/title?** *(Write in year.)*

19 ☐☐

10. **What was your tenure status at this institution during the 1998 Fall Term?** *(Mark [x] one box.)*

☐ Tenured → In what year did you achieve tenure at this institution? *(Write in year.)* 1 9 ☐ ☐

☐ On tenure track but not tenured

☐ Not on tenure track/although institution has a tenure system

☐ No tenure system at this institution

11. **During the 1998 Fall Term, what was the duration of your contract or appointment at this institution?** *(Mark [x] one box.)*

☐ Unspecified duration, or tenured

☐ One academic term

☐ One academic year or one calendar year

☐ Two or more academic/calendar years

☐ Other

12. **During the 1998 Fall Term, did you hold any of the following kinds of appointments at this institution?** *(Mark [x] "Yes" or "No" for each item.)*

	Yes ▼	No ▼
a. Acting	☐	☐
b. Affiliate or adjunct	☐	☐
c. Visiting	☐	☐
d. Assigned by religious order	☐	☐
e. Clinical *(Write in title or position.)*	☐	☐
f. Research *(Write in title or position.)*	☐	☐
g. Postdoctoral	☐	☐
h. Other *(Please specify below.)*	☐	☐

13. **Were you chairperson of a department or division at this institution during the 1998 Fall Term?** *(Mark [x] one box.)*

☐ Yes

☐ No

14. **What is your principal field or discipline of teaching? If equal areas, select one.** *(Write in the name of your principal field or discipline and enter the code number of the discipline, on pages 3–4, that best matches your field of teaching. If you have no field of teaching, mark [x] the "NA" box.)*

☐ NA. Not Applicable *(SKIP TO QUESTION 15)*

Name of principal field/discipline of teaching

Code for Field or Discipline

15. **What is your principal area of research? If equal areas, select one.** *(Write in the name of your principal area of research and enter the code number of the discipline, on pages 3-4, that best matches your field of research. If you have no research area, mark [x] the "NA" box.)*

☐ NA. Not Applicable *(SKIP TO QUESTION 16, PAGE 5)*

Name of principal field/discipline of research

Code for Field or Discipline

CODES FOR MAJOR FIELDS OF STUDY AND ACADEMIC DISCIPLINES

AGRICULTURE
101 Agribusiness & Agricultural Production
102 Agricultural, Animal, Food, & Plant Sciences
103 Renewable Natural Resources, including Conservation, Fishing, & Forestry
110 Other Agriculture

ARCHITECTURE & ENVIRONMENTAL DESIGN
121 Architecture & Environmental Design
122 City, Community, & Regional Planning
123 Interior Design
124 Land Use Management & Reclamation
130 Other Arch. & Environmental Design

ART
141 Art History & Appreciation
142 Crafts
143 Dance
144 Design (other than Architecture or Interior)
145 Dramatic Arts
146 Film Arts
147 Fine Arts
148 Music
149 Music History & Appreciation
150 Other Visual & Performing Arts

BUSINESS
151 Accounting
152 Banking & Finance
153 Business Administration & Management
154 Business Administrative Support (e.g., Bookkeeping, Office Management, Secretarial)
155 Human Resources Development
156 Organizational Behavior
157 Marketing & Distribution
170 Other Business

COMMUNICATIONS
181 Advertising
182 Broadcasting & Journalism
183 Communications Research
184 Communication Technologies
190 Other Communications

COMPUTER SCIENCE
201 Computer & Information Sciences
202 Computer Programming
203 Data Processing
204 Systems Analysis
210 Other Computer Science

EDUCATION
221 Education, General
222 Basic Skills
223 Bilingual/Cross-cultural Education
224 Curriculum & Instruction
225 Education Administration
226 Education Evaluation & Research
227 Educational Psychology
228 Higher Education
229 Special Education
230 Student Counseling & Personnel Services
231 Other Education

TEACHER EDUCATION
241 Pre-Elementary
242 Elementary
243 Secondary
244 Adult & Continuing
245 Other General Teacher Education Programs
250 Teacher Education in Specific Subjects

ENGINEERING
261 Engineering, General
262 Civil Engineering
263 Electrical, Electronics, & Communication Engineering
264 Mechanical Engineering
265 Chemical Engineering
270 Other Engineering
280 Engineering-Related Technologies

ENGLISH & LITERATURE
281 English, General
282 Composition & Creative Writing
283 American Literature
284 English Literature
285 Linguistics
286 Speech, Debate, & Forensics
287 English as a Second Language
300 English, Other

FOREIGN LANGUAGES
311 Chinese (Mandarin, Cantonese, or Other Chinese)
312 French
313 German
314 Italian
315 Latin
316 Japanese
317 Other Asian
318 Russian or Other Slavic
319 Spanish
320 Other Foreign Languages

HEALTH SCIENCES
331 Allied Health Technologies & Services
332 Dentistry
333 Health Services Administration
334 Medicine, including Psychiatry
335 Nursing
336 Pharmacy
337 Public Health
338 Veterinary Medicine
340 Other Health Sciences

350 **HOME ECONOMICS**

360 **INDUSTRIAL ARTS**

370 **LAW**

380 **LIBRARY & ARCHIVAL SCIENCES**

(CONTINUED)

380 **MATHEMATICS/STATISTICS**

NATURAL SCIENCES: BIOLOGICAL SCIENCES

381 Biochemistry
382 Biology
383 Botany
384 Genetics
385 Immunology
386 Microbiology
387 Physiology
388 Zoology
400 Biological Sciences, Other

NATURAL SCIENCES: PHYSICAL SCIENCES

411 Astronomy
412 Chemistry
413 Physics
414 Earth, Atmospheric, and Oceanographic (Geological Sciences)
420 Physical Sciences, Other

430 **PARKS & RECREATION**

PHILOSOPHY, RELIGION & THEOLOGY

440 Philosophy
441 Religion
442 Theology

470 **PHYSICAL EDUCATION**

500 **PROTECTIVE SERVICES** (e.g., Criminal Justice, Fire Protection)

510 **PSYCHOLOGY**

520 **PUBLIC AFFAIRS** (e.g., Community Services, Public Administration, Public Works, Social Work)

530 **SCIENCE TECHNOLOGIES**

SOCIAL SCIENCES & HISTORY

541 Social Sciences, General
542 Anthropology
543 Archeology
544 Area & Ethnic Studies
545 Demography
546 Economics
547 Geography
548 History
549 International Relations
550 Political Science & Government
551 Sociology
552 Other Social Sciences

VOCATIONAL TRAINING

CONSTRUCTION TRADES

601 Carpentry
602 Electrician
603 Plumbing
610 Other Construction Trades

CONSUMER, PERSONAL, & MISCELLANEOUS SERVICES

621 Personal Services (e.g., Barbering, Cosmetology)
630 Other Consumer Services

MECHANICS & REPAIRERS

641 Electrical & Electronics Equipment Repair
642 Heating, Air Conditioning, & Refrigeration Mechanics & Repairers
643 Vehicle & Mobile Equipment Mechanics & Repairers
644 Other Mechanics & Repairers

PRECISION PRODUCTION

661 Drafting
662 Graphic & Print Communications
663 Leatherworking & Upholstering
664 Precision Metal Work
665 Woodworking
670 Other Precision Production Work

TRANSPORTATION & MATERIAL MOVING

681 Air Transportation (e.g., Piloting, Traffic Control, Flight Attendance, Aviation Management)
682 Land Vehicle & Equipment Operation
683 Water Transportation (e.g., Boat & Fishing Operations, Deep Water Diving, Marine Operations, Sailors & Deckhands)
690 Other Transportation & Material Moving

900 **OTHER**

SECTION B:
ACADEMIC/PROFESSIONAL BACKGROUND

16. Please list below information about the degrees you have received. Do not list honorary degrees. If you have more than one degree at the same level, please list the most recent degree first. *(Complete all columns for each degree. If you have none of the degrees or awards listed below, mark [x] the "NA" box.)*

CODES FOR TYPE OF DEGREE

1) First professional degree (M.D., D.O., D.D.S. or D.M.D., LL.B., J.D., D.C. or D.C.M., D.Par., Pod.D. or D.P., D.V.M., O.D., M.Div. or H.H.L. or B.D.)
2) Doctoral degree (Ph.D., Ed.D., etc.)
3) Masters of Fine Arts, Masters of Social Work (M.F.A., M.S.W.)
4) Other Master's degree (M.A., M.S., M.B.A., M.Ed., etc.)
5) Bachelor's degree (B.A., A.B., B.S., etc.)
6) Associate's degree or equivalent (A.A., A.S., etc.)
7) Certificate or diploma for completion of undergraduate program (other than Associate's or Bachelor's)

☐ NA. Not Applicable: do not hold a degree or award listed above *(SKIP TO QUESTION 17)*

	A. Degree Code (see box above)	B. Year Received	C. Name of Field	D. Field Code (from pages 3–4)	E. a. Name of Institution, and b. City and State/Country of Institution
1. Highest	☐	19			a. b.
2. Next Highest	☐	19			a. b.
3. Next Highest	☐	19			a. b.
4. Next Highest	☐	19			a. b.

17. Are you currently working toward a degree? *(Mark [x] one box.)*

☐ Yes

☐ No *(SKIP TO QUESTION 19, PAGE 6)*

18. Please indicate below (A) the type of degree you are currently working toward, (B) the year you anticipate receiving it, (C) name of the field, (D) the field code that applies (from pages 3-4), and (E) the name and location of the institution from which you anticipate receiving this degree. *(Complete all columns.)*

	A. Degree Code (see box above)	B. Year Anticipated	C. Name of Field	D. Field Code (from pages 3–4)	E. a. Name of Institution, and b. City and State/Country of Institution
Degree Working Toward:	☐				a. b.

19. **Do you consider your position at this institution to be your primary employment?** *(Mark (x) one box.)*

- ☐ Yes
- ☐ No

20. **During the 1998 Fall Term, did you do outside consulting in addition to your employment at this institution?** *(Mark (x) one box.)*

- ☐ Yes
- ☐ No

21. **During the 1998 Fall Term, did you have professional employment other than consulting in addition to your employment at this institution?** *(Mark (x) one box.)*

- ☐ Yes
- ☐ No *(SKIP TO QUESTION 23)*

22. **How many different professional jobs/positions, other than your employment at this institution or consulting jobs, did you have during the 1998 Fall Term?** *(Write in number.)*

☐☐ Number of other jobs

23. **In total, how many professional positions in higher education institutions have you held? Consider promotions in rank at the same institution as part of the same position. If your occupational classification changed within the same institution, please consider this a separate position.** *(Include your position at this institution and all other full-time and part-time positions. Do not include teaching or research assistant positions.)*

☐☐ Number of positions

Continue on next page →

24. The next questions ask about your **first professional position in a higher education institution, and your most recent professional position at a higher education institutution (other than the one you currently hold at this institution.** *(If your current position is your first position, complete column 1. If you have no other additional professional positions, mark [x] the "NA" box at the top of the second column.)*

- Do *not* list promotions in rank at one place of employment as different positions.
- Do *not* include work as a graduate student.

	First Professional Position in a Higher Education Institution	Most Recent Professional Position at a Higher Ed. Institution (other than the one you currently hold at this institution) ☐ NA: No other positions
1. YEARS JOB HELD FROM TO: *(If a current position, mark [x] "Present")*	*(Write in year.)* 19 ☐☐ 19 ☐☐ ☐ Present	*(Write in year.)* 19 ☐☐ 19 ☐☐ ☐ Present
2. TYPE OF INSTITUTION 4-year doctoral granting college or university, graduate or professional school 4-year non-doctoral granting college or university 2-year degree granting college Other postsecondary institution	*(Mark [x] one box.)* ☐ ☐ ☐ ☐	*(Mark [x] one box.)* ☐ ☐ ☐ ☐
3. EMPLOYMENT STATUS Full-time Part-time	*(Mark [x] one box.)* ☐ ☐	*(Mark [x] one box.)* ☐ ☐
4. PRIMARY RESPONSIBILITY Administration, Management Instruction/Research/Public Service Other Professional (Support/Service/Clinical)	*(Mark [x] one box.)* ☐ ☐ ☐	*(Mark [x] one box.)* ☐ ☐ ☐
5. ACADEMIC RANK/TITLE *(What were your academic ranks when you began and left this academic position? If current job, do not indicate rank at exit.)* Professor Associate Professor Assistant Professor Instructor Lecturer Other NA: Not applicable, no rank	*(Mark [x] one box in each column.)* At Hire ▼ At Exit ▼ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	*(Mark [x] one box in each column.)* At Hire ▼ At Exit ▼ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
6. TENURE STATUS *(What was your tenure status when you began and left this academic position? If current job, do not indicate tenure at exit.)* Tenured On tenure track but not tenured Not on tenure track although institution has a tenure system No tenure system at this institution	*(Mark [x] one box in each column.)* At Hire ▼ At Exit ▼ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	*(Mark [x] one box in each column.)* At Hire ▼ At Exit ▼ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

7

25. **How many years have you been teaching in higher education institutions?**
(Write in number. If none, write in "0". If less than 1 year, write in "1".)

☐☐ Number of years

26. **How many professional positions, outside of higher education institutions, have you held? Do not include consulting jobs** *(Write in number. If none, mark the box indicating "None".)*

☐ None *(SKIP TO QUESTION 29, PAGE 9)*

☐☐ Number of professional positions outside higher education institutions

27. **How many of these positions were...** *(Write in number of full-time and part-time professional positions outside of higher education institutions. If none, write in "0".)*

☐☐ Full-time ☐☐ Part-time

28. **The next questions ask about professional positions outside of higher education institutions you have held. List information on your first and your most recent professional positions outside of higher education institutions. Do not include positions you began in 1999.**

	First Professional Position Outside of a Higher Education Institution	Most Recent Professional Position Outside of a Higher Ed. Institution ☐ NA. No other Professional positions
1. YEARS JOB HELD FROM: TO: (If a current position, mark [x] "Present".)	*(Write in year.)* 19☐☐ 19☐☐ ☐ Present	*(Write in year.)* 19☐☐ 19☐☐ ☐ Present
2. TYPE OF EMPLOYER	*(Mark [x] one box.)*	*(Mark [x] one box.)*
Elementary or secondary school	☐	☐
Hospital or other health care organization or clinical setting	☐	☐
Foundation or other non-profit organization other than health care organization	☐	☐
For-profit business or industry in the private sector	☐	☐
Government (federal, state, or local) or military	☐	☐
Other	☐	☐
3. EMPLOYMENT STATUS	*(Mark [x] one box.)*	*(Mark [x] one box.)*
Full-time	☐	☐
Part-time	☐	☐
4. PRIMARY RESPONSIBILITY	*(Mark [x] one box.)*	*(Mark [x] one box.)*
Administration, Management	☐	☐
Instruction, Research, or Public Service	☐	☐
Other Professional (Support/Service/Clinical)	☐	☐
Technical	☐	☐
Other	☐	☐

29. **How many of each of the following have you presented/published/etc. during your entire career and during the last two years? For publications, please include *only* works that have been accepted for publication. Count multiple presentations/publications of the same work *only* once. Include electronic publications that are not published elsewhere in the appropriate categories.** *(Mark the "NA" box if you have not published or presented.)*

☐ NA. Not applicable. No presentations/publications/etc. *(SKIP TO QUESTION 30, PAGE 10)*

Type of Presentation/Publication/etc. *(Write a number in each box. If none, write in "0".)*	Total during career	Total during past two years	
		Sole responsibility	Joint responsibility
1. Articles published in refereed professional or trade journals; creative works published in juried media	☐☐☐	☐☐	☐☐
2. Articles published in nonrefereed professional or trade journals; creative works published in nonjuried media or in-house newsletters	☐☐☐	☐☐	☐☐
3. Published reviews of books, articles, or creative works; chapters in edited volumes	☐☐☐	☐☐	☐☐
4. Textbooks, other books; monographs; research or technical reports disseminated internally or to clients	☐☐☐	☐☐	☐☐
5. Presentations at conferences, workshops, etc.; exhibitions or performances in the fine or applied arts	☐☐☐☐	☐☐☐	☐☐☐
6. Other, such as patents or computer software products	☐☐☐	☐☐	☐☐

Continue on next page→

SECTION C:
INSTITUTIONAL RESPONSIBILITIES AND WORKLOAD

30. **On average, how many hours per week did you spend at each of the following kinds of activities during the 1998 Fall Term?** *(Write in average number of hours. If not sure, give your best estimates. If none, write in "0".)*

Average number of hours per week ▼

a. All paid activities at this institution (e.g. teaching, clinical service, class preparation, research, administration) . . . . . ☐☐

b. All unpaid activities at this institution *(Please specify type of activities below:)* . . . . . ☐☐

☐

c. Any other paid activities outside this institution (e.g., consulting, working on other jobs) . . . . . ☐☐

d. Unpaid (pro bono) professional service activities outside this institution . . . . . ☐☐

31. **In column A, please allocate your *total* work time in the 1998 Fall Term (as reported in Question 30a-d) into several categories. We realize the categories are not mutually exclusive (e.g., research may include teaching; preparing a course may be part of professional growth). We ask, however, that you allocate as best you can the percentage of your time spent in activities whose primary focus falls within the indicated categories. In column B, indicate what percentage of your time you would *prefer* to spend in each of the listed categories. Time spent with colleagues should be allocated to a specific activity.**

(Write in a percentage on each line. If not sure, give your best estimate; if none, write in "0".)	A. % of Work Time Spent	B. % of Work Time Preferred
a. Teaching Undergraduate Students (including teaching; grading papers; preparing courses; developing new curricula; advising or supervising students; supervising student teachers and interns; working with student organizations or intramural athletics)	☐☐☐	☐☐☐
b. Teaching Graduate or First Professional Students (including teaching; grading papers; preparing courses; developing new curricula; advising or supervising students; supervising student teachers and interns; supervising clinical students; working with student organizations or intramural athletics)	☐☐☐	☐☐☐
c. Research/Scholarship (including research; reviewing or preparing articles or books; attending or preparing for professional meetings or conferences; reviewing proposals; seeking outside funding; giving performances or exhibitions in the fine or applied arts; or giving speeches)	☐☐☐	☐☐☐
d. Professional Growth (including taking courses; pursuing an advanced degree; other professional development activities; such as practice or activities to remain current in your field)	☐☐☐	☐☐☐
e. Administration (including departmental or institution-wide meetings or committee work)	☐☐☐	☐☐☐
f. Service (including providing legal or medical services or psychological counseling to clients or patients; paid or unpaid community or public service; service to professional societies/associations)	☐☐☐	☐☐☐
g. Outside Consulting, Freelance Work, Other Outside Work/Other Non-Teaching Professional Activities (other activities or work not listed in a–f)	☐☐☐	☐☐☐
Please be sure that the percentages you provide add up to 100%.	**100%**	**100%**

32. **During the 1998 Fall Term, how many undergraduate or graduate thesis or dissertation committees, comprehensive exams or orals committees, or examination or certification committees did you serve on at this institution; how many did you chair, and what was the average number of hours spent in these activities per week?** *(Write in a number on each line. If none, write in "0". Mark the "NA" box if you did not serve on any committees.)*

☐ NA. Not applicable. Did not serve on any undergraduate or graduate committees *(SKIP TO QUESTION 33)*

Type of Committee	Number served on	Of that number, how many did you chair?	Average number of hours per week
	(Write in number in each box. If none, write in "0".)		
1. *Undergraduate* thesis honors committees; comprehensive exams or orals committees; examination/certification committees	☐☐	☐☐	☐☐
2. Graduate thesis or dissertation committees; comprehensive exams or orals committees (other than as part of thesis/ dissertation committees); examination/certification committees	☐☐	☐☐	☐☐

33. **During the 1998 Fall Term, what was the total number of classes or sections you taught at this institution?** *(Mark the "NA" box if you did not teach any classes.)*

- Do not include individualized instruction, such as independent study, individual performance classes, or working with individual students in a clinical or research setting.
- Count multiple sections of the same course as a separate class (e.g., if you taught Sociology 101 to two different groups of students during the term, count this as two separate classes).
- Count lab or discussion sections of a class as the same class (e.g., if you taught Biology 202 to a group of students during the term and the class consisted of a lecture two times a week, a lab one day a week, and a discussion section one day a week, count this work as one class).

☐ NA. Not applicable; no classes taught *(SKIP TO QUESTION 48, PAGE 14)*

☐☐ Number of classes/sections (i.e., credit and non-credit)

34. **How many different courses (preparations) do these classes/sections represent?** *(Write in number. If none, write in "0".)*

☐☐ Number of courses these classes/sections represent

35. **How many of the classes/sections that you taught during the 1998 Fall Term were remedial?** *(Write in number. If none, write in "0".)*

☐☐ Number of classes/sections that were remedial, i.e., credit and non-credit. *(IF NONE, SKIP TO QUESTION 37)*

36. **How many of these remedial classes/sections were not creditable toward a degree (non-credit classes)?** *(Write in number. If none, write in "0".)*

☐☐ Number of remedial classes/sections that were not creditable toward a degree (non-credit)

Continue to next page ⟶

37. **How many of the classes/sections that you taught during the 1998 Fall Term were continuing education classes?** *(Write in number. If none, write in "0")*

☐☐ Number of classes/sections that were continuing education *(IF NONE, SKIP TO QUESTION 39)*

38. **How many of those continuing education classes/sections were not creditable toward a degree (non-credit classes)?** *(Write in number. If none, write in "0".)*

☐☐ Number of continuing education classes/sections that were not creditable toward a degree (non-credit)

39. **What is the total number of students enrolled in all your non-credit classes/sections combined?** *(Write in number. If none, write in "0".)*

☐☐☐☐ Total number of students enrolled in non-credit classes/sections

40. **How many of the classes/sections that you taught during the 1998 Fall Term were *for credit*?** *(Write in number. If none, write in "0".)*

☐☐ Number of classes/sections for credit *(IF NONE, SKIP TO QUESTION 43, PAGE 14)*

Continue to next page ——→

41. **For each credit class or section that you taught at this institution during the 1998 Fall Term, please answer the following questions. For each class, enter the *code* for the academic discipline of the class.**
(Refer to pages 3–4 for the codes. Please enter the code rather than the course name.)

- *Do not* include individualized instruction, such as independent study or individual one-on-one performance classes.
- If you taught multiple sections of the same course, count them as separate classes, but do not include the lab section of the course as a separate class.

		A. For-credit Class A *(enter code)*	B. For-credit Class B *(enter code)*	C. For-credit Class C *(enter code)*	D. For-credit Class D *(enter code)*	E. For-credit Class E *(enter code)*
1. *CODE* FOR ACADEMIC DISCIPLINE OF CLASS (from pages 3–4)						
2. DURING 1998 FALL TERM *(Complete each box.)*						
a. Number of weeks the class met	a.					
b. Number of credit hours	b.					
c. Number of hours the class met per week	c.					
d. Number of teaching assistants, readers	d.					
e. Number of students enrolled	e.					
f. Was this class team taught?	f.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
g. Average # hours per week you taught the class	g.					
h. Was this class considered a remedial class?	h.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
i. Was this class taught through a distance education program?	i.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
3. PRIMARY LEVEL OF STUDENTS *(Mark [x] one box.)*						
Undergraduate students		☐	☐	☐	☐	☐
Graduate students		☐	☐	☐	☐	☐
First professional students (e.g., dental, medical, law, theology, etc.)		☐	☐	☐	☐	☐
4. PRIMARY INSTRUCTIONAL METHOD USED *(Mark [x] one box.)*						
Lecture/Discussion		☐	☐	☐	☐	☐
Seminar		☐	☐	☐	☐	☐
Lab, clinic, or problem session		☐	☐	☐	☐	☐
Apprenticeship, internship, field work, or field trips		☐	☐	☐	☐	☐
Other		☐	☐	☐	☐	☐
5. PRIMARY MEDIUM USED *(Mark [x] one box.)*						
Face-to-face		☐	☐	☐	☐	☐
Computer		☐	☐	☐	☐	☐
TV-based		☐	☐	☐	☐	☐
Other		☐	☐	☐	☐	☐

42. **In how many of the undergraduate courses that you taught *for credit* during the 1998 Fall Term did you use...** *(Mark [x] one box for each item.)*

☐ NA. Did not teach any undergraduate classes for credit *(SKIP TO QUESTION 43)*

	None ▼	Some ▼	All ▼
a. Student evaluations of each other's work?	☐	☐	☐
b. Multiple-choice midterm and/or final exam?	☐	☐	☐
c. Essay midterm and/or final exams?	☐	☐	☐
d. Short-answer midterm and/or final exams?	☐	☐	☐
e. Term/research papers?	☐	☐	☐
f. Multiple drafts of written work?	☐	☐	☐
g. Grading on a curve?	☐	☐	☐
h. Competency-based grading?	☐	☐	☐

43. **During the 1998 Fall Term, did you have websites for any of the classes you taught?** *(Mark [x] one box.)*

☐ Yes

☐ No *(SKIP TO QUESTION 45)*

44. **What did you use the websites for?** *(Mark [x] "Yes" or "No" for each item.)*

	Yes ▼	No ▼
a. To post general class information (e.g., syllabus and office hours)	☐	☐
b. To post information on homework assignments or readings	☐	☐
c. To post practice exams/exercises that provide immediate scoring	☐	☐
d. To post exams or exam results	☐	☐
e. To provide links to other information	☐	☐
f. Other *(Please specify below.)*	☐	☐

☐

45. **During the 1998 Fall Term, did you use electronic mail (e-mail) to communicate with students in your classes?** *(Mark [x] one box.)*

☐ Yes

☐ No *(SKIP TO QUESTION 48)*

46. **Approximately what percent of the students in your classes communicated with you via e-mail during the 1998 Fall Term?** *(Write in percent. If none, write in "0".)*

☐☐☐ Percent of students in your classes who communicated with you via e-mail

47. **Approximately how many hours per week did you spend responding to student e-mail during the 1998 Fall Term?** *(Write in number of hours. If none, write in "0".)*

☐☐ Hours per week spent responding to student e-mail

48. **During the 1998 Fall Term, did you have access to the Internet...** *(Mark [x] one box.)*

☐ Both at home and at work

☐ At work only

☐ At home only

☐ No access to the Internet

49. **For each type of student listed below, please indicate how many students received individual instruction from you during the 1998 Fall Term (e.g., independent study; supervising student teachers or interns; or one-on-one instruction, including working with individual students in a clinical or research setting), and the total number of contact hours with these students per week. Do not count regularly scheduled office hours.** *(Write in a number. If none, write in "0".)*

Type of students receiving formal individualized instruction	Number of students ▼	Total contact hours per week ▼
a. Undergraduate students	☐☐☐	☐☐☐
b. Graduate students	☐☐☐	☐☐☐
c. First professional students (e.g., dental, medical, optometry, osteopathic, pharmacy, veterinary, chiropractic, law, and theology)	☐☐☐	☐☐☐

50. **On average, how many contact hours per week did you spend with students you were assigned to advise?** *(Write in a number. If none, write in "0".)*

☐☐ Number of contact hours spent with students per week (Do not include hours spent working with students on their thesis, dissertation, or independent study.)

51. **During the 1998 Fall Term, how many regularly scheduled office hours did you have per week?** *(Write in a number. If none, write in "0".)*

☐☐ Number of regularly scheduled office hours per week

52. **During the 1998 Fall Term, were you engaged in any professional research, proposal writing, creative writing, or creative works (either funded or non-funded) at this institution?** *(Mark [x] one box.)*

☐ Yes

☐ No *(SKIP TO QUESTION 55, PAGE 16)*

53. **How would you describe your *primary* professional research, writing, or creative work during the 1998 Fall Term?** *(Mark [x] one box.)*

☐ Basic research

☐ Applied or policy-oriented research or analysis

☐ Literary, performance, or exhibitions

☐ Program/Curriculum design and development

☐ Other *(Please specify below.)*

☐

54. **During the 1998 Fall Term were you engaged in any *funded* research or *funded* creative work? Include any grants, contracts, or institutional awards. Do not include consulting services.** *(Mark [x] one box.)*

☐ Yes

☐ No *(SKIP TO QUESTION 55, PAGE 16)*

55. **During the 1998 Fall Term, were you a principal investigator (PI) or co-principal investigator (Co-PI) for any grants or contracts?** *(Mark [x] one box.)*

☐ Yes → How many? ☐☐

☐ No *(SKIP TO QUESTION 57)*

56. **During the 1998 Fall Term, how many individuals at this institution other than yourself were supported, either in part or in full, by all the grants and contracts for which you were PI or Co-PI?** *(Write in a number. If none, write in "0".)*

☐☐☐ Number of individuals supported by grants or contracts

57. **From which of the following sources did you receive funding during the 1998 Fall Term?** *(Mark [x] all that apply.)*

☐ This institution

☐ Foundation or other nonprofit organization

☐ For profit business or industry in the private sector

☐ State or local government

☐ Federal Government

☐ Other *(Please specify)*

☐

58. **What were the total number of grants/contracts from all sources in the 1998 Fall Term?** *(Write in a number)*

☐☐ Total number of grants/contracts

59a. **What were the total funds received from all sources for the 1998-99 academic year? Do not include funding that was awarded in 1999.** *(Write in a number; if not sure, mark [x] the "DK, Don't Know" box.)*

$ ☐☐☐,☐☐☐.00

☐ DK, Don't Know

61. **During the past two years, did you use institutional funds for any of the purposes specified below?**
(Mark [x] one item for each category.)

	Yes	No, although funds were available	No, no funds were available, or not eligible	No, don't know if funds were available
a. Tuition remission at this or other institution	☐	☐	☐	☐
b. Professional association memberships and/or registration fees	☐	☐	☐	☐
c. Professional travel	☐	☐	☐	☐
d. Training to improve research or teaching skills	☐	☐	☐	☐
e. Release time from teaching	☐	☐	☐	☐
f. Sabbatical leave	☐	☐	☐	☐

62. **During the 1998 Fall Term, how many of the following types of administrative committees did you serve on at this institution? How many of these committees did you chair? Include committees at the department or division level, the school or college level, and institution- and system-wide committees.**
(Write a number in each box. If you did not serve on or chair a committee, write "0" for each item. If you did not serve on or chair any administrative committees mark [x] the NA box.)

☐ NA. Not applicable; did not serve on or chair any administrative committees. *(SKIP TO QUESTION 64)*

	Number of Committees Served On	Number of Committees Chaired
a. Curriculum Committees	☐☐	☐☐
b. Personnel Committees (e.g., search or recruitment committees)	☐☐	☐☐
c. Governance Committees (e.g., faculty senate, student retention, budget, or admissions)	☐☐	☐☐
d. Other	☐☐	☐☐

63. **On average, approximately how many hours per week did you spend on administrative committee work?**
(Write in number. If none, write in "0".)

☐☐ Hours per week spent on committee work

64. **Are you a member of a union (or other bargaining association) that is the legally recognized representative of the faculty at this institution?** *(Mark [x] one box.)*

☐ Union/bargaining association is not available

☐ Union/bargaining association is available, but I am not eligible

☐ I am eligible, but not a member

☐ I am eligible, and a member

SECTION D:
JOB SATISFACTION ISSUES

65. **How satisfied or dissatisfied are you with each of the following aspects of your instructional duties at this institution?** *(Mark [x] one box for each item. Mark [x] "NA" if you had no instructional duties.)*

☐ N.A. Not applicable; no instructional duties *(SKIP TO QUESTION 66)*

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied	Not Applicable
a. The authority I have to make decisions about content and methods in the courses I teach	☐	☐	☐	☐	
b. The authority I have to make decisions about what courses I teach	☐	☐	☐	☐	
c. The authority I have to make decisions about other (non-instructional) aspects of my job	☐	☐	☐	☐	
d. Time available for working with students as an advisor, mentor, etc.	☐	☐	☐	☐	
e. Time available for class preparation	☐	☐	☐	☐	
f. Quality of undergraduate students whom I have taught here	☐	☐	☐	☐	☐
g. Quality of graduate students whom I have taught here	☐	☐	☐	☐	☐

66. **How satisfied or dissatisfied are you with the following aspects of your job at this institution?** *(Mark [x] one box for each item.)*

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied	Not Applicable
a. My work load	☐	☐	☐	☐	
b. My job security	☐	☐	☐	☐	
c. Opportunity for advancement in rank at this institution	☐	☐	☐	☐	
d. Time available for keeping current in my field	☐	☐	☐	☐	
e. The effectiveness of faculty leadership at this institution (e.g. academic senate, faculty councils, etc.)	☐	☐	☐	☐	
f. Freedom to do outside consulting	☐	☐	☐	☐	
g. My salary	☐	☐	☐	☐	
h. My benefits, generally	☐	☐	☐	☐	
i. Spouse or partner employment opportunities in this geographic area	☐	☐	☐	☐	☐
j. My job here, overall	☐	☐	☐	☐	

67. **During the next three years, how likely is it that you will leave this job to:** *(Mark [x] one box for each item.)*

	Not at All Likely	Somewhat Likely	Very Likely
a. Accept a *part-time* job at a *different* postsecondary institution?	☐	☐	☐
b. Accept a *full-time* job at a *different* postsecondary institution?	☐	☐	☐
c. Accept a *part-time* job *not at* a postsecondary institution?	☐	☐	☐
d. Accept a *full-time* job *not at* a postsecondary institution?	☐	☐	☐
e. Retire from the labor force?	☐	☐	☐

68. **At what age do you think you are most likely to stop working at a postsecondary institution?** *(Write in age or mark "DK, Don't Know".)*

☐☐ Years of age

☐ DK, Don't Know

69. **If you were to leave your current position at this institution to accept another position inside or outside of academia, how important would each of the following be in your decision?** *(Mark [x] one box for each item.)*

	Not Important	Somewhat Important	Very Important	Not Applicable
a. Salary level	☐	☐	☐	
b. Tenure-track/tenured position	☐	☐	☐	
c. Job security	☐	☐	☐	
d. Opportunities for advancement	☐	☐	☐	
e. Benefits	☐	☐	☐	
f. No pressure to publish	☐	☐	☐	
g. Good research facilities and equipment	☐	☐	☐	
h. Good instructional facilities and equipment	☐	☐	☐	
i. Good job or job opportunities for my spouse or partner	☐	☐	☐	☐
j. Good geographic location	☐	☐	☐	
k. Good environment/schools for my children	☐	☐	☐	☐
l. Greater opportunity to teach	☐	☐	☐	
m. Greater opportunity to do research	☐	☐	☐	

70. Of the factors listed in Question 69, write in the letter of the item (a-m) that would be most important in your decision to leave. *(Write in a letter, a–m, from Question 69.)*

☐

71. If you could elect to draw on your retirement and still continue working at this institution on a part-time basis, would you do so? *(Mark [x] one box.)*

☐ Yes

☐ No

☐ DK, Don't Know

72. Have you retired from another position? *(Mark [x] one box.)*

☐ Yes

☐ No

73. If an early retirement option were offered to you at this institution, would you take it? *(Mark [x] one box.)*

☐ Yes

☐ No

☐ DK, Don't Know

74. At which age do you think you are most likely to retire from all paid employment? *(Write in age or mark "DK, Don't Know".)*

☐☐ Years of age

☐ DK, Don't Know

Continue to next page ⟶

SECTION E:
COMPENSATION

Note: Your responses to these items as with all other items in this questionnaire are voluntary and strictly confidential. They will be used only in statistical summaries, and will not be disclosed to your institution or to any individual or group.

75. **What is your basic salary from this institution for the 1998-99 academic year?** *(Write in dollar amount. If not sure, give your best estimates; if no basic salary, mark [x] the "NA, Not Applicable" box.)*

NA, Not Applicable ▼

a. Basic salary for academic year ..... $ _____ .00 ☐

b. Basic salary is based on: *(Mark [x] one box in "Type" and write in "Number" below.)*

TYPE		NUMBER	
☐	length of appointment in months (e.g. 9 months)	☐☐	months
☐	number of credit hours taught	☐☐	credit hours
☐	number of classes taught	☐☐	classes
☐	other *(Please specify.)* _____	☐☐	*(Specify.)* _____

76. **For the 1998 calendar year, please estimate your gross compensation before taxes from each of the sources listed below.** *(Write in dollar amount. If not sure, give your best estimates; if no compensation from a source, mark (x) the "NA, Not Applicable" box.)*

NA, Not Applicable ▼

Compensation from this institution:

a. Basic salary for calendar year ..... $ _____ .00 ☐

b. Other income from this institution not included in basic salary (e.g., for summer session, overload courses, administration, research, coaching sports, etc.) ..... $ _____ .00 ☐

c. Non-monetary compensation, such as food, housing, car provided by this institution *(do not include employee benefits such as medical, dental, or life insurance)* ..... $ _____ .00 ☐

Compensation from other sources:

d. Employment at another academic institution ..... $ _____ .00 ☐

e. Any other employment ..... $ _____ .00 ☐

f. Legal or medical services or psychological counseling ..... $ _____ .00 ☐

g. Outside consulting, consulting business or freelance work ..... $ _____ .00 ☐

h. Self-owned business (other than consulting) ..... $ _____ .00 ☐

i. Professional performances or exhibitions ..... $ _____ .00 ☐

j. Speaking fees, honoraria ..... $ _____ .00 ☐

NA. Not Applicable ▼

k. Royalties or commissions ..... $ [,] .00 ☐

l. Non-monetary compensation, such as food, housing, car *(do not include other employee benefits such as medical, dental, or life insurance)* ..... $ [,] .00 ☐

Other sources of earned income *(Please specify below).*

m. [ ] ..... $ [,] .00 ☐

n. [ ] ..... $ [,] .00 ☐

77. **What was the gross income of your spouse or significant other for the 1998 calendar year?** *(Write in number. If no income, write in "0". If no spouse or significant other, mark the "NA" box. If don't know, mark the "DK" box.)*

$ [,] .00 Gross income of spouse/significant other for 1998

☐ NA. No spouse or significant other

☐ DK. Don't know

78. **For the 1998 calendar year, how many persons lived in your household including yourself?** *(Write in number.)*

[ ] Total number in household

79. **For the 1998 calendar year, what was your total household income before taxes?** *(Write in number.)*

$ [,] .00 Total household income before taxes

80. **For the 1998 calendar year, how many dependents did you have? Do *not* include yourself. (A dependent is someone receiving at least half of his or her financial support from you.)** *(Write in number. If none, write in "0".)*

[ ] Number of dependents

Section F:
Sociodemographic Characteristics

81. **Are you ...**

- ☐ Male
- ☐ Female

82. **In what month and year were you born?** *(Write in month and year.)*

		1	9		

Month Year

83. **What is your ethnicity?** *(Mark [x] one box.)*

- ☐ Hispanic or Latino
- ☐ Not Hispanic or Latino

84. **What is your race?** *(Mark [x] one or more.)*

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

85. **Are you a person with a disability?** *(Mark [x] one box.)*

- ☐ Yes
- ☐ No *(SKIP TO QUESTION 87)*

86. **What type of disability do you have?** *(Mark [x] all that apply.)*

- ☐ Hearing impairment (i.e., deaf or hard of hearing)
- ☐ Blind or visual impairment that cannot be corrected by wearing glasses, or legally blind
- ☐ Speech or language impairment
- ☐ Mobility/orthopedic impairment
- ☐ Other (e.g., specific learning disability, attention deficit, mental illness, or emotional disturbance)

87. **What was your marital status in the 1998 Fall Term?** *(Mark [x] one box.)*

- ☐ Single, never married
- ☐ Married
- ☐ Living with someone in a marriage-like relationship
- ☐ Separated, divorced, widowed

88. **During the 1998 Fall Term, was your spouse or significant other employed in a professional position at a higher education institution?** *(Mark [x] one box.)*

- ☐ Yes, at this institution
- ☐ Yes, at another higher education institution
- ☐ No
- ☐ Not Applicable

89. **In what country were you born?** *(Mark [x] one box.)*

- ☐ USA
- ☐ Other *(Please specify below.)*

90. **What is your citizenship status?** *(Mark [x] one box.)*

☐ United States citizen, native

☐ United States citizen, naturalized

☐ Permanent resident of the United States (immigrant visa)

COUNTRY OF PRESENT CITIZENSHIP

☐ Temporary resident of United States (non-immigrant visa)

COUNTRY OF PRESENT CITIZENSHIP

91. **What is the highest level of formal education completed by your mother and your father? What is the highest level of formal education completed by your spouse or significant other?** *(Mark [x] one box for each person.)*

	Mother ▼	Father ▼	Spouse/ Significant Other ▼
a. Doctorate degree or first professional degree (e.g., Ph.D., Ed.D., dental, medical, law, theology, etc.)	☐	☐	☐
b. Master's degree (e.g., M.A., M.S., M.B.A., M.Ed., etc.)	☐	☐	☐
c. Bachelor's degree (e.g., B.A., A.B., B.S., etc.)	☐	☐	☐
d. Associate's degree (e.g., A.A., A.S., etc.)	☐	☐	☐
e. Some college	☐	☐	☐
f. High school diploma	☐	☐	☐
g. Less than high school diploma	☐	☐	☐
h. Don't know or not applicable	☐	☐	☐

SECTION G:
OPINIONS

92. **Please indicate the extent to which you agree or disagree with each of the following statements.** *(Mark (x) one box for each item.)*

	Strongly Disagree ▼	Disagree ▼	Agree ▼	Strongly Agree ▼
a. Teaching effectiveness should be the primary criterion for promotion of faculty/instructional staff at this institution	☐	☐	☐	☐
b. Research/publications should be the primary criterion for promotion of faculty/instructional staff at this institution	☐	☐	☐	☐
c. At this institution, research is rewarded more than teaching	☐	☐	☐	☐
d. Post-tenure review of faculty will improve the quality of higher education	☐	☐	☐	☐
e. This institution should have a tenure system	☐	☐	☐	☐
f. Female faculty members are treated fairly at this institution	☐	☐	☐	☐
g. Faculty who are members of racial or ethnic minorities are treated fairly at this institution	☐	☐	☐	☐
h. If I had it to do over again, I would still choose an academic career	☐	☐	☐	☐

93. **Please indicate the extent to which you agree or disagree with each of the following statements. Over recent years at this institution...** *(Mark (x) one box for each item.)*

	Strongly Disagree ▼	Disagree ▼	Agree ▼	Strongly Agree ▼
a. It has become more difficult for faculty to obtain external funding	☐	☐	☐	☐
b. Faculty work load has increased	☐	☐	☐	☐
c. The quality of undergraduate education has declined	☐	☐	☐	☐
d. The atmosphere is less conducive to free expression of ideas	☐	☐	☐	☐
e. The quality of research has declined	☐	☐	☐	☐
f. Too many full-time faculty have been replaced by part-time faculty	☐	☐	☐	☐

Please indicate approximately how long it took you to complete this questionnaire.

☐☐☐ Minutes

Comments:

Thank you very much for your participation.

Return your completed questionnaire in the enclosed pre-paid envelope or mail directly to:

The Gallup Organization
Survey Processing Center
P.O. Box 5700
Lincoln, Nebraska 68505-9926

Endorsed by:

- American Association for Higher Education
- American Association of Community Colleges
- American Association of State Colleges and Universities
- American Association of University Professors
- American Council on Education
- American Federation of Teachers
- Association for Institutional Research
- Association of American Colleges and Universities
- Association of Catholic Colleges and Universities
- College and University Personnel Association
- The College Board
- The College Fund/UNCF
- Council of Graduate Schools
- The Council of Independent Colleges
- National Association for Equal Opportunity in Higher Education
- National Association of Independent Colleges and Universities
- National Association of State Universities and Land-Grant Colleges
- National Education Association

Sponsored by: National Center for Education Statistics

Supported by: National Science Foundation
National Endowment for the Humanities

Contractor: The Gallup Organization
Government & Education Division

Mailing Address: The Gallup Organization
Survey Processing Center
P.O. Box 5700
Lincoln, Nebraska 68505-9826

Survey Contact: Brian Kuhr
E-mail: NSOPF99@gallup.com
Toll-Free Number: 1-800-633-0209

APPENDIX C -

REQUEST TO NCES FOR USE OF DATA SETS

U.S. DEPARTMENT OF EDUCATION
OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT

APR 22 2002

NATIONAL CENTER FOR EDUCATION STATISTICS

Joe W. Kotrlik
Professor
School of Human Resource &
Workforce Development
Louisiana State University
129 Old Forestry Building
Baton Rouge, LA 70803-5477

Dear Dr. Kotrlik:

I am pleased to inform that the School of Human Resource & Workforce Development, Louisiana State University has met the requirements for accessing the individually identifiable survey data base entitled: "NSOPF: 1988-1999."

The following items are enclosed for your use:

- One signed copy of the License Agreement, and Affidavits of Non-Disclosure; and
- One CD-ROM for NSOPF: 1993 containing the data you requested and, the related documentation.

Please keep the single copy of the Privacy Act of 1974, National Education Statistics Act of 1994, and the NCES Security Procedures, enclosed with your initial licensing application, with the executed license for reference by you and those project staff who will be accessing the data. Also retain a copy of the approved data Security Plan with the executed license. Violations of any of the licensing provisions by any member of your research project staff could result in cancellation.

These data are on loan to the School of Human Resource & Workforce Development, Louisiana State University for a period of 5 year(s) commencing with the date of the NCES Commissioner's signature on the license. You have been assigned license control number: **020329617.** Please reference this number in all future correspondence.

If you have any questions, please call Cynthia L. Barton at (202) 502-7307.

Sincerely,

Marilyn M. McMillen

Marilyn M. McMillen, Ph.D.
Chief Statistician

Enclosures

WASHINGTON, DC 20006–

Appendix F
License

Appendix Contents

The license document describes the arrangements and agreements between an organization (excluding Federal Agencies) and NCES for obtaining access to a restricted-use database.

LICENSE FOR THE USE OF INDIVIDUALLY IDENTIFIABLE INFORMATION PROTECTED UNDER THE NATIONAL EDUCATION STATISTICS ACT OF 1994 AND THE PRIVACY ACT OF 1974

WHEREAS, the National Center for Education Statistics (NCES) in the Office of Educational Research and Improvement (OERI) of the United States Department of Education has collected individually identifiable information, the confidentiality of which is protected by the Privacy Act of 1974, 5 U.S.C. 552a, and sections 408 and 411 of the National Education Statistics Act of 1994, 20 U.S.C. 9001 et seq., and

WHEREAS, NCES wishes to make the data available for statistical purposes to requestors qualified and capable of research and analysis consistent with the statistical purposes for which the data were provided, but only if the data are used and protected in accordance with the terms and conditions stated in this license, upon receipt of such assurance of qualification and capability, it is hereby agreed between

School of Human Resource Education & Workforce Development, Louisiana State University
(Insert the name of the agency or organization to be licensed)
hereinafter referred to as the "Licensee", and NCES that:

I. INFORMATION SUBJECT TO THIS AGREEMENT

A. All data containing individually identifiable information (including ASchools@ in the National Assessment of Educational Progress) collected by or on the behalf of NCES under sections 408 and 411 of the National Education Statistics Act of 1994 that are provided to the Licensee and all information derived from those data, and all data resulting from merges, matches, or other uses of the data provided by NCES with other data are subject to this license and are referred to in this license as Asubject data.@

B. Subject data under this license may be in the form of computer tapes, diskettes, CD-ROMs, hard copy, etc. The Licensee may only use the subject data in a manner and to a purpose

consistent with:

1. the statistical purpose for which the data were supplied, (Licensee's description of the research and analysis which is planned is attached and made a part of this license - Attachment No. 1.)
2. the limitations imposed under the provisions of this license and,
3. sections 408 and 411 of the National Education Statistics Act of 1994 and 5 U.S.C. 552a, which are attached to and made a part of this license (Attachment No. 2.)

II. INDIVIDUALS WHO MAY HAVE ACCESS TO SUBJECT DATA

A. There are four categories of individuals that the Licensee may authorize to have access to subject data. The four categories of individuals are as follows:
   1. The Principal Project Officer (PPO) is the most senior officer in charge of the day-to-day operations involving the use of subject data and is responsible for liaison with NCES.
   2. Professional/Technical Staff (P/TS) conduct the research for which this license was issued.
   3. Support staff includes secretaries, typists, computer technicians, messengers, etc. Licensee may disclose subject data to support staff who come in contact with the subject data in course of their duties only to the extent necessary to support the research under this license.
   4. An independent researcher is an individual who has satisfied the requirements specified in paragraph II.C. of this license.

B. Licensee may disclose subject data to only seven (7) P/TS unless NCES provides written authorization for a larger number of P/TS.

C. Licensee may disclose subject data to individuals who desire to do independent research, under the following conditions:
   1. The independent researcher submits an application for access to subject data to NCES directly, or through the Licensee.
   2. NCES provides written approval for the Licensee to disclose subject data to the independent researcher.
   3. The Licensee completes the affidavit procedures in paragraph IV.B. of the license.

III. LIMITATIONS ON DISCLOSURE

A. Licensee shall not use or disclose subject data for any administrative purposes nor may they be applied in any manner to change the status, condition, or public perception of any individual regarding whom subject data is maintained. (Note: Federal Law pre-empts any State law that might require the reporting or dissemination of these data for any purpose other than the statistical purposes for which they were collected.)

B. Licensee shall not disclose subject data or other information containing, or derived from, subject data at fine levels of geography, such as school district, institution, or school, to anyone other than NCES employees working in the course of their employment or individuals for whom access is authorized under this license agreement. Licensee may make disclosures of subject data to individuals other than those specified in this paragraph only if those individuals have executed an affidavit of nondisclosure and the Licensee has obtained advance written approval from NCES.

C. Licensee shall not make any publication or other release of subject data listing information regarding individuals even if the individual identifiers have been removed.

D. Licensee may publish the results, analysis, or other information developed as a result of any research based on subject data made available under this license only in summary or statistical form so that the identity of individuals contained in the subject data is not revealed.

IV. ADMINISTRATIVE REQUIREMENTS

A. The research conducted under this license and the disclosure of subject data needed for that research must be consistent with the statistical purpose for which the data were supplied.

B. Execution of affidavits of nondisclosure.

1. Licensee shall provide a copy of this agreement, together with the attached SECURITY PROCEDURES (Attachment No. 3) to each employee of the licensee who will have access to subject data and shall require each of those employees to execute an affidavit of nondisclosure. Licensee shall also provide a copy of the attached SECURITY PROCEDURES, and the abstracted statement of the statistical purpose for which the data were supplied, to each independent researcher approved by NCES who the licensee intends to have access to subject data and shall require each of those researchers to execute an affidavit of nondisclosure.
2. The Licensee must ensure that each individual who executes an affidavit of nondisclosure reads and understands the materials provided to her or him before executing the affidavit.
3. Licensee shall ensure that each affidavit of nondisclosure is notarized upon execution.
4. Licensee may not permit any individual specified in paragraph II.A. to have access to subject data until the procedures in paragraphs IV.B.1. through 3. of this license are fulfilled for that individual.
5. Licensee shall promptly, after the execution of each affidavit, send the original affidavit to NCES and shall maintain a copy of each affidavit at the licensee's secured facility protected under this license.

C. Notification regarding authorized individuals to NCES.

1. Licensee shall promptly notify NCES when any employee who has been authorized to have access to subject data no longer has access to those data.
2. If the terms of an independent researcher's application specify when the researcher's access to subject data terminates and access does terminate on that date, the Licensee need not notify NCES of that fact. However, if the researcher's access terminates on another date, the Licensee shall promptly notify NCES of the date that such access terminates.

D. Publications made available to NCES.

1. Licensee shall provide NCES a copy of each publication containing information based on subject data or other data product based on subject data made available to individuals who have not executed an affidavit of nondisclosure.
2. When publication or other release of research results could raise reasonable questions regarding disclosure of individually identifiable information contained in subject data, copies of the proposed publication or release must be provided to NCES before that disclosure is made so that NCES may advise whether the disclosure is authorized under

this license and the provisions of sections 408 and 411 of the National Education Statistics Act of 1994 and 5 U.S.C. 552a. Licensee agrees not to publish or otherwise release research results provided to NCES if NCES advises that such disclosure is not authorized.

E. Licensee shall notify NCES immediately upon receipt of any legal, investigatory, or other demand for disclosure of subject data.

F. Licensee shall notify NCES immediately upon discovering any breach or suspected breach of security or any disclosure of subject data to unauthorized parties or agencies.

G. Licensee agrees that representatives of NCES have the right to make unannounced and unscheduled inspections of the Licensee's facilities, including any associated computer center, to evaluate compliance with the terms of this license and the requirements of sections 408 and 411 of the National Education Statistics Act of 1994 and 5 U.S.C. 552a.

V. SECURITY REQUIREMENTS

A. Maintenance of, and access to, subject data.

1. Licensee shall retain the original version of the subject data at a single location and may make no copy or extract of the subject data available to anyone except a P/TS or independent researcher as necessary for the purpose of the statistical research for which the subject data were made available to the Licensee.
2. Licensee shall maintain subject data (whether maintained at a mainframe facility, remote terminals, personal computers, or computer media or other material) in a space that is limited to access by authorized personnel.
3. Licensee shall ensure that access to subject data maintained in computer memory is controlled by password protection. For subject data maintained on a mainframe computer, password protection is required at the file level. Licensee shall maintain all print-outs, diskettes, personal computers with subject data on hard disks, or other physical products containing individually identifiable information derived from subject data in locked cabinets, file drawers, or other secure locations when not in use.
4. Licensee shall ensure that all printouts, tabulations, and reports are edited for any possible disclosures of subject data.
5. Licensee shall establish procedures to ensure that subject data cannot be extracted from a computer mainframe, remote terminals or separate PCS by unauthorized individuals.
6. Licensee shall not permit removal of any subject data from the limited access space protected under the provisions of this license as required in the attached SECURITY PROCEDURES, without first notifying, and obtaining written approval from, NCES.

B. Retention of subject data.

Licensee shall return to NCES all subject data, or destroy those data under NCES supervision or by approved NCES procedures when the research that is the subject of this agreement has been completed or this license terminates, whichever occurs first.

C. Compliance with established security procedures.

Licensee shall comply with the SECURITY PROCEDURES attached to this license.

VI. PENALTIES

A. Any violation of the terms and conditions of this license may subject the Licensee to immediate revocation of the license by NCES.

1. The NCES official responsible for liaison with the Licensee shall initiate revocation of this License by written notice to Licensee indicating the factual basis and grounds for revocation.
2. Upon receipt of the notice specified in paragraph VI.A.1 of this license, the Licensee has thirty (30) days to submit written argument and evidence to the Commissioner of NCES indicating why the License should not be revoked.
3. The Commissioner shall decide whether to revoke the license based solely on the information contained in the notice to the Licensee and the Licensee's response and shall provide written notice of the decision to the Licensee within forty-five (45) days after receipt of Licensee's response. The Commissioner may extend this time period for good cause.

B. Any violation of this license may also be a violation of Federal criminal law under the Privacy Act of 1974, 5 U.S.C. 552a, and/or sections 408 and 411 of the National Education Statistics Act of 1994, 20 U.S.C. 9001 et seq. Alleged violations under the National Education Statistics Act of 1994 are subject to prosecution by the United States Attorney. The penalty for violation of sections 408 and 411 of the National Education Statistics Act of 1994 is a fine of not more than $250,000 and imprisonment for a period of not more than five years.

VII. PROCESSING OF THIS LICENSE

A. The term of this license shall be for five years. If, before the expiration of this license, the Commissioner establishes regulatory standards for the issuance and content of licenses, the Licensee agrees to comply with the regulatory standards.

B. This license may be amended, extended or terminated by mutual written agreement between the Licensee and the Commissioner, NCES. Any amendment must be signed by a Senior Official specified in paragraph VII.C. of this license, PPO, and the Commissioner and is effective on the date that all required parties have signed the amendment.

C. The Senior Official (SO) having the authority to bind the organization to the terms of the license, shall sign this license below. The SO certifies, by his/her signature, that -

1. The organization has the authority to undertake the commitments in this license;
2. The SO has the authority to bind the organization to the provisions of this license; and
3. The PPO is the most senior statistical officer for the licensee who has the authority to manage the day-to-day statistical operations of the Licensee.

Michael F. Burnett

Signature of the Senior Official Date

Michael F. Burnett, Ph.D.

Type/Print Name of Senior Official

Title: Director, LSU School of Human Resource Education and Workforce Development Telephone:- (225)578-5748

D. The individual described in paragraph II.A1. as the PPO shall sign this license below. If the SO also acts as the chief statistical officer for the Licensee; viz. as the PPO, the SO shall likewise sign under this paragraph as well as having signed under paragraph VII.C.

Joe W. Kotrlik
Signature of the Principal Project Officer Date
Joe W. Kotrlik, Professor
Type/Print Name of Principal Project Officer
Title: Professor, LSU School of Human Resource Education and Workforce Development Telephone: (225)578-5753

E. If Licensee is an agency of a State or a State Contractor that provides data to any agency of a State, the Attorney General of the State shall sign this license below. The Attorney General certifies, by his/her signature, that pursuant to the Privacy Act of 1974, 5 U.S.C. 552a, and sections 408 and 411 of the National Education Statistics Act of 1994, 20 U.S.C. 9001 et seq., the Attorney General and any successors to that office will not construe any State or local laws to require Licensee to report subject data in individually identifiable form to any agency of the State or to any individual who has not executed an affidavit of nondisclosure which prohibits that individual from using subject data for any purpose other than the statistical purpose for which the subject data were collected.

Not Applicable
Signature of the Attorney General Date

Type/Print Name of Attorney General
Title: _____ Telephone: (___) _____

F. The Commissioner of the National Center for Education Statistics issues this license to Louisiana State University. The license is effective as of the date of the Commissioner's signature below, or such other period specified in the Licensee's request for the license.

Lawrence T. Ogle for DTW
Commissioner, National Center for Education Statistics
Gary W. Phillips, Acting Commissioner
Type/Print Name of Commissioner, NCES
4/23/02
Date

NCES License Control Number: 02032961?
March 18, 2002

Appendix G - Affidavit of Nondisclosure

Primary Project Officer
(Job Title)

January 23, 2002
(Date of Assignment to NCES Project)

School of Human Resource Education and Workforce Development
Louisiana State University
(Organization, State or local agency or instrumentality)

142 Old Forestry Bldg., S. Stadium Drive, Baton Rouge, LA 70803-5477
(Organization or agency Address)

1987-88 NSOPF (Faculty Data Set)
1992-93 NSOPF (Faculty Data Set)
1998-99 NSOPF (Faculty Data Set)
(NCES Data Base or File Containing Individually Identifiable Information*)

I, Joe W. Kotrlik, do solemnly swear (or affirm) that when given access to the subject NCES data base or file, I will not: -

(i) use or reveal any individually identifiable information [including "schools" in the National Assessment of Educational Progress (NAEP)] furnished, acquired, retrieved or assembled by me or others, under the provisions of Sections 408 and 411 of the National Education Statistics Act of 1994 (20 U.S.C. 9001 et seq.) for any purpose other than statistical purposes specified in the NCES survey, project or contract;

(ii) make any disclosure or publication whereby a sample unit or survey respondent (including "schools" in NAEP) could be identified or the data furnished by or related to any particular person or NAEP school under these sections could be identified; or

(iii) permit anyone other than the individuals authorized by the Commissioner of the National Center for Education Statistics to examine the individual reports.

(Signature)

[The penalty for unlawful disclosure is a fine of not more than $250,000 (under 18 U.S.C. 3571) or imprisonment for not more than five years (under 18 U.S.C. 3559), or both. The word "swear" should be stricken out when a person elects to affirm the affidavit rather than to swear to it.]

* Request all subsequent followups that may be needed. This form cannot be amended by NCES, so access to databases not listed will require submitting additional notarized Affidavits.

City/~~County~~ of East Baton Rouge Parish Commonwealth/State of Louisiana
Sworn to and subscribed before me this 25th day of January, 2002
Witness my hand and official Seal.

(Notary Public/Seal)

My commission expires

U.S. DEPARTMENT OF EDUCATION
OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT
NATIONAL CENTER FOR EDUCATION STATISTICS

July 30, 2002

Dr. Joe W. Kotrlik
Professor
School of Human Resource &
Workforce Development
Louisiana State University
142 Old Forestry Building, S. Stadium Drive
Baton Rouge, LA 70803-5477

Dear Dr. Kotrlik:

Louisiana State University's license control number: **020329617** is here by amended to authorize access for the following data file entitled: "NSOPF: 1999."

This amendment is effective with the Commissioner's signature date found on your original license. This data requires the same protection as the original licensed data. You are under the same restrictions and obligations of confidentiality in using the follow-up data as in handling the original data.

The following items are enclosed for your use:

- One CD-ROM for NSOPF: 1999 containing the data you requested, and one copy of the related documentation.

Thank you for placing your license control number on your letter. This permits a faster response.

Should you have any additional questions please call me on (202) 502-7307.

Sincerely,

Cynthia L. Barton

Cynthia L. Barton
Data Security Assistant

Enclosure

WASHINGTON, DC 20006-

APPENDIX D -

FACE AND CONTENT VALIDITY REQUEST LETTER

Dear Sir or Madam:

This e-mail is written to request your assistance. I am currently completing my dissertation requirement in which I am investigating factors that explain postsecondary faculty research productivity. I plan to use the data from two National Center for Education Statistics Surveys (1992-93 and 1998-99). To complete my requirements, I need to determine face and content validity of these surveys.

The major variables I am investigating include opinion of institutional research resources, satisfaction with instructional duties, satisfaction with job duties, opinion of emphasis on research/teaching at their institution, time spent, workload, graduate school, previous employment in higher education institutions, instructional duties, faculty status, tenure status, rank, committees served on and chaired, engaged in professional writing including grants, teaching assistants, funding, age, gender and marital status.

I would greatly appreciate your assistance in determining the face and content validity of one of these surveys. If you choose to assist me, this will only take 30-40 minutes of your time and your responses will remain anonymous.

Instructions:

1. **Please open the attachment.**
2. **Please review the survey.**
3. **Please send an e-mail to hwilliam@rtconline.com with your determination of both face and content validity.**
4. **Please respond by Tuesday, Oct. 15, 2002. I apologize for the short time frame.**

If you are interested in the results of this study, please let me know and I will forward a copy to you. If you have any questions, please e-mail me at hwilliam@rtconline.com or call me at xxx-xxx-xxxx.

Thank you in advance for your assistance,

Heather Williams

Graduate Student, Louisiana State University

APPENDIX E -

FACE AND CONTENT VALIDITY FOLLOW-UP LETTER

Dear Sir or Madam:

This e-mail is written as second request for your assistance. I am currently completing my dissertation requirement in which I am investigating factors that explain postsecondary faculty research productivity. I plan to use the data from two National Center for Education Statistics Surveys (1992-93 and 1998-99). To complete my requirements, I need to determine face and content validity of these surveys.

The major variables I am investigating include opinion of institutional research resources, satisfaction with instructional duties, satisfaction with job duties, opinion of emphasis on research/teaching at their institution, time spent, workload, graduate school, previous employment in higher education institutions, instructional duties, faculty status, tenure status, rank, committees served on and chaired, engaged in professional writing including grants, teaching assistants, funding, age, gender and marital status.

I would greatly appreciate your assistance in determining the face and content validity of one of these surveys. If you choose to assist me, this will only take 30-40 minutes of your time and your responses will remain anonymous.

Instructions:

1. **Please open the attachment.**
2. **Please review the survey.**
3. **Please send an e-mail to hwilliam@rtconline.com with your determination of both face and content validity.**
4. **Please respond by Thursday, Oct. 17, 2002. I apologize for the short time frame.**

If you are interested in the results of this study, please let me know and I will forward a copy to you. If you have any questions, please e-mail me at hwilliam@rtconline.com or call me at xxx-xxx-xxxx.

Thank you in advance for your assistance,

Heather Williams

Graduate Student, Louisiana State University

APPENDIX F -

STANDARDS FOR INTERPRETING EFFECT SIZE

Coefficient *alpha* standards of comparison (Robinson, Shaver, & Wrightman, 1991, p. 12-13)

	Exemplary	**Extensive**	**Moderate**	**Minimal**	**None**
Coefficient *alpha*	.80 or better	.70-.79	.60-.69	<.60	Not reported

R^2 descriptors (Cohen, 1988)

	Large Effect Size	**Medium Effect Size**	**Small Effect Size**
R^2	.2600	.1300	.0196

Cohen's *d* descriptors (Cohen, 1988)

	Large Effect Size	**Medium Effect Size**	**Small Effect Size**
Cohen's *d*	.80	.50	.20

Correlation coefficient descriptors (Davis, 1971)

	Very strong association	**Substantial association**	**Moderate association**	**Low association**	**Negligible association**
Correlation coefficient	.70 or higher	.50 to .69	.30 to .49	.10 to .29	.01 to .09

APPENDIX G -

CALCULATION OF RESEARCH PRODUCTIVITY SCORE REQUEST LETTER

Dear Sir or Madam:

This e-mail is written to request your assistance. I am currently completing my dissertation requirement in which I am investigating factors that explain postsecondary faculty research productivity. I plan to use a weighted research productivity score for my dependent variable. I am sampling individuals from each group of Carnegie Rankings to request their opinion of the value of selected factors used in quantifying the research productivity of a faculty member to establish the weights for this score. Individual values (weights) will be averaged and then used to determine a formula to compute research productivity scores.

I would greatly appreciate your assistance in determining the weights of these factors. If you choose to assist me, this will only take 5 - 10 minutes of your time and your responses will remain anonymous.

Instructions:

1. **Please open the attachment**
2. **Enter the data requested**
3. **E-mail the attachment to hwilliam@rtconline.com by Tuesday, October 15, 2001.**

If you are interested in the results of this study, please let me know and I will forward a copy to you. If you have any questions, please e-mail me at hwilliam@rtconline.com or call me at xxx-xxx-xxxx.

Thank you in advance for your assistance,

Heather Williams

Graduate Student, Louisiana State University

Please Weight the following:

Factor	Weight
Articles published in refereed professional or trade journals; creative works published in juried media	
Articles published in nonrefereed professional or trade journals; creative works published in non-juried media or in-house newsletters	
Published reviews of books, articles, or creative works; chapters in edited volumes	
Textbooks, other books; monographs; research or technical reports disseminated internally or to clients	
Presentations at conferences, workshops, etc.; exhibitions or performances in the fine or applied arts	
Number of grants received in surveyed semester	
Total weight should equal 100%.	
Comments:	

APPENDIX H -

CALCULATION OF RESEARCH PRODUCTIVITY SCORE FOLLOW-UP LETTER

Dear Sir or Madam:

This e-mail is written as a second request for your assistance. I am currently completing my dissertation requirement in which I am investigating factors that explain postsecondary faculty research productivity. I plan to use a weighted research productivity score for my dependent variable. I am sampling individuals from each group of Carnegie Rankings to request their opinion of the value of selected factors used in quantifying the research productivity of a faculty member to establish the weights for this score. Individual values (weights) will be averaged and then used to determine a formula to compute research productivity scores.

I would greatly appreciate your assistance in determining the weights of these factors. If you choose to assist me, this will only take 5 - 10 minutes of your time and your responses will remain anonymous.

Instructions:

1. **Please open the attachment**
2. **Enter the data requested**
3. **E-mail the attachment to hwilliam@rtconline.com by Thursday, October 17, 2001.**

If you are interested in the results of this study, please let me know and I will forward a copy to you. If you have any questions, please e-mail me at hwilliam@rtconline.com or call me at xxx-xxx-xxxx.

Thank you in advance for your assistance,

Heather Williams

Graduate Student, Louisiana State University

Please Weight the following:

Factor	Weight
Articles published in refereed professional or trade journals; creative works published in juried media	
Articles published in nonrefereed professional or trade journals; creative works published in non-juried media or in-house newsletters	
Published reviews of books, articles, or creative works; chapters in edited volumes	
Textbooks, other books; monographs; research or technical reports disseminated internally or to clients	
Presentations at conferences, workshops, etc.; exhibitions or performances in the fine or applied arts	
Number of grants received in surveyed semester	
Total weight should equal 100%.	
Comments:	

APPENDIX I -

FORMULAS TO CALCULATE RESEARCH PRODUCTIVITY SCORES

Recent Research Productivity Score (RRPS)= (.123333*rp_ex) + (.483333*rra_jm) + (.126667*rnra_njm) + (.15*rb_tx_mr) + (.116667*b20b5)

rp_ex=recent presentations/exhibitions

rra_jm=recent refereed articles/juried media

rnra_njm=recent nonrefereed articles/nonjuried media

rb_tx_mr=recent books, textbooks, monographs, reports

b20b5=recent published reviews

Career Research Productivity (CP)=(.123333*cp_ex) + (.483333*cra_jm) + (.126667*cna_njm) + (.15*cb_tx_mr) + (.116667*b20a5)

cp_ex=career presentations/exhibitions

cra_jm=career refereed articles/juried media

cna_njm=career nonrefereed articles/nonjuried media

cb_tx_mr=career books, textbooks, monographs, reports

b20a5=career published reviews

Career Research Productivity Score (CRPS)=CP/yrs_hdeg

CP=Career Research Productivity

yrs_hdeg=years since received highest degree

APPENDIX J -

OUTLIERS

The following values of variables were determined to be outliers and were therefore removed from the initial data set.

Variable	Value
Year: 1993	
Total funds	$5,435,269; $7,312,241; $2,496,614; $1,742,344
Career Presentations	500
Recent Presentations (i.e., in the last two years)	100
Year: 1999	
Recent presentations	160, 52, 50, 75, 51, 50

APPENDIX K -

SCALES

Opinion of institutional research resources

Ratings: poor, fair, good, excellent, not applicable

Statements within scale:

1. Availability of research assistants
2. Office space
3. Secretarial support
4. Library holdings

Satisfaction with instructional duties

Ratings: very dissatisfied, somewhat dissatisfied, somewhat satisfied, very satisfied, not applicable

Statements within scale:

1. The authority I have to make decisions about content and methods in the courses I teach
2. The authority I have t make decisions about other (non-instructional) aspects of my job
3. The authority I have to make decisions about what courses I teach
4. Time available for working with students as an advisor, mentor, etc.
5. Quality of undergraduate students whom I have taught here
6. Quality of graduate students whom I have taught here

Satisfaction with other related job factors

Ratings: very dissatisfied, somewhat dissatisfied, somewhat satisfied, very satisfied, not applicable

Statements within:

1. My work load
2. My job security
3. Opportunity for advancement in rank at this institution
4. Time available for keeping current in my field
5. Freedom to do outside consulting
6. My salary
7. My benefits
8. Spouse or partner employment opportunities in this geographic area
9. My job here, overall

APPENDIX L -

CAREER RESEARCH PRODUCTIVITY STEP 4 MEDIATED MODEL CORRELATION MATRIX

Variable	1	2	3	4	5	6	7	8	9	10	11
1 - Career research productivity score	–	–	–	–	–	–	–	–	–	–	–
2 - Percent of time in teaching	-.262*	–	–	–	–	–	–	–	–	–	–
3 - Age	-.139*	.024	–	–	–	–	–	–	–	–	–
4 - High rank	.449*	-.237*	-.060	–	–	–	–	–	–	–	–
5 - Low rank	-.449*	.237*	.060	-1.000*	–	–	–	–	–	–	–
6 - Percent of time preferred to be spent in research	.544*	-.155*	-.094	.386*	-.386*	–	–	–	–	–	–
7 - Research should be promotion criteria	.321*	-.074	-.151*	.161*	-.161*	.295*	–	–	–	–	–
8 - Research is rewarded more than teaching	.307*	-.103*	.052	.397*	-.397*	.303*	.235*	–	–	–	–
9 - Institutional research support	-.087	.019	.063	-.084	.084	-.157*	.072	.026	–	–	–
10 - Fund present	.119*	-.081	-.005	.201*	-.201*	.215*	.015	.193*	-.171*	–	–
11 - Funding not present	-.119*	.081	.005	-.201*	.201*	-.215*	-.015	-.193*	.171*	-1.000*	–

*p<.05.

APPENDIX M -

RECENT RESEARCH PRODUCTIVITY STEP 4 MEDIATED MODEL CORRELATION MATRIX

Variable	1	2	3	4	5	6	7	8	9	10	11
1 - Recent research productivity score	–	–	–	–	–	–	–	–	–	–	–
2 - Percent of time in teaching	-.182*	–	–	–	–	–	–	–	–	–	–
3 - Age	.013	.037	–	–	–	–	–	–	–	–	–
4 - High rank	.445*	-.221*	-.058	–	–	–	–	–	–	–	–
5 - Low rank	-.445*	.221*	.058	-1.000*	–	–	–	–	–	–	–
6 - Percent time preferred to be spent in research	.465*	-.131*	-.072	.351*	-.351*	–	–	–	–	–	–
7 - Research should be promotion criteria	.269*	-.094	-.136*	.156*	-.156*	.285*	–	–	–	–	–
8 - Research rewarded more than teaching	.282*	-.105*	.042	.407*	-.407*	.301*	.229*	–	–	–	–
9 - Institutional research support	-.111*	.041	.059	-.099	.099	-.166*	.105*	.052	–	–	–
10 - Funding present	.177*	-.068	.026	.187*	-.187*	.235*	.007	.175*	-.178*	–	–
11 - Funding not present	-.177*	.068	-.026	-.187*	.187*	-.235*	-.007	-.175*	.178*	-1.000*	–

*p<.05.

APPENDIX N -

TIME SPENT IN RESEARCH PRODUCTIVITY STEP 4 MEDIATED MODEL CORRELATION MATRIX

Variable	1	2	3	4	5	6	7	8	9	10	11
1 - Percent of time in research	–	–	–	–	–	–	–	–	–	–	–
2 - Percent of time in teaching	-.212*	–	–	–	–	–	–	–	–	–	–
3 - Age	-.103*	.036	–	–	–	–	–	–	–	–	–
4 - High rank	.383*	-.236*	-.061	–	–	–	–	–	–	–	–
5 - Low rank	-.383*	.236*	.061	-1.000*	–	–	–	–	–	–	–
6 - Percent preferred in research	.880*	-.145*	-.102*	.389*	-.389*	–	–	–	–	–	–
7 - Research should be promotion criteria	.357*	-.091	-.144*	.161*	-.161*	.334*	–	–	–	–	–
8 - Research rewarded more than teaching	.345*	-.112*	.059	.395*	-.395*	.320*	.223*	–	–	–	–
9 - Institutional research support	-.165*	.024	.063	-.077	.077	-.149*	.078	.032	–	–	–
10 - Funding present	.279*	-.085	-.008	.199*	-.199*	.244*	.020	.201*	-.175*	–	–
11 - Funding not present	-.279*	.085	.008	-.199*	.199*	-.244*	-.020	-.201*	.175*	-1.000*	–

*p<.05.

VITA

Heather Williams was born and reared in southeast Louisiana. She graduated from Riverside Academy High School in Reserve, Louisiana, in 1988. She received a Bachelor of Science degree in biology education with a minor in geology from Louisiana State University in 1993 graduating with honors. Following graduation, Heather began teaching in the Louisiana public school system and then moved into a position as Louisiana Systemic Initiatives Program project coordinator. At that time she entered the master's program in the School of Vocational Education.

During her career as an educator - both in the Louisiana public school system and while project coordinator, she designed and implemented professional growth plans and worked in a team based environment to integrate thematic units and stimulate team learning. She also served as a facilitator for her school system and the Louisiana State Department of Education. Heather designed and presented workshops on the integration of technology into the classroom and hands-on-science at local, state and national levels. She completed her Master of Science in the School of Vocational Education in 1998 maintaining a 4.0 grade point average.

Heather then entered the doctoral program in the School of Vocational Education concentrating in the areas of human resource development and quantitative research. During her time in the doctoral program, she served as a statistician, training coordinator, consultant, program analyst, instructional designer, instructor and guest lecturer. Within these positions, Heather designed e-learning; developed operational and safety training for multiple manufacturing systems; designed, developed and evaluated a community workforce development initiative; conducted and analyzed compensation surveys across the nation; aligned corporate training systems; analyzed quantitative and qualitative data; and taught business statistics and organizational development. Heather has also assumed the role of sole and joint

author in four refereed proceedings and three refereed publications, as well as written and received several grants. She has maintained a 3.784 grade point average.

Heather has a daughter, Samantha, and is happily married to Trey. She and her family currently reside in Reserve, Louisiana.