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ENABLERS AND INHIBITORS TO RESEARCH PRODUCTIVITY AMONG FACULTY MEMBERS IN VOCATIONAL EDUCATION

The Ohio State University

Ph.D. 1982

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ENABLERS AND INHIBITORS TO RESEARCH PRODUCTIVITY AMONG
FACULTY MEMBERS IN VOCATIONAL EDUCATION

A DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Maureen Elizabeth Kelly, B.S., M.S.

* * * * *

The Ohio State University
1982

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Acknowledgements

This dissertation study is about academics, their professional and personal lives and particularly about their research training and experiences. Without the help and cooperation of the 86 people who gave so generously of their time in order to help me complete this study, the text would have emerged as a series of tables and figures rather than the vivid and strikingly candid picture that eventually emerged. These 86 people must be thanked profusely for their input.

As I began to finalize the interview data in the closing weeks of Spring Quarter, I became acutely aware of the contribution each of my committee members had made to the development of this dissertation study. My chairperson, Joan Gritzacher, nurtured the research idea, patiently reading and rereading the emerging text on nights, weekends and during her well-earned vacation time. Were it not for her willingness be flexible in her own scheduling of time and effort, I sincerely believe that this study would not have been completed on schedule.

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the epitome of that which enhances the research process during graduate school. A model researcher, he has facilitated my research development through his patience, flexibility and exemplary scholarship and teaching practice.

The successful female researchers in this study were associated with males who were highly educated, valued the academic environment and were willing to take responsibility for tasks necessary to maintain a well-balanced lifestyle. Bill McAllister has been my traveling companion, research assistant and best friend during this sometimes tedious research project. Credit is due to him for all of the sentences he rewrote and the insights that he lent to this study. His empathetic understanding and unconditional positive regard has been an important factor in the successful completion of this study.

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CHAPTER I
INTRODUCTION

Most scholars agree that the improvement of teacher education will be facilitated by production and utilization of research on this field. In fact, Sylvia Tucker, Dean of the School of Education, Oregon State University, speaking for a group of 12 deans of colleges or schools of education said that "Inquiry and scholarship associated with the process of education undergird all other missions of education" (Tucker, 1981, p. 2).

In the opinion of this prestigious group, schools of education must:

- Recruit, support and reward intellectually qualified faculty and students;
- Focus efforts on the discovery and application of knowledge relevant to theory and practice;
- Secure and reallocate resources for inquiry and scholarship;
- Serve as exemplars of theory and research-based instruction in all preparation programs;
- Strengthen relationships with the profession that test the relevance of ongoing scholarship (p. 1).

Most teacher educators would readily agree with these statements of mission. However, Clark and Guba's (1977) landmark study of teacher education institutions as innovators, knowledge producers and change agencies revealed that those teacher educators who produced research on teaching were also the greatest consumers of educational research. The results of this same study indicate that while 90% of all persons who hold doctoral degrees in education have not conducted research since receiving their degrees, a large proportion of those who do produce is located at large research oriented universities and/or research and
Clark and Guba (1978), reporting on the 153 institutions awarding education doctorates in 1975, classified 55.56% (85 institutions) as high producers of research and development in 1975. Of these 85 institutions, a smaller group of 24 (15.69%) was designated as Research and Development centers (R&D), meaning that they:

- obtained five or more grants or contracts for R&D activity totaling $750,000 or more; or
- had multiple grants or contracts for R&D plus 50 or more credits in the 26 "core" journals in education; or
- had multiple grants or contracts with 35 or more credits in journals plus 25 or more credits in Research in Education (RIE).

Although slightly over half of these institutions were considered R&D actives (i.e., they had multiple grants totaling over $100,000, 15 or more "core" journal credits plus 7.5 RIE credits), slightly less than half (45%) of these same level institutions do not meet what Clark and Guba "believed to be the borderline R&D productivity required to be categorized as 'active' in the field" (Clark and Guba, 1978, p. 6).

Yet the mission of doctoral level institutions is generally thought to be oriented primarily toward research and scholarship. As Tucker succinctly stated:

The larger the commitment to graduate courses in professional education, the more extensive should be the role of the professional education faculty in engaging in research and scholarship and reporting results. Finally, we assume that all professional education faculty would come to demonstrate and be able to document that they meet the inquiry goals described for those completing initial credentials and graduate programs and that they utilize the available knowledge base in the content and procedures of preparation programs for which they are responsible (Tucker, 1981, p. 16).
However, even in institutions which are research oriented, studies on the productivity of scholars (Behymer, 1974; Blackburn, Behymer, and Hall, 1978; Fulton and Trow, 1974) revealed markedly different profiles for productive researchers than their non-productive colleagues. In fact (while noting that there are some differences among institutional types, disciplines, sexes, and nature of the workload) Blackburn (1979) offered "nine general truths" which can be drawn from the research literature on faculty productivity. These nine general truths are:

1. Productivity over an entire career is predictable.

2. The institution determines to a high degree a faculty member's productivity as some institutions emphasize research more than others.

3. Organizational factors influence faculty productivity. These factors include leadership which encourages or supports research and colleague selection or retention by peers.

4. How time is structured affects productivity as lack of time is the most frequently given reason for a faculty members lack of research production.

5. Faculty interest and desire for different types of work change over the academic career.

6. Age is not a predictor of productivity over a career path.

7. Mentorship/sponsorship in the first years is critical for launching a productive career.

8. Faculty productivity over a career is affected by security and by challenge (competition).

9. Rewards affect faculty performance, and intrinsic rewards dominate extrinsic ones (p. 25).

Statement of the Problem

The Ph.D. degree in education is a research oriented degree. Those who successfully complete the degree are expected to continue doing research beyond their graduate school years, yet a mere 10% of persons
holding education doctorates actually do continue to research and publish upon receipt of the doctoral degree.

The literature on faculty evaluation states explicitly the importance of research in the faculty evaluation triad of teaching, research and service. Moreover, it is evident that the expectation for those who are prepared to do research to perform in that capacity is increasing (Woodrow, 1978).

While literature on the development of research productive faculty has appeared recently, little included vocational education researchers, and none specifically focused on those researchers and the factors which enhance or inhibit their research involvement. Identification of these factors could enable administrators, faculty members and doctoral students to develop group or individual professional development plans to achieve increased research productivity.

**Research Questions**

The research questions examined within the context of this study were:

1. What forces or factors enable or inhibit research production among high and low research producing doctoral level vocational teacher education faculty? (e.g. type of university at which doctorate was earned, service as GTA or GRA, mentoring relationship, teaching load, interest in research, perceived research competence, perceived writing competence, authorship while a graduate student, sex of doctoral advisor)

2. Is there a difference in the factors enabling or inhibiting research production by vocational service area, career stage or sex of the researcher?

3. Are successful female researchers developed differently than successful male researchers?
Specific Objectives

The objectives in this study were:

1. To determine positive and negative correlates of research productivity among prominent doctoral level vocational researchers employed by research oriented universities.

2. To describe the attributes and experiences of the high and low research producer as they relate to scholarly productivity.

3. To determine if there are differences among these researchers by vocational service area, career stage or sex.

4. To determine if successful female researchers are developed differently than their male counterparts.

5. To derive implications for graduate training and faculty development programs to facilitate research productivity.

Definitions

For the purposes in this study, the following terms are defined. All other terms were considered self explanatory.

**Career stage** - A combination of the academic rank (assistant, associate or full professor) and the number of years in the rank.

**Faculty development** - Organized educational experiences designed to expand or enrich a faculty members' professional expertise.

**Mentoring** - "Believing in" a person's interests or abilities enough to sponsor and develop them professionally.

**Networking** - The process of building, maintaining or functioning with a group of people having shared professional interests or expertise.
Research - A critical and exhaustive investigation or experimentation having as its aim at least one of the following - the discovery of new facts and their interpretations; the revision of accepted conclusions, theories or laws in the light of newly discovered facts; or practical applications of such new or revised conclusions or laws.

Research productivity - A measure of scholarly activity based on the fulfillment of a number of commonly accepted scholarly activities such as: research grants or awards; books or articles published; presentations made at professional meetings; and dissertation committees successfully chaired or served on. This term is to be defined later in this study after statistical analysis.

Vocational service area - The vocational subject area that the faculty member is most frequently administratively identified with (i.e.; home economics, agriculture, business and office, distribution, vocational-technical education).
CHAPTER II
REVIEW OF THE LITERATURE

The body of literature relating to research productivity is reviewed in two sections. Initially, the literature dealing with institutional conditions which promote research productivity is presented. Following this, personal characteristics of research producing faculty members are discussed.

Institutional Conditions Promoting Research

Woodrow (1978), writing in Management for Research in U.S. Universities, identified the need for a healthy institutional climate to be present for research to flourish in a university. Woodrow said that the institution must establish sound policies supporting services of various kinds, including financial systems and organizational arrangements in order to facilitate research production.

Specifically, Woodrow proposed that the ideal institutional climate at a research producing facility is one in which its governing bodies, officers and administrators are enlightened as to the conditions which promote research:

- research is emphasized in appointments, advancements and faculty workloads;
- personnel conducting research are both qualified and committed;
- students and faculty actively participate in and/or monitor the results of research;
- the relationship between existing theory and practice, or to the discipline itself, is evident;
- administrative assistance is given to the development and implementation of research (i.e.; review of proposals, seeking sponsors, implementing sponsor requirements; research
administration organization);

- interdisciplinary research efforts are encouraged and facilitated;

- professional personnel (such as computer programmers, research librarians or media specialists) are in evidence; and

- secretarial, office and other support services (i.e., computerized search and retrieval services, media laboratories and computer facilities) are provided.

Parsons and Platt (1969) stated that almost everyone in academia would like to devote more time than they presently do to research. In what they termed "high quality" research institutions (those with a research oriented mission and doctoral level positions), they reported the ideal amount of research time to be 45%. For "low quality" research institutions (four-year, bachelor's level) amount of time allocated to research is ideally 25% of faculty time.

In a nationwide study of home economists involved in research in the field, Schlater (1970) recommended the following types of institutional involvements to enhance research production in home economics, at least at institutions with a strong emphasis on graduate study and research activities:

- An administrator knowledgeable about and supportive of research.

- Services which support productive research such as funds, physical facilities and equipment, data processing and statistical consultant services, and subprofessional reinforcement from graduate assistants, secretaries, clerks and technicians.

- An astute research planning/facilitation office which can assist in the location of funding sources and research management.

  - continuous, long-range planning for research;
  
  - interdisciplinary research encouraged;
  
  - inservice training of research scientists and support
personnel to upgrade skills;
- information exchange accessibility; and
- involvement of undergraduate and graduate students in actual research projects leading to publication where possible.

On this last point, Schlater is particularly adamant:

Administrators suggested that preparing graduate students should include involvement in writing research proposals and drafting research reports for publication as well as actively participating in the core phases of the research process. Graduate students should be involved in the publication effort for the experience and the attitude this would instill in them as future researchers. Research publication has implications for leadership as the researcher's reputation grows primarily from the reports of his (sic) work (Schlater, 1970, p. 64-65).

The need for an institutional commitment to the development of researchers in home economics still exists today. In A Comprehensive National Plan for New Initiatives in Home Economics Research, Extension, and Higher Education (USDA, 1981) a shortage of home economics Ph.D.'s is reported:

A shortage of home economists with advanced degrees, especially at the doctoral level, has been a limiting factor for several decades. This shortage currently strains the capacity to meet demands for home economics research, service, and educational programs. The establishment of several new, high-quality doctoral programs within the past few years provides a capability for training additional scientists and educators. Major new support will be required to produce the number of researchers with graduate degrees who are needed for programs in home economics (USDA, 1981, p. 76-77).

Beyond an institutional commitment to the development and support of research, personal characteristics of the researcher may promote or inhibit research. Studies that bear on personal characteristics of faculty members will be discussed in two major sections: the
development of research productive faculty and their later work as faculty members.

**Personal Characteristics of Research Producing Faculty**

Perhaps the most substantive work on faculty productivity based on personal characteristics of faculty members has been research completed at the University of Michigan. Under the direction of Blackburn, a faculty member in higher education, four doctoral dissertations related to this topic have been completed in the last 10 years. Each work forms a cornerstone upon which a portion of the literature on personal characteristics of faculty members related to productivity is laid.

**The Development of Research Productive Faculty**

Mentoring. Cameron (1978) working with Blackburn, looked at the informal sponsoring relationship developed at Ph.D. granting institutions and the relationship this had to scholarly success. Cameron defined scholarly success as publication, receipt of grants, collaboration with colleagues, and professional network involvement. Measurement variables included rate of productivity (using a weighted scale), grants received, rate of collaboration by years since Ph.D., and involvement in publisher/professional association networks.

Sponsorship or mentoring, is viewed as providing professional support to or “believing in” the Ph.D. student by someone high enough in the professional stratification system to supervise a student’s socialization into the profession. Cameron operationalized sponsorship along the dimensions of financial support, personal encouragement,
publication support, placement in first job, work on faculty research projects, dissertation funding, and collaboration with senior faculty on first or second publication. Control variables were sex, academic discipline and university type.

A total sample of 133 Ph.D. level faculty of both sexes employed full-time and holding an academic rank of assistant professor or above in three academic disciplines (English, psychology and sociology) at nine universities was surveyed. Four of the nine institutions surveyed by Cameron were classified by the Carnegie Commission (1973) as research universities, and the remaining number was classified as comprehensive universities.

Using the method of least squares stepwise regression, four significant predictors of research productivity were reported:

- On publication outcome productivity, the most important predictors were: university type ($\beta=.28$); work on a sponsored research project ($\beta=.16$); collaboration with senior faculty ($\beta=.16$); field ($\beta=.16$) and faculty placement assistance on first job (faculty help in obtaining first job) ($\beta=.14$). Cameron reports that these factors account for 25% of the variance on this measure, publication productivity ($R^2=.25$).
- On the measure of grants received over the past three years, the most important predictors were university type ($\beta=.23$), field ($\beta=.22$), and work on a sponsored research project ($\beta=.20$). These three factors accounted for 27% of the variance on this measure.
- Two factors, field and early collaboration, accounted for 67% of the variance on the collaboration in later career measure.
Academic field showed a Beta weight of .58 while collaboration with senior faculty in early career had a Beta weight of .35.

For professional network involvement, sex of the researcher proved to be the strongest predictor ($\beta=.22$), followed by university type and work on a sponsored research project (both $\beta=.18$). These three factors accounted for 25% of the variance ($R^2=.25$) on the outcome measure of professional network involvement.

Cameron found that the control variables (sex, academic discipline, and university type) each exerted independent effects on the outcome measures. Although women were sponsored to the same extent as men, results indicate that men appeared to have greater network involvement. Secondly, work in a research, rather than a comprehensive university, is significantly related to all four research success outcomes. In addition, one's current employment in a research oriented university was the greatest predictor for two career outcome measures: rate of productivity and grants received. Early collaboration with senior faculty is the strongest predictor of rate of later field collaboration ($\beta=.36, p<.01$), while sex is the strongest predictor for network involvement ($\beta=.22, p<.05$).

In her proposal for research internships for minorities and women, Jackson (1978), suggests that sex differences in research productivity may be a result of early socialization of women into lower professional expectations, and later, an exclusion from networks which enhance or enable research production during graduate training. Research studies which discuss various aspects of the mentoring process bearing on research productivity and network involvement are presented in the
following sections of the literature review.

Evidence from several studies appears to support Jackson's concern about women being excluded from networks which may enhance or inhibit research production. Specifically, Brodsky (1974) found that male graduate students (52%) more frequently reported that they were offered authorships for research participation than were females (41%). Moreover, Eckstrom (1978) reported that there is evidence to support that males are often employed as research assistants, while females are employed as teaching assistants. Since Worthen (1968) found that there was a strong relationship between having held a genuine research assistantship and accepting a research position ($r=.63, p<.001$), this is indeed a noteworthy discrepancy.

In discussing correlates of faculty publication productivity, Blackburn, Behymer and Hall (1978) indicated that sex differences in productivity can be explained by examining sex differences in variables which most strongly correlate with productivity. Lamenting the apparent underdevelopment of potential female researchers, they reported that women generally graduate from less prestigious institutions, more often work in non-research oriented schools, and are more often untenured, hold lower rank, and teach undergraduates. Thus, one might reasonably speculate that females are, more often than not, denied access to the kinds of developmental experiences which they need to prepare them for research positions.

Moreover, several studies reviewed indicated that the crucial process of mentoring in sustaining productivity may differ by sex of the graduate student. Goldstein (1978) found that having the same sex dissertation advisor was a greater predictor of research productivity of
graduates with psychology doctorates than having had a cross-sex advisor; 79% of articles published were by subjects with same sex dissertation advisor, while 21% were not. Perhaps this information can be applied to vocational education, since, with the exception of home economics, women are generally outnumbered on vocational education faculties and are less frequently found among the ranks of vocational researchers. If a same sex dissertation advisor is required to be a research productive faculty member, it would seem that women, having a smaller pool of mentors with which to work, are likely to again be at a developmental disadvantage.

Networking. Epstein (1970) describes the notion of sex-typing, the process by which a women's sex status becomes salient in her professional role, equal to or above the occupational status. Describing the academic profession as a community with shared values and norms, Epstein described typical academic/professional interaction. Characterized by a high degree of informal, almost club-like communications which include certain rituals, the sponsor-protege relationship facilitates professional development for specialities and leadership positions. The colleague system then assesses the performance of such individuals to determine their ranking in the academic hierarchy contingent on a number of elements: visibility of contributions; quality of performance; membership in professional organizations; and dedication to his/her academic discipline.

Since women are not as active in the collegial system as men, their visibility is somewhat limited. In addition, women's participation in collegial networks may cause some role confusion. Male colleagues may have difficulty functioning in normal collegial relationships with
women. Therefore, they may fall back on the traditional roles which govern male-female interactions, focusing on sex status before occupational status, and thus blocking maximal development of both females and the academic profession.

Epstein's observations may have particular relevance for vocational education, where most doctoral level faculties are sex-stereotyped. Moreover, even in home economics, where most of the faculty members are female, there appears to be less networking than might be expected. Kaufman (1975) surveyed 78 academics at the assistant professor rank and higher at a large northeastern College of Human Ecology. Although the majority of the population was female (57%) Kaufman found that females had larger, but less interconnected networks than had been hypothesized. In fact, although the female academics claimed a greater number of colleague friends than men, they did not claim these colleagues as their close personal friends as did the males in this study as shown in the following tables:

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<td></td>
<td>(Married)</td>
<td>(Married)</td>
</tr>
<tr>
<td>Rank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full</td>
<td>9.22</td>
<td>8.50</td>
</tr>
<tr>
<td>Associate</td>
<td>9.97</td>
<td>7.00</td>
</tr>
<tr>
<td>Assistant</td>
<td>6.21</td>
<td>7.75</td>
</tr>
</tbody>
</table>

(Kaufman, 1975, p. 99)
Table 2
Average Percentage of Network that is Interconnected by Sex, Marital Status, and Rank of Respondent

<table>
<thead>
<tr>
<th>Sex</th>
<th>Males (Married)</th>
<th>Females (Married)</th>
<th>Females (Unmarried)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full</td>
<td>34.4%</td>
<td>25.0%</td>
<td>25.4%</td>
</tr>
<tr>
<td>Associate</td>
<td>28.6%</td>
<td>15.8%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Assistant</td>
<td>33.1%</td>
<td>47.5%</td>
<td>26.1%</td>
</tr>
</tbody>
</table>

(Kaufman, 1975, p. 95)

The data indicate that female, unmarried, full professors have the largest networks. Overall, females (except for assistant professors) have larger networks than men. However, on measures of interconnectedness between professional and personal lives, men are more connected.

This study confirmed, at least for this sample, that men have strong interpersonal ties with their colleagues. Thus, these strongly interconnected relationships with colleague friends may explain the strong network involvement among men which Cameron found in her research.

Productive Faculty Members

Once at an institution of higher education, Ph.D. completed, faculty members who are research productive seem to share certain characteristics. These include the establishment of: a productive record as a graduate faculty member, the habit of early publishing and participating in an active network of professional colleagues. The
research supporting these characteristics of research productivity will be reviewed in the following section.

Faculty Ph.D. Productivity

Trowbridge (1971) working with Blackburn, studied the productivity of individual faculty members in producing Ph.D.'s. This type of faculty research productivity was measured by dissertations completed over a nine year period with the faculty member serving as advisor. Two hundred and twenty-five full-time faculty holding a rank of Assistant Professor and above in six liberal arts departments of a major university participated in the study. Forty-three independent variables compared against the dependent variable, research productivity, included: research effort, research dollars, purpose of the dissertation and percent of time spent with the candidate. Four independent variables yielding statistically significant relationships with productivity were: 1) number of sponsored research grants of faculty advisors ($X^2=17.143$, $p=.009$); 2) selectivity of faculty when accepting candidates with whom to work ($X^2=10.409$, $p=.015$); 3) social contact maintained with graduate students ($X^2=18.477$, $p=.030$); and 4) percent of professional time spent with candidates ($X^2=13.995$, $p=.030$).

Publication Record - Research productivity as measured by number of articles published (total and over a two year period) was determined by Behymer (1974), another of Blackburn's associates. Data collected in 1969 by the Carnegie Commission on the Future of Higher Education and the American Council on Education (Carnegie/ACE) in another research effort were used in the study. The national sample included over 100,000 regular faculty members at 303 institutions. Behymer, however,
drew a random one-third sample from which a subsample of 7,484 faculty in social sciences, humanities and natural sciences was drawn for the study.

This sample represented those faculty with 1) the rank of at least instructor; 2) a regular, full-time teaching appointment from a university or four year college; 3) a M.A. or Ph.D. degree; and 4) a major teaching appointment in arts and sciences departments in the humanities, natural sciences, or social sciences.

Multiple Classification Analysis (MCA), which tests the interrelationship of several predictor variables and a dependent variable (functioning as both an analysis of variance and multiple regression) was used. The statistics produced in this type of analysis showed a relatively strong relationship between both school type and institutional prestige relative to productivity. University faculty publish significantly more than their four-year college counterparts ($R^2=.15$, $p<.01$). Moreover, faculty at high prestige institutions publish considerably more than faculty at lower prestige universities ($R^2=.15$, $p<.01$). Each of the independent variables of interest was measured on a four point-Likert type scale. Results (reported at the .01 level of statistical significance) showed expressed interest in research over teaching ($\eta=.33$, $\beta=.07$) to be the single best predictor of rate of productivity, followed by communication with faculty at other institutions ($\eta=.42$, $\beta=.20$), academic rank ($\eta=.33$, $\beta=.15$), institutional prestige ranking ($\eta=.31$, $\beta=.10$), major teaching responsibility-graduate or undergraduate ($\eta=.41$, $\beta=.08$), number of journal subscriptions ($\eta=.24$, $\beta=.08$), and school type-university or college ($\eta=.33$, $\beta=.07$) ($R^2=.60$, $p<.01$).
Thus, full professors at high prestige, research oriented universities emerge as being the most productive with respect to the number of articles produced over a two year period (28.6% of full professors, 20.9% of associate professors, 13.3% of assistant professors, 2.2% of instructors). These productive faculty members are more likely to be tenured (24.2% publishing 5 or more articles compared to only 12.8% of untenured faculty) and to teach graduate students ($R^2=.21$, $p<.01$). These high producers express more interest in research, communicate frequently with colleagues at other institutions and subscribe to more academic journals than do their less productive research counterparts.

Although productive faculty agree that publishing is an important aspect of the tenuring process, such productive faculty more often work at institutions where the role expectations and reward systems are consistent with their own career goals (Blackburn, Behymer and Hall, 1978). Fulton and Trow (1974) reported these same phenomena based on marginal percentages from the total (100,000) Carnegie/ACE sample as did Clemente (1973) in his study of sociologists. Thus, one can tentatively conclude that early publication activity and early interest in research are strongly associated with later productivity.

The experience of early publishing appears to be associated with productivity in faculty at smaller institutions as well. Studying faculty at four year colleges, Hall (1975), using data from the same Carnegie/ACE national survey as Behymer's (1974), obtained similar results. Identifying 1,216 Ph.D. level faculty in arts and science departments in undergraduate colleges, Hall's best predictors of research productivity (in order of statistical significance reported by
the value at the .01 level) were: habit of publishing over a two year period ($\beta = .45, F_{.01} = 3.0$); years in higher education ($\beta = .22, F_{.01} = 3.3$); academic rank ($\beta = .16, F_{.01} = 4.6$); interest in research ($\beta = .16, F_{.01} = 3.0$); and salary received ($\beta = .16, F_{.01} = 3.3$). Number of journal subscriptions and communication with faculty at other institutions, also included in Hall's study, were significant at the .05 level.

The principal similarities of this study with those previously mentioned seem to be in the areas of interest in research, faculty rank and habit of early publishing. Notable differences among university level (research oriented) institutions and the four-year colleges which Hall studied are faculty communications with others and number of journal subscriptions. Both of these variables were strong predictors of university level faculty productivity but were less strong for four year, college level faculty. All seven independent variables appear to have support in research completed at two universities other than University of Michigan. These studies are reviewed in the following paragraphs of this chapter.

In a dissertation study completed at Oklahoma State University, Beam (1976) surveyed a stratified random sample of 849 (72%) graduate faculty members in 91 home economics programs leading to an advanced degree in the United States to determine their present levels of research productivity and variables associated with that productivity. Treating research productivity as a qualitative rather than quantitative variable, the concepts of particular interest in the study were: work load, educational experience, publication credit, research climate and size of the department.

Using a combination of closed end questions and attitude scales to
measure the variables of interest, Beam found that research workload correlated most highly with research productivity in doctoral level institutions among doctorate holding faculty ($r = .49$, $p < .01$). In addition, Beam reported an inverse correlation for a factor he termed "publication credit ethics" (Beam, 1976, p. 153) which was also significant at the .01 level ($r = -.17$). Beam found that those faculty members who were most concerned about having their name as first author were the least productive researchers. Stated positively, the Beam study indicated that those who were the most productive researchers were least concerned about primary authorship.

The results of the Beam study support Behymer's (1974) primary indicator of research productivity, expressed interest in research over teaching by the measure of research workload (percentage of time allocated to research by the individual faculty member). In addition, the Beam findings support Behymer's third and fifth best indicators of faculty research productivity, faculty rank and major teaching responsibility. The Beam research showed faculty members with Ph.D.'s and high academic rank, primarily responsible for graduate education, to be more productive than their nondoctoral level counterparts who taught undergraduate courses ($r = .49$, $p < .01$).

Examining the scientific communication behavior of 786 communication researchers, Parker, Lingwood, and Paisley (1968, reported in Lingwood, 1969) found that interpersonal, informal sources of information produced a greater output in terms of research activity. Lingwood extended this facet of research information input in his doctoral research. To examine the correlational patterns related to research production and investigate frequency of contacts about a shared
research specialty among subgroups of respondents, Lingwood (1969) surveyed 234 active educational researchers. When the distance factor was removed from the sociometric data collected, the Lingwood study revealed that over half of the active researchers named persons in their research specialty as individuals with whom they had most frequent professional contact.

Thus, the Beam (1976) and Lingwood (1969) studies lend support to Behymer's two best predictors of research productivity: preference for research over teaching and communication with faculty at other institutions. One could say then, at least in doctoral level institutions, that the most prolific researchers hold research oriented positions and are in frequent contact with researchers at other institutions.

Summary

In summary, then, an institution which wishes to encourage research must be willing to provide a healthy environment for its nourishment. This should include a research emphasis in faculty positions; an obvious tie between the research being conducted and the state of the art in that field; availability of professional and clerical personnel and facilities to support the research; and unilateral administrative support of research efforts.

Once one becomes a faculty member at a given institution, two sets of personal characteristics seem to be key factors in the production of further research: the nature and scope of one's graduate experience and one's apparent predisposition to those factors which correlate highly with a faculty members research production. Factors which appear to facilitate further research production beyond graduate school include:
having held productive research assistantship, authorship while a graduate student and having been sponsored or mentored by a productive researcher. As a faculty member, one's interest and preference for research, habit of early publishing and communication with faculty at other institutions appear to be highly correlated with research production. Summary charts of the literature reviewed in this chapter substantiating these conclusions follow in Table 3 and Table 4.

Few studies have been completed on faculty research productivity in education and no studies were identified that focused specifically on faculty in vocational education. Research in this field is of primary importance to the intellectual advancement of the profession. Therefore, it was appropriate to conduct a study that focused on factors enabling or inhibiting research production among vocational education faculty employed by research oriented universities.
Table 3

Summary: Institutional Conditions Promoting Research

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Inhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Institutional climate for research</td>
<td>• Non-research oriented university or college (Hall, 1975)</td>
</tr>
<tr>
<td>• Research emphasis in appointments, advancements, faculty work loads</td>
<td></td>
</tr>
<tr>
<td>• Integration of research in programs on campus</td>
<td></td>
</tr>
<tr>
<td>• Administrative assistance to develop and implement grants</td>
<td></td>
</tr>
<tr>
<td>• Interdisciplinary research encouraged</td>
<td></td>
</tr>
<tr>
<td>• Professional and secretarial support staff and facilities (Woodrow, 1978)</td>
<td></td>
</tr>
</tbody>
</table>
Table 4
Summary: Personal Characteristics of Research Producing Faculty

<table>
<thead>
<tr>
<th>Development</th>
<th>Inhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enablers</strong></td>
<td><strong>Inhibitors</strong></td>
</tr>
<tr>
<td>• Graduate Research Associateship (Brodsky, 1974; Eckstrom, 1978)</td>
<td>• Lower expectations for females (Jackson, 1978)</td>
</tr>
<tr>
<td>• Authorship for research participation (Brodsky, 1974)</td>
<td>• Teaching Assistantship (Brodsky, 1974)</td>
</tr>
<tr>
<td>• Same sex dissertation advisor (Goldstein, 1978)</td>
<td>• Lower female network involvement</td>
</tr>
<tr>
<td>• Financial support (Cameron, 1978)</td>
<td>• Female networks less strong interpersonally (Kaufman, 1975)</td>
</tr>
<tr>
<td>• Early collaboration (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• Work on sponsored projects (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• Dissertation funding (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• Publication support (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• Placement support (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• First job placement (Cameron, 1978)</td>
<td></td>
</tr>
<tr>
<td>• Network involvement (males) (Cameron, 1978)</td>
<td></td>
</tr>
</tbody>
</table>

| As Faculty Members | |
| • Preference for research over teaching (Beam, 1976; Behymer, 1974; Lingwood, 1969; Woodrow, 1978) | |
| • Communication with faculty and professional colleagues at other institutions (Beam, 1976; Behymer, 1974; Hall, 1975; Lingwood, 1969) | |
| • Habit of early publishing (Hall, 1975) | |
| • Academic rank (Hall, 1975) | |
| • Interest in research (Hall, 1975) | |
| • Number of journal subscriptions (Hall, 1975) | |
CHAPTER III

METHODOLOGY

The purpose in this study was to determine institutional and personal factors that enable or inhibit research production among vocational education faculty with doctorates by sex, service area and career stage. In this chapter the author discusses in sequence: 1) population and sample; 2) design of the study; 3) instrumentation and data collection; and 4) data analysis.

Population and Sample

Since the purpose in the study was to determine characteristics and conditions under which most research productive vocational education faculty operate, it was appropriate to locate those doctoral granting research oriented institutions Clark and Guba (1977) identified as being research productive with respect to education.

In order to select institutions which were also research productive in vocational education, several procedures were used. First, member institutions of the University Council for Vocational Education (UCVE) were identified. According to the by-laws (1978) of this organization, membership is "composed of universities providing research, service and teacher education in vocational education" (UCVE, p. 2). Such membership is limited to those institutions which have:

1. a doctoral level major in vocational education or have a major in each of five specialized vocational fields;
2. a staff equivalent of 10 or more full-time staff members with teaching rank (of which at least five must be graduate faculty members representing at least three specialty fields in vocational education);
3. be a recognized research and scholarly institution; and
4. be assembled on a single, well established university campus.

Using this method, 16 UCVE member institutions were identified with a total of 323 vocational faculty members. This researcher then cross checked these 16 universities with a 1980 classification of institutions of higher education published by the Carnegie Foundation for the Advancement of Teaching (1976). Fifteen of the 16 member institutions were classified as either Research I or Research II universities. This means that they were among the 100 leading universities in terms of federal financial support of academic science during at least two of the three academic years during 1972-75 and produced at least 50 graduates with doctorates in 1973-74. The total number of doctoral level vocational faculty at these institutions is 302.

Since the participating institutions' faculty members might be easily identified if the university were named, they shall be referred to by an identification number. Four of these 15 institutions appear on the Clark and Guba (1977) alphabetical listing of the 24 highest producers of education research and development (R&D). They are:

<table>
<thead>
<tr>
<th>Institution Name</th>
<th>Number of Vocational Faculty with Doctorates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
</tr>
</tbody>
</table>

\[101\]
Clark and Guba termed these high producing universities R&D centers. The R&D center classification criteria for these schools, colleges or departments of education (SCDE) are: having received 5 or more grants or contracts totaling funds of $750,000 or more (FY 74 & 75); or with multiple grants or contracts for R&D activity plus 50 or more credits in 26 core journals in education; or multiple grants or contracts with 35 or more credits in journals plus 25 or more credits in Research in Education (RIE).

In an attempt to identify additional universities that are productive institutions with respect to education research, a second set of sample selection criteria was employed. Schubert (1979) rated institutional presentations at annual meetings of the American Educational Research Association (AERA) from 1975-1978. Noting that these types of presentations often represent research that is completed but not publishable in its present form, he states:

> It is research that represents quality, based on the AERA Conference proposal refereeing process, as well as quantity, expressed in numbers of contributions from different centers of research activity. Hence, as an indicator of productive activity, it is similar to publications in journals, but at an earlier stage of development. (Schubert, 1979, p. 13)

Institutions 1, 2, 4 and 6 were included in the top third of the 100 institutions Schubert rated. However, two other member institutions of the University Council for Vocational Education were also indentified as top program contributors. They are:
Since a major objective in this study was to examine institutional and personal factors which enable or inhibit research production among vocational faculty members of both sexes, various service areas and at different career stages, a purposeful sampling procedure was employed.

Purposeful sampling, is a strategy employed "...when one wants to learn something and come to understand something about certain select cases without needing to generalize to all such cases" (Patton, 1980, p. 100). Since the literature on research productivity indicates that most of the research in education occurs at research oriented universities, a diverse but workable sample of faculty in four vocational service areas at six research oriented universities was selected.

For the purposes in this study, the researcher selected four vocational service areas which were:
1. common to the six research productive institutions previously mentioned;
2. sufficiently diverse in age range of vocational faculty to allow for career stage diversity; and
3. representative of both sexes in different combinations.

Table 5 presents the population and sample in this study by sex, service area and institution on the following page.
Table 5
Population and Sample by Sex, Service Area and Institution

<table>
<thead>
<tr>
<th>Institution</th>
<th>Service Area</th>
<th>Total Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>3(3)a</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>3(3)</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>1(1)</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>3(2)</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>3(3)</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>4(4)</td>
</tr>
<tr>
<td>Totals</td>
<td>0</td>
<td>17(16)</td>
</tr>
</tbody>
</table>

aItems in parenthesis indicate the sample size.

Thus, by limiting the study to the vocational service areas of home economics education, agricultural education, vocational-technical education and combining faculty in business and office education and distributive education, the population sampled was 101. A total of 86 faculty, consisting of 63 males and 23 females participated, for a response rate of 85 percent.

Since the literature on faculty productivity did provide a relatively clear picture of the typical education researcher, it was the intent in this study to look at the extreme cases of vocational faculty in research productive institutions. It is there, Guba states (1981b) that:

You can begin to get a handle on the parameters of research productivity. By holding the institutional factors relatively constant, you can go after the widest possible range of extreme cases responsible for research in vocational education. Describing in detail those cases
which offer the most contrast will probably give you a much better understanding of how the middle group fits in. We got more out of the small group of faculty we interviewed for that small section in the Research on Institutions of Teacher Education (RITE) study than we did from the mountains of data we collected in the rest of the study.

Thus, the intent of the author in this dissertation study was to focus on unusually high and unusually low research producers in vocational education located at the six universities. The dependent variable used to identify these high and low producers was a corrected research productivity index (CRPI). The major independent variables used to determine the CRPI were number of: presentations, journal articles, books, popular articles, research reports, doctoral committees successfully chaired or committees served on, research grants over the entire career and years holding the doctoral degree. However, in order to achieve these ends, descriptive data about the six universities and all of the individuals who were potentially high or low producers were gathered.

Those who declined to participate (15 people) in the study did so because of schedule and time conflicts (66.7%) or lack of interest in the study (33.3%). Since the service area identification, sex and rank of these faculty members were not concentrated in any particular area, a followup study of non-respondents was not conducted and no generalization to this segment of the population is claimed.

**Design of the Study**

The design of the study was a methodological mixture of qualitative and quantitative strategies termed triangulation. Denzin (1978) identified four basic types of triangulation:

1. data triangulation - the use of a variety of data sources in
a study;

2. investigator triangulation - the use of several different researchers or evaluators;

3. theory triangulation - the use of multiple perspectives to interpret single set of data; and

4. methodological triangulation - the use of multiple methods to study a single problem or program.

Denzin goes on to state that

No single method ever adequately solves the problem of rival causal factors...because each method reveals different aspects of empirical reality, multiple methods of observations must be employed. This is termed triangulation. I now offer as a final methodological rule the principle that multiple methods should be used in every investigation. (p. 28)

In discussing the components of the naturalistic, qualitative approach to inquiry, Guba (1981) states that the inquiry must be bounded, focused and trustworthy. In a strictly quantitative study, bounding an inquiry would consist of defining the parameters of the study-gathering and analyzing information strictly within those rules.

Although a naturalistic inquiry is also rule guided and systematic, the researcher may change the boundaries in mid-study if the earlier data are reanalyzed using "...the newly emergent rules, so that, finally, all data have the same analytic and interpretative treatment (Guba, 1981, p. 17). By keeping the boundaries of the inquiry flexible, the researcher has the opportunity to adjust to new insights and to learn continuously. In fact, the researcher has the opportunity to redefine the problem if it makes sense to do so. However, the naturalist is guided by some form of a problem statement at all times.

With respect to focusing an inquiry, the quantitative and qualitative, naturalistic researchers tend to use different approaches. While quantitative researchers begin with hypotheses and are able to
specify what data will be collected and how they will be reported, the naturalist begins much more intuitively. An accumulation of observational records, interview transcripts and collected documents are forms of data collection. These raw data must then be categorized into recognizable categories, work that a qualitative researcher would have done earlier when the instrument to be used for data collection was designed. These data can then be keypunched and entered into a computer, with data returned in a matter of minutes. However the data are gathered, the tasks of the qualitative and the quantitative researcher "are identical; they must ultimately decide what can be drawn out from the variety of possible data that will best speak to the problem being investigated" (Guba, 1981, p. 18).

Thirdly, the researcher must establish the trustworthiness of the study. For the quantitative researcher, trustworthiness of research is established by establishing internal and external validity, reliability and objectivity. For the naturalist, there are concerns of credibility, transferability, dependability and confirmability.

These issues can be assured in the context of qualitative research. The credibility of a naturalistic study can be confirmed by rechecking data with subjects, prolonged engagement at the field site, using multiple interviewers, debriefing with peers away from the data collection site, and data triangulation (using multiple methods and perspectives).

The transferability of the study has previously been discussed in the context of purposeful sampling in order to get the widest band of information, rather than merely typical information. Additionally, the naturalistic researcher is able to gather enough so-called "thick"
description information so that if the question of transferability comes up, there is enough information to judge the similarity of the second context to the first in order to make a decision.

The dependability of the data also can be assured. Information can be organized so that it is traceable, step by step. This "dependability audit" (Guba, 1981, p. 22) can be best be accomplished by the researcher leaving a trail that can be easily followed. This can be accomplished by keeping a detailed daily journal of research activities, concerns, and decisions.

Lastly, the confirmability of the data can be assured by data triangulation. By leaving an audit trail that is deep and detailed and gives evidence of the reflexivity of the investigator.

Data Collection

Instrumentation

As previously stated in this chapter by Denzin (1978) use of multiple methods in a study is desirable. Therefore, this investigator used both quantitative and qualitative methods to investigate the research questions. More specifically, three data collection devices were used. The first was a personal vita obtained from each of the study participants before the interview. This enabled the interviewer to familiarize herself with the characteristics of the interviewee's research experience (i.e., university where doctoral degree earned, years of teaching experience, nature of previous and current academic position).

A checklist (Appendix B) facilitated the gathering of baseline data on the researchers who were studied (i.e., receiving financial support
during graduate school, service as a GTA or GRA, authorship while a graduate student, research assistance given by doctoral advisor) for the interviewer and served to create a frame of reference for the interviewee at the beginning of each interview session.

Once the checklist (Appendix B) and possible interview questions were developed validity checks began. A content validity check on the checklist was accomplished by requesting a group of graduate students and faculty members in education to match independent variables that are listed on the summary pages at the end of Chapter II (The Literature Review) to each of the independent variables that the item is designed to evoke.

A face to face interview on site was the means of gathering the qualitative data (i.e., perceived writing competence, mentoring relationship) in a more natural setting. Initially, the interviewer requested the faculty member to review and complete the checklist which was composed of factors noted in the literature review as related to research productivity. The interviewer focused on those factors the faculty member felt were most significant to his/her development as a researcher.

As previously indicated, the study focused on high and low research producing vocational education faculty members at six research-oriented universities. Initially, faculty members were contacted by mail and requested to participate in the study. A stamped return envelope and with a reply card was enclosed (Appendix A). Study participants were requested to enclose their vita and a list of possible times for the interview during a given week in the return envelope. Hour long appointments were tentatively scheduled and confirmed by telephone.
Pilot Testing

To establish the viability of the interview questions a group of six vocational faculty members in institutions not included in the study were interviewed. Faculty members holding doctorates and doctoral students in Vocational-Technical Education, Industrial Arts, and Home Economics were interviewed at a teacher educator training workshop (in Madison, Wisconsin) to pilot test the interview questions. Revisions in both the checklist and the interview questions were made as appropriate to assure trustworthiness of the data.

Data Collection Procedures

The interviews were conducted using what Patton (1980) terms a successive focusing method. This means that the interviews were conducted in clusters of 2 (33% of the sample), with analysis of interview transcripts and the categorization of data into theme area completed at three separate times (i.e.; Institutions 1 and 2 were categorized before interviews were conducted at Institutions 3 and 4). As the subsequent interviews were conducted, interview questions were restated or additional questions were added to the interview. As categories developed, they were verified by a second person off-site, and presented to subsequent respondents for confirmation checks. With the exception of nine people who were interviewed at the AVA convention (since they were unavailable during the on campus interview times), all study participants were interviewed in their campus offices.

Data Analysis

Upon completion of the 86 interviews, all interview notes and tapes were reviewed and organized into 23 inductively derived categories.
These included the interviewees' early years (through high school), subject area related work experience, years of teaching experience, habit of early publishing master's work, significant others before doctorate, work experience during graduate school, significance of the dissertation research experience, first job post-doctorate and enablers and inhibitors to research in the current position.

The quantitative data collected by the vita and self report during the interview were subjected to analysis to describe the entire sample. Frequency distributions, means, standard deviations, and intercorrelations were computed on the dependent variables to describe the responses and the associations of the selected variables that contribute to the outcome measure of research productivity.

The major dependent variables were number of:

- presentations made at regional, state, national or international meetings over one's entire career;
- journal articles, book chapters, parts of proceedings or questionnaires published;
- books or monographs authored or edited; number of years served as a working editor of a scholarly publication;
- curriculum materials developed (i.e.; manuals, handbooks, bulletins, student and teacher guides or correspondence courses);
- popular articles, newsletters, leaflets or newspaper articles published; ERIC documents with no other citation;
- media materials such as filmstrips or computer software developed;
- research reports published;
- doctoral committees successfully chaired to completion;
- doctoral committees successfully completed;
- research grants received; and
development grants received.

Pearson product moment correlation coefficients (Table 6) revealed that only eight of the 11 variables were correlated (p<.05). These were number of: presentations, books, journal articles, popular articles, research reports, doctoral committees chaired and committees successfully completed and research grants received. The three variables that were not correlated at a statistically significant level were curriculum materials and media materials developed and number of development grants.

Thus, these eight variables were used as the basis for computing a research productivity index using z scores. Using this procedure, each individual faculty member's score on these eight measures was subtracted from the mean score on that item and then divided by the standard deviation for the item. The resulting eight items were then added together to form the research productivity index.

This index was then divided by the years since the individual faculty had received the doctorate (using 1982 as the correction factor) and printed out by computer as a corrected research index (CRPI) presented as Table 7. Perhaps due to the small number of cases in the sample (n=86) and the fact that research productivity is expected at a research oriented university, the curve, although bell shaped, is slightly positively skewed as shown in Figure 1.

In any case, the interest in this study was to examine in detail the unusually high and low producers. Thus, those cases which fell more than one standard deviation (6.42) above the mean (8.78) were categorized as unusually high producers of research. These 11 cases constituted 12.7% of the sample. Accordingly, those cases falling more
| Table 6 |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Years             | -0.1362          | 0.4641           | 0.5479          | 0.3707           | 0.219             | 0.3428          | -0.0057         | 0.3687           | 0.6800           | 0.5329           | 0.3792          | 0.3090          |
| Doctorate         | p=0.106          | p=0.000          | p=0.000         | p=0.421          | p=0.001           | p=0.479         | p=0.000         | p=0.000          | p=0.000          | p=0.000          | p=0.000         | p=0.002         |
| Early             | -0.0436          | 0.0604           | -0.0091         | 0.2732           | 0.0751            | -0.1137        | -0.0546         | -0.1290          | -0.0610          | -0.0670          | -0.0419         | 0.0270          |
| Publishing        | p=0.345          | p=0.290          | p=0.467         | p=0.005          | p=0.192           | p=0.149         | p=0.309         | p=0.118           | p=0.289           | p=0.270          | p=0.351         |
| Presentations     | 0.6845           | 0.4323           | 0.0908          | 0.3609           | 0.0557            | 0.5236         | 0.3514           | 0.7460           | 0.7498           | 0.1543           | 0.078           |
| p=0.000           | p=0.000          | p=0.203          | p=0.000         | p=0.305          | p=0.000           | p=0.000         | p=0.000          | p=0.000           | p=0.000          | p=0.000          | p=0.078         |
| Journal Articles  | 0.5797           | 0.1294           | 0.4507          | 0.0149           | 0.4495            | 0.4488         | 0.6021           | 0.5809           | 0.2054           | 0.0219           | 0.078           |
| Books             | 0.0574           | 0.3179           | 0.1287          | 0.5039           | 0.4226            | 0.1879         | 0.4797           | 0.2697           | 0.078           |
| Curriculum        | 0.1995           | 0.0389           | 0.1237          | -0.0652          | -0.0045           | 0.0165         | 0.1743           | 0.054            |
| Materials         | p=0.033          | p=0.361          | p=0.080         | p=0.275          | p=0.484           | p=0.440        | 0.054            |
| Popular           | -0.0779          | 0.1684           | 0.1669          | 0.2077           | 0.3437            | 0.1849         | 0.044            |
| Articles          | p=0.238          | p=0.061          | p=0.062         | p=0.027          | p=0.001           | 0.044         |
| Media             | 0.0011           | -0.0248          | 0.0001          | -0.0636          | 0.1677           | 0.061         |
| Materials         | p=0.496          | p=0.410          | p=0.300         | p=0.280          | p=0.061           |
| Research Reports  | 0.1813           | 0.4143           | 0.6391          | 0.2434           | 0.002            |
| p=0.047           | p=0.000          | p=0.000          | p=0.012         |
| Doctorates Chaired| 0.6184           | 0.3123           | 0.2526          | 0.009            |
| p=0.002           | p=0.000          | p=0.119         |
| Doctoral Committees| 0.5630         | 0.1286           | 0.009           |
| p=0.000           | p=0.119         |
| Research Grants   | 0.1625           | 0.067            | 0.067           |

*p=86
Figure 1: Distribution of the Corrected Research Productivity Index Scores

Corrected Research Productivity Index Scores

n=86  Skewness = 2.8
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<sup>a</sup>The research productivity index is the sum of the z scores of the eight correlated variables (number of presentations, journal articles, popular articles, books, research reports, doctoral committees successfully chaired or completed as a committee member, and number of research grants received).

<sup>b</sup>The corrected research productivity index is the research productivity index divided by the years since receipt of the doctoral degree for each faculty member (using 1982 as the correction factor).
than one standard deviation below the mean were categorized as unusually low producers of research. These 10 cases were 11.6% of the sample.

The mean CRPI score for the sample was 8.78. By labeling high and low research producers as those cases plus or minus one standard deviation from the mean, high producers emerge as persons who have CRPI scores greater than 15.19. Low producers emerge as those who have CRPI scores less than or equal to 2.34. The 21 cases meeting these criteria comprise the sample of high and low producers.

The interview notes and tapes of these 21 cases, which represent 24.4% of the total group of 86, were then analyzed using the categories which were inductively derived for the entire sample. The results are reported using the inductive analysis procedure described by Patton (1981) as logical analysis. This means that the investigator is looking for emergent patterns in the data. As Guba (1981) views it, there should be "internal homogeneity" and "external heterogeneity." Internal homogeneity refers to the extent that the data hang together or "dovetail in a meaningful way." External heterogeneity refers to the degree to which differences among categories are bold and clear. The results of this researcher's effort to find emergent patterns in the data follow in Chapter IV.
Chapter IV
Analysis of Data

The research questions to be answered in this study of 86 vocational education faculty employed at six research-oriented universities were:

- What forces or factors enable or inhibit research production among high and low producing doctoral level vocational teacher education faculty?

- Is there a difference in the factors enabling or inhibiting research production by vocational service area, sex or career stage of the researcher?

- Are successful female researchers developed differently than successful male researchers?

In order to answer these research questions, research productivity indexes for the 86 study participants were generated using eight productivity output measures discussed in Chapter III (i.e.; number of presentations made at professional meetings, number of books, journal articles, popular articles, research reports published, doctoral committees successfully chaired or completed as a committee member, and research grants received). These research productivity output measures also facilitated attainment of objective 1: to determine positive and negative correlates of research productivity among prominent doctoral level vocational researchers employed at research oriented universities. When each research productivity index was adjusted individually for the number of years since the study participant had received the doctoral degree, a corrected research productivity index was generated.

Those cases which fell more than one standard deviation above the mean were categorized as unusually high producers of research (n=11).
Accordingly, those cases falling more than one standard deviation below the mean were categorized as unusually low producers of research (n=10). The characteristics of the resulting high, middle and low groups follow in Table 8.
Table 8
Means of Variables by High, Middle and Low Producing Groups

<table>
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<tr>
<th>Group</th>
<th>High Producers (N=11)</th>
<th>Middle Producers (n=65)</th>
<th>Low Producers (n=10)</th>
</tr>
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</table>

<sup>a</sup>These variables did not yield statistically significant (p=.05) correlations with the other variables.

Note: All figures were rounded to the first decimal place.
Demographic Characteristics of High and Low Research Producing Groups

The 11 cases which fell into the category of unusually high producers represent 12.8% of the entire sample. Typically they were male (82%), held the rank of associate professor or higher (82%), were identified with the general service area category of vocational education (54.5%) and were employed at Institutions 1 or 2 in the sample of six universities (72.7%). However, there were high producers in each of the service areas. Two were in the business and office/distributive education group. The two remaining high producers were in agriculture and home economics. In terms of universities at which the high research productive faculty were located, five were located at one university, two at another university and one at another university.

In contrast, the 10 cases (11.6%) termed unusually low producers were only slightly more likely to be male (60%), nearly always held the rank of assistant professor (90%), and were in either agricultural education (60%) or home economics education (40%). All were employed at two institutions in the sample (Institutions 4 and 6).

Similarities and Differences Among the High and Low Producers

Early Years

Typically, the high producer of research was born into a family which had already reached a relatively high level of educational attainment. This was particularly true in the case of the mother of the researcher, who was usually a nurse or a teacher. Most high producers were leaders in academic or vocational skill areas, holding such offices as class or vocational youth club president and class valedictorian.
Since such offices usually required some writing skills or abilities, it is not surprising that several high producers reported enjoying writing in high school, with one participant going on to college for the express purpose of becoming a journalist.

Their lower research producing colleagues were also active in student organizations during their high school years. Most belonged to several ("being from a rural area meant that you belonged to most every club since there were so few to belong to") and three reported being president of either a local or state chapter of a youth organization. Although everyone who mentioned his/her high school abilities perceived themself as an average or above average student, only two people stated that their parents placed a high value on further education. Since most parents had graduated from high school, it may be that their children had higher education expectations for themselves than those of their parents.

**Undergraduate Experience**

All high research producing faculty reported being very good students as undergraduates. Several took graduate courses near the end of their college years and three reported being involved in research projects as part of their college work.

In contrast, the low producing colleagues frequently mentioned the strong influence their undergraduate teachers had on their lives. Five people noted that faculty members at their undergraduate institution were warm, supportive types with whom they readily identified. Three people reported that they belonged to several college organizations and enjoyed being a member of such groups. One person remembers being involved in "little research projects for classes and was critical of
Teaching Experience

Both high and low producing faculty have had a wide variety of teaching experience at the secondary, adult, community college and college levels. The principle difference between the two groups seems to be in the amount of time people spent at each level. High producers had experience at all levels but moved on quickly to the next level, while low producers tended to stay longer at each teaching level. High producers averaged 2 years in secondary teaching, 3 years working with adults or community college, and about a year in full time college teaching. In contrast, low producers averaged 8 years of secondary teaching and 6 years in full time college teaching. Four people reported working with adults an average of 1.5 years. Four low producers also noted that they had worked with student teachers during their secondary teaching years, an experience which "brought new ideas to me and the teaching situation in that I had a working colleague."

Master's Work

It is at the master's level where the more significant contrasts between the two groups begin to emerge. Although high and low producers of research returned for the same credential, their reasons contrast sharply. While most high producers (note: one high producer by-passed the masters degree) returned for want of more knowledge (3), preparation (3) or power (3). Most low producers returned voluntarily to improve their teaching (3) or because it was required as part of their career goals (6).

While only two low producers took research courses as part of their master's program, all high producers enjoyed and were intellectually
expanded by their master's level research courses. In addition, several high producing researchers had the opportunity to participate in research projects as part of their work experience during graduate school. Since seven of 10 high research producers did full time study at the master's level (in contrast of only 4 of 10 low producing faculty) this may lend support to the notion of role modeling or mentoring in the research role even at the master's level.

An equal number of high and low producers (n=4) did theses. With one exception (a higher producer who did a study related to the project he/she was assigned to), all research done at this level related directly to a teaching problem or situation. All of the high producers specifically noted in the interview that this was a positive, eye opening experience for them and one low producer noted that he/she would have "liked to have learned how to publish it."

Significant Others Before Ph.D./Ed.D.

Both high and low producing groups cited college faculty members, administrators or other graduate students as having been significant in their development. However, there appears to be a significant difference in how this encouragement was viewed or used by its recipient. High producers seemed to have already made up their mind to pursue a doctorate ("By the time I finished my master's, I had had enough experience in education to know that I wanted a Ph.D. in teacher education." "My masters advisor encouraged me to make a national search in my areas of interest." "The director of the project I worked on for three years was a graduate of (doctoral institution) and knew (doctoral advisor) so I looked there first."). It seemed as if they had a close affiliation with the academic career - that they felt encouraged,
accepted and had a sense of belonging as they entered the doctoral program.

On the other hand, low producers were less sure of their potential for academe, even though others felt they had the ability. ("The department chair invited me to apply to the doctoral program. I was accepted, but decided not to accept. Ten years later I did."

"_______, the state superintendent, encouraged me to get a Ph.D. He said he needed someone to help him run the schools and arranged for me to continue my job but take courses." In sum, the high producer appeared to be more internally motivated to pursue an advanced degree while the low producer appeared more externally influenced to continue further academic work.

**Doctoral Work**

When asked to describe what prompted them to begin doctoral work, high research producing faculty described one of three reasons for returning or continuing school. Four knew it was time to move on, in accordance with career goals ("I was looking for a career change"). Five received an associateship or fellowship offer and were invited to return to graduate school ("My advisor made it financially feasible for me to come back to get the doctorate by offering me an associateship"). Two were driven by the need to know. ("Still wanting to have my insatiable curiosity aroused.") It seems that high producers had genuine ambitions to become teacher educators at the doctoral level; thus activities related to that career goal were seen as timely opportunities to proceed toward that end.

Five low producing faculty members were also invited back to pursue the advanced degree. To some, this came as a surprise ("I wasn't really
thinking of doing a doctorate, but the motivation and challenge of doing one at ____ was strong."), but to others, it was merely well timed ("It was natural to continue once I received my master's degree and was offered full time employment at the university"). Five others perceived doctoral work as the next step up the career ladder ("I decided to begin doctoral work because I really like what I did [college teaching] and I wanted to continue doing it. Working at a college convinced me that I was as bright as anyone").

Considering the influence of significant others and teaching longevity discussed in earlier sections of this chapter, one might speculate, at least at this point, that low producers appeared to be more passive personality types. Contrasted with high producers, they have taught more years, waited to be invited back to graduate school, and appear to be seeking the degree for more externally motivated reasons (i.e., "the next step up the career ladder").

Since work experience during graduate school, courses taken and the experience of the dissertation seem to be so closely related, they will be discussed here in succession. For the high producer, the research experience permeates every aspect of his/her doctoral work. As might be expected, most (8) held a research related position while in graduate school, took a number of research courses and thoroughly enjoyed their dissertation research.

However, the typical high producer's situation is considerably more complex than is first apparent. He/she was involved in a number of collegial roles even as a graduate student. As one faculty member described it, "the intellectual ethos of environment profoundly affected my work." In this environment, the high producer developed his/her
research capabilities as part of a research team through the graduate work experience. As a research associate the graduate student had an important role in ongoing research. "I did institutional research on institutional costs and faculty work loads for the dean." "I worked with a person who was the top in the field but very difficult to get along with. When I hollered back at him/her during a critique of (advisor's) research, I think I won (the advisor) over to my side. As far as I know, I'm the only one to survive him/her. I'm convinced that working with top researchers is particularly important."

The research work experience was further enhanced by doctoral level courses. "I had a good foundation in math and statistics. I knew the importance of quantifying results in education." "We were all encouraged to do research and publish. I worked with two well known researchers who required us to do a research paper for their courses and then invited me to join them in a research study". "Once I got there, I found them to be a group of people I consider to be real scholars in the field of education. I just learned a lot just by taking classes with them and having them involved in my committees."

More often than not, the dissertation was an original piece of work which had strong support (but not control) from the doctoral advisor. "I felt in charge of my dissertation and I set my own standards for its evaluation. My advisor suggested some ideas (of possible topics). One had been considered for my master's thesis but was rejected by my committee. But it was something I wanted to do, thus, I did it for my dissertation." "It wound up also being a final report for the research project we (candidate and advisor) were working on. The fact that there were resources in that project which enabled me to get out and collect a
lot of data enabled me to reproduce a set of field test materials that was, oh I don't know, was 200 pages in length and the opportunity to get out in the field and employ consultants to help evaluate that material and utilize it in the class setting. The fact that all those resources were there made the dissertation extremely interesting and kind of exciting for me and I poured 15-18 months of my life into that thing; you know, 12-15 hours a day."

In summary, high research producing faculty enjoyed their doctoral work. They saw the value of research and became intimately involved in the research process through their courses, work and dissertation. They achieved a collegial relationship with the graduate faculty because they were truly involved with their field and motivated by scholarly activity.

The experience of the low research producing faculty is not nearly as homogeneous. While half (5) had teaching responsibilities as graduate students, others (3) had research related responsibilities. The two remaining faculty had a variety of teaching, research, and administrative responsibilities or did curriculum development work. Respondents typically described their work as "...working full time as an instructor, I was on the road a good deal." "I was employed as a full time instructor." "I did a tremendous amount of writing and program development." "I worked on a regional research project with my advisor." "I had a variety of teaching, administrative and research experiences were most significant for me."

Perhaps what can best be said about the work experience of most low producers is that it was not centered around the intellectual ethos of the institution and that the low producing faculty themselves felt no
discernable commitment to the research process. Contrasted with the experience of the high producers, it seems to have been more a job than an exciting "turn on".

The latter point is further supported by the surprisingly few respondents (3) who mentioned courses they had taken during their graduate work. The three who did discuss their courses noted that the research courses were particularly memorable. "(The courses) helped me to realize that research wasn't as mysterious as it seemed." "I got B's in both statistics courses since I missed classes while I was on the road. I took incompletes in the courses before finishing them." "The courses I took with a noted researcher were valuable. That person was personally encouraging to me as a committee member." Again, low producing faculty did not seem to have been excited by their course work. Perhaps they simply wanted to get by or to do only what they had to do.

This notion is further supported by the low producing faculty's description of their dissertation work. While two people reported that the "dissertation was interrelated with the research I was doing on staff", the remaining number (5) who were willing to talk about the dissertation discussed it in the abstract-as "a thing" that had to be completed. Two finished it shortly before the graduate school time limit expired and only with "the help of someone on the committee who was competent in research and statistics." This person "helped put it all in perspective when I was ready to write it up." Still others described it as a task which was "worked on while waiting for and taking care of a newborn." And one lamented that it was "not especially publishable, which turned out to be a considerable disadvantage."
In summary then, the doctoral work of the low research producing faculty had its bright moments, particularly when an advisor or faculty member took an interest in the work of the graduate student. However, these moments were rare compared to those of the previously discussed high producer and the low producer consequently looks back at graduate school more with a sense of relief for its termination than exhilaration from its intellectual stimulation.

**Significant People in Graduate School**

Another significant contrast between high and low producers is the people whom they named as being significant in their development during graduate school. All of the high producers named one or more persons who acted as research role model for them. This research role model or mentor offered the candidate challenge, encouragement to grow and the opportunity to become (or be) an academic colleague. The following selected quotes are representative of the high producers: "My advisor had a similar research interest to mine. I also had the opportunity to work with some outstanding teachers in the field." "My advisor had high expectations for me. When I came through, he/she would give me additional support and assistance." "I wasn't always sure what was happening along the way, but it became very clear to me as it neared completion what had happened to me (mentoring) and what I had learned about the subject field as well as methodology and everything did pretty much materialize out of that (dissertation) study. The modules were modified and put into a text book which is being used now in a number of teacher education programs across the country."

In contrast, only four of the low producers named people who were significant in their development. "The person in research was
instrumental in the development of any research ability that I have. Being both an administrator and a researcher, (advisor) was very task oriented. "Two people who were well known researchers were my major committee members but both of them retired when I finished my degree, I lost a whole network of support at this university."

Moreover, most low producers viewed those who were significant to them in graduate school to be either useful ("My advisor was strict on grammar and style but not a researcher) or helpful ("The head of the reading committee was supportive and made sure we saw eye to eye on things."). Compared to the high producers, people were rarely friends or colleagues. ("I felt free to go to faculty with ideas on my own.") Although most low producers were aware of the support given to them by significant others during graduate school, most viewed the support without much emotion, with one exception. "My advisor usually wasn't available to help me. Consequently, I didn't get much of a push to finish right away and I held out till my deadline (time limit for completion) was close and my job tenure was on the line."

In summary, it might be said that once again, high producers identified more strongly with the research aspects of academe, while low producers did not. Low producers found some support in the network of useful/helpful people in academe. However this network was viewed more from the perspective of cooperation rather than from the discovery of new knowledge.

**Habit of Early Publishing**

Another useful phenomenon which emerged from the interview data concerns the habit of early publishing (predissertation). All of the high producers had this experience in a variety of forms. For some it
emerged from research a development projects with which they were associated (6); for others it was the outgrowth of a particular interest or experience (5). Representative quotes which help illustrate this experience include: "I had four publications by the time my dissertation research was published. By that time, I had worked on three research projects through the research center and with other faculty in (service area)." "I had always enjoyed writing. My first article was encouraged by a faculty member who had recruited me for the master's degree. The second was a conceptual piece." "I wrote up a piece describing a little program we were doing in (service area) for Voc Ed and it got published. The dean ate it right up, and I got a salary increase. I soon learned that a sincere contribution to your profession gets advancement."

As might be expected, a lesser number of the low producers had this type of early publishing experience. In fact, while eight people published either a curriculum related document (4) or a journal article or monograph (4), neither groups mentioned this as being a significant part of their development. In fact, when questioned further about it (from information on the vita) most seemed to have forgotten about the experience all together, leading one to believe that the experience had much less impact on the low producer than it did on the higher producer.

First Job After Doctorate

The first job after receipt of the doctoral degree seems to be another separating point for the high and low producers. A majority (8 of 11) of the high producers accepted positions away from the doctoral granting institution, but in another research oriented university. The high producer took advantage of this environment and responded to
research contacts and opportunities. ("I shared an office with the department head who was also a noted author. He impressed upon me that I had the responsibility to do writing as well as completing my teaching and traveling assignments. (Department head) suggested things to write and work on. We did an early article together." "I started a new job before I finished the dissertation. I stayed on for another year after I finished the degree, then went to a university where I had the opportunity to do applied research. Since it was more research oriented, I did more research. I think you need to work in research every day to be a good researcher. Several people at (university) were very helpful to me in developing my research capabilities.")

This same research involvement was characteristic of the high producer even when he/she stayed on at the doctoral institution. "I did a national job search, but a second position opened here and I was hired. Of course, there are problems working as a faculty member where you were a graduate student. So it's important after the first year to move out and be your own person. I know you don't make money staying in the same institution, but why go somewhere else and work 20 years to come back here? Research is supported in this kind of environment." Thus, it appears that high research producing faculty chose (or were selected for) their work environment largely on the basis of the intellectual ambience of the institution.

The position the low research producer found him/herself in differs markedly from that of the high producer. While more faculty (5) stayed on at their present university, still others (4) accepted a teaching position in a small four-year college, a community college or a secondary school where the primary emphasis was teaching. This did not
present much of a problem, however, as most low producers as reported that they did "what needed to be done" or "what the boss says" and "there was very little time for research as I had a large teaching load".

In the few cases where there was any reported conflict (2) with the responsibilities of the first job, they changed universities. "I felt the need to grow professionally outside of the state. I had contact with people at (the present university). I had always wanted to be here." "I didn't think too much of the administration at (former college), and I had a good job offer at (present university). The job contact was made through my doctoral advisor".

Two cases of low producers stand someone apart from the rest and are worthy of discussion. These are the cases of persons who seem to realize what it takes to do research and are willing to produce. "After my experience at (another university), it was clear that you get in the boat and do research. I looked for a position that combined research and teaching. I figure I'm either going to do it or get out." "My responsibilities at (1st job) were largely teaching which was exciting but limiting. I did, however, publish a four part evaluation testing instrument which was nationally marketed." For both of these people, the research expectation appears to be present.

This expectation emerges as difference between the high and low producer. The high producer responds to the challenge of doing research and actively seeks out the opportunity. The low producer, on the other hand, identifies more with the teaching function of the university and choses to spend his/her time teaching oriented activities.
Enablers and Inhibitors in Current Position

The causes and effects of the diverse behaviors and experiences of the high and low producers become more striking in this section on enablers and inhibitors in the current position. For the high research producer, this means that the "ambience of research" pervades his/her entire work life. Given that eight of the high producers were located at only two of the six universities who participated in the study, this type of research atmosphere aptly describes the physical environment where these eight researchers' academic homes were located.

A vocational education department situated in the College of Education, Institution #2 has a medium sized vocational faculty, 12 of whom participated in this study. All faculty and department offices were located in an airy open building where faculty, graduate students and staff from all college department frequently met in the halls and on the elevators. On several occasions during this researcher's interviewing, small groups of faculty and staff were noted meeting and informally chatting over coffee or lunch in the centrally located lounge area.

In fact, it was the administrator of Institution #2 who first put forth the term and idea of an intellectual ambience. "Of course, a research environment like this is difficult to describe in any tangible way. Suffice it to say that it is an environment created by interactions I have with other faculty, students, the state department people, and other colleagues focused on research". Two other faculty agreed, noting that "the expectation to do research is here". A junior faculty member noted that: "People here are people who can work without direction or being told what to do. There are a number of people in the
building who have similar research ideas and views which I find helpful."

Moreover, the research leadership on part of the administration is apparently supportive. One high producer noted that "people are really encouraged to develop a line of research and do work in specific fields and areas and collaborate with each other when it is necessary. But it is not mandatory that people collaborate. I have just always found it to be a stimulating environment and yet one that is very flexible and really emphasizes individual growth and development, and that's why I am there." Other high producers at this institution noted that the administrator was helpful in securing grants to support research, sometimes in small, but important ways. Although the financial resources are not necessarily outstanding, we do have some support for research here."

Institution #1, one of the larger vocational education programs in the study, had 19 participants, four of whom were ranked as high producers. At the time of the study, faculty members were located in four buildings around the large campus. However, they were looking forward to moving together into a new building in the early spring.

Like the high producers at Institution #2, those at Institution #1 find the atmosphere conducive to research productivity: "The institution's emphasis (on research) is a positive one for me....I've had a positive experience working here....The institution's research opportunities have matched my own interests." "Research is valued and supported here." "Although three-fourths of my work is research, I'm never pushed to do research." "We have good institutional support for research here. My department chair is very supportive of research, and
I am evaluated (by division chair) based on research".

This last comment raises an important point about the research atmosphere. Apart from a research emphasis on the part of the university, what else is important to high producing faculty in the conduct of research? It is readily apparent that funding and collegial support are important supporters to the research environment. However, what role does the administrator (department and/or service area chair) play in setting the tone for research?

Although its administrator was not in the top group, it should be noted that the research productivity score of the administrator at Institution #1 fell immediately below the cut off point for high producers. He/she is commonly viewed as a high producer of research.

Perhaps the single feature of note among the 19 people interviewed at this institution was the significant role that the administrator of the department seemed to play in bringing research to the forefront. Many had studied under her/him and others had come to the university because of the fine reputation for research she/he had built up in the division. The high producers seemed to have genuine respect and admiration of her/him, while the low producers viewed her/him in a variety of ways (from antagonist to encourager).

This notion of the significant role the administration plays in the fostering of research is further supported by the comments of two of the three remaining high research producers who are themselves administrators (one division chair, one department chair). "My colleagues and I work well as a team." "A researcher needs patience. He/she should not be hurried or pressured. I try to be patient with myself and others....The environment for research is key here. People
who are doing it (research) help others to be aware of and be involved in research."

**Personal Research Enablers**

The comments of one high producer reveal some of the more personal current enablers for research among high producers. "It takes time to do good research, and money. I'm a good time manager and task oriented. You have to build-in time for research; for mulling over responses. I've had good support for research in this position....I build-in time for research by building into research grants help to do it (GRA's and clerical help), a materials budget to disseminate results and travel to make it happen (research collection and dissemination)."

Others noted that "work consumes me, but I can get blocks of uninterrupted time to do research." "I have a high energy level and I work long days. I can be doing several things at once and I don't waste time." "I don't spend a lot of time chit-chatting". "My pattern over time is to keep research ideas in mind and match ideas and funds as they go across my desk. I used the model of my advisor on that. My idea generation has increased over time as a result of various experiences-'a synergy of experience', I guess I would call it." "I like problem solving. For me research is the vehicle and teaching is the reality check. You get research ideas from what you've done before. For me research is a continuation of original problems."

**Networking**

A number of high research producing faculty have indicated that having a network of people who have similar interests and concerns has been important. For some, it is a network of colleagues across the institution. "I have a broad network of people who know my work." For
others, it is a network of people in the same service area "I've done a lot of textbook publishing and article writing in the popular professional literature" so he/she knows and is known by others.

In addition, having a network helps people become known across professional lines. "Early in my career, the Director of Graduate Studies at the university got me involved with AERA and put me on key committees in the College of Education. Contact with (noted education researcher) helped me to get small grants to do research from the university and military service grants from the Army/Air Force. I also did research reviews for two people who are in federal offices. All four of them are helpful in reviewing drafts of my writing."

"Networking with others (around the country with similar research interests has gotten me more (consulting and grants)." In fact, of the seven high producers who gave names and institutional affiliations of people in their network, most had networks of between 11 and 15 people, while low producers averaged about six.

In summary, it has been noted that the high producer responds favorably to the atmosphere of research within the university. He/she likes the environment, enjoys the research process, and is willing to structure time and energy to complete research projects.

Although internally motivated, the physical and intellectual supports he/she feels are necessary to do research also are present. This means that secretarial, computer and financial resources are available to conduct the research and that there is an intellectual critical mass of colleague and graduate students to support, refine and extend the research experience. Moreover, there is likely to be an administrator, she/he a researcher who provides structure and assists in
obtaining physical or intellectual resources when warranted. Contacts with other colleagues across campus and the nation are also important.

Interestingly enough, the enablers for low research-producing faculty also fall largely into the domain of the research-oriented colleague or the helpful, supportive administrator. Among the major enablers for faculty members in this category were attendance at professional meetings (5) colleagues who pressure (2) or help me do research (2) and having released time to do research (4).

Compared to other vocational service areas, agricultural education has an additional layer of research visibility. The American Association of Teacher Educators in Agriculture (AATEA), meets annually as a group in December at the American Vocational Association Convention (AVC) and regionally at least once a year to, among other things, discuss and present recent research in the field of agricultural education. Several people reported that "the sharing and critiquing of ideas at this meeting has been important" in his development. Another faculty member noted that this was one of the few opportunities he/she had to keep up with what was being done in research.

Several of the home economists also agreed on the importance of professional meeting, noting that the "research reporting sessions at AVA" were particularly helpful. Another faculty member noted that involvement with research organization like American Educational Research Association (AERA) brought her into contact with researchers where she could "pick up ideas and make good contacts."

Several people (2) noted that other "faculty members make me aware of the need to write more." These faculty colleagues are particularly helpful when they help the low producers locate resources which may
improve their resources for research. "As a faculty member, I found a seminar on grantsmanship helpful." "A brown bag lunch on publishing gave me resources I could use to help structure and organize myself. It helped me develop confidence in myself as I knew if some one else had done it before, I can do it, too. It was useful to hear how others structured their time."

Others find the support in direct assistance from other faculty." "A colleague with whom I've done writing and computer work has been helpful. ____ has great patience and works as a colleague, a friend and a supporter to me." "Support from the administrator and some colleagues has been better the last few months."

Several people noted that "the 25% research time has been important to me" or that "I have two research projects currently underway." Another low producer reported that "I've had a small research project funded and am doing some research with another faculty member" while another noted that "I now have a great desire to do research and can get assistance now in the form of time off (release time) to do research."

Perhaps the efforts of low producing faculty to do research can best be summarized by the comments of three researchers presented in succession: "I do not find writing difficult nor research. In fact, once I start something, I like to see how it comes out." "Research clarifies my thinking. It provides me with new ways of viewing knowledge and gives me ways to structure organize presentations." "When I begin to seek out, then I begin to develop as a researcher."

Why, then, do such people not do research or do so little of it compared to their colleagues? Both high and low research producing faculty had some ideas on these inhibitors. One high producer noted
that "We have difficulty getting together with people from our own department, and we need to know the resources in our own department." This same person noted that "when I was at a more teaching centered university, I developed a research proposal, but was too busy to do research. I think that can happen to anyone in that kind of setting." A high producing administrator at one of the low producing institutions noted that "the few number of faculty in some departments (service areas) makes for less than the critical mass necessary to produce the climate for research, and funds may also be lacking."

This last comment brings us to the single most frequent reason given for lack of research productivity—lack of time (7). Low producers reported that "research time is out of hide time here. I'm 100% teaching." "Even though I have 25% research time, the 75% teaching responsibilities weigh heavily on my shoulders. It's difficult to turn an undergraduate with a problem away just because this is your day to do research." "My largely teaching responsibility has been exciting but limiting."

The second most frequently given reason is lack of motivation or priority for research (8). "I cannot appreciate pure gathering of knowledge. Research and teaching should reinforce one another and what you are trying to teach, regardless if there are statistics to support it." "I prefer teaching." "I have a 100% teaching appointment and I feel I am doing an effective job at it." "I'm not fond of reading or writing." "I have no problem writing but I don't enjoy it. I'm not a writer and I don't enjoy sitting down to write." It is in this category of inhibitors to research that the intrinsic motivation of the high producer to know or find out contrasts most sharply with the low
producer, who borders on stating that research is useless.

It has been stated in the previous section on high producers that there must be motivation to do research, it must be disseminated effectively, and that there must be meaning in its outcomes for practitioners. The conditions which promote the critical mass of researchers who may share the aforementioned qualities appear to be particularly lacking at the two institutions which are home to 70% of the low producers.

Institution #6, which employes 40% of the low producers has a particularly difficult situation—due, it seems to the administrative structure rather than the administrator, her/himself. Faculty are housed in several separate buildings around campus with the administrator located in still another building. With one exception, each service area answers to a different department chair and to two separate college deans. Thus, the administrator of this division, her/himself a high producer of research, has more than the usual amount of difficulty in providing structure and/or physical or intellectual resources when required by the faculty member due to both the location of the departments and the relative degree of autonomy each department chair holds.

In fact, the lack of critical mass of persons doing research in vocational education put forth by its administrator is borne out by the comments of those to whom he/she is loosely connected:

"The (unit) is not research oriented. No one is actually doing research here—just thinking about it. Secretarial support is lacking. There is little collegial support to do research and no financial support or help to get research money."

Moreover, it is the junior faculty member who often bears the
heaviest burden of teaching activities. "This is the first quarter I've actually felt there is time to do research. I've taught at least one new course a quarter up to this point." "I need time in the office and released from teaching to do research."

However, even with time, several of the faculty at Institution #6 feel that the need for support from colleagues to generate research ideas and/or publish the results of previous research. Two low producers were concerned about their own lost early publication productivity. "My dissertation was not especially publishable." "My own presentation of doctoral research was lacking. I didn't get mileage out dissertation that others get since I never published it."

Others (2) felt that "initial ideas are difficult to get, but once I get them I can move along." However, "other departmental faculty members are not particularly helpful."

At Institution #4, the situation appears to be even more lacking of research support and motivation. Of the 10 faculty participants from this university, three were classified as low producers, with three others, including the departmental administrator, narrowly missing that same cut off point. The comments of these faculty speak for themselves:

"Any involvement I've had in research organizations is because I wanted to not - particularly because I was encouraged to."

"Doing research because of promotion doesn't make that much difference for me as I'm near retirement. Whether I retire as an assistant or associate professor doesn't make that much difference to me. Most of my salary is tied to years of service, not rank."

"Since you need to do research to get promoted, it must not mean that much to me."

"I'm satisfied with the job I do. I wouldn't want to see students suffer because I was doing research."
"I lack the personal incentive, time and money to do research."

"We have less secretarial help and a small number of people on the (service area) staff, and we are located in a college of education rather than with the college of (service area)."

The comments of the remaining three low producers, (two of whom are located at an institution already noted for its high producers) serve as an effective summary and elaboration on the points previously discussed by faculty members at Institutions #4 and 6:

"Teaching is interesting but time consuming."

"Research needs to be worked at, I haven't had time."

"I don't read enough, I need to read more....Reading helps me conceptualize problems."

"You need to seek out funds by yourself and there's no guarantee to get money to do research. You have to hunt and peck for funds."

"I need more money for journal subscriptions and professional development. It's ironic that during the time that you could benefit most from financial support, the least amount is available to you."

Work With Graduate Students

Traditionally, graduate students have been employed on campuses to support both the teaching and research functions of the university. In addition to providing financial support for the graduate student, it is assumed that proximity to full time faculty will foster the development of the fledgling graduate student as a scholar/researcher.

In this portion of the study, the reciprocal function was explored. What influence does the graduate student have on the development of faculty with respect to research?

High research producing faculty members generally viewed graduate
students as a learning resource (4), a potential colleague in training or a research assistant (2). Viewed as a learning resource, graduate students "bring awareness of other new ways of knowing (qualitative, anthropological bases)." "These have always been interests for me, but graduate student resource/support is an invaluable learning resource for me."

Seen as a colleague in training, the graduate student "can be shown the utility of research by being involved in projects of value and use. (If they are interested) I have them bite off some bit (of what I'm working on) and develop it further for a dissertation."

"I like to work with graduate students who are good workers and are here to learn. I am an advisor who is rigorous and who works best with those who are competent and are willing to work in statistics."

"They are a research resource for me both in terms of helping me keep up with my research interests and in developing new research interests."

Viewing the graduate student as a research assistant, the high producer incorporates him/her into existing research projects. "I like to set up the research and have graduate students carry it out, add their own little twists to it, consult with me and get a thesis out of it. If a graduate student needs a topic, I'll guide them into my two favorite areas. If they are interested, I tell them I will try to get their costs funded...." Use of the graduate student as a research assistant emerges from the belief that "many times the advisor does more than doctoral student her/himself in terms of the actual research. They may have credentials, but not competence. Usually graduate students need more practice in doing research."

In contrast, low research producing faculty appear to view graduate
students as research colleagues or as competitors. Seeing graduate students as colleagues, the low research producer hopes to get others involved in their research:

"I am working on having a group of graduate students carve out research areas that are complementary to each other."

"Hopefully, some of my new research efforts will have spinoffs for graduate students...."

Perhaps viewing graduate students as competitors, a low research producer stated that "I don't want to get pushed to do research as a job requirement. I like others who are down to earth. I don't like people on ego-trips. Researchers are on ego-trips, authority trips." "Two of my graduate students told me that they wanted my job. That certainly keeps me on my toes."

Since all low producers were qualified only to direct master's theses or serve on master's or doctoral level committees, some of their comments were directed specifically to master's level research. "I'm not convinced that master's students should do theses. I think it should be an option." Perhaps this general lack of contact with doctoral level students and others doing research also contributes to the low producers neutral or negative feelings about research production. In fact, when asked to name graduate students who showed promise for research, most low producers could not name any students. The four who were able to name anyone at all named less than two graduate students, while high producing faculty named nearly three.

**Number of Professional Journals and Periodicals Read Regularly**

High producers of research also regularly read or skimmed a greater number of professional journals and periodicals than low producers. High producers averaged over eight periodicals per month plus a variety
of other books and technical data, while low producers read slightly over five. However, most high research producing faculty reported that they did not get many further research ideas from their reading. Rather, their reading provided them with a better idea of what others in the general field of education were doing or thinking and provided them with a way of keeping up with the field.

Career Goals

As career goals, most high producers looked forward to doing more research (3), for quiet study and reflection (2) or were not sure of their next career goal. Most low producers were looking forward to promotion (2), having more personal time to enjoy with family or friends (2) or to retirement (1). Differences between the high and low producing faculty member in career goals can readily be seen in these two representative quotes:

"To begin to look at policy oriented questions and issues about education and work generally. Try and look more at the effects of vocational education on different population groups, work at economic policies and social policies to the extent to which they are appropriate to give to them, depending on the context we find ourselves in now within the field. It is going to be quite an interesting 10 years, real challenging, I keep thinking." (From a high producer.)

"I've started at the bottom of the ladder several times. I'm not as concerned about the home runs as I am about avoiding the bean balls (fouls)." (From a low producer.)

Influence of Spouse

Since sex differences among researchers were a primary interest in this study, it seemed appropriate to ask respondents if spouses or significant others were of any influence in their careers. Interestingly, a much higher percentage of the high producers answered affirmatively to this query than did low producers. In the case of male
high producers, the female member of the couple sometimes relinquished or in other cases put off her education until her spouse's career was well established. All eight wives willingly took care of the children, house and hubby. However, several have now returned to school and have or will soon complete degrees.

"We reflect alot on that now in terms of how it has changed our lifestyle at present, but especially the support that she gave me when we were going to graduate school because of the intensity of that experience. We had kids at that time, and she gave up a lot in terms of her own growth and development. Now we're at the point where she has gone back to school and I have kind of assumed the major role of the family and the house and the kids and so on."

In the two cases where the female is the high producer, she is married to a male who also has a doctorate. In one case, the degrees were finished at the same time and in one case she finished several years later than her spouse.

However, for the high producer, regardless of sex, the spouse actively chose the academic lifestyle (four hold doctorates, two others have at least a bachelors degrees) and was willing to do her/his part to support its attainment of this intellectual lifestyle.

"My spouse has been interested in being in an academic environment since he has a degree in an (unrelated) research field. I think having a spouse who has similar concerns/viewpoints about work and scholarship is helpful in pursing an academic career (although I hadn't ever thought of that before)."

"____ has a master's degree in the same field. ____ has taken care of the children from the time I was working on the doctorate until now. ____ has always been very supportive and understanding about the responsibilities of this type of career."

"_____ has helped me to discover new ways of (knowing) by encouraging me to take courses and reach other areas. ____ also edits my writing on occasion and we try to go to major professional meetings together."
While the average low producer's spouse is also well educated (four have bachelors, one has a master's and one has a doctoral degree), the support given by them seems to have been more passive than active. In fact, most reported that their spouse is "a great encourager." However, it should be noted that three of the 10 low producers either are single or were married recently (and thus, after the receipt of the doctorate and the current academic position).

Again, there appear to be differences among males and females. Apart from nonspecific types of encouragement, only one male made any mention of a particular type of assistance given by the spouse:

"We did our master's degrees together....There was lots of moral support for going through the academic hoops. We spent lots of time in the library together."

However, husbands figured significantly into the professional lives of female low producers. Currently, three of the four females in the study are married, two to men who have Ph.D.'s in unrelated fields. One was married while she and her husband were in graduate school and had a baby while working on her dissertation. "Although it's difficult at times to keep up with all of the demands of this job, I wouldn't give up all of the joys I've had with my husband and the baby for a hundred research projects. I don't think very many men would even think of saying something like that. For them, research is a choice. Someone else is responsible for the children. Although my husband is a great help, I still feel responsible for the baby and worry when she/he has diarrhea." The other, recently married, has a spouse who is a prolific writer. She reports that "my research interest has increased in the last couple of years."

The third married female has a spouse who encouraged her to finish
her degree and pursue a profession. "I don't think it would ever be possible to do research without a supportive hubby. He is an equal partner in child rearing" which frees her up to work "the long hours it takes to meet the requirements for teaching, research and service." "As once said in a seminar on research and women, for women, research is a tremendous lay-on when you are trying to maintain a balanced relationship." Thus, it appears that female low producers who are married feel some role strain and conflict with the role of research producer and wife and mother.

**What Forces or Factors Enable or Inhibit Research Production?**: A Conclusion

**The High Research Producer**

The high research producer exhibits a high degree of self direction and motivation from her/his early years. As Jencks (1960) noted in his reanalysis of the Coleman report, there appears to be some association with mother's educational level and the child's later educational achievement as most mothers of high producers were educated beyond high school as nurses or teachers. During both high school and undergraduate college years, the high producer acquired a firm foundation in the search for knowledge in at least one of the following ways: 1) being a leader in academic or 2) vocational skills and 3) developing writing skills. Upon graduation, he/she held a variety of teaching positions at various levels, averaging 2-3 years at each level.

However, early in the high producer's career, he/she returned for further education, usually the master's degree. All high producers returned for want of more knowledge, preparation or credentials and the academic power which came with them. Most enjoyed and were expanded by
their research courses and contact with researchers. Although not all people did theses, those who did felt positively about the research experience.

By the time they made the decision to obtain the terminal degree, high producers had developed a close affiliation with the academic career and those within it. In essence, they felt that they belonged in academia and that they were accepted and encouraged by others to pursue that type of career. As Blake (1977) and Eckstrom (1978) suggested, high producers usually held a research associateship during their graduate school years. They strongly identified with research and viewed themselves as part of the research team. Most had experiences with a variety of aspects of the actual research process (Worthen, 1968) often working on several sponsored projects (Cameron, 1978) before beginning the dissertation.

Having collaborated with noted researchers early on, the high producer's research interests and abilities became known and consequently they were encouraged to write for publication (Cameron, 1978). In fact, most high producers had several publications before completing the doctorate.

Upon completion of the doctorate, most high producers received support and guidance from advisors and other colleagues in seeking their first job in academia (Cameron, 1978). All but one high producer accepted employment in a research oriented university. Slightly over 50% percent accepted positions in universities other than those at which the doctorate was received.

For the high producer, seeking a position at a research oriented university was essential to the continuation of the research process
(Cameron, 1978). Such persons responded immediately to research contacts in the new position (Hall, 1975) and immediately become involved in further research and writing. Although most researchers report enjoying the teaching process, their preference is clearly research (Behymer, 1974; Beam, 1976; Longwood, 1969; Woodrow, 1978). For the high research producer, research and scholarly activity truly do "undergird all other missions of the university."

Looking back over their careers, high research producers in vocational education are clearly exemplars of the research literature reviewed in Chapter II of this dissertation. They benefitted greatly by the research environment while in graduate school and actively sought a similar environment for their own employment. Looking back over their careers, there is strong evidence of the effect of this "intellectual ethos" on the high producer.

In their own words, the research environment has been central to their existence. It is important "to do research right away", "to develop a systematic line of research early on" and "to align yourself with people who are researchers from both a content and methodological background." Most believe that while "people have innate abilities, most develop these in research."

It is particularly important to have a mentor and a network to support the growth of research. "A mentor is key to helping you move along" in research, guiding one through experiences and situations, but one who is useful in "keeping you out of hot water." This person is also useful as "someone to write with until you become known" and is often someone who will help you "get in contact with others" at professional meetings and in other informal academic contexts. This
type of mentoring (Cameron, 1978) and communication with faculty and professional colleagues at other institutions have been found to be of particular significance in other studies on faculty research productivity (Behymer, 1979; Beam, 1976; Lingwood, 1969; and Hall, 1975).

Moreover, high producing research faculty believe that "you must be a futurist to be a successful researcher." By working on socially important issues years before anyone else, the research can "strike while the iron is hot." High producers urge that one's dissertation results should be published (Hall, 1975) and that the researcher should not be afraid to take risks. "Never be afraid to get involved" with the new. "Never fear to venture out to the new."

The Low Research Producer

On the other hand, the low research producer typically identifies much more strongly with teaching than with research. The low producer generally enjoyed and stayed longer in each successive teaching experience (i.e., secondary, adult and college teaching) and sought further academic work to improve teaching or because it was required by the profession.

While some high producers had research work experiences as part of their master's work; no low producer reported doing this kind of work in the master's program. Combined with their teaching longevity the low research producer appears to be a rather passive personality type, beginning doctoral work more because it seemed the next step or the thing to do than because she/he enjoyed the competition and/or intellectual stimulation.

Even while completing doctoral work, the low producer expressed no
strong, personal research commitment. Fifty percent of the low
producers had teaching assistantships/associateships (Blake, 1977).
Although there were some stimulating moments, most viewed their doctoral
work as something they had to get through, rather than something that
helped them see research as a central, critical concern to the
profession.

The low producer seems particularly deficient in the critical areas
of mentoring and networking in research (Cameron, 1978). Most found
some support during graduate school in academic types; however, it was
more in the spirit of cooperation than it was in the joy of the
discovery of the research experience that high producers shared with
mentors. Perhaps as a consequence of that limited contact with
researchers, low producers currently report smaller networks than their
high research producing colleagues.

Although 50% (5) of the low producers stayed on at the doctoral
institution, 30% (3) accepted positions in non-research oriented
universities colleges (Hall, 1975) or a secondary school where the
emphasis was teaching rather than research. Although all three faculty
eventually returned to the university setting, the majority of low
producing faculty exhibited little publication activity after the
receipt of the degree.

Is There a Difference in the Factors Enabling or Inhibiting Research by
Vocational Service Area, Career Stage or Sex of the Researcher?

Vocational Service Area

By viewing high and low producers of research, it appears that
there are differences in research productivity by vocational service
area. Although there are high research producers in every service area,
the majority (n=6) are in the general area of vocational education rather than in any specific service area. Although two of the six have undergraduate degrees in agriculture, and one in distributive education, the remaining three have undergraduate degrees in another vocational field. All but one of these six vocational-technical service area high producers received a masters and/or doctorate in vocational-technical education. It is in the two areas of home economics and agriculture where all of the low producers were located. This phenomena can be more adequately pictured by the raw scores of each of the 12 variables used in the computation of the CRPI for the four service area groups noted in Table 9. Since there were significant differences in the business and office and distributive education groups, they were listed separately. The reader will note that the agriculture and home economics mean CRPI scores were 6.8, while those of their colleagues in vocational education were 12.2.

Since exactly half of the faculty who participated in the study were in agriculture (27) or home economics (16), this is indeed a powerful statement about research producing faculty in these two areas. Much support can be found for this observation among the other members of these service areas not classified as high or low producers. According to members of the two service areas, there appear to be three possible reasons for the generally low research productivity of agricultural education and home economics education faculty:

1. strong identity with teaching and service missions;
2. administrative location of the education department being outside of the College of Agriculture or Home Economics; and/or
3. general lack of communication or networking with people
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Years Since Doctorate</td>
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<td>12.23</td>
<td>10.0</td>
<td>14.4</td>
</tr>
<tr>
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<td>2.0</td>
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<td>2.7</td>
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<td>25.3</td>
<td>57.1</td>
<td>35.5</td>
<td>100.8</td>
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<td>Journal Articles</td>
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<td>10.8</td>
<td>18.2</td>
<td>10.4</td>
<td>29.8</td>
</tr>
<tr>
<td>Books and Monographs</td>
<td>3.9</td>
<td>1.8</td>
<td>4.4</td>
<td>4.6</td>
<td>9.8</td>
</tr>
<tr>
<td>Curriculum Materials</td>
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<td>4.9</td>
<td>4.9</td>
<td>3.6</td>
<td>7.0</td>
</tr>
<tr>
<td>Popular Articles</td>
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<td>1.6</td>
<td>5.6</td>
<td>1.9</td>
<td>3.4</td>
</tr>
<tr>
<td>Media Materials</td>
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<td>1.0</td>
<td>29.0</td>
<td>.25</td>
<td>5.3</td>
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<tr>
<td>Research Reports</td>
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<td>2.0</td>
<td>4.1</td>
<td>2.8</td>
<td>12.7</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chaired</td>
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<td>8.8</td>
<td>6.5</td>
<td>12.5</td>
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<td>Completed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Grants</td>
<td>2.5</td>
<td>2.1</td>
<td>2.3</td>
<td>1.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Development Grants</td>
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<td>4.6</td>
<td>6.9</td>
<td>7.0</td>
</tr>
<tr>
<td>Corrected Research</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity Index</td>
<td>6.8</td>
<td>6.8</td>
<td>10.0</td>
<td>7.7</td>
<td>12.2</td>
</tr>
</tbody>
</table>

*These variables did not yield statistically significant (p>.05) correlations with the other variables.*
outside of the service area.

Those in agriculture and home economics continually addressed their preference for teaching over research in the interviews:

"I have a 100% teaching job and am happy with the job. Research time is out of hide time here and there just aren't enough hours in the day to do all I need to do already."

"My primary interests are not in research."

"I spend 40-60% of my time in service work, for which I receive no time credit."

"I have too many service responsibilities in this job."

Although many teaching and service activities can result in a published product, these types of activities are not generally viewed as research or scholarly activities. In fact, several faculty members expressed the concern that research activities were too narrowly defined. Pointing to an entire shelf full of published products she/he had produced in the last four years, one faculty member noted that, "research is narrowly defined here. Data generated studies which take half the time a developmental piece like this takes get brownie points where something like that gets none."

An on going debate in both home economics and agriculture is the administrative location of the education facilities. When faculty are located within the service area college some are concerned that they are not able to develop close association with education faculty. When they are located in the College of Education, they complain that they lack ties to service area roots. Blanton and Russell (1981) have put forth strong arguments for both sides in the field of agriculture. The point is probably moot in terms of this study. However, a number of study participants raised this as an inhibitor to faculty research productivity.
A number of home economists raised concerns around the issue of networking. Some noted that their network extended only to people they knew in graduate school or to those with whom they had worked as faculty members or as students. Moreover, it was felt that "we need to learn how to play the game the way the men play" and "that means networking." "We need to learn to help each other instead of playing by girl's rules" that force each woman to achieve on her own and actually encourage her to compete against another woman whom she could help by learning to work with her.

**Career Stage**

Faculty in this study reflected different interests and concerns with respect to research. New assistant professors in particular are enthusiastic and interested in the profession and anxious to advance. However, because of a grandfather clause in tenure rules, there was a number of tenured assistant professors at one university in the study. "Doing research because of promotion doesn't make that much difference for me as I'm near retirement. Whether I retire as an assistant or associate professor doesn't make that much difference to me. Most of my salary is tied to years of service, not rank." This may explain the unusually low CRPI score for assistant professors shown in Table 10.

Associate and full professors are looking forward to "enjoying the family" and "having time for quiet study" or to refine a particular line of research or inquiry. A number of males in the middle associate professor rank and those who had recently made full professor were also noted to have a great deal of concern "for the sacrifices the spouse may have made for his academic career" and are now taking more responsibility for home and family in order to allow her "to catch up."
Table 10
Means of Variables by Rank

<table>
<thead>
<tr>
<th>Variables</th>
<th>Assistant Professor (N=26)</th>
<th>Associate Professor (n=21)</th>
<th>Full Professor (n=39)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years With Doctorate</td>
<td>5.3</td>
<td>10.6</td>
<td>17.2</td>
</tr>
<tr>
<td>Early Publishing</td>
<td>3.9</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Presentations</td>
<td>17.0</td>
<td>42.3</td>
<td>88.4</td>
</tr>
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<td>Journal Articles</td>
<td>5.0</td>
<td>13.8</td>
<td>29.1</td>
</tr>
<tr>
<td>Books</td>
<td>1.9</td>
<td>7.1</td>
<td>6.2</td>
</tr>
<tr>
<td>Curriculum Material(^a)</td>
<td>5.2</td>
<td>7.1</td>
<td>6.2</td>
</tr>
<tr>
<td>Popular Articles</td>
<td>1.3</td>
<td>2.7</td>
<td>5.4</td>
</tr>
<tr>
<td>Media Materials(^a)</td>
<td>0.7</td>
<td>15.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Research Reports</td>
<td>1.3</td>
<td>7.1</td>
<td>9.5</td>
</tr>
<tr>
<td>Doctoral Committees Chaired</td>
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<td>15.0</td>
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<td>Doctoral Committees Completed</td>
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<td>13.6</td>
<td>36.7</td>
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<td>Research Grants</td>
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<td>4.6</td>
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<td>Development Grants(^a)</td>
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<td>5.9</td>
<td>6.6</td>
</tr>
<tr>
<td>Corrected Research Productivity Index</td>
<td>5.8</td>
<td>9.2</td>
<td>10.6</td>
</tr>
</tbody>
</table>

\(^a\)These variables did not yield statistically significant (p>.05) correlations with the other variables.

Note: All figures were rounded to the first decimal place.
As Blackburn (1979) suggested, "faculty interests and desire for different types of work change over the academic career" (p. 25). In a recent study of faculty at a major research oriented university, Braskamp, Fowler and Ory (1982) found that assistant professors are generally interested in becoming professionals and advancing in the profession. Associate professors are working on establishing or restoring balance to their lives, selecting a professional lifestyle and advancing to full professor. The full professor is dealing with refining his/her professional life style, branching out to new professional or personal goals and experiencing the fulfillment of lifetime goals. Most faculty in this study mirror Braskamp, Fowler and Ory's model.

**Sex Differences**

As noted in the summary on enablers and inhibitors to research productivity among high and low producers, females are less likely to be high research producers. This difference in productivity is shown quite vividly in Table 11 where notable differences in output appear in nearly every category. Although females in the study had received their doctorates nearly four and a half years later than their male counterparts, these differences cannot be accounted for solely in that basis.

Having chosen the academic career, most females appear to want to compete in academic circles and some females in the study have already competed successfully. However, since being a high research producer means making research a priority, females may need to work through an other-oriented value system which may conflict with an inanimate task such as research. This conflict is eased when the spouse is willing to
Table 11
Means of Variables by Sex

<table>
<thead>
<tr>
<th>Variables</th>
<th>Female (N=23)</th>
<th>Male (n=63)</th>
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<tbody>
<tr>
<td>Years With Doctorate</td>
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</tr>
<tr>
<td>Early Publishing</td>
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</tr>
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<td>Presentations</td>
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<td>64.5</td>
</tr>
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<td>Journal Articles</td>
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</tr>
<tr>
<td>Books and Monographs</td>
<td>1.9</td>
<td>6.3</td>
</tr>
<tr>
<td>Curriculum Material*</td>
<td>5.2</td>
<td>6.7</td>
</tr>
<tr>
<td>Popular Articles</td>
<td>1.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Media Materials*</td>
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<td>Doctoral Committees Chaired</td>
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<td>Doctoral Committees Completed</td>
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<td>Research Grants</td>
<td>1.0</td>
<td>3.5</td>
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<tr>
<td>Development Grants*</td>
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<td>5.8</td>
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<tr>
<td>Corrected Research Productivity Index</td>
<td>7.3</td>
<td>9.3</td>
</tr>
</tbody>
</table>

*These variables did not yield statistically significant (p>.05) correlations with the other variables.

Note: All figures were rounded to the first decimal place.
become an equal partner in child rearing and/or is committed to the research process himself, but for most married females in traditional areas such as home economics, this is still a major inhibitor to a research-oriented academic career.

Unmarried females in home economics, may also suffer from the characteristically female, other-oriented value system. Being other-oriented frequently mitigates against the achievement of circumstances that foster research and scholarly productivity. Females in the study (70% of whom were home economists) frequently noted that they were assigned or elected to faculty committees, had extraordinary service responsibilities, heavy teaching and undergraduate advisement loads. Although most were aware of the effects such hectic and diverse schedules had on research and scholarly activity, few had taken steps to make such stresses known to administrators concerned about faculty productivity nor were they refusing to take on additional tasks or responsibilities. Epstein (1970) notes that women frequently take on more responsibilities than can be successfully dealt with as a subtle way of avoiding success. It is in this way, Epstein posits, that women protect themselves from the harsh realities of the competitive world, where men (sic) most both stand on their own and work as part of a team. In short, by being joiners and followers rather than leaders, women in home economics have generally been spectators at the academic game but not players in it.

Are Successful Female Researchers Developed Differently Than Successful Male Researchers?

Although the number of cases of successful women were few in this study (2) those who are high research producers have functioned in
academic circles by following the rules of the principle players in
game, successful male researchers. They have learned to be well
prepared, assertive and ambitious. Their time is important to them and
they protect it.

However, they are flexible, sensitive people who are willing to
work long hours and make intelligent trade-offs in their work. Although
both high producing women enjoy teaching, they have made research a
priority in their lives. They have learned the rules through
observation ("It was clear to me that if you do good research, you can
get promoted"), through mentoring by males ("My advisor was a noted
researcher. He was a good example for me, and he made sure that I got
to know research and researchers in other vocational fields") and by
networking with others ("I think it is important to keep up your
contacts at other universities. I want people to know what I'm doing
and to know where to contact me if they want to discuss an idea or do a
joint research presentation. At the same time, I want to be able to
help other women get ahead.").
CHAPTER V
SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Summary

The Ph.D. degree in education is a research oriented degree. Those who successfully complete the degree are expected to continue doing research beyond their graduate school years, yet a mere 10% of persons with education doctorates actually continue to do research and publish upon receipt of the degree. Seventy percent of those who continue to produce research are located at research universities where the expectation to publish is the greatest (Clark and Guba, 1978).

While literature on the development of research productive faculty has appeared recently, little included vocational education researchers, and none specifically focused on those researchers and the factors which enhance or inhibit their research involvement. Identification of these factors could enable administrators, faculty members and doctoral students to develop group or individual professional development plans to achieve increased research productivity.

Therefore, the objectives in this study were:

1. To determine positive and negative correlates of high and low research productivity among prominent doctoral level vocational education researchers employed by research oriented universities.
2. To describe the attributes and experiences of the high and low research producer as they relate to scholarly productivity.
3. To determine if there are differences among these researchers by vocational service area, career stage or sex.
4. To derive implications for graduate training and faculty development programs to facilitate research productivity.

The sample consisted of vocational education faculty members at six research oriented universities that were members of the University
Council for Vocational Education (UCVE), appeared on the Clark and Guba (1978) listing of the 24 highest producers of education research and development and/or appeared in the top third of the 100 institutions rated by Schubert (1979) as high presenters for 1975-1978 American Education Research Association (AERA) annual meetings, and had faculty members in the following vocational service areas: home economics education, agricultural education, business and office education, marketing and distributive education, and vocational-technical education. Of the 101 faculty members contacted for participation, 86 faculty members were interviewed, for a response rate of approximately 84%.

The design of the study was a methodological mixture of qualitative and quantitative strategies. The data collection devices consisted of a personal vita obtained from each of the study participants before a personal interview was conducted. This enabled the interviewer to become familiar with the characteristics of the interviewee's research experience. During the interview, a checklist facilitated the gathering of baseline data on the researchers who were studied (i.e., receiving financial support during graduate school, service as a GTA or GRA, authorship while a graduate student, research assistance given by doctoral advisor) and served to create a frame of reference for the interviewee at the beginning of each interview session. A face to face interview on site was the means of gathering the qualitative data (i.e., perceived writing competence, mentoring relationship) in a natural setting.

The interviews were conducted using what Patton (1980) terms a successive focusing method. This means that the interviews were
conducted in clusters of two (33% of the sample), with analysis of interview transcripts and categorization of the data into theme areas completed at three separate times. As subsequent interviews were conducted, interview questions were restated or additional questions were added to the interview. As categories developed, they were verified by a second person off-site, and presented to subsequent respondents for confirmation checks.

In order to identify unusually high or low producing faculty members, a research productivity index was created. Pearson product moment correlation coefficients were computed for 11 variables speculated to contributed to research productivity. Eight were highly correlated and used in the computation. They were: number of presentations, journal articles, books, popular articles, research reports, research grants, doctoral committees successfully chaired, and doctoral reading committees successfully completed. After converting individual values to a scores, these eight measures were added together and divided by the years since the individual faculty member had received the doctorate (using 1982 as the correction factor) to form a corrected research productivity index (CRPI).

Since the interest in this study was to examine in detail the unusually high and low research producing faculty, those who had CRPI's more than one standard deviation above the mean were categorized as high producers (n=11). Accordingly, those with CRPI's more than one standard deviation below the mean were categorized as low producers (n=10).

The High Research Producer

An academically motivated person from his/her early years, the high research producer has typically moved rapidly from one academic
challenge to the next. Initially, teaching provided this challenge, and the high producer sought out experiences working with secondary, community college and adult students.

Seeking additional ways of knowing, more academic work was begun which usually led to a master's degree. Most enjoyed and were expanded by their research courses and contact with researchers. Although not all people did theses, those who did felt positively about the research experience.

By the time they made the decision to obtain the terminal degree, high producers had developed a close affiliation with the academic career and those within it. Most held a research associateship during graduate school and had experiences with a variety of aspects of the actual research process, often working on several sponsored projects before beginning the dissertation. These writing and research experiences resulted in several publications before completing the doctorate.

Another key factor to the success of a high research producer is the presence of a mentor. Defined as a person who believes in and actively supports the new researcher, a mentor can be useful as a role model, a colleague and as someone who can help the fledgling researcher make valuable professional contacts at professional meetings and in other informal contexts.

Upon completion of the program, most received support and guidance from these mentors and other colleagues in seeking their first job in academia. For the high producer, finding a position at a research oriented university was essential to the continuation of the research process. Such persons responded immediately to research contacts in the
new position and become involved in further research and writing. In fact, high research producers thrive on the “intellectual ethos” of the university or the research process and actively seek out further challenge along these lines.

Although most researchers report enjoying the teaching process, their preference clearly is research. For the high research producer, research and scholarly activity truly do “undergird all other missions of the university.”

The Low Research Producer

On the other hand, the low producer typically identifies much more strongly with teaching than with research. The low producer generally enjoyed and stayed longer in each successive teaching experience (i.e., secondary, adult and college teaching) and sought further academic work to improve teaching or because it was required by the profession. Combined with their teaching longevity, the low research producer appears to be a rather passive personality type, beginning doctoral work more because it seemed the next step or the thing to do than because she/he enjoyed the competition and/or intellectual stimulation. There seemed to be no career planning or compelling drive that prompted return to graduate school.

Even while completing doctoral work, the low producer expressed no strong, personal research commitment. Fifty percent of the low producers had teaching assistantships/associateships. Although there were some stimulating moments, most viewed their doctoral work as something they had to get through, rather than something that helped them see research as a central, critical concern to the profession.

The low producer seems particularly deficient in the critical areas
of mentoring and networking in research. Most found some support during graduate school among academics; however, the support was more in cooperation to accomplish work to be completed than it was in the joy of the discovery of the research experience that high producers shared with mentors. Perhaps as a consequence of that limited contact with researchers, low producers reported smaller networks than their high research producing colleagues.

Although five of the 10 low producers stayed on at the doctoral institution, three accepted positions in non-research oriented universities or colleges or a secondary school where the emphasis was teaching rather than research. Although all three faculty eventually returned to the university setting, the majority of low producing faculty exhibited little publication activity after the receipt of the degree.

Differences in Research Productivity Factors by Vocational Service Area, Career Stage or Sex of the Researcher

Differences in research productivity were noted by vocational service area, career stage and sex of the researcher. Although faculty identified with every service area were found among the ranks of the high research producers, most were classified in the general service area of vocational education. However, all faculty classified as low research producers were in home economics education or agricultural education.

Differences in research productivity by career stage were also noted. Although most faculty who are interested and productive researchers remain so throughout their careers, more untenured assistant professors expressed an interest in research than faculty in any other
rank. In these times of retrenchment, it is generally assumed that those who are not research productive will soon be washed out of research oriented universities. Thus, the untenured, unproductive assistant professor will soon be an artifact. However, because of a grandfather clause in a tenure rule at one university, a number of low research producers also held the rank of assistant professor.

With respect to sex differences in factors enabling or inhibiting research productivity, it appears that home economics females are slightly less likely to be high research producers than their counterparts in agriculture. In addition to being more oriented toward teaching, females appear to have extraordinary service and advisement loads. Although most were aware of the effects such hectic and diverse schedules had on research and scholarly activity; few were as protective of their time as high producers reported being.

Differences in the Development of Successful Female and Male Researchers

However, there were few significant differences in the development of high research productive female researchers and her male counterparts. Both sexes exhibited a high degree of motivation and drive in their research pursuits. Each indicated an early interest in the scholarly role and actively sought out experiences which would further that goal, including employment at a research oriented university where the research ambience prevails.

High research producing females have two additional characteristics which may distinguish them from other female colleagues. They have been mentored by a noted male scholar or researcher in the field and they are married to men who themselves hold a doctoral degree.
Conclusions

The following variables were correlated with faculty research productivity. They were: number of presentations, journal articles, books, popular articles, research reports, research grants, doctoral committees successfully chaired and doctoral reading committees successfully completed.

Profiles of high and low research producers were derived both quantitatively and qualitatively. In both cases, those on the extremely high and low ends of the productivity curve have markedly different profiles than those of their colleagues scoring in the middle range on the CRPI index. High producing faculty identified with the academic career and those within it. They were oriented toward research and scholarship and were trained by well known researchers or scholars. This mentoring relationship helped the high research producer learn research skills, relate theory to practice and make professional contacts. This productivity has continued throughout the high researcher's career, and this type out-scores other groups on every correlated measure except popular articles.

On the other hand, the low producer identifies much more with teaching than with research. Most of the low producers' experiences and pleasures come from types of activities which relate to teaching rather than those measured by the CRPI score. The low producer views him/herself as a people oriented person and generally distains or puts off research and writing activities in favor of student or other personal concerns.

While high research producers were found in every service area, low research producers were only found in agriculture and home economics.
In fact, the female oriented home economics group accounted for a higher proportion of the low producing group for their sex than did those females in the rest of the study. It was noted, however, that high research producing females were mentored by high producing males and were married to highly educated, academically oriented men.

Finally, high research producers generally held the rank of associate or full professor. On the other hand, due in part to a grandfather clause in a tenure rule at one university, a high proportion of the low research producing group held the rank of assistant professor.

The single limitation of this study is that six universities of a similar type were studied. Therefore, no generalizations can legitimately be made beyond the six universities and four service areas studied.

Implications of the Study

There are three direct practical implications for faculty development that can be derived from this study. The first deals with the nature of graduate training, the second with faculty selection and retention and the third with professional development beyond the receipt of the doctorate.

If a primary intent of doctoral training is to develop professionals who are competent in research, then the nature of graduate training must be altered substantially. Initially, there should be better recruitment and screening of doctoral level candidates to ascertain their attitudes and interests in research. Once admitted to the program, systematic efforts should be made to involve the doctoral
student in the actual research process. This could include (but not be limited to):

- opportunity to work on an informal basis with faculty in research projects,
- seminars with noted researchers which both faculty and students may attend and participate in,
- employment as a graduate research assistant or associate,
- joint faculty and graduate student research (from which research reports, theses and dissertations might result)
- semi-structured mentor relationships,
- structured graduate research reporting sessions, and
- attendance and participation in educational research meetings.

This might assure that doctoral level training reflects a more systematic research training effort.

Ideally, faculty seeking employment at a research oriented university would be screened on the basis of their research training. The new faculty member would have had a mentor who was a noted researcher, actual research experience apart from the dissertation, a record of research and scholarly publications, and an acknowledged interest in further research production.

Faculty who are presently employed at a research oriented university should have their research capabilities assessed based on their past and present research experience. Individual faculty development objectives should be generated and both the administrator and faculty member should develop a plan for their implementation. A good model for faculty who have not had research work experience or research mentors can be found in the Increasing Research Capacities for Women and Minorities document (Ekstrom, 1978) referenced in this
dissertation. In this program each faculty member received individual training, direction and support by a noted faculty researcher in the conceptualization, conduct, reporting and dissemination of a mutually agreed upon research project funded by the program.

Finally, professional organizations that are committed to research should actively seek ways to revitalize the research involvement of the profession. These could include regional or national research/mentor programs such as the women and minorities model previously reviewed or intensive research workshops with follow-up sessions scheduled at regular professional meetings.

**Recommendations for Further Study**

This dissertation study has generated much information that has yet to be fully exploited:

- Institutional summaries should be developed for each of the six institutions in the study. By studying intensively the interview transcripts, notes, and checklists of every faculty member at a given institution, a detailed analysis of each institution may be derived and case studies developed.

- Service area summaries should be developed for each of the five vocational service areas presented in the study. Such summaries would be useful to individual faculty departments as well as to appropriate professional organizations.

- An faculty research assessment guide should be developed. This would aid individual faculty and administrators in making a more systematic assessment of faculty experience and progress.

- The study should be replicated using high and low research producing faculty in the same five vocational service areas at masters level institutions. If possible, such institutions should be in the same states or regions as the previously studied institutions. This might aid in the development of cooperative research and faculty development efforts once a larger profile of enablers and inhibitors to research productivity within the area had been drawn.
Appendix A

Letters to Participants in the Research
Dear Dr.:

I need your help in completing my doctoral study at The Ohio State University. The study deals with factors which enable and/or inhibit research in vocational education and focuses specifically on those faculty members who are located at large research oriented institutions, including [the name of the institution].

Since the study is primarily qualitative in nature, I intend to interview faculty in person and would like to request that you participate in the study by sharing approximately an hour of your time with me. I intend to be in the [location] the week of [date] and will schedule appointments at your convenience. If you are interested in participating in the research but will be unable to meet with me that week, I can make other arrangements with you.

As with any study of this type, all research data will be reported anonymously. Results of the completed research will be available at its conclusion (Spring, 1982).

If you would be willing to participate in the study, please return the enclosed form by [date], along with a copy of your most recent vita if available. Your prompt reply and willingness to participate is more important than the receipt of your vita by [date]. Please use the campus mail to return your response to me at the National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, Ohio 43210.

I plan to contact people by telephone on [date] and [date] to confirm a specific appointment time. Thank you in advance for your prompt attention to this matter. I will look forward to hearing from you.

Sincerely,

Maureen E. Kelly
Doctoral Candidate
Comprehensive Vocational Education
Dear Maureen:

I am not willing to participate in your doctoral research study.

(Please complete only if yes.)

I have not enclosed my vita. I would be available for an interview and appointment at the following times:

<table>
<thead>
<tr>
<th>Mon.-0/00</th>
<th>Tues.-0/00</th>
<th>Wed.-0/00</th>
<th>Thurs.-0/00</th>
<th>Fri.-0/00</th>
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<td>AM 9</td>
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Other, please specify.

I will expect to hear from you by telephone on _______ or _____ to confirm a specific interview time during the week of _______.

(Name)

Best telephone number to be contacted at:

during the day __________________
evening _______________________

(Please provide only if you are willing to be called in the evening.)
Appendix B

Instrumentation
On a scale of 1 to 3, how important were the following experiences/situations to your development as a researcher?

<table>
<thead>
<tr>
<th>GRADUATE TRAINING</th>
<th>Not Applicable</th>
<th>1. Least Important</th>
<th>2. Less Important</th>
<th>3. Especially Important</th>
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<tbody>
<tr>
<td>The university I received my PhD/EdD at:</td>
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<tr>
<td>The courses I took:</td>
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<tr>
<td>Work with my adviser:</td>
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<tr>
<td>Specific people on the faculty with whom I worked (other than adviser):</td>
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<tr>
<td>Authorship for my research participation:</td>
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<tr>
<td>Receiving financial support during graduate school:</td>
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<tr>
<td>Holding a graduate research assistantship/associateship:</td>
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<tr>
<td>Holding a graduate teaching assistantship/associateship:</td>
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<td>Holding an administrative assistantship/associateship:</td>
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<tr>
<td>Getting funding to conduct my dissertation study:</td>
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<tr>
<td>Conducting my dissertation study:</td>
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<tr>
<td>The encouragement I received to publish my writing and research while in graduate school:</td>
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<tr>
<td>The contacts made for me with publishers or research reviewers:</td>
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<td>The professional organizations I was involved with/joined:</td>
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<tr>
<td>My personal aspirations and career goals:</td>
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<tr>
<td>People who helped me find my first job:</td>
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<tr>
<td>The people I met in graduate school and continued having contact with after I left:</td>
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</table>

Other experiences/situations contributing to my development as a researcher (please specify):
Checklist Question Pertaining To:  
Graduate Training

Factors from the Literature Review:

Conventional wisdom. Academic training and
institutional climate as graduate student.

Same sex, early collaboration, network
involvement.

Early collaboration, network involvement,
work on sponsored projects.

Authorship for research involvement, publication
support.

Financial support.

Graduate research associateship (reader ersatz)

Teaching associateship.

Ersatz research associateship (Worthen)

Financial support.

Conventional wisdom - academic training.

Publication support.

Network involvement, placement support.

Lower aspirations for females.

First job placement.

Network involvement, early collaboration.
On a scale of 1 to 3, how important were the following experiences/situations to your development as a researcher?

<table>
<thead>
<tr>
<th>On the Faculty</th>
<th>Not Applicable</th>
<th>1. Least Important</th>
<th>2. Less Important</th>
<th>3. Especially Important</th>
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<tbody>
<tr>
<td>My first job after receipt of a PhD/EdD:</td>
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<tr>
<td>The nature of my first job responsibilities:</td>
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<td>Presentations I have made at professional meetings:</td>
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<tr>
<td>The people I have regular contact with who have similar research interests:</td>
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<td>Graduate students with whom I work/have worked:</td>
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<td>My preference for research over teaching:</td>
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<td>The ideas/information I get from professional journals:</td>
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<tr>
<td>The fact that I am evaluated based on my research and publishing accomplishments:</td>
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<tr>
<td>The fact that my research is an important part of this university's research, teaching and service functions:</td>
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<tr>
<td>The support to do research that I receive from the research office on campus:</td>
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<td>The support to do research that I receive from the dean:</td>
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<tr>
<td>The support to do research that I receive from my department chairperson:</td>
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<tr>
<td>The university-wide support that exists here for research:</td>
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<tr>
<td>The support on campus for interdisciplinary research:</td>
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<tr>
<td>The secretarial services I have:</td>
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<tr>
<td>The library resources I have:</td>
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<tr>
<td>The graduate students with whom I work as research assistants:</td>
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<tr>
<td>Other professional support which is available to me:</td>
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<tr>
<td>Other experiences/situations contributing to my development as a researcher (please specify):</td>
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</tr>
</tbody>
</table>
Checklist Question Pertaining To:  
On The Faculty

Factors from the Literature Review:

My first job after receipt of a PhD/EdD: First job placement, appointment, work load.

The nature of my first job responsibilities: First job placement.

Presentations I have made at professional meetings: Interest in research, Preference for research, communication with colleagues.

The people I have regular contact with who have similar research interests: Interest in research, Preference for research, communication with colleagues.

Graduate students with whom I work/have worked: Network involvement.

My preference for research over teaching: Preference for research.

The ideas/information I get from professional journals: Number of journal subscriptions, Interest in research, communication with colleagues.

The fact that I am evaluated based on my research and publishing accomplishments: Research emphasis.

The fact that my research is an important part of this university's research, teaching and service functions: Research emphasis, Integration of research.

The support to do research that I receive from the research office on campus: Administrative assistance.

The support to do research that I receive from the dean: Administrative assistance.

The support to do research that I receive from my department chairperson: Administrative assistance, evaluation, work load, appointment.

The university-wide support that exists here for research: Institutional climate.

The support on campus for interdisciplinary research: Support for interdisciplinary research.

The secretarial services I have: Support services.

The library resources I have: Support services.

The graduate students with whom I work as research assistants: Support services.

Other professional support which is available to me: Support services.

Other experiences/situations contributing to my development as a researcher (please specify):
Appendix C

Descriptions of High and Low Research Producers
Early Years

ID
81, 62  Mother an R.N.
81, 62  Father a banker.
46    Parents high school grads.
21    Both parents teachers (father vocational education teacher).
12    Mother was a teacher.
40    Mother was a teacher.
62    Father was a superintendent of schools.
46    Mother a creative writer (letters).
41    Strong support to go to college.
41    From a military family - did a lot of traveling.
81    "I was an inquisitive child".
81    "I had a lot of alone time".
81    "I picked up rocks and classified them for entertainment".
62    I came from a very academically oriented high school.
21    I wanted to go on to college, but to be a journalist/writer.
1     FFA, class president, FFA president.
HIGH PRODUCERS

40  Active in FFA in high school (office).
12  Vocational agriculture in high school.
46, 12  I enjoyed writing in high school.
40  Wrote articles for state newsletter while in high school.
46  Editor of high school newspaper.
1  Class president, valedictorian.
Early Years

<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>42, 27, 24</td>
<td>Mother a teacher.</td>
</tr>
<tr>
<td>11, 17</td>
<td>Mother-high school graduate.</td>
</tr>
<tr>
<td>11</td>
<td>Father-originally a teacher.</td>
</tr>
<tr>
<td>24, 17</td>
<td>Father-7th or 8th grade.</td>
</tr>
<tr>
<td></td>
<td>Father-high school.</td>
</tr>
<tr>
<td>42</td>
<td>Father had some college.</td>
</tr>
<tr>
<td>18</td>
<td>Parents had some high school</td>
</tr>
<tr>
<td>48</td>
<td>&quot;My parents wanted me to go to the best available university&quot;.</td>
</tr>
<tr>
<td>27</td>
<td>&quot;A high value was placed on teaching and education in our family. All</td>
</tr>
<tr>
<td></td>
<td>of us have college degrees.&quot;</td>
</tr>
<tr>
<td>18</td>
<td>&quot;My parents showed support for education only after we expressed some</td>
</tr>
<tr>
<td></td>
<td>interest in continuing our education.&quot;</td>
</tr>
<tr>
<td>84, 17</td>
<td>A good student.</td>
</tr>
<tr>
<td>27, 24</td>
<td>Just an average student.</td>
</tr>
<tr>
<td>18</td>
<td>Being in college prep program &quot;everyone else doing it. My guidance</td>
</tr>
<tr>
<td></td>
<td>counselors thought I wasn't college material.&quot;</td>
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</tbody>
</table>
24, 17 Officer in FFA.
24, 48 4-H - lots of success.
30, 24, 61, 17 Vocational agriculture student.
30 State officer in youth organization.
30, 24, 84 Active in student organizations.
48 International travel and study.
18 "I didn't want to get married and have kids, so I became college oriented." "My summer job employer obtained scholarship applications for me."
18 "It took a lot of (role) dissonance to get me going (in new paths) as I was very shy."
30 Since there wasn't enough land for all of us to farm, I became a vocational agriculture teacher.
42 Concern for detail, conscientious, risk taking, intuitive leaps, analyzing, reflective, conclusion making in many ways, a loner, best friends with people in trig class.
42 Among top 3 students in class.
Undergraduate Experience

81 Took as undergraduate/graduate courses.
1. Conducted research study.
2. Real experiences with research data-cell by all analysis in one course.
3. Critiquing, abstracting others work.

40 Remembers graduate students doing research.

12 Newman Club/Agriculture Education Club gpa - top of the class - follow up of agriculture students brought me back for Ph.D.

40 A good student (high 4 year average) had to pass an English proficiency exam (I did well - passed 1st time although all of us lived in mortal fear of the exam).

1 Took graduate courses before beginning teaching - right after undergraduate work.

41 Concentration in mathematics & economics.

41 Courses in statistics, tests and measurements.

41 Wrote a good deal of papers, used library often learned how to organize ideas and find information on own. Semester plan may have influenced development-there was time to gather information and refine ideas in 18 weeks.
Looking for a challenge. Found undergraduate institution weak in this respect.
In college, in several honor societies. Discussed a great deal about consumer research. Also, campus politics, knew must be prepared with facts. Owner of store wanted opinion. "Knowing the truth without emotion." In the college program took a minor in English.
Worked in a college office as administrative assistant.
### Undergraduate Years

<table>
<thead>
<tr>
<th>ID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>G.I. bill made college possible.</td>
</tr>
<tr>
<td>24</td>
<td>Strong teaching influence from a master teacher.</td>
</tr>
<tr>
<td>24</td>
<td>Liked the academic type.</td>
</tr>
<tr>
<td>17</td>
<td>Selected major because interested in returning to rural area after degree.</td>
</tr>
<tr>
<td>84</td>
<td>Older brother in a related area of study.</td>
</tr>
<tr>
<td>18</td>
<td>Had student teaching experience with dogmatic type.</td>
</tr>
<tr>
<td>30, 84</td>
<td>Active in several organizations.</td>
</tr>
<tr>
<td>48</td>
<td>Very positive student teaching.</td>
</tr>
<tr>
<td>18</td>
<td>&quot;I forced myself to work with people and get into leadership positions to overcome my shyness.&quot;</td>
</tr>
<tr>
<td>18</td>
<td>A very small group of students with one teacher who taught all the (service area) courses. We got continuous support from this person as we were an important part of her daily life. My peers were supportive and we learned from each other.</td>
</tr>
<tr>
<td>30</td>
<td>Faculty was highly encouraging, warm.</td>
</tr>
<tr>
<td>30</td>
<td>Did little research projects in classes.</td>
</tr>
<tr>
<td></td>
<td>Animal demonstration/experience stands out.</td>
</tr>
<tr>
<td></td>
<td>Food experimentation.</td>
</tr>
<tr>
<td></td>
<td>Going to journals to read abstracts of conclusions-application.</td>
</tr>
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</table>
LOW PRODUCERS

Was critical of faculty not doing research, but _____ for undergraduates were helpful.
### Years of Secondary Teaching Before Ph.D./Ed.D.

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<tr>
<th>Years (ID)</th>
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<td>1 (21)</td>
<td>(12)</td>
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<td>4 (1)</td>
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### Years of Teaching Adults or Community College Before

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<th>Years (ID)</th>
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<td>1 (38)</td>
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<td>2 (50)</td>
<td>(46)</td>
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<td>3 (41)</td>
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<td>4 (44)</td>
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<td>5</td>
<td></td>
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<tr>
<td>6 (81)</td>
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</table>

### Years of College Teaching Before Doctorate (Not Including Graduate Work)

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<tr>
<th>Years (ID)</th>
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<tbody>
<tr>
<td>0 (21)</td>
<td>(12)</td>
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<tr>
<td>1 (81)</td>
<td>(40)</td>
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<tr>
<td>2</td>
<td>(1) (41)</td>
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<tr>
<td>3 (38)</td>
<td>(46)</td>
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### LOW PRODUCERS

<table>
<thead>
<tr>
<th>Years Teaching</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tr>
<td><strong>Secondary</strong></td>
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<td>14</td>
<td>15</td>
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<td>18</td>
</tr>
<tr>
<td>4 (27) (18)</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
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<td>17</td>
<td>18</td>
<td>19 (84)</td>
</tr>
<tr>
<td>5 (17) (61) (24)</td>
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<td>16</td>
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<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>6 (48) (42)</td>
<td>14</td>
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<td>16</td>
<td>17</td>
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<td>19</td>
<td>20</td>
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</tr>
</tbody>
</table>

### Adult Education or Community College

| 1 (27) (42) |
| 2 (84) (30) |
LOW PRODUCERS

College Level (Exclusive of Graduate Work Responsibilities)

1   6 (17) (84)  11
2   7            12
3   8            13 (11)
4 (61) (48) (24) 9
5   10

Administration

11 - (17-camp director)
2 - (61-state supervisor)
4 - (30-supertendent)
## Master's Work - Initial Impetus

<table>
<thead>
<tr>
<th>ID</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>I had a fellowship offer.</td>
</tr>
<tr>
<td>50</td>
<td>Wanting a stronger teacher preparation program.</td>
</tr>
<tr>
<td>1</td>
<td>I took graduate courses right after graduating from B.S.</td>
</tr>
<tr>
<td>81</td>
<td>My spouse was working on a Ph.D. in a cognate area.</td>
</tr>
<tr>
<td>38</td>
<td>I wanted to make a significant contribution to vocational education.</td>
</tr>
<tr>
<td>44</td>
<td>Returning from 2 years in the service I felt the need to update myself.</td>
</tr>
<tr>
<td>81</td>
<td>I always wanted to get a master's degree.</td>
</tr>
<tr>
<td>46</td>
<td>Encouraged to get credentials at __________, a research oriented university.</td>
</tr>
<tr>
<td>12</td>
<td>&quot;I by-passed the Master's degree&quot;.</td>
</tr>
<tr>
<td>40</td>
<td>Opportunity to move to state level job. Rejected from a position because didn't have Master's - never again.</td>
</tr>
</tbody>
</table>
Master's Work - Research Involvement

ID
81 Involvement in research immediately with advisor. Small business - management of grants and bibliography.
81 Assistant to Dean. Prepared data for dean.
46 I worked for the premier researcher in my field as a teaching assistant.
81 Research course with advisor actually did research.
81 Colloquium paper - allocation of equipment costs from work with dean in data preparation.
41 Took more research and statistics courses than as undergraduate.
21 "My master's advisor was the tough, caustic sort. He had high standards, and was a tough task master. When he assigned you to tasks, he expected you to get them done. He had a tremendous knowledge about vocational education and labor, but was not a researcher."
46 Took courses from well known vocational education research professor.
44 One of (doctoral advisor's) better students.
40 Part time-evening and summers master's. Did not choose thesis because it scared me. Did a project
more related to teaching. Took a research methodology course - knew basics but didn't do thesis. Attitude toward research at XU was knowledge of (but not practice in) research.

Helpful in understanding research. Did it part time - mostly summers.

Required oral and written exams at the master's level may have made for a more rigorous program.

At the end of my master's work, I was with two guys, one in special education and one in industrial education and at the end of my master's program they had gotten a project funded with the state office to develop curriculum in the area of vocational and special education.

Master's Thesis

I liked the quantitative stuff, something attractive to people in business and industry.

Learned the basics of research design, analysis, identifying researchable problem.

People on my committee were from business as were economists. Enjoyed their way of looking at things.
Other Things That Seem Pertinent (Pre-doctoral)

46  Assigned to teach - youngest on faculty. A new subject area program - first program in state USOE. Operationalization of grant, 3 years collection of data. Had good role models for research even then - I was encouraged to get credentials (master's); encouraged full-time study at a research-oriented university.

Industry Related Experience

2 years  A food related business (developed product promotions, educational programs) (81).

I dropped out for a year after my sophomore year and worked for industry (6 months) (21).

9 years  In the trade area - tool and die maker, machine shop foreman (38).
Service Related Experience

ID

21  "I taught and edited our yearbook while I was in the military in the South Pacific".

44  "I had a desk job while in the service".
Masters Work-Initial Impetus

ID

84  After 2 years of teaching I returned part time for the Masters degree at the urging of the principal whose wife was returning, too. I think he just wanted her to have someone to ride with.

61  Working as an administrator I realized I wanted to go into college teaching.

48  Teaching, traveling, studying abroad.

24  Taught in a high school with someone who went on for masters and Ph.D. at same institution.

27  "I had made a lot of headway in my three years of teaching (high school). Going back to get a masters degree provided me with a gracious out to my teaching situation."

18  "I felt serious deficiencies in undergraduate program as a result of teaching. I did the work part time - nights and summers."

11  Wanted to do a better job of teaching, had contact with university, three student teacher and supervisor.

30  Returning from service wanting to continue education. Masters program part time-evening/summer.

42  "When I graduated from college, I knew I wanted to be a researcher on a college faculty. So, I continued
LOW PRODUCERS

taking courses on a part time basis at another university. The state department of education personnel recommended me for an associateship at ___ where I knew I would eventually do the master's and doc. I think that I would have waited at least another year if not for the associateship offer."

Masters Work—Research Involvement

<table>
<thead>
<tr>
<th>ID</th>
<th>Research related - especially research methodology.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>I tried to use my course work to supplement my thesis work. I did the review of literature and implications chapters in other courses.</td>
</tr>
</tbody>
</table>
Masters Thesis

10

61 Developed evaluative test for each of 4 areas for curriculum materials.

61 "I learned the importance of methodologically tight research designs."

18, 27, 84, 17, 24 Did not do one.

11 Initially, had chosen the non-thesis option but switched to thesis research option - actually did an active research study but career goals were to do a better job of teaching.

30 "Thesis was required and related to my teaching responsibility."

42 The thesis - follow-up study topic was timely but one I was very interested in. I identified the topic early on which enabled me to finish in a year.

42 At the end thesis oral exam, two of my committee members told me that now I must publish my study. I think that the faculty could have encouraged earlier/helped us to publish. It's important even at Masters level. And it is helpful to know how to do the mechanics of publishing like -writing a draft for publication. I did not see the publish-
LOW PRODUCERS

ing aspect until it was pointed out to me.

Other Work Experience

ID
61 Two years of self employment.
18 A sidetrack into business - "I still wasn't really sure there wasn't something else I might love."

Service Related Experience

ID
61 Two years of military service.
30 Four years in service in the technical training department/information and training office.
Taught refresher and review courses.

Supervisor of Student Teachers

ID
84 Thirteen years at request of (current) division chairperson.
61 Good with problem students. Had an exemplary (state recognized) youth organization chapter and an adult program.
Brought new ideas to me and the teaching situation and I had a working colleague.

thirteen years.

Other Experiences Between Masters and Doctorate

An overseas curriculum development teaching and research project sponsored by the university.
Significant Others Before Ph.D. and Ed.D.

10
81  My spouse was working on a Ph.D. in a cognate area.
12  My spouse was working on a master's degree.
38  My master's advisor suggested that I switch to University of Michigan.
21  An ittinerant teacher who recruited me for the master's degree and later encouraged me to publish.
38  My wife was working on a Ph.D. at Master's level institution.
12  The follow up system of undergraduates is a good one. Since I was a very good student (as an undergraduate) I was invited to return for a Ph.D. and offered a federally supported fellowship. (The person inviting became my advisor.)
40  Although I had applied to 4 other universities, all of the faculty at X (master's university) were graduates of Y (doctoral university). It also had a national reputation for (service area). I met the chair of the department at a national conference and my advisor urged me to apply.
1  By the time I finished my masters, I had had enough experience in education to know that I wanted a Ph.D. in teacher education. My master's
advisor encouraged me to make a national search in my area of interest.

Enjoyed economists on masters committee (almost went into for Ph.D.).

My spouse had a fellowship at (doctoral level institution).

The director of the project I worked on for three years was a graduate of (doctoral institution) and knew (doctoral advisor).

"My advisor told me to be discriminating in what you do. Make sure you have all the angles before you begin. Don't get caught unprepared."

People at other universities and in national office (has had close ties with them due to work on national funded projects).
Low Producers

Significant People Before Ph.D./Ed.D.

ID Head of department at doctoral level institution. Replaced "head for a year".
17 State superintendent, encouraged to get Ph.D. - someone to help him run the schools - arranged for him to continue job but take courses.
17 Department chair invited to apply to doctorate program. Was accepted, but decided not to accept. Ten years later, did. However, at the time 1st accepted, received one of the 1st specialist degrees (6th level) in the subject area awarded by the state.
84 Masters advisor who had "great contacts in the field."
11 Masters advisor who got involved with writing curriculum materials, principles of science, physics, math and economics related to (service area).
61 "A battery of tests and a friend convinced me that I had Ph.D. ability."
48 A university level instructor because of flexibility and good sense.
24 A master teacher and researcher who laid out the
whole research process in a series of research
courses.

30, 24

A master teacher and department chair.

24

"Other graduate students from my masters program.
We were a close knit group and we batted around a
good many ideas."

27

My masters advisor and another faculty member
encouraged me to accept a fellowship and begin
work on the doctorate. Another graduate student
whom I was close to was staying on and encouraged
me to, also.

18

"My masters advisor who supported me in building
a content area in the profession."
Habit of Early Publishing (Predissertation)

"I got two publications virtually at the same time".
"I was from the research project I worked on as a graduate assistant, the other a monograph published by the department of my thesis".

I had 4 publications by the time my dissertation research was published. By that time, I had worked on 3 more projects at the research center and with other faculty in agriculture.

"I had always enjoyed writing. My first article was a conceptual piece".

A faculty member at (master's institute) encouraged me to write my first piece.

Had 4 publications before master's degree (was a recipient of a national teaching award).

I had one publication resulting from my graduate assistant position.

2 publications. One was a report on the readership of a journal, one based on research with my advisor.

"My doctoral advisor encouraged me to write a journal article on my masters thesis - wrote a cover letter to editor when I submitted it".
It was an article in the state's (service area) education journal that dealt with this project that we were working on, this voc ed project. At that time it was just a descriptive article about the project. Basically, the project staff, the four of us that worked together on that project decided, well, that we had to get something published in the state journals to let people know that this project was underway and that— you know that—we would be there for a couple years to come and were needing to get visibility. Several things came—you know—came out as a result of that particular three year project. Pieces that were about the other project in some aspect or another. And then there was a series of eleven publications that came as a result of that project. Those were products of that effort, 10 curriculum guides and 10 of a program guide. Almost everything out of that period was joint authored by the project staff. But well... then there were some other little things I did along the way. I wrote an article for Voc Ed Journal on (topic of interest). The (service area) instructor at (school) and I were good friends so we just wrote it and
HIGH PRODUCERS

published it about how they dealt with (topic of interest) kids there. There were a number of things that I tried to write and develop in those 3 years prior to the doctoral program."

"My advisor encouraged me to publish during my doctoral program. He made contacts for me with people who might want to publish my stuff and encouraged me to write things up."

Got salary increases from publishing "dean ate it right up". Learned that a sincere contribution to your profession gets advancement.
What Spurred Doctorate

ID
81  I received a fellowship.
12  I received a fellowship and was invited back.
21  Dean advised to develop career at another university.
21  I rejected a prearranged job in industry job-
by Dean. Accepted assistantship at same university-father made contacts.
40  Recognition was at peak in teaching. No
teaching, service, community awards. "Looking.
for a career change. I knew I liked the
university atmosphere and I could see myself as
a teacher educator".
1  "After years of teaching and administration my
career goals changed. I knew I wanted to
become a teacher educator and get a Ph.D."
38  After doing full-time work on the masters degree,
my career aspirations changed. I knew I wanted
to do doctoral level work and teach at a university.
41  I taught for a year at (masters level institution)
and really enjoyed the work, but I felt that I
needed a doctorate.
My advisor knew the department head at (doctrinal level institution). My spouse had been offered a fellowship in (an unrelated area) and when I was offered one in (department) I decided that was where I would go for Ph.D. work.

Still wanting to have my "insatiable curiosity" aroused. (took courses at 5 universities looking for the challenge)

"I knew after having done my master's program and gotten more into research that I was probably going to eventually, someday work on a doctorate. So I wanted to begin to see what doctoral student life was like. So I was going to (another university) one night a week usually, commuting down there for classes in vocational education and research and evaluation. But as I got into that project I got very interested in and had a chance to kind of travel the state and see different schools and see different teachers." "I began to see the way in which the work that we were doing (the curriculum materials that we were developing) was going to have some major impact on what went on in the classroom with (subject area) students. I kind of thought that might be a need to do on a long term kind of basis. I got very interested
in not only the research and development aspects but also the way in which that is shared through inservice activities or preservice programs to integrate research back into actual practice in the school. So that I think that my R & D interests are very closely allied with an interest in dissemination and utilization."

"I knew once I got that far (master's) that I'd go on".

I saw the Ph.D. as the next step up-the next rung up the ladder.

"Wanted, but didn't admit, to be at a big ten university". "Wanted to have a job just like my advisor".

Advisor made it financially feasible for him to come back to get doctorate (by offering him a fellowship/associateship).

"Six months after being employed at a university, the dean wanted me to get a doctorate in research, but not in vocational education."
Doctoral Work - Initial Impetus

A lectureship position offered to me.

"Knew it was an opportunity to move up." "Didn't want to retire in present job."

"My career goals changed - I wanted to be a supervisor of student teachers and a trainer of teachers."

Natural to continue once received masters degree, offered fulltime employment at the university.

"Working in a college (teaching) convinced me that I was as bright as anyone."

"I decided to begin doctoral work because I really liked what I did (college teaching) and wanted to continue doing it."

"I wanted an interesting life, I wasn't going to wait around for a man to marry me."

"A master teacher from my undergraduate institution who called to recruit me to their program. I wasn't really thinking of doing a doctorate but the motivation and challenge of doing one at my undergraduate institution was strong."

See - significant people comment.

My advisor offered me a graduate assistantship as I
was finishing my masters degree.
Work Experience During Graduate School (Doc's)

**ID**

81  Work administration with research advisor.

81  Wanting to branch out in experience. Hired to do program evaluation conceptualization as well as actual data collection of (3 internal reports).

81  Also had teaching experience.

21  I did institutional research as a graduate research assistant (on institutional costs/faculty work loads) for my master's advisor.

12  I was involved in two research projects as a graduate research assistant (at a research center). One evaluation, one linear programming.

40  I wanted to continue teaching (and have a college level experience) so I took the teaching assistant with the department chair (a noted teacher) (department chair upped the money to be competitive with other graduate positions I was offered.

38  A close relationship with advisor. Did several studies with him (3) before beginning dissertation.

62  "My advisor was the director of two projects that I was the principal investigator. Just having worked on a funded project in (state) and having come to understand the kind of resources that it
takes to carry on research, one of the things
that I was definitely interested in doing as
part of my graduate program was getting a project
developed and funded not only for the resources,
but also for the experience of doing that.
(Advisor) allowed me to do that, in fact, (advisor)
encouraged me to do that."

"I worked with a person who was the top in the
field but very difficult to get along with. When
I hollered back at him during a critique of
(advisor's) research, I think I won (advisor)
over to my side. As far as I know, I'm the only one
to survive him. I'm convinced that working with
top researchers is particularly important."

"The only way to learn to write is to write".
Writing, deadlines are useful, goals, need a good
staff-"I learned to manage the situation to look
for people like myself". "As a graduate student,
I worked on a curriculum project. It was
(advisor's) project, but I did almost all the
writing, a situation that is common, I think,
in graduate school. I worked well with
her/him, because I understood the situation and
she/he was very happy because I could write, and
took it seriously. She/he had a good graduate
student is what it amounted to. She/he liked that, and I had the opportunity to make some money and to do somethings. It worked out well. When you become a professor and have a project and are a director if you can find a graduate student who is good—they accept challenges well, meet deadlines, do good work and are productive, you treat them special—give them special privileges."

As a faculty member, it was obvious that people doing research and that publishing it was key. I think you can't be an effective teacher/educator without advancing the knowledge base. To make a meaningful contribution, you need to back up your statements with facts.
<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>A full time faculty member (instructor) with teaching, service and supervisory responsibilities.</td>
</tr>
<tr>
<td>42</td>
<td>Lectureship - teaching responsibility.</td>
</tr>
<tr>
<td>84</td>
<td>Working full time as an instructor. On the road a good deal.</td>
</tr>
<tr>
<td>30, 61</td>
<td>Working as a research associate (dissertation related to it).</td>
</tr>
<tr>
<td>61</td>
<td>&quot;I did a tremendous amount of writing and program development.&quot;</td>
</tr>
<tr>
<td>48</td>
<td>&quot;Two years of teaching at (another college) broke the momentum I had built up in (graduate school).&quot;</td>
</tr>
<tr>
<td>24</td>
<td>I was employed as a full time instructor.</td>
</tr>
<tr>
<td>18</td>
<td>&quot;A variety of teaching, administrative, and research experience. The research experiences were most significant for me.&quot;</td>
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<tr>
<td>11</td>
<td>Worked on a regional research project with advisor.</td>
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</table>
Courses (Doc's)

12  "I took all the statistics courses available and really enjoyed them".
12  I took a number of courses in learning theory.
40  I took 6 research courses with two master teachers, researchers. Both were fantastic teachers who really helped me to understand and use research. I used (4 courses in a research series) to build my dissertation.
1  Teachers used research in teaching.
38  All encouraged to do research and publish. Had courses from (three well known researchers).
38  One required a research paper for course-joined in research study. Another did same in research study.
50  Good foundation in math and statistics. I knew the importance of quantifying results in education.
41  There was only one person in the department, therefore, I look courses in other departments. In such a large school as (doctoral institution), I saw this as advantages to broadening my background to include such things as learning
theory, programming, systems development, statistics, and test and measurements. In fact, since there was only one course for graduate students in the department. I worked pretty much on my own taking a number of courses in the school of business and in educational psychology. I really didn't know what I was getting into. I had some notion that it was, what the college of education was like when I enrolled there, but really it was based on my limited knowledge of the field, and the literature and who was writing and where they were from and was based on just a couple day visit to the campus. Once I got there I found them, to be a group of people I consider to be some real scholars in the field of education. I just learned a lot just by taking classes with them and having them involved in my committees. Other graduate students who were also interested in research. Had other graduate students to check experiences with. Faculty who were able to view ideas, concepts from a variety of perspectives. I had outstanding teachers. People who really knew their subject area and really cared about
Became close friends with my advisor as I was involved in research projects with. The informal contacts this brought to me were most helpful as many were with people who were most influential in developing vocational education in the late 60's. "Part of the ambience of research".

Being in a liberal environment in late 60's and early 70's helped me to personally develop. In fact, I remember smelling tear gas in the middle of a class on general systems theory applied to curriculum.
ID
84  I got B's in both statistics courses since I missed classes while I was on the road. (Took incompletes in courses before finishing them.)

27  Took a number of courses. Studying, but not reflecting/philosophizing as researchers have. I need to reflect more on course work. I have a good attitude toward research.

30  "Helped me to realize that research wasn't as mysterious as it seemed."

42  I had baby between courses and dissertation research. Worked on dissertation and supervised student teachers.

42  Courses with a noted researcher were valuable - person was encouraging as a committee member.
I would say that things that they all gave me that was valuable was their time. Time out of organized graduate courses and their interest in terms of the topic that I was interested in pursuing. I would say that people like (committee member) were intensely interested in vocational and (subject area interest) education but is interested in it from an evaluation perspective and a policy perspective. And that is what he gave me, helped me begin to see, in that dissertation topic. Two other committee members gave me a lot of content, knowledge, relative to (subject area interest). (4th committee member) gave me more of a perspective on at least what (another service area) was like and what differences and similarities would be doing research in a field like that as it relates to (subject area interest).

The intellectual ethos of the institution is very important and I went to one of the best.
Since I did a theoretical study, a number of people were helpful to me.
- one person in psych with conceptualization
- one in statistics helped me describe the data in relation to the theory
- several others (3) helped me gather the data.

A straightforward piece of work. My advisor was interested in how it turned out. He insisted on an article based on my work be published in his name.

I developed a model on __________________________
________________________ which had a rather complex statistical analysis. Each of my 4 committee members contributed something to that 1) abstract/ideas theory, 2) methodology, 3) new ideas, new views, 4) practical application.

I'm a good time manager, and as a result, I finished the dissertation on time.

Involvement in __________________________
(advisor). Getting funding to conduct study helped me do the dissertation I wanted to with
the help of my advisor.

Felt in charge of dissertation. Set own standards for evaluation. Advisor suggested some ideas, one had been considered as masters rejected by committee but something wanted to do—thus, did for dissertation.


It wound up also being a final report for the research project we were working on. The fact that there were resources in that project which enabled me to get out and collect a lot of data enabled me to reproduce a set of field test materials that was, oh I don't know, was 200 pages in length and the opportunity to get out in the field and employ consultants to help evaluate that material and utilize it in the class setting. The fact that all those resources were there made the dissertation extremely interesting and kind of exciting for me and I poured 15-18 months of my
life into that thing—you know—12-15 hours a day. Plus, the fact that there was a lot as it got started, the development of the materials, and then the field testing of the materials, which is what the dissertation was—development and validation of those materials. But as you put those materials together on a preliminary basis and begin to get feedback about the extent in which they are going to be valued by the people who are users of those, who was, that feedback was very high, and high not only from the people that were potential users of the materials but people who were in teacher education settings, publishers, other researchers who were looking at it not only for content but also for some of the methodology I was using in terms of formative product evaluation. I had adopted and made some changes in a model for formative product development that [two researchers] had published in early 70's. I talked to those guys on the phone and said, "What would you think if I reorganized some of the contextual variables this way or looked at this way?" That kind of interaction with them was very helpful to me—taking their paradigm and adopting it to
my particular study. But yet, at the same time, they would write or call and say, "How is it going?" and "Let us know what you findings are relative to modifications and that particular methodology," Because I was forced into doing systematic research—there were a lot of—and once that research got designed and conceptualized and underway—there was a lot of reinforcement from people in different aspects, which really stimulated me to keep doing research in that area, trying also to maybe keep adding to that methodology, that body of knowledge about the methodology and formative product evaluation.

I spent two years working on it. I had an opportunity to develop the research completely.

Along with work on a project, did a related research project.
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<td>17</td>
<td>Had someone on committee competent in research and statistics.</td>
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<td>84</td>
<td>I finished the dissertation because my time limit was running out. Support services in the department (i.e., typing) helped a great deal as did the statistics person on my committee who helped put it all in perspective when I was ready to write it.</td>
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<td>61</td>
<td>&quot;My dissertation was interrelated to the research I was doing on staff as a research associate.&quot;</td>
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<td>48</td>
<td>&quot;Worked on while waiting for and taking care of newborn.&quot;</td>
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<td>18</td>
<td>&quot;Funded by the state department of education. That continuous financial support was important.&quot;</td>
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<tr>
<td>11</td>
<td>&quot;An outgrowth of my work on a regional research project.&quot;</td>
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<td>42</td>
<td>Not especially publishable. A considerable disadvantage.</td>
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### Significant People in Graduate School

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<td>81</td>
<td>A person in secondary education who I've continued to work with related to my dissertation (on my committee). The head of the department whom I worked with as an administrative assistant. Interest in a joint vocational education research project. Rural vocational education.</td>
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<td>50</td>
<td>My advisor was the top in the field.</td>
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<td>21</td>
<td>&quot;My advisor was a hard task master but was well prepared in research. He had a reputation for turning out people who were also well prepared&quot;.</td>
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<td>41</td>
<td>My advisor was politically significant to me as was a well known author.</td>
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<td>12</td>
<td>(See 4 committee members.)</td>
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<td>40</td>
<td>I had co-advisors who were both mentors to me. One (a noted researcher) really gave me the research advice—absolutely the most influential person for me in research.</td>
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<td>My advisor had a similar research interest to mine. I also had the opportunity to work with some outstanding teachers in the field.</td>
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<td>38</td>
<td>Contact (courses) with a foresightful researcher: who helped analyze research questions calling</td>
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for indirect/direct responses
- who discussed in depth scaling (construction/use) early on.

My advisor is the one who really kind of orchestrated that for me (beginning a line of research). I wasn't sure, you know, what was happening along the way, but it became very clear to me as it neared completion what had happened to me and what I had learned about the subject field as well as methodology and everything did pretty much materialize out of that study. The modules were modified and put into a text book which is being used now in a number of teacher education programs across the country.

Advisor was very interested in individualized graduate training. There were some expectations but there were certainly no planned set of courses or experiences that everyone had to take. Advisors looked at my experience and my course work elsewhere and based upon that and based upon my interest in (subject area interest) specifically we were able to put together a graduate list of courses and a graduate program and other experiences that were designed around getting me where I wanted to go. And the second thing I think advisor did for
me was give me a lot of license in terms of what
I was going to do-or going to be able to do-in
addition to courses.

My advisor had high expectations for me. When I
came through she/he would give me support and
assistance.
Significant People While in Graduate School (Doctoral)

17  Advisor *strict on grammar and style but not a researcher*. However, able to define research problems.

84  My advisor usually wasn't available to help me. Consequently, I didn't get much of a push to finish right away and I held out till my deadline (time limit for completion) was close and my job tenure was on the line.

61  Two graduate students in educational psychology with whom I worked while a graduate student and the project director.

48  Three different people - two in teaching and one in research. One in research was instrumental in the development of any research ability that I have. Being both an administrator and a researcher, researcher was very task oriented.

27  "My advisor was a well known researcher."

42  Two people who were well-known researchers but retired when I finished my degree - lost whole network/support at this university. It would have been helpful to have been able to co-author an article with them or done some grant writing to
Further disseminate the results.

Department chair believed all graduate faculty and graduate students should be involved in decision making. Therefore, was a significant administrative role model for me. I saw department politics priorities and the dickering around that was done to continue to graduate students and faculty research. I saw how faculty members (4 in particular) worked and how ideas were generated. I felt free to go to faculty with ideas on my own. The state education supported most of research (a mending of state department and department priorities). The department generated these dovetails - 20 ideas turned into 20 proposals. People were assigned to develop proposals. One faculty member so knowledgeable about how to do this!

Graduates of (doctoral level institution) have a tremendous network.

A person who helped me with writing, another with statistics, another with content area. The head of the research committee (not advisor) was supportive and made sure we saw eye to eye on things.
1st Job After Doctorate

81  As I was finishing with dissertation-two positions here opened up. I was hired in March, writing in June and defended in September.

40  I was already an instructor in the department a year before I finished my dissertation.

21  The same person who recruited me for my masters made the job contacts here for me. "I don't think I'd gotten job at Big Ten if I'd taken Ph.D. at a 2nd rate university.

50  I went directly here-to a research-oriented position.

81  Although my position was teaching/advising I did write proposals, got funding next year for a survey of (project name).

21  Shared office with department head who was also a noted author. Had resp./expectations to do writing/work on-did an early article together.

1  I started a new job before I finished the dissertation. I stayed on another year after I finished the degree, then went to a university were I had the opportunity to do applied research. Since it was more research oriented, I did more
research. I think you need to work in research every day to be a good researcher. Several people at ______ were very helpful to me in developing my research capabilities.

Advisor gave 6 job leads. I contacted three. I really wanted the research experience and I sought out research contacts (people and money) right away. I continued my work in the development of scales to measure attitudes.

Wanted to be at Ph.D. level institution and at a research oriented university. 1st job as a research associate at research oriented university. Found that you could be a researcher and still be an ordinary person and enjoy it. I found that it was not a bother combining enjoyment with research process and I was enjoying it!!

A one year fellowship in a national office which I was recruited for.

Did a national job search but a second position opened here and I was hired. "Of course there are problems working as a faculty member where you were a graduate student. So it's important after the first year to move out and be your own person. And you don't make money staying in the same institution, but why go somewhere else and work
20 years to come back here?"

My first job required research as I was in research position (25 percent) doing something in research each work year getting small grants, building on these year by year. State department-4 yearly meetings/5 specialist, did a great deal of planning-my university has traditionally cornered the market on vocational education research within the state.
Other Jobs After Doctorate

ID
62

A teaching position university level but it was an assistant professor sitting on a bottom end of a faculty of 28 people and all but three of them were tenured. There didn't look to be any major number of retirements coming up and there was beginning to be some major uncertainty as to the college of education and budget of the division in specific. (Spouse) wasn't particularly happy there, it was the small community and everything so we decided to go.
1st Job After Doctorate

ID

11, 17, 84  Stayed on at same institution and got promoted to assistant professor.

17  Curriculum development work primarily. Doing what needed to be done.

84  "Whatever the boss says, I'll do."

11  Wanted to be of further service to the state.

61  Stayed on at university where received doctorate for three years.

61  "My responsibilities were largely teaching which was exciting but limiting."

61  I did, however, publish a four part evaluation testing instrument which was nationally marketed.

48  "After my experience at [institution], it was clear that you get in the boat and do research. I looked for a position that combined research and teaching. I figure I'm either going to do it or get out."

24  "I returned to [masters degree institution] as an instructor, when I finished my degree I was promoted to assistant professor."

27  Took a job teaching in a community college.

18  A teaching job in a small college known for its teaching.
"I took this job before I finished the degree. I finished before my time limit ran out and was promoted to assistant professor upon completion of the degree."

A teaching job (secondary) but we used research methods immediately. Students tried new methods and compared yields. However, there was very little time for research, as I had a large teaching load.

"A 1/2 time, then 3/4 time position that has the same duties and responsibilities as a full-time job."

Why Left 1st Job

"I felt the need to grow professionally outside of the state I got advanced degrees in."

Had contact with people at present university. "I always wanted to be here."

Didn't think too much of the administration; had a good job offer at present university (contact made through doctorate advisor).
Major Factors for Research (Personal)

ID
81 "Pattern over time is to keep research ideas in mind. Match ideas/funds as they go across my desk. Used model of advisor, put them together, research ideas and funding source. Idea generation has increased over time.

81 As a result of various experiences-"synergy of experience, I guess I would call it". I have a broad background of interests and experiences. (Names 3 ongoing research interests and projects currently underway.)

21 Early involvement with professional organizations as a graduate student (as a presenter/recorder)
First responsibility in AVA was on the research committee (which suggested be formed).

21 Networking/contacts have been important to me.
Names a) Director of Graduate Studies at university
   - got me involved with AERA
   - worked/put me on key committees in the college of education
b) contact with a noted education researcher
   - helped me get small grants to do
research from the university
- helped me get military service grants
from the Army/Air Force
- "most people were afraid of him"
"I've never been afraid of anybody"
"I made it a point to talk to him
when I had a research problem"
c) two people in federal offices
- "I did research reviews for them"

21 Take it out of hide (family life/recreational
time suffer).

12 I like problem solving. (Research is the vehicle-
teaching is the reality check.) "I always liked
research".

12 Research ideas from what you've done before a
continuation of original problems.

12 Spouse-has been significant in development-
suggested taking course which has opened up all
kinds of avenues for taught/reflect/on-ways of
knowing Ph.D. subject matter interests.

40 Takes time to do good research and money. I'm
a good time manager, and task oriented-good
research takes time-building in time for research-
for mulling over response. I've had good support
for research in this position. My first project
was funded by the college, and a great deal of my research has been funded by (a state department office). I build in time for research by:

- building into research grants help to do it in the form of graduate research assistants and clerical help.
- materials budget to disseminate results
- travel (to make it happen-research collection and dissemination)
- having a set of research skills
- keep up involvement with research
- graduate students with similar research interests
- environment is key here—people who are doing it help others be aware of, involved in research.

Research ambience in the institution. Interactions with faculty, students, state department, colleagues.

I prefer research over teaching. Need time to do research—previously have had time to do because on funded project (discretion here on how spend time—can do little or a lot depending how structure time).

The need to know, along with my insatiable curiosity.
"Publishing is key to success in higher education. Although teaching/service more favored for me, the stated mission of the university is key since this is a research oriented university, to succeed, you can be an average teacher, have credible service record but publishing is key. You must do it well and do it often."

I just have followed very closely a line of research and a line of interest that related to (subject area interest). That has lead me to the (subject area interest) division and section within AVA and that has lead me to the (subject area interest) organizations and conventions, both national and state level conventions that have offered professional opportunities and presentations program in those areas. But, you know, the more I follow that line of interest the more became intrigued with how the questions and the concerns relative to (subject area interest) relate to (subject area interest) relate to other questions and concerns in vocational education. So I find myself getting more heavily involved in the research section of AVA, going to meetings with the state directors of vocational education to listen to what, what how they view not only
(subject area interest) but how they view some of the major policy issues in a research question to the security of the vocational education generally. I have been concerned about education and work for (subject area interest) but now I guess I have also developed a much broader concern about education more generally.

The work environment. People here are people who can work without direction or being told what to do. There are a number of people in the building who similar research ideas and views which I find helpful. I've also had funded projects every other year which has been useful in supporting research.

"I always liked writing and always got received positive feedback for doing it".

I had always enjoyed writing.

I had always enjoyed writing. Enjoyment of research practice the entire process of research.

Having time to work on my dissertation and not having to work for money was helpful.

The graduate years are most important as far as I'm concerned. That's when you are in the formative years of your research career.
Interested, able to pick out related areas. AVA/AERA meeting particularly. Paid by fellowship. Interviewing for research position. Particularly were eye opening experiences—more options for the week than imagined. (Extent of research involvement amazing—other graduate students with him/her to check experiences with.)

A very positive experience with research the first time in being forced into doing it systematically. Those experiences, I think, were very, very important to my continued work relative to research and development and interest in that area.

I enjoyed writing, find it to be kind of a gratifying experience to sit down and think about certain things and put things on paper and get people reactions to those ideas and to work on a concept or a message and try to formulate it enough in written sense. I thought that there was a tremendous need to communicate to people about what was going on.

I have a tremendous need to know and I like to try to use my skills to enhance the connections between education and work in the business community.
As part of department evaluation committee knew expectations for writing and research.

Promotion—more and more difficult in tough economic times.

Treadmill effect of publish requirement can't stop or pause from the publishing routine. I know for instance that I need to get out 5 or 6 more articles this year.
Working with Graduate Students

1D
81 Brings awareness of other new ways of knowing.
12 (Qualitative, anthropological bases.) These have always been interests for me, but graduate student resource/support is an invaluable learning resource.
81 Keeps me updated in (subject areas) that are of interest to me.
40 I like to set up the research and have graduate students carry it out, add their own little twists to it, consult with me, get a thesis out of it. If a graduate student needs a topic, I'll guide them into my two favorite areas. (Names) If they are interested, I tell them I will try to get their costs funded.
1 They are a research resource for me both in terms of helping me keep up with my research interests and in developing new research interests.
38 They are a research resource for me both in terms of helping me keep up with my research interests and in developing new research interests.
41 Many times advisor does more than doctoral student self-in terms of research-credentials but not
competence usually need more practice. I like to work with graduate students who are good workers and are here to learn. I am an advisor who is rigorous and who works best with those who are competent and are willing to work in statistics.

"I learned to manage the situation (of advising) by looking for people like myself."

Utility of research can be shown/learned by involve in project (utility, value) bite off some bit and develop it further development for dissertation. Important for people to massage data-valid conclusions, implications of finds are key to good graduate research.
Work with Graduate Students

ID

61 Working on having a group of graduate students carve out research areas that are complementary to each other.

24 "Two of my graduate students told me that they wanted my job. That certainly keeps me on my toes."

27 Doesn't want to get pushed to do research as a job requirement. Likes others who are down-to-earth. Doesn't like people on ego-trips. Researchers on a ego-trip, authority trips.

18 Hopefully, some of my new research efforts will have spin-offs for graduate students and people at other universities.

30 I'm not convinced that masters students should do thesis. I think it should be an option."

42 I tell my own students - choose a topic that is publishable. Important to keep track of people. Keep at them to publish:
### # Graduate Students with Promise for Research

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### HIGH PRODUCERS

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### LOW PRODUCERS

<table>
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<tr>
<th>Number in Network</th>
<th>1-5</th>
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<th>16-20</th>
<th>20 or More</th>
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<td>84</td>
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<tr>
<td>A number of teachers, administrators, supervisors in state.</td>
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<td>Didn't ask?</td>
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<td>42</td>
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<td>X(3)</td>
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<tr>
<td>Plus graduate students.</td>
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</table>

(Smaller Networks)

Note: Most are only masters level qualified.
## HIGH PRODUCERS

**Number of Journals Subscribed to or Regularly Read**

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<thead>
<tr>
<th>ID</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
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<td>21</td>
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<td></td>
<td>Plus 25-30 technical reports</td>
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<td>12</td>
<td>X</td>
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<td>Others as appropriate</td>
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<td>40</td>
<td>X</td>
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<td>Books, looks in research file</td>
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<td>1</td>
<td>X</td>
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<td>Plus I regularly skim 25 others</td>
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<td>38</td>
<td>X</td>
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<td>Plus 1/2 dozen more newsletters and magazines</td>
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<td>41</td>
<td>X</td>
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<td>Plus dozen more pop magazines (including <em>Psych. Today</em>)</td>
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</table>

1-5 plus technical data
6-10 plus trade publications and technical data
11-15 plus other newsletters and professional publications
16-20 plus a number of books
Current Job (Enablers)

ID

1  1. A research center for vocational education research is key.
   2. Strong interest in research on the part of the faculty.
   3. Overall atmosphere for research—other centers here.
   4. Sizable research budget to support graduate students.

38, 44 Ambience of research in institution. Get from faculty, students, colleagues.

41 Institutional support for research. My department chair is very supportive of research and I am evaluated based on research.

62 Contextual factor that we have I think that are most significant is a lot of independence in terms of pursuing interests. Although the financial resources are not necessarily outstanding, we do have some support for research here financially people are really encouraged to develop a line of research and do work in specific field and areas and collaborate with each other when it is necessary. But it is not
mandatory that people collaborate. I have just always found it to be a stimulating environment and yet one that is very flexible and really emphasizes individual growth and development, and that's why I am here.
Other Enablers (Currently)

ID
12 We are a dual career family-I find it an advantage to interact and understand each other and associate shared travel. However, it may be difficult finding work in same place.
62 A broad network of people across campus who know my work.
1 Present research papers at professional meetings.
1 I've never feared to venture out to new employment (and that often brings new challenges and opportunities). Researcher needs patience, not be hurried/pressured. I try to be patient with myself and others.
38 Being editors of a research journal. An opportunity to have regular contact with others in research-review other people's research and writing.
41 Being editor of a research journal. An opportunity to have regular contact with others in research-review other people's research and writing.
41 One faculty member interested in fostering
research is getting people together with similar research interests—a good, healthy, sign for faculty, I think.

I've done a lot of textbook publishing and article writing in the popular professional literature.
Enablers (Current)

ID
17  
Summer vocational teachers conference. Sharing and critiquing of ideas has been important.
17, 11  
Research reporting sessions at AVA.
17  
Librarians and computer center all available, helpful.
27  
"I've certainly enjoyed the money I've made with my doctorate."
84  
Does not find writing research difficult. Once he starts something, likes to see how it comes out.
48  
"The 25% research time I have in my position."
48  
Research clarifies my thinking. It provides new ways of viewing knowledge and gives me ways to structure knowledge/organize presentations.
27, 24  
Faculty members who make me aware of the need to write more.
17  
A colleague with whom I've done some writing and computer work - has great patience and works as a colleague, friend and supporter with me.
17  
Regional research meetings.
17  
I'm satisfied with the job and this university.
17  
Two research projects currently underway.
18  
We have support in terms of release time to see
what department can produce the most. Producing a lot of things - will hold in better stead when money gets allocated. "I'm hoping publications and presentations will result."

Support from director and some colleagues has been better last few months.

Two friends I was in graduate school with. We usually room together and bat around things we think should be done in research. We have worked together on several things - may do research together soon.

Graduates of my doctoral program have quite an incredible network. We get together at professional meetings. Find out what people are doing. This may hinder us in expanding our network as we spend a lot of time catching up.

Professional organization involvement with research organizations, researchers. Pick up ideas, make good contacts.

Now have a great desire to do research and get assistance now - time off - would like to do research now.

I've had a small research project funded and am doing some research with another faculty member.

As a faculty member - a seminar on grantsmanship
was helpful. Also a brown bagger on publishing. Resources to use to help structure and organize. To develop confidence "someone else has done it before, I can do it, too." How other people structure their time.

A dean who has been helpful in circumventing department politics to provide research opportunities.

"When I began to seek out, then I began to develop as a researcher."
### Inhibitors

<table>
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<tr>
<th>ID</th>
<th>Statement</th>
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<tbody>
<tr>
<td>1</td>
<td>Few number of faculty in some departments makes less than the critical mass necessary to produce research (climate for research) (also lack of money).</td>
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<tr>
<td>41</td>
<td>&quot;Earlier in my career, when I was at a more teaching centered university, I developed a research proposal, but too busy to do much research. I think that can happen to anyone in that kind of setting.&quot;</td>
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<tr>
<td>41</td>
<td>Difficulty getting together with people from own department. Need to get to know resources of own department.</td>
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<tr>
<td>46</td>
<td>Not very much opportunity to get small, important projects funded. The feds and most private foundations seem to go for large, national projects.</td>
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</tbody>
</table>
Inhibitors (Current)

ID
84 I'm not in the office much. I'm on the road most of the time (teaching and service responsibilities).
17 Any involvement I've had in research organizations is because I wanted to - not particularly because I was encouraged to.
11 I travel a lot as part of my job doing inservice work.
17 Research time is out-of-hide time here. I'm 100% teaching.
17 Doing research because of promotion doesn't make that much difference for me as I'm near retirement. Whether I retire as an assistant or associate professor doesn't make that much difference to me.
Most of my salary's tied to years of service - not rank.
84 Job responsibilities - teaching and service.
84 Less secretarial help. Small number of people on (service area) staff (and located in a college of education rather than with service area related college).
61 Largely teaching responsibility has been exciting but limiting.
LOW PRODUCERS

61 Need to: seek out funds by self - no guarantee to get money to do research. "You have to hunt and peck for funds", have publishing contacts.

11 "Research needs to be worked at. I haven't had time."

61 More time to read and research.

61 Teaching is interesting but time consuming.

61 "We don't have the money to publish results of research."

48 I don't read enough, need to read more, travel is a waste of time. "Reading helps me conceptualize problems."

48 "I need more money for journal subscriptions and professional development. It's ironic that during the time that you could benefit most from financial support, the least amount is available to you."

48 "Even though I have 25% research time, the 75% teaching responsibilities weigh heavily on my shoulders. It's difficult to turn an undergraduate with a problem away just because this is your day to do research."

17 "I think I may have passed beyond my mental competence."

24 "The writing I do now is from a technical perspective and is mostly for popular publications."
"I have no problem writing but I don't enjoy it."
"I'm not a writer." "I don't enjoy sitting down to write."

"I prefer teaching." "I have a 100% teaching appointment and I feel that I am doing an effective job at it."

With a teaching and service appointment, it's easy to put research on the back burner."

"Since I have received tenure, I don't feel as much pressure to write, but I will need to if I want to get promoted."

I cannot appreciate pure gathering of knowledge.
Research and teaching - should reinforce what you are trying to teach regardless is there are statistics to support it.

Promotion is a highly political affair.

"My priority is with my spouse and child."

"I'm not fond of reading or writing."

"I'm feeling more pressure now to publish my research." Personnally, I'm more concerned with using research to improve instruction.

"To be a researcher you need to work with abstract ideas, math. I never did like math. Takes an analytical mind."

"My own presentation of doctoral research was
lacking. I didn't get mileage out dissertation that others get since I never published it."

I need to see a real big research need before I will do research. Are we talking to ourselves? (Major research publication in vocational education has 200 members. Why do it if it isn't being used? Are we talking to ourselves? Kids waking up each morning facing nothing but failure. That's where our problem is.

Need time (in office and released time to do it).

Division is not research oriented - No one is actually doing research here - Just thinking about it. Secretary support lacking. Collegial support. Money support "help to get money."

This is the first quarter I've felt that there is time...after five quarters

I've taught at least one new course a quarter up to this point.

Initial ideas are difficult to get - once get them move along.

I would like to do a continuation of our research on dissertation. I can't find sources to fund it or not viewing them correctly. Having the skill to get money and merge goals of research is
Important.


"Since you need to do research to get promoted, it must not mean that much to me."

"I'm satisfied with the job I do. I wouldn't want to see students suffer because I was doing research."

Other departmental faculty members not particularly helpful.
Career Goals

ID
81  To keep getting reinforcement for research, teaching, administration. I'm very other oriented.
12  I'm looking forward to a sabbatical for some time of quiet study and reflection.
12  Ideally, I'd like to find a job at the same university as my spouse so that we can enjoy the same interaction we have at home and at work.
1  Interest in leadership intend to do more research in next 5 years.
62  To begin to look at policy oriented questions and issues about education and work generally. Try and look more at the effects of vocational education on different population groups, work at economic policies and social policies to the extent to which they are appropriate to give to them, depending on the context we find ourselves in now with the field. It is going to be quite an interesting 10 years, real challenging, I keep thinking.
44  Has met career goal-What next? Not sure maybe-professor of vocational-technical-Stanford?
HIGH PRODUCERS

Devote more attention to family, slowing down a bit.
LOW PRODUCERS

Career Goals

**ID**

17  "I'm looking forward to retirement and full time work on our farm."

84  May return to high school teaching where most of my friends are.

61  "I'd like to get promoted to full professor."

24  "...to associate professor."

30  "I've started at the bottom of ladder several times. I'm not as concerned about the home runs as awarding the bean balls (fouls)."
Influence of Spouse (If Applicable)

ID 81 My spouse was working on a Ph.D. in a cognate area. For one of the years while I was working on my Ph.D., (spouse) took care of the children while I lived near the university. I went home most weekends.

12 (Spouse) has helped me to discover new ways of knowing by encouraging me to take courses and research other areas. (Spouse) also edits my writing on occasion and we try to go to major professional meetings.

21 My spouse has always been supportive—"Do what is best—"willing to go where I wanted to go." I have great regard for (spouse) views.

40 A good part of all three of my degrees are really (name's). Worked most of the time I was in school, kept the family together and typed my papers (and dissertation). "My degree's are partly (name's), too."

1 (Spouse) has always been a tremendous support. Whether (name's) knowledge of budgeting and business has been invaluable.

38 My spouse has been interested in being in an
academic environment since (spouse's) has a degree in an (unrelated) research field. I think having a spouse who has similar concerns/viewpoints about work and scholarship is helpful in pursuing an academic career (although I hadn't ever thought of that before).

We reflect alot on that now in terms of how it has changed our lifestyle at present but especially the support that she gave me when we were going to graduate school because of the intensity of that experience. We had kids at that time, and she gave up alot in terms of her own growth and development. Now we're at the point where she has gone back to school and I have kind of assumed the major role of the family and the house and the kids and so on. We got married right as I was finishing undergrad school. I taught for a couple years and then I moved into a particular project and she was at the same time trying to go on to school. But we were getting a family started and everything. She is always very helpful in the sense that she is always supportive, she is always open to doing something new and different and wanted to do whatever
basically I wanted to do. She understood that I was interested in some things and interested in university life in general. It'd be interesting if you could talk to her to get her perceptions of this as we often reflect upon it and the situation has changed.

Spouse has been supportive—emotionally, financially. Perhaps got short changed in terms of education but is now catching up. We felt that it was important that someone be home full time with the children. Has a master's degree in the same field. (Spouse) has taken care of the children from the time I was working on the doctorate until now. (Spouse) has always been very supportive and understanding about the responsibilities of this type of career.
Spouse's Influence

<table>
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<tr>
<th>ID</th>
<th>Spouse's Influence</th>
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<tbody>
<tr>
<td>17</td>
<td>In elementary education.</td>
</tr>
<tr>
<td>84</td>
<td>&quot;A great encourager.&quot;</td>
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<tr>
<td>61</td>
<td>Heads data coding section of a private (service area related) research firm.</td>
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<td>48</td>
<td>Has a Ph.D. in an unrelated area.</td>
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<tr>
<td>24</td>
<td>Just got married recently.</td>
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<td>27</td>
<td>We did our masters degrees together. &quot;Lots of moral support for going through the academic hoops.&quot; We spent lots of time in the library together.</td>
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<td>18</td>
<td>N/A</td>
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<tr>
<td>11</td>
<td>Recently married; spouse has Ph.D. and is a prolific writer. Research has increased in last couple of years.</td>
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<td>30</td>
<td>Also a vocational teacher.</td>
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<td>42</td>
<td>Spouse encouraged to finish degree and pursue profession. &quot;I don't think it would ever be possible to do research without a supportive spouse.&quot; It takes long hours to meet requirements for teaching, research and service. Spouse equal partner in child rearing.</td>
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<tr>
<td>48</td>
<td>Although it's difficult at times to keep up with all the demands of this job, I wouldn't give up</td>
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all of the joy I've had with my spouse and the baby for a hundred research projects. I don't think very many people of the opposite sex would even think of saying something like that. For them, research is a choice. Someone else is responsible for the children. Although my spouse is a great help, I still feel responsible for the baby and worry when she/he has diarrhea.
I think it is important to try to do a bit of "futuring" in our work. For example, by looking at certain demographic, economic and sociological trends, it is evident to me that with the shortage of youth workers the emphasis in vocational education will shift to delivery rather than effectiveness.

Choose problems that will last a long time. Do early literature review early, know the state of "the art" in problems you are interested.

Academic mobility important—university that did work at. Don't stay on where did Ph.D. First job important.

Early on there was a shortage of research journals to publish in. Even now, there are only a few.

Creation of new knowledge important rather than number of publications/place of (less important which artifact) and another function.

Need a broader view of methodology—to in depth. Need a founding/grounding in foundation—ways of knowing which under ____ all research.

Work on socially important issues, but try to
work on them 5 years before anyone else. You must be a futurist to be a successful researcher.

Working with researchers as graduate student. It's critical to work with a top researcher to become a good researcher.

Mentor/sponsor who is a researcher-learn by doing. Institutional support for research and having experience as a researcher are essential. Chose institution supportive of research based on current research activity in the institution.

Researchers are developed. Do research right away. Don't wait until you get teaching. Keep service function down. Make contact with people for ideas for doing research.

Make a habit of duplicating information and sending it to colleague and friends. Networking is important to do-people return that to me in the form of new ideas.

Develop a systematic line of research early on. Align yourself with people are researchers both from a content and methodological background. "Knowledge about self-where your interests lie. Be clear about directions of own interests."

Do writing early and consistently.
Being on an editorial board is helpful because it gives you the opportunity to read other's research and see what others are doing.

Establish areas of focus that: are important, funded become expert at something on the cutting edge. Visibility by attending professional meetings encouraged by (advisor) to present proposals which did; networking.

Get depth and breadth of subject matter as a graduate student.

"Certainly people have innate abilities, but most develop these in research."

Interests-patience. "Researchers can't be hurried to turn out". Venturing out to the new.

The formative years for research are while one is still a graduate student. I think what kind of an atmosphere is created them is crucial to one's development as a researcher.

I think the fact that I was young, and moved up rapidly in degrees/experience-time I brought up may have influence.

I think writing for publication is less of a problem than dissertation where situation is quite political. Advisor needs to sort out for candidate political, helpful people for
balance on committee.

46 Importance of networking and mentoring. Mentor is key to helping you move along—but keeping you out of hot water. Someone to write with until you become known on your own. Networking is important.

46 Getting on the phone and checking things out—keeping in contact with others—lots of ideas can come from a collegial relationship. Shared philosophy and good attitudes are tremendously important, too.

46 Strike while the iron is hot—publish dissertation results.

46 Get involved and become knowledgeable in latest technology. Never be afraid to get involved.
**Funding of Research**

**ID**

21 Funding for research canibalism of funds-hard money lacking

46 Lack of funding to the level of needed-"Beltway Bandits" are a devil to complete with.

21 Notion that kinds of agencies get research money from may be related to research productivity i.e., do people stay with one agency or spread out among several?

21 Also, may be difference between funding from state vocational education and the National Science Foundation money in terms of ______ of people who get them (or seek and get).

1 Funding of research comes from an institution willing to spend money in creating a research environment-this means money for research but also for graduate students and for intellectual supports (library, et. al.) to be a good researcher.

46 Need to have-conceptual skills, writing skills, working knowledge of quantitative/qualitative methods, relate these to a theoretical framework.
Institution's emphasis is a positive one for I've had a positive experience working here. The institution's research opportunities have matched my own interests. Other Supports-funding-I've been lucky. "I've had good external research support monies". I do less teaching during year-more summers. Plus, I have a high energy level-work long days. I can be doing several things at once and I don't waste time.

My colleagues and I work well as a team.

The expectation to do research is here.

Research is valued and supported here.

3/4 of my work is research never pushed to do research enjoyed writing in high school. I'm not mechanically well-equipped to write content-having something to write like teaching as a balance, enjoyment.

Work consumes me, but I can get blocks of uninterrupted time to do research.

Two people with whom I work and spouse are helpful in sharing ideas and editing writing.

Disseminate your research to as many groups as possible. I build that into grants and get visibility (for me and research).
Ideas, Opinions, Advice

ID
11 "I think the idea that research should be done over beyond your teaching and service is just fine."
17 "I don't know that every person in higher education should be a researcher. Not every researcher is a good teacher and we need good teachers in a university."
17 Advice - chose an environment that you want to be in - consider other options other than higher education.
17 Thinks many people do research for research sake rather than to find out what is and what should be. No practice doing research nor being around researcher. Impressed with masters student wanting to do something related to teaching.
17 "The function of research is to improve teaching."
61 Build a firm research basis - formally through courses. Make sure you have teaching experience to support writing and knowledge of research. Have foundation (pedagogy) which is related plus learning theory and knowledge of people with special learning needs.
48 Develop good writing skills. Get statistical/
research methodology exposure - courses and by being involved with research projects.

To do research, must let classes go in order to be freed-up to think creativity. Staying with a few courses not so much revision. Secretarial services are essential.

"Most teachers don't use the results of research or know how their teaching is effected by research (i.e., open classrooms). Good teaching is rather basic and something we have known about for a long time, yet not all teachers even know that. I'd be interested in research on how to get people to use it (research) or the prediction of probable success of student teachers based on their use of research on good teaching."

Advice - start with research (but the advice I got was start with teaching). "Research - get very slow rewards for it unless you get it written up." "If you really want to be a researcher need topics that can be generalized."

A good faculty development program/department chair would review faculty members experience to see what else should be done to develop them professionally.
Other Things That Might Be Relevant, Pertinent.

17 I was a supervising teacher and very involved with professional organizations before doing doctoral work.

48 Men may have easier access to information than women in informal networks.

48 I think "how do men get that done?" when have a problem doing work.

48 Need to be perceptive as a researcher.

24 I planned out my research as part of the research course series, but never did the thesis.

24 "I was good in statistics (masters level)."

27 "I'd like to have a course in mini computers."

11 "At this university, you need only to do a superior job in two of the three functions - I do that in teaching and service."
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