

FACTORS ASSOCIATED WITH RESEARCH PRODUCTIVITY
OF GRADUATE FACULTY MEMBERS IN
HOME ECONOMICS UNITS

By

WALTER WILLIS BEAM, JR.

Bachelor of Science
Abilene Christian College
Abilene, Texas
1969

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1975

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of the Oklahoma State University
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Thesis Approved:

Ruth Kestle

Thesis Adviser

Elaine Jorgenson

Marquitta Spriggs

Nick Stinnell

W. Warden

Norman D. Aukham

Dean of the Graduate College

964109

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CHAPTER I

INTRODUCTION

Throughout the history of home economics, research has been highly valued and has occupied a central role in the development of the profession. From the very first issue of the Journal of Home Economics through its first 60 years, that emphasis continued (Follende and Philhal, 1969). The establishment of the Home Economics Research Journal reiterated that emphasis. Cofer (1972) pointed out ways that different aspects of home economics are interdependent. That idea involved more than just one area (research) contributing to another (extension or teaching). Paramount was a working cooperative effort for each arm of the discipline to supply some of the needs of the other areas.

In addition to this historic emphasis on research there is a continuing emphasis on increasing the amount and quality of research being conducted by faculty and graduate students, and improving the status of research within the profession (Clark, 1972; Lund, 1972; Ritchey, 1972; Schlater, 1972). In the last 10 years several studies have been conducted to determine where the profession has been, where it is now, and where it is going or should go in the future (McGrath and Johnson, 1968; Nelson, 1970; Schlater, 1970).

Montgomery and Ritchey (1975, p. 35) attempted to determine how active home economists are in research, what factors affect present

levels of research and what changes are needed for the future. They found that out of the 38 journals listed by home economics faculty as being relevant to home economics, only 9.2 percent of the articles were authored or co-authored by faculty in home economics units. They suggest that the breadth of subject matter, isolation from the rest of the campus, minimal financial support, lack of encouragement, motivation or expectation to do research, and the applied nature of home economics affect the level of research in home economics. To strengthen the position of research in home economics they suggest that all professionals should accept the responsibility of conducting and disseminating research, that efforts in research receive equivalent rewards to other endeavors, doctoral programs become more productive, funding for home economics research should be increased and researchers must increase multidisciplinary research efforts (Montgomery and Ritchey, 1975, p. 39). Harper (1975) reports that the proportionate rate of growth for graduate education in home economics was considerably less than for all higher education for the decade ending 1972-1973. The rate of growth in graduate education, measured by degrees granted, needs to be maintained in order to supply needed researchers for the future. The fact that the Association of Administrators of Home Economics (AAHE) funded the research project of which this report is part indicates a recognition of the need for information regarding the emphasis on research in home economics, present levels of research productivity and factors affecting productivity.

The Association of Administrators of Home Economics (AAHE) is the national organization of institutions which have home economics units and which belong to the National Association of State Universities and

Land Grant Colleges (NASULGC) or the American Association of State Colleges and Universities (AASCU). Each member institution is represented by one or more home economics administrator..

Purpose

The purpose of this study will be to determine the relationship between research productivity of home economics graduate faculty members and the following: work load, educational experience, publication credit ethics, research climate, and the size of the unit. This information is potentially useful to both administrators and graduate faculty members in home economics. Administratively this information may be used for budgetary considerations, management purposes, and staffing. The information can be useful to faculty to obtain more nearly equitable conditions (Axt, 1960).

"Increased research productivity is imperative if present and future resident instruction, extension, and other service programs are to have a solid research base" (Schlater, 1970, p. 57). The assumption is being made that increased research productivity in home economics can materialize only through increased research productivity of graduate faculty members in home economics. Since research is a national priority for home economics (Schlater, 1970), it is important that the present level of research productivity be determined as well as determining how other variables are associated with research productivity. A national study of this type will provide benchmark data both for individual home economics units as well as home economics as a discipline.

Definitions

The following definitions for selected key concepts have been included to facilitate understanding of the report. These conceptual definitions were accepted for use throughout the study. Quantifiable measures developed for some of these concepts are discussed elsewhere in this report.

Home Economics Unit

Home economics unit in a college or university is the lowest level of administrative unit that encompasses all or most home economics related subject matter. These units include departments, schools, colleges, and divisions. Home economics units were identified as nondoctoral if they offered at least one program leading to a master's degree but no program leading to a doctoral degree. Home economics units were identified as doctoral if they offered at least one doctoral degree program. The source of the information for categorizing the units was the AAHE (1976) report of home economics degrees granted in 1975.

Graduate Faculty Members

Graduate faculty members (GFM) refer to the faculty members who were identified by the home economics administrator as eligible to be major professors (advisers) for students working toward masters' or doctoral degrees or as graduate faculty members who are researchers but who do not serve as major advisers. These individuals' responses to questionnaires provide the data for this study.

Work Load

Work load includes all activities in which the faculty member is involved that are associated with the faculty position held.

Research Productivity

Research productivity is the output of research efforts completed or underway. This output takes such forms as publications, proposals, research projects, graduate student theses, or presentations at meetings.

Research Climate

Research climate refers to environmental conditions affecting research in universities and specifically home economics units across the nation. Climate is reflected through perceptions of attitudes, expectations, facilitating conditions, and administrators' role in research.

Publication Credit Ethics

Publication credit ethics represents the code of behavior of home economics graduate faculty members governing the determination of authorship for any type of publication with possibilities for multiple authorship.

Hypotheses

The first four hypotheses were that there is no relationship between research productivity and the following characteristics of

graduate faculty members in home economics units: (1) Work load; (2) Educational experience; (3) Publication credit ethics; (4) Research climate.

The fifth hypothesis was that there is no difference in research productivity of graduate faculty members in home economics units of different size.

Assumptions

Two of the major assumptions underlying the entire study are as follows: (1) the primary contributors to research in home economics are graduate faculty members in home economics units that grant advanced degrees and belong to AAHE or are in institutions belonging to the National Association of State Universities and Land Grant Colleges (NASULGC); (2) the choices of data obtained and the responses of the graduate faculty members will be valid in terms of the purposes of the study.

CHAPTER II

LITERATURE REVIEW

Universities judge themselves and are judged by others, in part, on the basis of their research productivity. Universities have a formal obligation to carry out research and graduate instruction. Generally a part of their regular faculty is appointed with research promise and achievement in mind (Cartter, 1966).

Throughout its lifetime home economics has been firmly established in educational instruction, research and a wide variety of services both in the United States and abroad. However,

we are falling short of the demands of our growing profession, and future development and standards are being jeopardized. The growth and expansion of the profession demand more people with advanced degrees than we are able to provide (Eppright, 1965, p. 1).

Eleven years later this is still the situation in home economics (Montgomery and Ritchey, 1975). Two recent studies (Weis, East, and Manning, 1974; Davis, 1975) have attempted to assess changes that have taken place and the future needs of home economics in higher education. Both concluded that home economics is still growing and the demand for faculty members with doctoral degrees is still increasing.

If home economics is to meet the needs of the profession and at the same time provide faculty members that meet the qualifications of the university for graduate faculty membership (American Home Economics Association, 1971, p. 4-6), then it is imperative that increasing

emphasis be placed on research and research productivity.

"There is little confusion about the definition of productivity: outputs of a process are related to inputs and the relationship is taken to indicate productivity" (Toombs, 1973, p. 2). The problems with productivity in an educational setting are operationalizing and applying it. How is productivity to be measured and then how is this to be interpreted? Finally the problem of fitting data to an appropriate theory (Salter, 1966, p. 4; Toombs, 1973, p. 3) seems to be the most difficult.

Even though the concept, productivity, is not palatable to many academicians, educational functions have a

clear production function in generating new knowledge and in creating a pool of more able individuals. It is not just a facilitative, restorative, or preventative enterprise, even though its products or value-added properties may be hard to capture (Toombs, 1973, p. 3).

This chapter focuses on research productivity and concepts that affect the research productivity of graduate faculty members in home economics. These concepts are faculty work loads, educational experiences, publication credit ethics, research climate, and the size of the home economics unit in which the graduate faculty member works.

Research Productivity

Gideonse (1968, p. 157) attempted to develop a theoretical model for research productivity that

would express the different functions within the total research effort, the various sources of initiative for these different kinds of activities, and the relationships among both the functions and the sources of initiative.

Katz and Kelm (1966) suggested that there are three types of behavior necessary for an organization to function adequately. First, the

organization must be able to attract and hold competent personnel. Next, personnel must be depended upon to perform their organizational roles at some minimal level. Finally, individuals must behave in spontaneous and innovative ways beyond their specific duties when there is a need. These three behaviors are relevant to research productivity within educational organizations.

In higher education there has been a continual debate over the relationship between teaching and research (Linsky and Straus, 1975). Taibutt (1973) suggested that the two should be inseparable and that they supplement each other. Research advances knowledge while teaching imparts desire for knowledge and interest in a subject while building on the efforts of research. It is suggested that the students get better instruction, the research productivity of professors is upgraded, the student supports the faculty and administration more, and that problems will be resolved rather than being put off if there is an integration of teaching and research. Cofer (1972) suggested that in home economics, teaching, research and extension are interdependent. Each suffers when there is a lack of feedback. However, Linsky and Straus (1975) randomly sampled faculty members from 16 universities. There was little or no correlation between research productivity, measured by the number of articles published and teaching ability, measured by student evaluation. Although these are limited measures of research productivity or teaching ability, the results deserve study.

Most studies dealing with research productivity measure productivity by counting the number (quantity) of publications over a certain time period. The time periods vary from one year to a lifetime, and the activities included in measuring productivity range from a narrow

position of number of research articles published to a broad interpretation which includes presentations, both formal and informal, number of graduate students advising, publications of any type, and proposals submitted for funding.

Probably the most detailed and complete study was conducted by Fulton and Trow (1974) in 1969 with a national survey of faculty members in 300 institutions of higher education in the United States. Questionnaires were returned by 60,000 faculty members representing approximately a 60 percent return rate. However, only preliminary findings were published in the five years after it was conducted. The study attempted to answer three questions: (1) Who is doing the bulk of research and where, (2) What is the relationship between research activities and interest, instruction, and administration, (3) What is the relationship between research activities and reward structure in different kinds of institutions (Fulton and Trow, 1974, p. 29-30)?

An early study of research productivity (Van Zelst and Kerr, 1951) reported on all scientific and technical personnel at one research foundation. Results indicated the median age range of the personnel was 34 to 39 years with a range of 20 to 65 years. Productivity was measured by the quantity of published research material. The more productive individuals had more degrees, higher rank, belonged to more honorary societies, and read more professional journals. A short attitude survey revealed that the more productive researchers believed less strongly in equalitarian practices in the research unit, believed more strongly in voluntary determination of deadlines, and believed in more selflessness of motives than the less productive researchers. Of the group studied 47 percent had published at least once but had no inventions, 3 percent

had inventions but no publications, 34 percent had both, and 16 percent had neither published nor invented.

Another early study (Davis, 1954) of faculty members at the University of Colorado between 1920 and 1939 reported that the peak writing age was about 45 years with the peak in article and monograph writing about 50. When no distinction was made between different types of writing, the average was between one and one-half writings per faculty member. Axelson (1959), measuring research productivity in terms of quantity of books or articles published, found that productivity in sociology was highest in the years immediately following receipt of the doctoral degree.

More recently Hoban and Rege (1969) studied the values of researchers and non-researchers using Lasswellian values (Lasswell, 1960). They studied the field of instructional technology and assumed that the difference between researchers and non-researchers in productivity would be a function of different value structures. They found statistically significant differences (.05 level) for only two values - enlightenment and affection. Researchers consistently ranked enlightenment higher in priority than non-researchers while non-researchers consistently ranked affection higher in priority than researchers. Bergum (1974) investigated the self-perception of graduate faculty with high and low publication rates at one large research university. His high-publication-rate group averaged 3.64 publications per year while his low-publication-rate group averaged .25 publications per year over their entire academic career. He reported that frequent publishers consistently reported themselves to be more efficient (.01 level), more original and excitable (.05 level) than those with few publications, while

the latter reported themselves to be more humorous (.05 level), friendly, dignified and mischievous (.10 level) using χ^2 .

Allison and Stewart (1974), using linear regression, found that the distribution of productivity becomes increasingly skewed in progressively older cohorts of scientists in four different disciplines. This study reported a reliability check by randomly selecting 50 chemists and comparing their self-reported five-year total number of publications with counts from Chemical Abstracts for the same five year period. The correlation was .94. Clemente (1974) concluded that in sociology, race has no significant effect on research productivity.

Several disciplines and organizations have assessed the research productivity of their members. The field of sociology has been most active in this area; however, the emphasis has been on determining which doctoral programs are the best producers of researchers. Such study has developed a method of rating quality of publications (Cole and Cole, 1971) using the Science Citation Index and an index of the quality of sociological journals (Glenn and Villemez, 1970).

Stern and Jensen (1974a, 1974b) studied the publication productivity of members of the American Business Law Association (ABLA). They sampled 581 ABLA members by surveying their publications listed in the Index to Legal Periodicals. They found .0368 articles per member per year for a 12 year period. Three percent of the members contributed 50 percent of the articles; two percent wrote 38 percent of the articles; and only 16.7 percent had ever published with half of these having written only one article in the 12 year period. Of those who had ever published only 19.6 percent accounted for 50 percent of the articles. After considerable criticism from their colleagues

maintaining that ABLA members publish in journals not indexed by Index to Legal Periodicals, Stern and Jensen (1974b) surveyed three more indexes and reached similar conclusions. Three percent of the members contributed 51 percent of the articles; only 18.4 percent had ever published; and 50 percent of these had written one article in 12 years.

Worthen and Roaden (1972) analyzed the research productivity and involvement of American Educational Research Association (AERA) members. Involvement was measured in percentage of total professional time spent in research. They found a mean of 18 percent and a median of 10 percent time devoted to research. At least one day per week was spent in research by 37 percent of the members, and 20 percent spent two days or more per week in research. Research was reported as the primary function of their job by 23 percent while 38 percent reported teaching to be their primary function. During 1967 50 percent of the AERA members were principal investigators for research projects funded either by their own institution or by outside sources. Fourteen percent were funded from both sources. Productivity was measured by determining the average number of projects funded per year since obtaining highest degree (65 percent with no projects funded) and the average number of publications since obtaining highest degree (45 percent with no publications). Twentyseven percent of AERA members averaged one or more publications per year since their highest degree.

The research productivity of journalism faculty (Cole and Bowers, 1973, 1975) at 171 journalism schools was studied with an emphasis on amount of research produced. Six journalism publications were surveyed from 1962 to 1971 to determine the number of publications. A weighted score was derived for splitting multiple-author articles as well as

weightings for different types of articles. No statistical criteria were cited for this arbitrary weighting. Schools were then ranked on the basis of their publication rates. The second article by Cole and Bowers (1975) reported an open-ended questionnaire sent to the most productive faculty researchers as well as the administrators of the most productive schools of journalism. There was agreement between faculty members and administrators in the top seven out of 16 response categories for determining what were the most important factors in becoming a productive publisher. The personal motivation of the researcher was considered the single most important factor in determining the success of a researcher. When asked how the school should divide its efforts between teaching, research, and service, the faculty responded with 52.8 percent teaching, 32.1 percent research, and 15.1 percent service. The administrators responded 58.6 percent teaching, 27.8 percent research, and 13.6 percent service.

Montgomery and Ritchey (1975) reported that over one-half of the home economics units surveyed had no faculty doing research for the past five years and no plans to facilitate research. Seven percent of the institutions were doing 46 percent of the research, and 42 percent of the research was in food and nutrition. From 38 journals selected by home economics faculty members as being the most relevant, only 9.2 percent of the articles were written by home economics faculty members. Less than 20 percent of the studies conducted in home economics were interdisciplinary, and 50 percent of those were with agriculture.

Fulton and Trow (1974, p. 45) reported one category of disciplines as "New and Semi-Professions" and included fields like agriculture and forestry, architecture, home economics, journalism, library science,

nursing, and social work. In this group 59 percent of the faculty had published in the last two years compared with a high of 84 percent in the biological sciences and a low of 44 percent in the fine arts.

Fifteen percent had five or more publications in the two years compared with highs of 30 percent in biological science and medicine and law. Again the low was 8 percent in fine arts. Humanities, business and education were similar to the new and semi-professions in terms of number of publications.

A difference was reported (Fulton and Trow, 1974) between highly productive and less productive researchers of different academic ranks for all disciplines. Twenty-nine percent of the full professors, 20 percent of the associate professors, 13 percent of the assistant professors, and 2 percent of the instructors had published five or more articles in a two year period. No substantial difference in productivity was reported by age between the ages of 30 and 60 years. However, less productive researchers seemed to turn more to teaching as they aged, while the productive researchers tended to get involved in research. The publishing faculty were more likely to spend less time in the classroom (47 percent vs. 27 percent in classroom four hours or less per week) and to teach fewer students (41 percent vs. 29 percent teach less than 25 students per term) than the less productive publisher. Productive faculty were more likely to teach only graduate students (33 percent vs. 12 percent) and less likely to teach only undergraduate students (10 percent vs. 61 percent) than less productive researchers. A larger fraction of the productive researchers (67 percent) compared with the less productive researchers (26 percent) organized their time so that they have blocks of four hours or more

per week of uninterrupted time for research and professional development. Publication activities for the two year period bore a high relationship with lifelong publication activities.

When comparing the publishing with the non-publishing faculty, the highly productive researchers were over five times as likely to earn over \$20,000 than the non-publishers (Fulton and Trow, 1974, p. 67). Clearly, publishing enhanced chances of high salary. For every age group over 35, those who were highly productive publishers in the last two years were two and one-half times as likely to be professors than the non-publishers. Additionally, a larger percentage of researchers (age 35-39) were tenured than the inactive non-publishing faculty 20 years their senior.

Reported research on research productivity indicates that a number of variables affect research productivity. Additionally, the many ways of operationally defining and measuring research productivity pose problems. Research productivity is more than merely the quantity of publications; however, this is the most visible of all the measures to date. Some of the principal factors associated with research productivity according to the literature are discussed in the next section.

Work Load

Faculty work loads have been subject to investigation for over half a century. "One of the largest of the problems in the administration of educational institutions is that of the proper method of determining the working load of the members of the instructional staff" (Koos, 1919, p. 5). The problem is still as important and unanswered as it was when Koos studied teaching loads in 1919.

Most faculty work load studies generally deal either with all units of all disciplines within an institution or with many units of one discipline in many institutions. There is a definite need for this work load information from home economics units across the nation so that individual home economics units can fit into the national guidelines established. Koos (1919) used 106 faculty members in the University of Washington for his study. Four of these faculty members were home economists. Thus, from the beginning of work load studies, home economists have been included.

Some of the basic questions asked in an early study (Koos, 1919) are still being asked, such as how to define a faculty work load and the relationship between different activities that are performed by faculty members. At the same time some of his findings have been confirmed repeatedly.

In the first major study of faculty work load Koos (1919) set out to demonstrate an objective and reliable method of determining faculty work load in higher education. He assumed there were only two factors involved in work load. First, the amount of time involved in performing the different functions of a faculty member and secondly, the fatigue resulting from the performance of these functions (Koos, 1919, pp. 5-6). Of the two, amount of time involved in performing different functions was considered to be the most important.

There were a number of variables Koos (1919, pp. 31-32) considered important in determining the work load of university faculty. These were department or subject matter, previous experience (or inexperience), level of courses taught, size of class, mode of presentation, number of sections of a course being taught as opposed to number of

courses, and the rank of the faculty member. The unit of measurement was the clock hour rather than the student hour (one student taught one hour per week for a semester) or credit hour (credits received by the student).

After the study by Koos (1919) there were several studies (See Yaker, 1974) each decade that dealt with different groups of faculty (such as elementary, secondary, college) with each including the same variables but providing little new information. Work loads have been defined in a variety of ways, almost as varied as the number of studies concerning faculty workloads.

In 1959 there was a conference at Purdue University that seemed to mark a resurgence of interest in the topic at the higher education level. The monograph (Brunnell, 1960) that followed the conference seemed to be the stimulus needed to motivate several different segments of the academic community to consider the importance of faculty work loads. Most recent work dealt with a particular institution or university system or a particular discipline. Generalization to other institutions, systems, or disciplines seems questionable. More applicable work was done by the Faculty Activity Analysis Task Force under the auspices of the National Center for Higher Education Management Systems (NCHEMS) at the Western Interstate Commission for Higher Education (WICHE) (see Romney, 1971; Manning and Romney, 1973; Manning, 1974). Their work crossed institutional and system boundaries.

Work load studies have varied in purposes and in types of questions asked. Stecklein (1961) compiled a list of questions approachable by work load studies. Studies of faculty work load can answer questions of importance to both faculty members and administrators. Every effort

should be made to ask appropriate questions, to perfect the collection of data, and to interpret the findings accurately. Faculty work load data is generally quantitative rather than qualitative. Anyone attempting to use the data should remember this important fact.

Yuker (1974, p. 7) outlined three basic kinds of problems associated with conducting work load studies. The most basic problem is providing a precise and operational definition of work load. Work load has been defined very narrowly and simply as the number of credit hours taught. At the other extreme it has been defined in terms of the number of hours per week devoted to all academic activities including some that seem unrelated to university or classroom activities. The problem of an operational definition becomes one of excluding and including different activities. There is general agreement that teaching activities or activities directly related to instruction such as preparation for class, in class time, and grading are appropriate to be included in the estimate of faculty work load. Problems arise in the area of noninstructional behavior such as research, committee work, professional writing, thesis sponsorship, extension activities, and editorial work for professional publications. Some criteria must be established for inclusion or exclusion of activities in determining a faculty member's work load.

Although no operational definition would satisfy everyone, a number of categories have been developed (Manning and Romney, 1973; Yuker, 1974) that can be used to give a total description of faculty activities. Then particular categories may be given more precise definitions or included or excluded from any particular study.

The second major problem described by Yuker (1974, p. 15) is the

definition of the categories used. There are advantages and disadvantages to using both a large number and a small number of categories as well as using standardized categories as opposed to using specifically defined categories. At the present the use of similar standardized categories from study to study seems to outweigh the construction of individualized categories for each particular study. The use of standardized categories reduces the need to have a large number of categories because the standardized categories have already been through test situations and have been clustered by similar activities.

The third major problem associated with the study of faculty work loads concerns methodology. Yuker(1974) stated that reliability and validity of faculty work load data collected is a concern to all involved. Reliability in faculty work load studies may be defined as the extent to which similar results would be obtained if the same measurements were taken at different time periods. The reliability of faculty work load data depends upon the clarity of the categories, the time frame studied, and the representativeness of the time period studied. Validity of faculty work load studies may be viewed as the relative agreement between reported time spent in different categories and the actual time spent in different categories. The arguments that deal with any self report method are applicable to faculty work load data.

The time period covered by the survey is important. The shorter the time period the more accurate the data. However, several studies (Now, 1964; Ritchey, 1959; Stecklein, 1961) reported that the shorter time periods are misleading and may not be typical. Another consideration is that the collection of data over a period of a quarter,

semester, or a year may be very difficult and expensive. Therefore, data collected over several short time periods by several different methods would be the most reliable and valid (Campbell and Fiske, 1959).

Data collected by several different techniques would also be more valid and reliable. However, time and expense involved with interviews and observing faculty members or asking them to keep diaries may be prohibitive.

The relationship between total faculty work load and research productivity seems to be an important issue. Many pages of literature in higher education are devoted to debating the relative merits of teaching versus research. Arguments range from the feeling that the two functions are completely incompatible and that research (or teaching) has no place in the faculty member's work load, to the position that they are compatible and can coexist, to the position that both must be present for the academic community to survive with one being incomplete without the other. Parsons and Platt (1969) reported that almost everyone they surveyed would like to have had more time to do research. They found a mean of about 55 hours devoted to academic jobs to be fairly common. Consequently, time spent in any one activity category is often considered in terms of percentage of total time. The question of the number of hours spent in research in relation to the number of hours spent in teaching has been the focus of little research. Koos (1919) found no correlation between teaching time and research time and concluded that it should not be university policy to reduce teaching load to encourage research. Allison and Stewart (1974) argued that those who start out doing research do more and more as they continue in their academic career while those who do

none or relatively little in their early career do less as they continue in their career.

Educational Experience

Since the primary functions of the university are the advancement of knowledge and the transmission of knowledge, research and research training must be elevated to an equal place with teaching and teacher training (Kerlinger, 1968). Kerlinger (1968, p. 478) further stated:

To do good research requires that the individual who conceives the research problem has at least the minimal technical competence to design the research, collect and analyze the data and to draw appropriate inferences from the results.

In order to produce people to carry out research Goodlad (1968) believes educational systems need to be restructured to allow for interplay of theoretical-deductive and empirical-inductive modes of thought. The student as well as the researcher needs to understand long term goals by working back and forth between mental and operational models. If studies begin and end in educational practice, it would be easier for students to see the interchange between research and education is enhanced. Short term research (usually theses) must either fit or parallel conceptual and operational models. If these recommendations were followed, the positive influence of research and its place in the educational system would be enhanced (Goodlad, 1968).

In a study by Cole and Bowers (1975) graduate training of individual faculty members was ranked as the third most important factor by highly productive journalism faculty members and ranked second by journalism administrators in listing the 16 most important factors in determining research productivity. Stern and Jensen (1974b) found

different publication rates for different degrees. Of all those who had published 53.3 percent held the Juris Doctor (professional degree beyond bachelor's), 29 percent had earned a first level advanced academic degree (M.S., M.A., M.B.A., or L.L.M.) and 17.7 percent held a terminal academic degree (Ph.D., S.J.D., D.B.A., or Ed.D.) as the highest degree held. The professional degree holders averaged 1.9 articles apiece in a 12 year period, while the advanced academic degree holders averaged 3.0 articles apiece for the same 12 year period.

Richek (1970) investigated the relation between inadequate training and research productivity. The subjects were female teachers who had not done research. It was found that their attitudes toward statistics were not markedly negative. Their lack of expertise with the use of computers to reduce computational and analysis time seemed to be the greatest deterrent to actively engaging in research. Thus it was inadequate training rather than negative attitude which hindered research.

Several other studies referred to some educational experience variables. Hagstrom (1971), in studying four different professions, reported on research productivity, measured by the quality of publications based on citation counts. Hagstorm found that 50 percent of the faculty at 40 to 50 percent of the institutions did almost all of the quality publishing. The institution where the highest degree was obtained and the length of time between the bachelor's and the doctoral degree (shorter time more productive) were associated with research productivity. Osborn and Stevens (1968) found 55.3 percent of home economists had worked beyond the master's degree and 25 percent had written for publication. Cole and Bowers (1973) found that 56.8

percent of publishers in journalism had a Ph.D. degree and 21.8 percent were graduate students. Clemente and Sturgis (1974), using six interrelated publication indices of productivity, found that quality rating of the doctoral program was not related to research productivity in sociology.

From the previously mentioned studies it is apparent that educational experience is related to research productivity. The problem again is, to what extent, and what experiences are to be considered as educational experiences.

Publication Credit Ethics

A traditional role of home economics from the beginning has been to improve the quality of life for individuals specifically in the family setting and their near environment. When the moral and ethical implications of this goal for individuals, families and the home economics profession are considered, it seems puzzling that there are few if any formalized statements on ethics.

Only a small part of ethics will be considered in relationship to research productivity; namely, the ethics involved in assigning publication credit to published articles. This aspect of ethics seems to be most relevant to research productivity (Over and Smallman, 1973).

Ethics is the area of philosophy that deals with setting standards for judging what is good or right in human conduct. Conduct refers to the human behavior under the individual's conscious control. Ethics are the criteria, system, or code by which behavior is judged when the individual has a freedom of choice among several alternative behaviors. Morals, on the other hand, refer to the overt behavior of the

individual. Since human beings are generally trying to improve their lives, behavior which might be judged by a particular group to be acceptable might not be moral and ethical. Therefore ethics are the standards of conduct which permit an individual to judge what is right or wrong in a given situation as he strives for a good life (Maze, 1971).

Even though no overt, formalized, written code exists, some type of unwritten, underlying code probably exists. This is particularly true in assigning publication credit. The practice of those publishing as well as the perceptions of those not publishing make up an unwritten code of ethics.

In a somewhat different context but applicable to the present problem Ury (1972) suggested that education should concentrate on life's end rather than its means. He advocated self study, analysis and criticism regularly for improvement and as topics suitable for research and classroom discussion. This philosophy advocates a formalized code of ethics for an organization as well as for the individuals within that organization.

The lack of an overt ethical code or understanding of the underlying perceptions and practices could hamper the research productivity of home economics. Kirkman (1973) suggested that educators should learn from Watergate that education must consider ethics. New ways of incorporating ethical and moral values into the teaching-learning process need to be sought and injected into all levels of education. Failure to have an understanding of a general set of standards could lead to misperceived roles in research by administrators, faculty, and graduate students. Chandra (1969) dealt with role perception and

social norms of administrators and faculty members with regard to research in home economics education departments.

According to Jones (1968) there is a move within newer disciplines such as home economics from slowly acquired practical experience to swiftly completed formal education. Individuals are needed with more specialized training to fill more and more positions. Since 1968 higher education has grown more in graduate training than in any other area with the new professions experiencing the most growth. These newer professions seem to have inferiority feelings because of an absence of professional tradition and are anxious to justify their professional existence. These newer professions have developed strongly professional, anti-amateur inclinations and seek to turn out a multitude of very powerful specialists with deep skills in a narrow specialization. Jones (1968) suggested that professionals in new fields cannot perform their duties in the most efficient, economical, and effective manner because a formalized code of ethics is lacking from their training.

New disciplines along with the specializations must develop an awareness and commitment to an ethical code. Jones (1968) suggested that an ethical code should have (1) respect for the individual human being, (2) realization of the value of a body of amateurs interested in the discipline, and (3) open-mindedness to see a new specialized area of a fraction of total discipline.

Formalized ethical norm development has not kept up with the professional development of the new disciplines. A simplified list of rights and wrongs is not enough in today's complicated professional education. This researcher believes a formalized ethical code with a

sense of equality and respect would infuse strength into home economics as a profession by improving the profession's self perception and improving the acceptance of home economics as a profession by other professions. Until this happens an understanding of the underlying perceptions and practices in assigning publication credit would aid the profession in understanding itself.

The question of ethics of research and researchers is not unique to home economics. Other disciplines have and are now facing the same questions. Herold (1968) approached several different disciplines in different areas of the country with the question, "What facilitates research and writing among graduate students?". Several barriers to research productivity were uncovered. The ethical considerations dealt with how much and what kind of help to give graduate students. Additionally, the ethical question of deciding who and under what conditions authorship would be granted was considered. Faculty members were unwilling to commit themselves to ethical guidelines. Graduate students felt more work was required for senior authorship. Other questions which failed to get a consensus of opinion concerned the use of student work in a book when the work came from different situations such as a class paper or research for which the faculty member supplied the idea. Herold (1968, p. 33) suggested that the informality of the reward system (publication credit) is an area of potential danger to the intellectual and ethical integrity of the academic individual. In this situation with students not knowing what to expect in the way of a reward system, they will shy away from this type of learning experience (Watson, 1963). Consequently the lack of understanding between faculty member and graduate student regarding assignment of publication

credit is an ethical consideration that can affect research productivity.

Psychologists, taking their cue from the medical profession, established ethics concerning different aspects of their profession (APA, 1972, 1973). Spiegel and Keith-Spiegel (1970) considered the ethics of assigning publication credit exhibited by psychologists. They were mainly concerned with how the ethical principle was interpreted and what effect publishing had on assigning publication credit. They pointed out many different situations where an unequal power status could lead to difficulties and complications for the low status individual (graduate student). It was their hope that less vague ethical guidelines might be established for the assignment of publication credit.

Other aspects of research ethics involve accountability and the prevalent use of research and publication for such matters as rank, pay increments, and tenure. If there is not some common stated code of ethics by which both the faculty member and administrator can assess productivity in the area of research and publication credit, misunderstandings may arise that can be professionally damaging.

Research Climate

Within the concept, research climate, there are many variables that could be affecting research productivity. Limited research has dealt with research climate and research productivity.

Chandra (1969) developed measures of research productivity in her study of present and desired norms for research behavior as perceived by home economics education graduate faculty in 50 institutions. The

expectations of graduate faculty from home economics education departments with more graduate faculty were significantly higher than graduate faculty members from smaller units with regard to presenting research reports, types of research leadership assumed, and responsibilities assumed by department heads in terms of facilitating research. These graduate faculty members expected their department chairmen to do more to facilitate research than was presently the case. They indicated expectations should have been higher for them to present research reports and to perceive opportunities to locate researchable problems. The more faculty were involved in the research process, the more they expected to use research.

Cole and Bowers (1975) found that administrators expected their journalism schools to devote more resources to teaching and less to research than did the productive researchers. In a rating of important factors affecting the productivity of researchers, the researchers rated the expectation of publication for promotion and tenure as the second most important factor in research productivity while the administrators rated it fifth most important. The expectation by your university administrator that faculty members do research was ranked fifth by the productive researchers and seventh by administrators. Dillon, McGrath and Ray (1972) discussed external support factors and how they facilitated research and suggested that plans for future support for research need to be made today.

Administration can play an important role in facilitating research productivity. Meltzer and Slater (1962) found that the fewer the levels of organizational structure, the greater the job satisfaction of the employees. The highest institutions in productivity had a

medium (three to five) number of supervisors; however, the actual size of the organization was unrelated to the productivity of the employees. This study surveyed physiologists in academics, business, and government organizations. Straus (1970) maintained this inverse relationship between productivity and the number of levels of supervisors does not occur in applied or immediate utility research settings. However, this contention was not supported with statistical but rather rational common sense arguments. Miller (1973) suggested that decision makers (administrators) need training in research to be able to understand research. Cole and Bowers (1975) found that both productive journalism researchers and the journalism administrators ranked encouragement from your dean or department chairman fourth in importance of factors accounting for research productivity.

Other researchers (Glueck and Jauch, 1975; Glueck and Thorp, 1974; Thorp, 1970) found that the behavior of the administrator influenced significantly the satisfaction of the researchers and to a lesser extent influenced the research productivity when the administrator followed a resource person-coordinator role model. In this study graduate faculty members and administrators with research grants at a midwestern land-grant university were interviewed with a focus on the role or responsibilities of the university administrator supervising contract research.

In the strongest relationships, researchers preferred ethical, understanding administrators who provided resources, represented the researcher in his dealings with the administration and were accurate and complete in their communications. Researchers were most satisfied with administrators who they perceived to be satisfied with them and their work, who attempted to reward them and who helped them in their research (Glueck and Thorp, 1974, p. 85).

Weaker significant relationships were reported for frequency of communication and the extent to which the administrator attempted to keep track of the researcher's progress. Johnson (1972, p. 26) suggested these 10 rules that research administrators should use as guides for operating:

1. The university should maintain lists of agencies that fund research and teaching programs in order that faculty members will have such information readily available to them.
2. There should be at least one person in each academic department designated to work with faculty in proposal preparation.
3. Each university should set up the type of central campus contract and grants office that best meets its needs.
4. All direct cost and all indirect cost should be included in the proposal.
5. Three to eight weeks must be allowed for processing a proposal within the university.
6. Applicants should be reminded to secure approval of contract proposals by all groups involved in any way in the research.
7. The principal investigator should be responsible for initiating and follow-up of all necessary processing documents within the university.
8. The college accounting office should advise the principal investigator of the account number assigned to the research project after the agreement has been completed, processed and approved by both the university and the sponsor.
9. The chief administrator of a research project sponsored by an outside agency is generally the principal investigator.
10. It is the responsibility of the principal investigator or project director to make certain that all the expenditures are in accordance with the sponsors regulations as specified.

Rewards are traditionally bestowed to those who help meet the

objectives of the university (Borland, 1974). The rewards that are most common are tenure, promotion, sabbatical, salary, and allocation of professional duties. The problem arises when the stated and operational goals of the university are different. In this situation the majority of the faculty are unsure of the operational goals. The individual reward system should provide for formal and informal rewards, and operational institutional goals need to be established which provide the opportunity for accomplishment of the personal as well as the professional goals of the individual faculty member. Katz and Kelm (1966) suggested that rewards that lead to optimal role performance have an important contingency relationship between behaviors and rewards.

Smith and Fiedler (1971) suggested that the best measure of research performance is based upon compensation by the academic community or recognition by peers. However, they maintained that correlations between department research productivity and reputation and individual research productivity may vary widely from discipline to discipline. Crane (1965) found that the prestige of a university department facilitates recognition of research and casts doubt on the adequacy of recognition as a productivity measure. An individual's affiliation with a major university was more likely to lead to recognition for a researcher than high productivity or prestige of a major adviser. Cole and Cole (1967) found that, among physics faculty, the quality of publications was more significant than the quantity in eliciting recognition through receipt of rewards, appointments to prestigious academic departments, and being widely known to colleagues. Their reward system operated to encourage creative researchers to be

productive.

Strauss (1970) suggested that different reward systems operate for basic and applied researchers. The theoretically oriented researcher gets more of his reward out of research itself, while the applied researcher gets reward out of related events extrinsic to the research itself.

Research productivity is definitely affected by the research climate. That climate encompasses many variables that have been mentioned as well as variables not yet studied.

Size of Research Unit

In sociology, productivity of faculty members measured by the number of publications, increased with the increase of the size of the department granting the doctoral degree (Axelson, 1960). Graduates from midwestern universities were the most productive. Meltzer and Slater (1962) reported no relationship between size of an organization and the productivity of its employees.

Fulton and Trow (1974) reported differences in productivity for different size institutions for almost all variables studied. They divided institutions by quality into seven categories; three categories for universities, three categories for colleges, and one category for junior or community colleges. Much of their study reported the results of the top four categories, simultaneously calling them the high quality institutions. In high quality institutions 20 percent of the faculty had not published in the last two years while 40 percent from weaker institutions had not published in the same time period. At the same time 28 percent of the faculty of high quality institutions and

three percent of the faculty in low quality institutions had five or more publications in the two year period. They concluded that in high quality institutions those who do research also teach and administer. There is no marked subordination of one function to another. Those most active in research teach almost as much as those not active in research.

Most of the other research concerning size deals with small institutions. Ellingsworth and Marley (1967) surveyed administrators and faculty members at a small east central United States college and found that administrators considered two-thirds of the faculty capable to do research. They found about 50 percent of the faculty were actively interested in research. However, all administrators responded that time, space, and equipment were either inadequate or highly inadequate. Within the faculty 59 percent were in the lower two academic ranks, and 20 percent of them were engaged in research. Sixty percent of the upper two academic ranks were involved in research. Males were researching at a 42 percent rate; females, at a 29 percent rate. Neither total years teaching experience nor total years experience at this institution were related to research productivity. Only 37 percent of the faculty involved in research had previously published. The total faculty published during their entire career a mean of 3.3 publications. For those who had published a mean of 10.5 was found. They concluded that the research strength there had come in rather than being developed after arriving.

Brown (1967) found that 60 percent of the researchers were at schools with an enrollment greater than 5,000 and only 8 percent were at small schools. Clark (1973) randomly sampled 10 small liberal arts

colleges in five different geographic regions and found that the faculty in general thought that more time should be devoted to teaching than research. Half of the institutions were private church related and half were public. There was no difference in productivity but a significant difference in the perception of pressure to conduct research. The public institution faculty perceived significantly more pressure to conduct research than the private institution faculty.

Kopel and Wexler (1970) surveyed the entire staff of a state college to determine commitment to research. Creative arts, which included home economics, gave the most favorable response toward research of all units on campus. The interpretation was made that the faculty recognize the need for and value of research, but the commitment to research does not have high priority.

The size of a unit influences research productivity according to the previous authors but no matter what the size of the institution some research is apparently taking place. Conversely, no matter how large the university some faculty are not productive researchers.

Research productivity and the factors associated with it are a very complicated and involved web of interdependent relationships. Much research could go into operationally defining the variables as well as determining which and in what context they significantly affect research productivity.

CHAPTER III

PROCEDURE

Population

The population for this study included all graduate faculty members (GFM) in home economics identified by home economics administrators of institutions belonging to either of the two organizations, the Association of Administrators of Home Economics (AAHE) or the National Association of State Universities and Land Grant Colleges (NASULGC). Letters requesting the names of the GFM were sent to 99 AAHE home economics administrators on July 31, 1975 (Appendix A). Graduate faculty members were defined in the letters to the administrators (Pestle and Scruggs, 1975b) as stated in the introduction. The unit administrator in each home economics unit who was going to be asked to respond to an administrator questionnaire for the overall study (Pestle and Scruggs, 1975a) of which this dissertation is a part, was not included in the frame of GFM.

Responses from 64 of these administrators (64.6 percent) were received before a second request was sent out September 3, 1975 to the remaining 35 AAHE home economics administrators and eight home economics administrators from institutions in NASULGC but not in AAHE. Of these 43 administrators, 34 responded (79.1 percent) before the next request was mailed. The third mailing requesting the names of GFM was sent

October 27, 1975 to the remaining nine AAHE administrators. Three of these nine administrators complied with the request by November 10, 1975. Out of a total of 107 institutions believed to have graduate programs in home economics six never responded, 10 reported that they did not have a graduate program in home economics and 91 reported having some type of graduate program (Appendix B).

The 91 home economics units with graduate programs reported 1,181 graduate faculty members for the Fall, 1975 term. These 1,181 GFM made up the population frame to be studied.

Sample

Sampling was carried out in two stages. In the first stage a census of home economics units was selected. The second stage involved selecting a stratified random sample of GFM from each home economics unit. When the administrators reported the GFM at their institutions, a department or an area of specialization was indicated for each person. These areas of specialization were categorized according to the categories used by AAHE (1975) in reporting master's degrees granted. Since the category of general home economics was not used in this study, GFM were stratified according to 10 areas for sampling purposes (Table I).

A stratified random sample of GFM was drawn independently from each institution. This sampling plan was used because it assured for the most adequate representation from different size specialization areas within home economics units. This sampling plan was used because the research also assumed the variance between areas would exceed variance within areas on the variables studied.

TABLE I

DISTRIBUTION OF GFM BY AREA OF SPECIALIZATION AS REPORTED BY ADMINISTRATORS OF HOME ECONOMICS UNITS

Area of Specialization	Population	Sample	Total Responses	Usable Responses	Number of Institutions Included
Design, Related Art	49	36	26	25	15
Family Relations, Child Development, Human Development	348	226	143	132	72
Communications, Journalism	3	3	2	2	2
Nutrition, Foods, Dietetics	321	217	146	135	75
Home Economics Education	131	110	81	72	41
Housing, Furnishings, Equipment	48	36	28	24	20
Family Economics, Home Management	96	73	52	52	37
Institution, Hotel, Restaurant Administration	17	15	15	15	8
Textiles, Clothing, Fashion Merchandising	163	129	100	99	61
Others	5	4	2	2	2
Unidentifiable			2		
Total	1,181	849	597	558	91

Within specialization areas with three or fewer GFM a census was taken from any one unit. For specialization areas with four GFM in one home economics unit, the random sample strata was 75 percent or three GFM. Three GFM or 60 percent of the GFM were selected for the sample from specialization areas with five GFM in one home economics unit. For specialization areas with an even number of GFM equal to or greater than six, a 50 percent random sample was taken. Since a 50 percent random sample of an odd number of GFM from a specialization area would result in a fraction, the fraction was rounded up to the next larger integer for sampling purposes. A table of random digits (Snedecor and Cochran, 1967, pp. 543-546) was used in drawing the random samples. The resulting sample of 849 GFM is shown in Table I.

Data Collection

Data were collected in the Fall and Winter, 1975-1976 with a questionnaire entitled Factors Associated with Research Productivity in Home Economics Units (Appendix C). The first mailing of questionnaires to the 849 randomly sampled GFM occurred on November 10 and 11, 1975. A transmittal letter (Appendix A) accompanied the questionnaire to briefly explain the purpose of the study. A return date of November 26, 1975 was suggested. The second mailing on December 19, 1975, with a suggested return date of January 20, 1976, went to those GFM not responding to the first request. Both mailouts were by fourth class bulk rate mail while returns were by prepaid first class business reply.

Table II presents the response rates and patterns for both mailings as well as the totals. Returns from 39 GFM were not usable for the following reasons:

TABLE II

NUMBER AND PERCENTAGE OF GFM RETURNS FOLLOWING TWO MAILINGS

	First Mailing	Second Mailing	Total
Population			1,181
Sample			849
Percent of Population			71.89
Total Returns	441	156	597
Percent of			
Population	37.34	13.21	50.55
Sample	51.94	18.37	70.32
Total Returns	73.87	26.13	100.00
Usable Returns	420	138	558
Percent of			
Population	35.56	11.69	47.25
Sample	49.47	16.25	65.72
Total Returns	70.35	23.12	93.47
Usable Returns	75.27	24.73	100.00
Unusable Returns	21	18	39
Percent of			
Population	1.78	1.52	3.30
Sample	2.47	2.12	4.59
Total Returns	3.52	3.02	6.53
Usable Returns	3.76	3.23	6.99
Unusable Returns	53.85	46.15	100.00

- 3 - Mutilated I.D. number prevented identification of area of specialization or institution
- 2 - Questionnaire was supposedly returned but not received
- 13 - Respondents did not complete because they were not in home economics
- 1 - Respondent said responses were not reliable
- 4 - Respondents reported not in research
- 3 - Respondents were not presently faculty members
- 2 - Respondents identified themselves as adjunct professors
- 3 - Respondents did not care to complete
- 6 - Respondents said not graduate faculty members
- 1 - Respondent deceased
- 1 - Respondent retired

39 Total

Instrument Construction

The questionnaire, Factors Associated with Research Productivity in Home Economics Units (Appendix C), was constructed between July and November, 1975. Various sources were consulted to determine possible variables to include to accurately reflect research productivity and factors expected to be related. Major sources were Chandra (1969) who studied research norms of home economics education graduate faculty; Manning and Romney (1973) who studied faculty work loads; Glueck and Thorp (1974) who studied the role of administrators in research productivity; and Schlater (1970) who directed a study of research goals for home economics.

The questionnaire went through approximately 10 major revisions in the time period specified. Statistical consultation was obtained to assure that the form of the data reported would be consistent with the analysis intended. The final revision before pretesting was done by GFM at Oklahoma State University. After this revision the questionnaire was sent to six home economics GFM at Oklahoma State University who were not selected to be in the sample of graduate faculty to be

studied. The ideas of both of these groups were incorporated into the final questionnaire.

The final questionnaire was composed of two sections. The first section sought demographic data and factual information about academic background, experience, work load, student advisement, publication practices, research involvement, and professional development. If each item blank to be filled in were considered a variable, the first section of the questionnaire consisted of 164 variables. Most of these variables were of a continuous nature which helped meet the normality assumption of the analysis to be performed. The second section consisted of 85 statements to be answered on a 1 to 99 scale of degree of certainty of agreement (Warren, Klonglan, and Sabin, 1969) with 1 being absolutely disagree; 50, uncertain; and 99, absolutely agree. This method was selected because it can more readily reflect individual differences in responding than is possible with a three, five or nine point scale. This procedure also helped to produce a continuum of responses that more closely approached a multinormal distribution, one of the assumptions that needed to be satisfied for the analysis that was to be performed.

Analysis of Data

Preparation of Data

All data were numerically coded, punched on IBM cards, and then transferred to magnetic tape. All analyses other than error checks, which were performed before storage on tape, were performed from the magnetic tape. A codebook was constructed to assist in locating variables. The reader may consult Appendix D for codes for variables.

All analyses were conducted using Statistical Analysis System (SAS) (Barr and Goodnight, 1972) computer programs. This system was selected over other available statistical packages because of its flexibility in handling data, ease of use, and treatment of missing data values. Missing values were ignored for any computation involving that value. This allowed for maximal use of data available with minimal programming necessary for overcoming this obstacle.

The first step in the analysis consisted of a frequency distribution for each variable to determine to what degree the responses approached a normal distribution. The distributions were visually inspected as a basis for deciding the most functional way to classify the data for further analysis. Three alternatives considered were analyzing the group as a whole, dividing into groups based on the size of the home economics unit according to the number of GFM, or dividing into two groups based on the highest degree offered. The choice was to divide the data into two groups of doctoral and nondoctoral graduate programs because this criterion distinguished between the two groups on the basis of function and this grouping was expected to result in more homogeneity within groups and heterogeneity between groups than either of the other two methods. This grouping divided the 558 usable returns so that 225 returns were in the nondoctoral group and 333 returns were in the doctoral group. Data for determining categorization for units were obtained from the 1974-1975 AAHE (1976) enrollment report. Out of 91 home economics units 61 were in the nondoctoral group and 30 in the doctoral group.

Distributions of responses to some of the variables indicated little or no participation. Some of these variables that fit together

on a rational basis were summed to form new variables. In each case all original variables making up the new constructed variables were equally weighted. Twenty-five such variables were constructed (Appendix E). The original variables that were combined to construct combination variables were deleted from the factor analysis. This was done to satisfy the assumption of communality underlying factor analysis (Morrison, 1967).

Factor Analysis

Factor analysis was used to condense the large number of variables into a smaller number of latent factors which generated the dependence or variation in the responses.

Under the factor model each response variate will be represented as a linear function of a small number of unobservable common-factor variates and a single latent specific variate (Morrison, 1967, p. 260).

Six separate factor analyses were performed on GFM responses (Table III). Six factor analyses were run as opposed to two because the research had a limited budget, six analyses of fewer variables were cheaper than one analysis was of all variables and the data in the two parts of the questionnaire were not on the same scale. Four variables (serving as major adviser for doctoral theses completed and underway and as committee member for doctoral theses completed and underway) were deleted from the nondoctoral analyses because GFM in nondoctoral granting home economics units would probably not be serving in these capacities. Variables were included in the factor analyses based on rationality of fit with anticipated factors. Another consideration for inclusion of variables in the various factor analyses was whether

TABLE III
 FACTOR ANALYSES PERFORMED

Type of Data Included in Factor Analyses	Number of Variables in Factor Analyses	
	Nondoctoral (N=225)	Doctoral (N=333)
Demographic and factual variables	85 variables	89 variables
Degree of agreement variables also on administrator questionnaire ^a	68 variables	68 variables
Degree of agreement variables not on administrator questionnaire ^a	17 variables	17 variables

^a Administrator questionnaire was part of the larger study and was not included in this dissertation.

items were included in both the questionnaires for GFM and administrators. The number of factors produced was based on the number of factors suspected to be present in a particular factor analysis.

All factor analyses were conducted using the SAS (Barr and Goodnight, 1972) factor procedure. This procedure produces the mean and standard deviation of each variable included in the factor analysis, a matrix of correlation coefficients between all pairs of variables (Pearson product-moment correlation coefficients), the eigenvalues (characteristic roots) of the correlation matrix, the cumulative proportion of eigenvalues (cumulative total variance accounted for by the factors associated with the eigenvalues), eigenvectors corresponding to the eigenvalues of the correlation matrix, factor matrix, rotated factor matrix, and the communality check. The matrix rotation is an orthogonal (rigid) rotation determined by Kaiser's varimax criterion (Kaiser, 1958). The option for output used in this study was the N parameter to limit the number of factors to be included in the factor model. For this study, the number of factors was limited to 10 for the four larger factor analyses and five for the two smaller analyses recognizing that there was a possibility of obtaining fewer factors if fewer eigenvalues had a value greater than one. All variables received loadings on all factors; however, not all variables were finally included in the factors.

The inclusion of a variable in a factor was determined by (1) the relatively high loading within a factor (each factor having a different criterion for cut-off) and (2) the interpretability of the factor structure (the goodness of fit of variables logically relating more to this factor than to any other factor).

The six factor analyses produced 24 factors for each of the two groups, nondoctoral and doctoral. Factor scores for each respondent were constructed by treating loadings as either +1 or -1, depending on the sign of the factor loading. Actual loadings were ignored except for the sign. In factors where all variables had negative loadings, these factor loadings were treated as positive for the construction of factor scores. Relatively low loadings were treated as zero, meaning they were not included in any factor.

Factor scores for each respondent were produced by adding standardized values (raw score divided by its own standard deviation) of variables included in a factor. This was done because different scaling was used for different variables within some factors. Each respondent then had 24 factor scores that could be used to test hypotheses.

Test of Hypotheses

The first four hypotheses were tested by correlating (Pearson product-moment correlation) the factor scores for the doctoral and nondoctoral groups. This procedure allowed for maximal use of information contained in the continuous variables. The fifth hypothesis, dealing with size of unit, was tested by means of an analysis of variance for each of the two groups, doctoral and nondoctoral. The nondoctoral or doctoral units were divided into two sizes by ranking them by size and finding a natural occurring break for the number of GFM per unit. Approximately 40 percent of the GFM fell in the small size units and 60 percent fell in the large size units for both the nondoctoral and doctoral groups. Analysis of variance between :

nondoctoral and doctoral groups, which did differ in size, was not possible because the content of the factors differed for the two groups.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the results of the study in the following order. First some demographic data about the home economics graduate faculty members (GFM) are presented in Table IV through VI. More detailed demographic information from GFM and administrators was compiled into a data book to present to the AAHE membership at their 1976 annual meeting (Pestle, Scruggs, and Beam, 1976). The demographic data are followed by an overview of factor analyses performed and a general guide for interpreting information included in the tables of factors. Next comes the presentation of the results of the factor analyses for the nondoctoral GFM followed by the doctoral GFM. Each factor for these two groups is briefly described. The presentation of factors for the two groups is followed by a comparison of the nondoctoral and doctoral factors. Finally the results of testing each of the five hypotheses for both groups is presented.

Description of the Respondents

The 225 GFM in nondoctoral units and 333 GFM in doctoral units who participated in this study are briefly described in Table IV. Considering the first variable, sex of respondent, there were two and one-half times as many male GFM in doctoral as in nondoctoral units. A χ^2 of 9.25 (1 d.f.) was significant beyond the .01 level. This

TABLE IV

CHARACTERISTICS OF HOME ECONOMICS GRADUATE FACULTY MEMBERS

Variable	Classification	Nondoctoral		Doctoral	
		Number	Percent	Number	Percent
Sex ^a	Male	35	15.35	87	26.13
	Female	193	84.65	246	73.87
Marital status	Single	70	30.84	133	39.94
	Widowed	6	2.64	7	2.10
	Divorced	16	7.05	21	6.31
	Married	135	59.47	172	51.65
Age	25-30	18	7.93	27	8.13
	31-35	36	15.86	43	12.95
	36-40	31	13.66	47	14.16
	41-45	30	13.22	54	16.27
	46-50	22	9.69	43	12.95
	51-55	46	20.26	49	14.76
	56-60	27	11.89	44	13.25
	61-65 over 65	14 3	6.17 1.32	22 3	6.63 .90
Major provider of income ^b	No	86	37.89	51	15.32
	Equal	10	4.40	12	3.60
	Yes	131	57.71	270	81.08
Number of dependents	0	106	46.99	161	48.35
	1	44	19.30	54	16.22
	2	45	19.73	46	13.81
	3	20	8.77	48	14.42
	4	9	3.95	14	4.20
	5	2	.88	9	2.70
	6	1	.44	0	0.00
	7	1	.44	1	.30

^a $\chi^2=9.25$ (1 d.f.) $p<.01$

^b $\chi^2=38.67$ (2 d.f.) $p<.001$

indicates a significantly higher proportion of men are GFM in doctoral units than in nondoctoral units.

The marital status for the nondoctoral and doctoral groups seemed to be fairly similar. This was confirmed by a χ^2 of 3.98 (3 d.f.) which was not significant at the .05 level. The doctoral units seemed to have a more nearly equal distribution of GFM across the ages than the nondoctoral units.

The percentage of GFM indicating that they were the major providers of income for their households revealed a difference with 81.08 percent of the GFM in doctoral units and 57.71 percent of the GFM in nondoctoral units being major providers of income. A χ^2 of 38.67 (2 d.f.) was significant beyond the .001 level. A significantly larger percentage of the GFM in doctoral units were the major providers of income for their households. The percentage of GFM with one or more dependents was similar ($\chi^2=6.09$, 5 d.f., N.S.) for the two groups (nondoctoral, 53.51 percent; doctoral, 51.65 percent). This might lead one to speculate that the nondoctoral units hired more married women who were working to supplement their families' income as opposed to the doctoral units who hired the primary wage earner.

The distribution of GFM by specialization area is shown in Table V. Child development, family relations, and human development and foods, nutrition, and dietetics were the two largest areas of specialization in both nondoctoral and doctoral units.

Table VI reports the number of hours worked per week by GFM. For the nondoctoral units, 62.28 percent of the GFM worked 46 to 60 hours per week, while 67.46 percent of the GFM in doctoral units worked 46 to 60 hours per week. These figures included both part-time and full time

TABLE V

FIELD OF SPECIALIZATION AS IDENTIFIED BY GRADUATE FACULTY MEMBERS

Field of Specialization	Nondoctoral		Doctoral	
	Number	Percent	Number	Percent
Related Art, Interior Design	10	4.39	23	6.91
Child Development, Family Relations, Human Development	57	25.00	74	22.22
Communications, Journalism	0	0.00	2	.60
Foods, Nutrition, Dietetics	57	25.00	71	21.32
Home Economics Education	40	17.54	34	10.21
Housing, Equipment	6	2.63	15	4.51
Home Management, Family Economics	8	3.51	36	10.81
Institution, Hotel, Restaurant Management	3	1.32	14	4.20
Textiles, Clothing, Merchandising	41	17.98	51	15.32
Extension, Welfare, Community Service	1	.44	5	1.50
General Home Economics	0	0.00	0	0.00
Other	5	2.19	8	2.40

TABLE VI

ESTIMATED NUMBER OF HOURS WORKED PER WEEK BY GRADUATE FACULTY
MEMBERS (INCLUDES PART-TIME GRADUATE FACULTY MEMBERS)

Number of Hours	Nondoctoral		Doctoral	
	Number	Percent	Number	Percent
16-20	3	1.36	0	.00
21-25	1	.46	1	.31
26-30	5	2.27	2	.62
31-35	3	1.36	1	.31
36-40	20	9.09	19	5.85
41-45	9	4.09	23	7.07
46-50	52	23.64	78	24.00
51-55	39	17.73	53	16.31
56-60	46	20.91	85	27.15
61-65	19	8.63	29	8.52
66-70	11	5.00	17	5.23
71-75	7	3.18	8	2.56
76-80	2	.91	7	2.15
81-85	2	.91	0	0.00
86-90	1	.46	2	.62

GFM and were similar to other studies (Yuker, 1974) that reported an average around 55 hours per week for full time faculty members.

Factors for Nondoctoral Units

As reported in Chapter III, factor analysis was used to produce factors (groupings of variables) that represent different underlying concepts. The 24 factors found in the three factor analyses for the 225 GFM in nondoctoral units were:

1. Research productivity
2. Undergraduate instruction
3. Direction of master's students
4. Humanistic interaction and service
5. Research team involvement
6. Pre-productive research efforts
7. Professional development activities
8. Higher education experience
9. Non-instructional activities and research preparation
10. Academic attainment or striving
11. Efforts to improve research competence
12. Publication credit ethics
13. Expectations to conduct and disseminate research - A
14. Expectations to conduct and disseminate research - B
15. Expectations about administrator's role in research - A
16. Expectations about administrator's role in research - B
17. Research facilitating conditions outside the unit
18. Internal rewards for research
19. Support from consultants for research writing
20. Compensation for research productivity
21. Perception of research as a function of the home economics unit
22. Expectations for research involvement
23. Expectations to use research findings
24. Expectations to identify researchable problems

The first 10 factors from the first analysis include research productivity and the demographic and factual variables that were expected to be associated with research productivity. Factors 11 to 24, produced by the second and third factor analyses, contain the variables regarding research climate and ethics that were expected to be associated with research productivity.

Each of Tables VII through XXXI contain the variables included in one factor for the GFM in nondoctoral units. The title and number at the top of the table correspond to that in the list of factors for these GFM. The title for each factor was selected to express the main thought of the factor in the briefest possible way.

The table for each factor also includes the overall mean, standard deviation, and factor loading for each item (variable). The mean of a variable is the average of all responses to that variable within the nondoctoral group. The factor loading is the correlation between that variable and the factor for all respondents within the nondoctoral group. The number in parentheses after each variable refers to the item number in the questionnaire (Appendix C). When interpreting these factors it is suggested that the reader consult the code for variables (Appendix D) to determine what units of measurement were used for each variable. This is particularly important when the means are considered.

For example, the eighth variable in the first factor for the nondoctoral group relates to graduate credits earned in computer science. The mean of 1.61 does not indicate the average number of semester or quarter credit hours earned. Rather, as explained in Appendix D for question 13i, all responses were transformed from semester or quarter credits to a common measurement. Semester credits were multiplied by three and quarter credits were multiplied by two and then they were summed. If a respondent had two semester hours and no quarter hours, a score of 6 would be recorded ($2 \times 3 + 0 \times 2 = 6$). Consequently the tabled value of 1.61 translates to an average of .53 semester hours or .81 quarter hours of computer science credit. Other transformations

were required to produce equivalent measurements.

Factor 1. Research Productivity

The variables in the research productivity factor (Table VII) are concerned with academic productivity (writing or orally presenting), proposal writing and submitting, and involvement in research projects. The variables that group themselves together in this factor generally have small mean values. The means of variables 1 and 4 indicate that GFM in nondoctoral units averaged less than one research project completed or underway. The sum of the means of variables 3,6,7,and 9 indicates that the GFM submitted an average of about 1.4 proposals both inside or outside the university whether successful or rejected during the two year period. However, each GFM had an average of about three research oriented publications or presentations in the two years (variable 5) and was planning about two for the future (variable 2). This could lead to speculation that research was being done in nondoctoral units but it was inexpensive (requiring no additional funds). It also appears that these GFM had very little formal experience with computers (variable 8).

Factor 2. Undergraduate Instruction

This factor (Table VIII) has some loadings that are positive and others that are negative indicating that some of the variables are inversely related. The variables with higher (negative) loadings are related to instruction while the variables with lower (positive) loadings concern research, institutional service, and the length of

TABLE VII

NONDOCTORAL FACTOR 1. RESEARCH PRODUCTIVITY

\bar{X}	S.D.	Loading	Variable
.71	1.25	.59	1. Number of completed research projects for which one was principal or co-principal investigator between September, 1973 and September, 1975 ^{ab} (32a)
2.21	2.86	.55	2. Number of academic research publications or presentations currently underway or planned ^a (24a)
.51	.98	.52	3. Number of research proposals successfully submitted within the university between September, 1973 and September, 1975 ^a (31a)
.94	1.46	.47	4. Number of projects underway for which one is principal or co-principal investigator ^a (32b)
3.16	4.66	.46	5. Number of academic research publications or presentations formally reported as a faculty member between September, 1973 and September, 1975 ^a (24b)
.13	.43	.44	6. Number of research proposals rejected with the university between September, 1973 and September, 1975 ^a (31b)
.43	.87	.41	7. Number of research proposals successfully submitted external to the university between September, 1973 and September, 1975 ^a (31a)
1.61	4.56	.37	8. Number of transformed graduate credits earned in computer science ^c (13i)

TABLE VII (Continued)

\bar{X}	S.D.	Loading	Variable
.35	.90	.33	9. Number of research proposals rejected external to the university between September, 1973 and September, 1975 (31b)

^aConstructed variable. See Appendix E for list of variables which were included.

^bOn this and subsequent tables the number in parentheses following the variable indicates variable number on questionnaire.

^cSee Appendix D for coding.

TABLE VIII

NONDOCTORAL FACTOR 2. UNDERGRADUATE INSTRUCTION

\bar{X}	S.D.	Loading	Variable
8.98	3.95	-.80	1. Number of course credit hours taught in the Fall term, 1975 (20a)
70.45	27.31	-.78	2. Percent of time employed for instruction (14)
10.24	5.40	-.78	3. Number of class contact hours (in classroom) per week (20c)
21.22	13.01	-.78	4. Number of hours of undergraduate instruction (preparation, teaching, evaluation, directing theses, etc.) per week (18A1)
2.59	1.22	-.73	5. Number of different courses (in contrast to different sections of the same course) taught Fall term, 1975 (20d)
15.10	10.56	-.70	6. Desired number of hours of undergraduate instruction (preparation, teaching, evaluation, etc.) per week (19A1)
7.37	9.94	.50	7. Number of hours devoted to research and creative activities (writing, reviewing works of colleagues, weaving, etc.) per week (18C)
11.56	10.04	.44	8. Desired number of hours for research and creative activities (writing, reviewing works of colleagues, weaving, etc.) per week (19C)
6.17	6.18	.42	9. Hours of institutional service (committee meetings, administration, etc.) per week (18E)

TABLE VIII (Continued)

\bar{X}	S.D.	Loading	Variable
10.03 ^b	1.17	.39	10. Number of months employed this year (1975-1976) ^a (7)

^aSee Appendix D for coding.

^bMean not as coded but transformed to real months, S.D. based on code of 1 to 4.

employment. The variable means within this factor indicate that there was a strong emphasis on undergraduate instruction in the nondoctoral units and that the GFM with more time in teaching had less time for research. The clustering of these variables tends to validate the use of factor analysis. An inverse relationship between time spent in instruction and any other task would logically be expected.

Factor 3. Direction of Master's Students

This factor (Table IX) includes variables that deal with the role of GFM with graduate students in nondoctoral units. Variables are concerned with the number of graduate students that were advised or are being advised as a major adviser, or committee member, the number of hours per week devoted to graduate instruction (both present and desired), and past presentations of research by the graduate students of the GFM. These GFM were major advisers for about one graduate student per year on the average and committee members just slightly more frequently. Comparison of means for variables 5 and 6 indicates they would like to have had a little more time for graduate instruction than they presently had. On the average, less than every other one of their graduate students made one presentation of their work in a two year period.

Factor 4. Humanistic Interaction and Service

The variables in this factor (Table X) indicate conscientious dedication to students and long hours of work on the part of the GFM in nondoctoral units. The small difference between the means of variables 1 and 2 and between the means of variables 4 and 5 indicate

TABLE IX
NONDOCTORAL FACTOR 3. DIRECTION OF MASTER'S STUDENTS

\bar{X}	S.D.	Loading	Variable
1.73	2.31	-.67	1. Number of master's students underway for which one is the major adviser (21b)
1.02	1.88	-.65	2. Completed number of master's students for which one was major adviser between September, 1974 and September, 1975 (21a)
2.61	5.06	-.63	3. Number of master's theses completed under one's direction between September, 1972 and September, 1975 (23)
1.37	2.16	-.52	4. Completed number of master's students for which one was a committee member between September, 1974 and September, 1975 (21a)
8.11	6.30	-.50	5. Desired number of hours of graduate instruction (preparation, teaching, evaluation, directing theses, etc.) per week (19A2)
7.28	8.39	-.48	6. Number of hours of graduate instruction (preparation, teaching, evaluation, directing theses, etc.) per week (18A2)
.44	.99	-.47	7. Number of research papers presented by your graduate students at professional meetings between September, 1973 and September, 1975 (27a)
1.43	2.28	-.45	8. Number of master's students underway for which one is a committee member (21b)

TABLE X

NONDOCTORAL FACTOR 4. HUMANISTIC INTERACTION AND SERVICE

\bar{X}	S.D.	Loading	Variable
5.84	4.31	.64	1. Desired number of hours of interaction with students (counseling on all types of matters, etc.) per week (19B)
6.42	4.66	.64	2. Number of hours of interaction with students (counseling on all types of matters, etc.) per week (18B)
54.27	11.09	.57	3. Estimated total number of hours worked per week (17)
2.98	4.25	.49	4. Desired number of hours of public service (extension, holding professional or public offices, consulting, etc.) per week (19F)
2.67	4.76	.43	5. Number of hours of public service (extension, holding professional or public offices, consulting, etc.) per week (18F)

the GFM liked interacting with students and being involved in service related activities.

Factor 5. Research Team Involvement

All three of the variables on this factor (Table XI) relate to research team involvement. The means of these variables indicate this activity was occurring at minimal levels among GFM in the nondoctoral units. There were very few interdisciplinary cooperative research projects completed, underway, or planned. The fact that these nondoctoral units were small could lead to this result.

Factor 6. Pre-Productive Research Efforts

This factor (Table XII) includes discussion of research with others and the successful or unknown results of submitted research articles as a faculty member. One variable, popular writing when a graduate student, also loads on this factor. The GFM in nondoctoral units informally discussed research with about two others per year on the average. The means of variables 3, 4, and 5 indicate that very little writing was taking place. This factor could represent a developmental stage for beginning research efforts.

Factor 7. Professional Development Activities

In this factor (Table XIII) the variables indicate the presence of definite interests in keeping up professionally. The GFM in nondoctoral units averaged over two conferences or workshops per year and were contacted for professional research information about 3.51 times in a two year period.

TABLE XI

NONDOCTORAL FACTOR 5. RESEARCH TEAM INVOLVEMENT

\bar{X}	S.D.	Loading	Variable
.19	1.20	.92	1. Number of research projects for which one is planning to be a member of a research team ^a (32c)
.14	.78	.91	2. Number of completed research projects for which one was a member of a research team between September, 1973 and September, 1975 ^a (32a)
.23	1.12	.90	3. Number of research projects underway for which one is a member of a research team ^a (32b)

^aConstructed variable. See Appendix E for list of variables which were included.

TABLE XII

NONDOCTORAL FACTOR 6. PRE-PRODUCTIVE RESEARCH EFFORTS

\bar{X}	S.D.	Loading	Variable
2.05	6.54	.81	1. Number of times planning to informally discuss research with others between September, 1975 and September, 1976 ^a (33b)
4.02	11.26	.77	2. Number of times informally discussed research with others between September, 1973 and September, 1975 ^a (33a)
.36	.91	.71	3. Number of submitted research articles with decision pending Fall, 1975 (26)
.08	.40	.58	4. Number of popular writings completed as a graduate student ^a (24a)
.28	.69	.32	5. Number of research articles rejected or returned for revision between September, 1974 and September, 1975 (25)

^aConstructed variable. See Appendix E for list of variables which were included.

TABLE XIII

NONDOCTORAL FACTOR 7. PROFESSIONAL DEVELOPMENT ACTIVITIES

\bar{X}	S.D.	Loading	Variable
4.55	4.58	-.70	1. Number of conferences and workshops attended to improve research competence between September, 1973 and September, 1975 (33a)
2.41	2.81	-.70	2. Number of conferences and workshops planning to attend to improve research competence between September, 1975 and September, 1976 (33b)
3.51	6.05	-.57	3. Number home economists who contacted you for research information between September, 1974 and September, 1975 (30)
.08	.28	-.34	4. Plan to take leave or sabbatical between September, 1975 and September, 1976 (33b)

^aConstructed variable. See Appendix E for list of variables which were included.

Factor 8. Higher Education Experience

Higher education experience (Table XIV) includes five positively loaded variables, tenure, years in higher education, years at present rank, rank, and years directing theses. The year graduated, number of new course credits taught, and plans for research involvement as principal investigator are inversely related to the other five in the factor. Relationships among variables in the factor indicate the following are associated: tenure; number of years professional experience in higher education, directing theses, and holding present rank; extent to which GFM are not teaching courses for the first time; not planning to be the principal or co-principal investigator for research; and number of years since earning highest degree; academic rank.

Factor 9. Non-Instructional Activities and Research Preparation

Factor 9 (Table XV) combines variables dealing with extent of involvement in various non-instructional activities and extent of formal preparation for research. The positively related variables include percent of time employed for extension, administration, research, and other activities; involvement in local seminars; years of home economics experience in business, industry, government, and secondary education; extent of preparation for research (8,9,11,12); and desired hours of institutional service. In nondoctoral units GFM employed for research and administration tend to also be employed for extension and other activities but for smaller percentages of time. Extension refers to cooperative or university extension.

TABLE XIV

NONDOCTORAL FACTOR 8. HIGHER EDUCATION EXPERIENCE

\bar{X}	S.D.	Loading	Variable
2.04	1.00	.70	1. Tenure ^a (6)
64.62 ^b	10.54	-.66	2. Year degree received ^a (13b)
11.63	10.08	.65	3. Number of years professional experience in home economics in higher education (15)
4.68	4.34	.62	4. Number of years experience at present academic rank at this institution (16)
6.67	1.72	.61	5. Academic rank ^a (5)
4.83	5.78	.56	6. Number of years directing theses (22)
1.47	2.75	-.54	7. Number of course credit hours first time to teach (20b)
.71	1.30	-.40	8. Number of research projects for which one is planning to be principal or co-principal investigator ^c (32c)

^aSee Appendix D for coding.

^bAdd prefix 19 to \bar{X} to get exact year.

^cConstructed variable. See Appendix E for list of variables which were included.

TABLE XV

NONDOCTORAL FACTOR 9. NON-INSTRUCTIONAL ACTIVITIES AND RESEARCH PREPARATION

\bar{X}	S.D.	Loading	Variable
5.18	67.29	-.97	1. Percent of time employed for extension (14)
14.42	68.99	-.94	2. Percent of time employed for administration (14)
19.85	69.49	-.93	3. Percent of time employed for research (14)
1.47	5.07	-.92	4. Number of local seminar presentations (department/university) made as a graduate student (24a)
6.55	3.24	-.89	5. Income range for 1975-1976 ^a (8)
1.96	7.45	-.88	6. Number of years professional experience in home economics in business, industry, and government (15)
3.20	7.85	-.82	7. Number of years professional experience in home economics in secondary education (15)
13.72	11.67	-.59	8. Transformed number of graduate credits earned in statistics ^a (13h)
8.11	11.69	-.56	9. Transformed number of terms employed as a graduate research assistant ^a (13f)
.30	1.04	-.55	10. Number of local seminar presentations (department/university) planned (24c)
15.00	12.83	-.54	11. Transformed number of credits earned in master's thesis ^a (13j)

TABLE XV (Continued)

\bar{X}	S.D.	Loading	Variable
14.55	14.15	-.50	12. Transformed number of graduate credits earned in research methods/design ^a (13g)
3.80	5.01	-.42	13. Desired number of hours of institutional service (committee meetings, administration, etc.) per week (19E)
3.33	10.79	-.34	14. Percent of time employed for other activities (14)

^aSee Appendix D for coding.

Factor 10. Academic Attainment or Striving

For this factor (Table XVI) the inverse relationship between variables 2 and 4 indicates that GFM in nondoctoral units having earned many hours beyond their latest degree is negatively related to having earned credits for the doctoral dissertation. Since a score of nine was given for a Ph.D. the mean of 7.16 for highest degree earned (variable 1) indicates that the nondoctoral GFM had obtained less than that degree. It was reasonable to find the faculty member who had not obtained a terminal degree (variable 1) spending considerable time in professional development and desiring even more time (variables 3 and 5).

Factor 11. Efforts to Improve

Research Competence

Efforts to improve research competence (Table XVII) includes only two variables which were answered in terms of agreement or disagreement on a scale of 1 to 99. The variables concern course work and independent study. The low means indicate that, on the whole, there was little agreement concerning efforts to improve research competence among GFM in nondoctoral units.

Factor 12. Publication Credit Ethics

All of the variables concerned with publication credit ethics (Table XVIII) held together in this factor. None of them have a very high mean, with 68.56 being the highest value. This mean is not even half way between uncertain (50) and absolutely agree (99). One could

TABLE XVI

NONDOCTORAL FACTOR 10. ACADEMIC ATTAINMENT OR STRIVING

\bar{X}	S.D.	Loading	Variable
7.16	2.59	-.67	1. Highest degree earned ^a (13a)
4.72	3.89	.56	2. Number of hours for professional development (reading, meetings, taking courses, etc.) per week (18D)
13.46	30.97	.55	3. Transformed number of total credits earned beyond latest degree in any field (131)
31.47	38.12	-.51	4. Transformed number of credits earned in doctoral dissertation (13k)
6.22	4.45	.45	5. Desired number of hours for professional development (reading, meetings, taking courses, etc.) per week (19D)

^aSee Appendix D for coding.

TABLE XVII

NONDOCTORAL FACTOR 11. EFFORTS TO IMPROVE RESEARCH COMPETENCE

\bar{X}^a	S.D.	Loading	Variable
35.10	38.82	.63	1. This faculty member sits in on courses on campus as a means of improving research competencies. (26)
37.00	40.01	.59	2. This faculty member is now studying or working with more experienced researchers as a means of improving research competencies. (25)

^aThe means for factors 11-24 refer to the degree of agreement with the questionnaire item. One represents absolute disagreement, 50 represents uncertainty, and 99 represents absolute agreement.

TABLE XVIII

NONDOCTORAL FACTOR 12. PUBLICATION CREDIT ETHICS

\bar{X}	S.D.	Loading	Variable
60.13	31.27	.85	1. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she designs the research project. (80)
57.71	31.23	.82	2. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she secures funding for the research project. (81)
54.47	31.73	.80	3. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she provides the research idea. (79)
58.98	31.60	.80	4. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she collects the data. (82)
63.93	31.13	.76	5. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she analyzes and interprets the data. (83)
68.56	33.02	.75	6. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she serves as project director. (78)
54.63	33.37	.53	7. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she guides graduate students in research independent of funded projects. (85)
73.71	28.96	.50	8. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she writes the research report for publication. (84)

conclude that GFM in nondoctoral units were generally uncertain about their publication credit ethics. The reader will recall from factors 1 and 5 that GFM were not publishing jointly very often and had little association with those who publish.

Factor 13. Expectations to Conduct and

Disseminate Research - A and Factor

14. Expectations to Conduct and

Disseminate Research - B

These two factors (Tables XIX, XX) occurred as separate factors because the variables were included in different factor analyses. The factors are being considered at the same time because of their high correlation (Appendix F, $r=.84$). The variables are concerned with participating in research through conducting research, publishing research, and presenting research. The range of mean scores is between uncertain (50) and half way to absolutely agree (99). The highest mean (77.47) is for expectation to publish in professional journals while the lowest mean (51.93) is for expectation to publish for lay audiences. This indicates that GFM in nondoctoral units agreed with the expectation to publish in professional journals much stronger than the expectation to publish for lay audiences.

TABLE XIX

NONDOCTORAL FACTOR 13. EXPECTATIONS TO CONDUCT AND DISSEMINATE RESEARCH - A

\bar{X}	S.D.	Loading	Variable
59.58	33.15	.76	1. A graduate faculty member is expected to present research at state meetings of home economists or related groups. (66)
65.24	32.94	.76	2. A graduate faculty member is expected to present research at regional or national meetings of home economists or related groups. (67)
63.58	32.31	.67	3. A graduate faculty member is expected to conduct research by serving as a member of a team of co-leaders in one's field of specialization. (69)
58.71	32.96	.66	4. A graduate faculty member is expected to conduct research by serving as a member of a team of co-leaders for an interdisciplinary research project. (70)
69.46	32.87	.64	5. A graduate faculty member is expected to conduct research by serving as a leader of a research project. (68)
77.47	29.82	.64	6. A graduate faculty member is expected to publish research through professional journals in one's field of specialization. (61)
55.63	37.60	.59	7. A graduate faculty member is expected to present research at meetings or seminars in one's department, college, or school. (64)
66.71	33.69	.55	8. A graduate faculty member is expected to publish research through professional journals in home economics such as <u>Home Economics Research Journal</u> . (60)
51.93	30.82	.54	9. A graduate faculty member is expected to publish research through publications for lay audiences. (63)

TABLE XIX (Continued)

\bar{X}	S.D.	Loading	Variable
57.49	31.58	.51	10. A graduate faculty member is expected to participate in research by serving as a consultant to research project leaders. (52)
58.23	35.30	.41	11. A graduate faculty member is expected to participate in research by responding on request to a well-designed research instrument. (47)

TABLE XX

NONDOCTORAL FACTOR 14. EXPECTATIONS TO CONDUCT AND DISSEMINATE RESEARCH - B

\bar{X}	S.D.	Loading	Variable
73.73	31.57	.86	1. A graduate faculty member is expected to participate in research by publishing research articles in professional journals. (50)
71.90	30.82	.86	2. A graduate faculty member is expected to participate in research by conducting individual research projects. (49)
70.74	30.55	.82	3. A graduate faculty member is expected to participate in research by presenting research reports at professional meetings or seminars. (51)
72.32	30.46	.73	4. A graduate faculty member is expected to publish research in professional journals related to one's field of specialization. (62)
56.73	33.69	.57	5. A graduate faculty member is expected to conduct research by consulting with authorities in other disciplines than one's own. (71)
60.77	33.21	.56	6. A graduate faculty member is expected to participate in research by collecting data or arranging for collection of data for research projects in home economics. (48)

Factor 15. Expectations about Administrator's

Role in Research - A and Factor 16.

Expectations about Administrator's

Role in Research - B

The expectations about administrator's role in research (Tables XXI, XXII) were divided into two factors because the variables were included in different factor analyses. The factors are being considered at the same time because of their high correlation (Appendix F, $r=.84$). The variables deal with graduate assistants, funds, and release time. Because the means cluster around 50, uncertain, the GFM in nondoctoral units seemed unsure about the administrator's role in research. They tended to disagree with the expectation the GFM should be completely released from teaching to engage in research (variable 2). They are very uncertain if the administrator's role was to make funds available or not.

Factor 17. Research Facilitating Conditions

Outside the Unit

Research facilitating conditions outside the unit (Table XXIII) includes statistical and research design consultation, computer and library services, and personal competencies. The variables in this factor have some of the highest means of any variables for GFM in nondoctoral units. Although factor 1 showed research involvement to be low, these means demonstrate that GFM tended to agree that their institution had adequate computer services and statistical consultation services available. The mean of variable 6 indicates that the GFM

TABLE XXI

NONDOCTORAL FACTOR 15. EXPECTATIONS ABOUT ADMINISTRATOR'S ROLE IN RESEARCH - A

\bar{X}	S.D.	Loading	Variable
56.12	38.97	.77	1. A home economics administrator (such as head of home economics, administrator for research, or department head) is expected to arrange for graduate assistants to be available for research activities. (73)
32.76	36.02	.69	2. A home economics administrator is expected to completely release certain professors from teaching responsibilities to fully engage in research. (76)
57.91	38.35	.67	3. A home economics administrator is expected to partially release certain professors from teaching responsibilities for their partial engagement in research. (77)
62.41	38.06	.53	4. A home economics administrator is expected to help faculty members secure grants for departmental research from non-university agencies. (75)

TABLE XXII

NONDOCTORAL FACTOR 16. EXPECTATIONS ABOUT ADMINISTRATOR'S ROLE IN RESEARCH - B

\bar{X}	S.D.	Loading	Variable
51.29	38.74	.87	1. A home economics administrator (such as head of home economics, administrator for research, or department head) is expected to make funds available for research activities. (72)
55.64	37.65	.86	2. A home economics administrator is expected to encourage consultants to collaborate with faculty in doing research in home economics. (74)

TABLE XXIII

NONDOCTORAL FACTOR 17. RESEARCH FACILITATING CONDITIONS OUTSIDE THE UNIT

\bar{X}	S.D.	Loading	Variable
70.46	31.57	-.82	1. Statistical consultation is available as needed by this faculty member. (6)
63.31	31.49	-.76	2. Consultation on research design is available as needed by this faculty member. (7)
77.38	27.55	-.74	3. Adequate computer services are available to this faculty member, (8)
52.41	32.51	-.54	4. Library resources are adequate for conducting the research of interest to this faculty member. (5)
63.85	28.54	-.51	5. Specialists in other fields are available to this faculty member for consultation on research. (9)
76.62	21.05	-.39	6. This faculty member has adequate competencies for conducting research. (2)

perceived themselves as being competent to perform research. However, they were uncertain about the adequacy of the library as a resource.

Factor 18. Internal Rewards for Research

Internal rewards for research (Table XXIV) includes the types of support that are available to GFM from within the nondoctoral home economics units. All but one of the 14 variables have means on the disagreement side of the scale (1-49). This finding indicates GFM disagreed with the statements and were saying these types of rewards were not available. It is possible that GFM were not involved in research because these internal rewards emanating from within the unit encouraging them to conduct research were perceived as low. Money was not perceived as being readily available within the department (variable 8). Supporting staff to reduce teaching loads or to assist with the research (variables 1,3,7,11) were not perceived as being readily available.

Factor 19. Support from Consultants for Research Writing

The highest three variables which group together on this factor (Table XXV) are concerned with experienced assistance in writing and reviewing proposals and research journal articles. Variable 4 focuses on the availability of researchers in related disciplines to cooperate in directing projects. As indicated by the means, generally the GFM in nondoctoral units were uncertain about availability of these types of research support. The mean for variable 3 indicates GFM thought help in reviewing manuscripts or judging art forms was seldom available.

TABLE XXIV

NONDOCTORAL FACTOR 18. INTERNAL REWARDS FOR RESEARCH

\bar{X}	S.D.	Loading	Variable
29.71	31.93	.78	1. Research productivity (students completing theses, completing projects, publishing, exhibiting, securing external funding, etc.) is rewarded by increased supporting staff to assist with research. (37)
32.50	31.50	.73	2. Research productivity is rewarded by increased funding for research. (36)
25.60	29.45	.70	3. Research productivity is rewarded by increased supporting staff to assist with teaching. (38)
30.13	30.14	.67	4. Research productivity is rewarded by improved research facilities (housing, equipment, etc.). (35)
36.31	33.96	.64	5. Research productivity is rewarded by adjustment in work load to allow more time for research. (34)
31.32	32.02	.58	6. Faculty loads are such that this faculty member can develop research proposals for possible funding. (3)
28.47	34.36	.53	7. Graduate assistants are available to this faculty member for conducting research. (15)
22.22	31.22	.52	8. The home economics unit controls some funds which may be allocated to this faculty member for research support. (4)

TABLE XXIV (Continued)

\bar{X}	S.D.	Loading	Variable
35.58	36.70	.51	9. Graduate faculty members are encouraged to schedule their classes so as to have blocks of time for research. (28)
59.09	37.04	.48	10. This faculty member is encouraged to generate research ideas. (18)
46.79	36.22	.43	11. Clerical assistance is available to this faculty member for typing manuscripts, proposals, or research reports. (14)
43.59	35.80	.40	12. Graduate faculty members are encouraged to explore mutual research interests with faculty in other units. (29)
48.30	35.51	.38	13. Faculty members with research projects are provided with adequate periodic financial records of research accounts. (17)
32.87	35.63	.34	14. Graduate faculty members are encouraged to work away from their offices for blocks of time such as a day or half-day in order to develop research proposals, manuscripts, etc. (27)

TABLE XXV

NONDOCTORAL FACTOR 19. SUPPORT FROM CONSULTANTS FOR RESEARCH WRITING

\bar{X}	S.D.	Loading	Variable
45.76	33.59	.80	1. Persons knowledgeable in preparing manuscripts for submission (<u>Home Economics Research Journal</u> or other refereed journals) or in submitting art forms for exhibition are available to assist this graduate faculty member. (13)
53.14	35.36	.77	2. Persons knowledgeable in proposal writing are available to assist this faculty member in developing research proposals. (12)
33.89	34.58	.62	3. Persons experienced in reviewing research manuscripts for the <u>Home Economics Research Journal</u> or other refereed journals or serving as a judge in selecting art forms for exhibition are available to review work prior to submission. (16)
54.07	28.79	.59	4. Researchers in related disciplines are available to cooperate in directing projects with this faculty member. (10)

Factor 20. Compensation for Research

Productivity

Compensation for research productivity (Table XXVI) includes such variables as commendations from colleagues and administrators, promotion, salary increases, tenure, and opportunity to attend out-of-state professional conferences. These variable means clustered around 50, the response category to be used when one was uncertain and could neither agree nor disagree with the statement. The means for this factor are not as far toward the disagreement end of the scale as those in factor 18, internal reward for research productivity. The two highest means in this factor, 58.84 and 58.66, reveal that the GFM in nondoctoral units tended to agree that research productivity might just possibly be rewarded by tenure and promotion (variables 2 and 5). However the means for variables 3 and 6 indicate that the GFM were uncertain about the availability of money for rewards as salary increases or out-of-state travel.

Factor 21. Perception of Research as a Function of the Home Economics Unit

Even though GFM in nondoctoral units did not have high agreement with expectations to conduct or disseminate research (factors 13 and 14), the variables 1,2, and 5 loading together on factor 21 (Table XXVII) indicate they perceived the functions of their unit as teaching undergraduates to utilize research, and teaching graduate students to do research, and conducting research. Variables 3 and 4 concern the presence of opportunities for communication regarding research ideas

TABLE XXVI

NONDOCTORAL FACTOR 20. COMPENSATION FOR RESEARCH PRODUCTIVITY

\bar{X}	S.D.	Loading	Variable
55.26	34.39	.71	1. Research productivity (students completing theses, completing projects, publishing, exhibiting, securing external funding, etc.) is rewarded by commendations from administrators. (40)
58.84	33.42	.66	2. Research productivity is rewarded by promotion. (32)
46.83	34.88	.62	3. Research productivity is rewarded by salary increases. (31)
54.87	32.75	.60	4. Research productivity is rewarded by commendations from colleagues. (41)
58.66	33.67	.54	5. Research productivity is rewarded by tenure. (33)
47.90	34.94	.47	6. Research productivity is rewarded by opportunities to attend out-of-state professional meetings. (39)

TABLE XXVII

NONDOCTORAL FACTOR 21. PERCEPTION OF RESEARCH AS A FUNCTION OF THE HOME ECONOMICS UNIT

\bar{X}	S.D.	Loading	Variable
67.24	32.86	-.72	1. Teaching undergraduates to utilize research is perceived as a function of this home economics unit. (24)
69.58	34.69	-.70	2. Teaching graduate students to do research is perceived as a function of this home economics unit. (23)
47.62	33.42	-.47	3. Graduate faculty have opportunities for communication regarding research ideas. (20)
58.68	32.18	-.40	4. No departmental barriers exist for researchers who wish to work together on a research project. (11)
71.17	35.25	-.40	5. This faculty member perceives research as a function of this home economics unit. (22)

and opportunities for researchers to work together on a research project. These perceptions seem consistent with their expectations to do and conduct research (factors 13 and 14), their perception of the reward system (factors 18 and 20), and their perception of the research facilitating conditions within the unit (factor 17).

Factor 22. Expectations for Research

Involvement

This factor (Table XXVIII), expectations for research involvement, includes guiding graduate students, conducting research, and obtaining funds. The high means for variables 1 and 2 indicate GFM in nondoc-toral units agree with the expectation to guide graduate students more strongly than any other variables in factors 11 to 24. There was very strong agreement that this is a function of the GFM in nondoc-toral units. This could be the main way that GFM in nondoctoral units get involved in research and it could be their greatest contribution to research productivity.

Factor 23. Expectations to Use

Research Findings

The GFM in nondoctoral units expect to use research (Table XXIX) when evaluating education programs, choosing methods of teaching, revising curricula, and identifying researchable problems. The means of these variables group around 70 indicating a moderate degree of agreement. The expectation with the highest agreement was the expect-ation to use research to identify further researchable problems. One interpretation of these findings may be that even though GFM in

TABLE XXVIII

NONDOCTORAL FACTOR 22. EXPECTATIONS FOR RESEARCH INVOLVEMENT

\bar{X}	S.D.	Loading	Variable
84.36	27.08	.80	1. A graduate faculty member is expected to direct students in their research for the master's thesis if the graduate faculty member has a doctoral degree. (54)
86.88	23.82	.73	2. A graduate faculty member is expected to guide students' research projects. (53)
70.98	32.03	.64	3. A graduate faculty member is expected to conduct research if the graduate faculty member has a doctoral degree. (55)
51.77	36.96	.44	4. This faculty member receives pressure to obtain external funding for research activities. (19)

TABLE XXIX

NONDOCTORAL FACTOR 23. EXPECTATIONS TO USE RESEARCH FINDINGS

\bar{X}	S.D.	Loading	Variable
69.01	31.41	.93	1. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when evaluating educational programs. (57)
68.28	31.55	.91	2. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when choosing methods of teaching. (56)
69.22	31.38	.86	3. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when revising curricula in home economics. (59)
77.06	28.02	.65	4. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when identifying researchable problems. (58)

nondoctoral units might not be heavily involved in research, they had expectations for using research findings in ways that would benefit them and their students.

Factor 24. Expectations to Identify

Researchable Problems

The expectation of GFM in nondoctoral units to identify researchable problems (Table XXX) included different bases of research problems. Variable 1 had both the highest loading and the lowest mean. These findings indicate that home economics GFM emphasizing the family were more uncertain about identifying research problems as a result of observing the family related events than any of the other ways of identifying research problems. The highest degree of agreement but lowest loading concerns the expectation to identify researchable problems as a result of having an individual interest in one's field of specialization.

Factors for Doctoral Units

The three factor analyses for the 333 GFM in doctoral units generated 24 factors. Factors 1 to 10 resulted from the first factor analysis. It included variables from the first part of the questionnaire related to research productivity, demographic and factual variables. Factors 11 to 24 were produced by the second and third factor analyses from the degree of agreement questions at the end of the questionnaire. The 24 factors found for the GFM in doctoral units were:

1. Research productivity

TABLE XXX

NONDOCTORAL FACTOR 24. EXPECTATIONS TO IDENTIFY RESEARCHABLE PROBLEMS

\bar{X}	S.D.	Loading	Variable
48.01	31.93	-.81	1. A graduate faculty member is expected to identify researchable problems as a result of observing family related events. (42)
61.64	31.04	-.77	2. A graduate faculty member is expected to identify researchable problems as a result of having an individual interest in problems related to families. (44)
58.98	30.73	-.69	3. A graduate faculty member is expected to identify researchable problems as a result of evaluating students' progress toward selected objectives. (46)
60.56	30.91	-.68	4. A graduate faculty member is expected to identify researchable problems as a result of evaluating methodology in one's field of specialization. (43)
78.03	25.12	-.61	5. A graduate faculty member is expected to identify researchable problems as a result of having an individual interest in one's field of specialization. (45)

2. Undergraduate instruction
3. Direction of master's students
4. Humanistic interaction and professional development
5. Research work load
6. Extension and public service
7. Direction of doctoral students
8. Higher education experience
9. Research preparation
10. Informal communication about research
11. Efforts to improve research competence
12. Publication credit ethics
13. Expectations to conduct and disseminate research - A
14. Expectations to conduct and disseminate research - B
15. Expectations about administrator's role in research - A
16. Expectations about administrator's role in research - B
17. Research facilitating conditions outside the unit
18. Internal reward for research productivity
19. Research facilitating conditions inside the unit
20. Compensation for research productivity
21. Perception of research as a function of the home economics unit
22. Expectations for research involvement
23. Expectations to use research findings
24. Expectations to identify researchable problems

Factor 1. Research Productivity

Research productivity (Table XXXI) for the GFM in doctoral units encompasses a number of activities. These activities include participation in research projects with various responsibilities, writing of articles for lay and academic audiences, writing proposals, and attendance and presentation at professional conferences and workshops. Writing of research (variables 14 and 10), which has generally been considered "the" measurement of research productivity, averages 6.59 for the two year period and almost four planned or underway for each GFM. The mean for popular writing (variables 3 and 16) indicates popular writing was not being done at a prolific rate nor was it being planned. Only four out of ten GFM were planning to publish for lay audiences. The mean of variable 12 indicates GFM averaged attending

TABLE XXXI

DOCTORAL FACTOR 1. RESEARCH PRODUCTIVITY

\bar{X}	S.D.	Loading	Variable
.53	5.44	.98	1. Number of research projects underway for which one is a member of the research team ^a (32b)
.67	5.36	.98	2. Number of research proposals pending outside the university Fall, 1975 ^a (31c)
.41	5.43	.98	3. Number of popular writings completed as a graduate student ^a (24a)
.42	4.40	.98	4. Number of research projects for which one is planning to be a member of a research team ^a (32c)
1.14	5.56	.98	5. Number of research projects for which one is planning to be principal or co-principal investigator ^a (32c)
.97	5.52	.97	6. Number of research proposals successfully submitted external to the university between September, 1973 and September, 1975 ^a (31a)
.42	2.79	.97	7. Number of research proposals rejected within the university between September, 1973 and September, 1975 ^a (31b)
.97	5.57	.97	8. Number of research proposals rejected external to the university between September, 1973 and September, 1975 ^a (31b)
1.06	2.92	.93	9. Number of research proposals successfully submitted within the university between September, 1973 and September, 1975 ^a (31a)

TABLE XXXI (Continued)

\bar{X}	S.D.	Loading	Variable
3.79	6.32	.88	10. Number of academic research publications or presentations currently underway or planned ^a (24c)
.53	3.24	.86	11. Number of popular writings currently underway or planned ^a (24c)
4.67	6.29	.86	12. Number of professional conferences and workshops attended to improve research competence between September, 1973 and September, 1975 ^a (33a)
.15	.63	.80	13. Number of research proposals pending within the university Fall, 1975 ^a (31c)
6.59	8.88	.65	14. Number of academic research publications or presentations formally reported as a faculty member between September, 1973 and September, 1975 ^a (24b)
.16	.56	.53	15. Number of completed research projects for which one was a member of a research team between September, 1973 and September, 1975 ^a (32a)
.41	1.22	.45	16. Number of popular writings completed as a faculty member between September, 1973 and September, 1975 ^a (24b)

^aConstructed variable. See Appendix E for list of variables which were included.

attending over two conferences or workshops a year to improve research competence. The GFM in doctoral units were involved in research projects at about the rate of one per year and were planning to continue at that rate.

Factor 2. Undergraduate Instruction

The undergraduate instruction factor (Table XXXII) includes variables that are concerned with instruction such as percent of time employed for instruction, class contact hours per week, course credit hours, number of different courses, and present and desired hours for undergraduate instruction per week (variables 1,2,3,6,7,and 9). There is another group of variables (variables 4,5,8,and 10) concerning activities other than instruction which related inversely to the instructional variables. These variables are percent of time employed for administration, present and desired hours for institutional service per week and the number of months employed this year. The GFM in doctoral units were, on the average, employed 55 percent of the time for instruction; they were in the classroom a little more than seven hours per week; they taught about six credit hours and two different courses in the Fall, 1975 term. On the average the GFM would like to have reduced their undergraduate instructional time from 12 hours to nine hours per week and to have reduced their institutional service time about three and a half hours per week (8.81 to 5.24). The GFM in doctoral units were employed on the average about 11 months per year.

TABLE XXXII

DOCTORAL FACTOR 2. UNDERGRADUATE INSTRUCTION

X	S.D.	Loading	Variable
55.44	29.72	.81	1. Percent of time employed for instruction (14)
7.19	5.19	.75	2. Number of class contact hours (in classroom) per week (20c)
6.21	3.81	.73	3. Number of course credit hours taught in the Fall term 1975 (20a)
14.90	23.06	-.71	4. Percent of time employed for administration (14)
8.71	9.26	-.71	5. Number of hours of institutional service (committee meetings, administration, etc.) per week (18E)
1.98	1.17	.67	6. Number of different courses (in contrast to different sections of the same course) taught Fall term 1975 (20d)
12.11	10.95	.66	7. Number of hours of undergraduate instruction (preparation, teaching, evaluation, etc.) per week (18A1)
5.24	6.76	-.63	8. Desired number of hours of institutional service (committee meetings, administration, etc.) per week (19E)
9.24	8.70	.56	9. Desired number of hours of undergraduate instruction (preparation, teaching, evaluation, etc.) per week (19A1)
10.93 ^a	1.32	-.55	10. Number of months employed this year (1975-1976) (7)

^aNot as coded but transformed to real months, S.D. based on code of 1 to 4.

Factor 3. Direction of Master's Students

Five of the six variables included in this factor (Table XXXIII) dealt with the role of the GFM in doctoral units with master's students. The other variable (6) was the number of local seminar presentations made by the GFM in a two year period. The GFM were involved with an average of between four and five master's students per year during the two years which were reported. They were major advisers for about two of these (variable 5) and then a committee member for about two others (variable 1). They appear to be more involved with graduate students at the present than they have been in the past (variables 2 and 4 > 1 and 5). This possibly could be explained in one of the following three ways. First, not every student that the GFM is advising finishes the degree. Next, the graduate students presently being advised by a GFM will finish at different times. Finally, this difference between number presently advising and the number completed could reflect increased graduate student enrollment or increased activity with graduate students by the GFM.

Factor 4. Humanistic Interaction and Professional Development

Variables included in this factor (Table XXXIV) concern total hours worked per week, present and desired hours worked per week in both professional development and interaction with students, and present and past supervision of student research other than theses. This factor represented the student oriented GFM in doctoral units. On the average GFM devoted five hours per week to professional development and would have liked to increase it to almost six

TABLE XXXIII

DOCTORAL FACTOR 3. DIRECTION OF MASTER'S STUDENTS

\bar{X}	S.D.	Loading	Variable
2.42	3.33	.65	1. Completed number of master's students for which one was a committee member between September, 1974 and September, 1975. (21a)
2.21	2.77	.63	2. Number of master's students underway for which one is a committ member (21b)
4.33	5.05	.63	3. Number of master's theses under one's direction between September, 1972 and September, 1975 (23)
2.42	2.64	.63	4. Number of master's students underway for which one is the major adviser (21b)
1.39	1.90	.61	5. Completed number of master's students for which one was major adviser between September, 1974 and September, 1975 (21a)
1.75	4.37	.42	6. Number of local seminars presentations given as a faculty member between September, 1973 and September, 1975 (24b)

TABLE XXXIV

DOCTORAL FACTOR 4. HUMANISTIC INTERACTION AND PROFESSIONAL DEVELOPMENT

\bar{X}	S.D.	Loading	Variable
6.72	4.51	-.66	1. Desired number of hours for professional development (reading, meetings, taking courses, etc.) per week (19D)
55.62	9.49	-.61	2. Estimated total number of hours worked per week (17)
6.84	5.00	-.56	3. Number of hours of interaction with students (counseling on all types of matters, etc.) per week (18B)
5.13	3.68	-.54	4. Number of hours for professional development (reading, meetings, taking courses, etc.) per week (18D)
6.07	4.40	-.54	5. Desired number of hours of interaction with students (counseling on all types of matters, etc.) per week (19B)
1.05	2.68	-.42	6. Number of student research projects one supervised, other than master's or doctoral theses, which were completed between September, 1974 and September, 1975 (21a)
1.08	2.38	-.42	7. Number of student research projects one is currently supervising, other than master's or doctoral theses (21d)

and three-fourths hours per week (variables 4 and 1). On the average they worked long hours (55.62 per week) and really did not care to decrease the amount of time they spent interacting with students very much (6.84 to 6.07 hours per week). On the average, GFM supervised about one student research project in the two year period that was not connected with a thesis or dissertation (variable 6) and had one underway (variable 7) in the Fall, 1975.

Factor 5. Research Work Load

The three variables loading highest in research work load (Table XXXV) are present and desired hours per week in research and the percent of time the GFM in doctoral units were employed for research. There is a fairly gap in loadings between these three variables and the rest of the variables. Five of the other seven variables concern research underway or completed. The other two variables concern experience, namely the length of time one was a graduate research assistant, and one's educational experience at the secondary level. Secondary experience is inversely related to all the other variables in this factor. Comparing variables 1 and 3, the GFM on the average would have liked to increase their research time markedly from nine and a half to 13 hours per week. They were employed for research 21.45 percent of the time on the average. They averaged over one research project underway (variable 4). This represented a slight increase over the number of research projects (mean 1.30) that they completed in the two year period (variable 7). They averaged .30 research articles rejected (variable 5) and .65 research articles for which decisions were still pending. The GFM averaged about three semesters

TABLE XXXV

DOCTORAL FACTOR 5. RESEARCH WORK LOAD

\bar{X}	S.D.	Loading	Variable
9.53	8.48	-.81	1. Number of hours spent in research and creative activities (writing, reviewing works of colleagues, weaving, etc.) per week (18C)
21.45	22.52	-.80	2. Percent of time employed for research (14)
13.00	8.75	-.75	3. Desired number of hours for research and creative activities (writing, reviewing works of colleagues, weaving, etc.) per week (19C)
1.39	1.66	-.56	4. Number of research projects currently underway for which one is principal or co-principal investigator (32b)
.64	1.18	-.43	5. Number of submitted research articles for which decisions were pending Fall, 1975 ^a (26)
9.18	10.79	-.40	6. Transformed number of terms employed as a graduate research assistant ^b (13f)
1.30	2.05	-.37	7. Number of completed research projects for which one was a principal or co-principal investigator between September, 1973 and September, 1975 ^a (32a)
1.97	3.01	-.33	8. Number of academic research publications or presentations formally reported as a graduate student ^a (24a)
1.77	3.64	.31	9. Number of years professional experience in home economics in secondary education (15)

TABLE XXXV (Continued)

\bar{X}	S.D.	Loading	Variable
.30	.67	-.27	10. Number of research articles rejected or returned for revision between September, 1974 and September, 1975 (25)

^a Constructed variable. See Appendix E for variables included.

^b See Appendix D for coding.

experience employed as graduate research assistants (variable 6).

Factor 6. Extension and Public Service

The variables in the factor, extension and public service, (Table XXXVI) concern percent of time they were employed in extension and the number of hours per week they were presently working and desiring in public service. On the average the GFM in doctoral units were employed in extension 4.38 percent of the time and worked 3.93 hours per week in some public service capacity and desired to spend 3.5 hours per week in public service. It seemed logical to find these variables grouped together, lending validity to the factor analysis.

Factor 7. Direction of Doctoral Students

This factor (Table XXXVII) includes variables that concern research of doctoral students, presentations by graduate students and present and desired hours of graduate instruction per week. The GFM in doctoral units averaged supervising one doctoral thesis apiece for a three year period ending in September, 1975 (variable 1). Presently, the GFM are actively involved (major adviser and committee member) with an average of almost three doctoral students (variables 2 and 6). This represented an increase of about one over the number completed in the previous two years (variables 3 and 4). This increase could reflect overlapping of students at different stages in doctoral training, dropping out of students, or an increase in involvement in training doctoral students on the part of these GFM. On the average their graduate students presented 1.05 research papers during the two years and were planning to present .65 research papers the next year.

TABLE XXXVI

DOCTORAL FACTOR 6. EXTENSION AND PUBLIC SERVICE

\bar{X}	S.D.	Loading	Variable
3.93	6.44	.87	1. Number of hours of public service (extension, holding professional or public office, consulting, etc.) per week (18F)
3.50	5.77	.86	2. Desired number of hours of public service (extension, holding professional or public office, consulting, etc.) per week (19F)
4.38	16.57	.80	3. Percent of time employed for extension (14)

TABLE XXXVII

DOCTORAL FACTOR 7. DIRECTION OF DOCTORAL STUDENTS

\bar{X}	S.D.	Loading	Variable
.95	2.16	.80	1. Number of doctoral thesis completed under one's direction between September, 1972 and September, 1975 (23)
.98	1.91	.72	2. Number of doctoral students underway for which one is major adviser (21b)
.42	1.18	.70	3. Completed number of doctoral students for which one was major adviser between September, 1974 and September, 1975 (21a)
1.24	2.88	.69	4. Completed number of doctoral students for which one was a committee member between September, 1974 and September, 1975 (21a)
1.05	1.70	.63	5. Number of research papers presented by your graduate students at professional meetings between September, 1973 and September, 1975 (27a)
1.76	3.28	.62	6. Number of doctoral students underway for which one is a committee member (21b)
.65	1.03	.55	7. Number of research papers your graduate students are planning to present at professional meetings between September, 1975 and September, 1976 (27b)
9.46	8.39	.51	8. Number of hours of graduate instruction (preparation, teaching, evaluation, directing theses, etc.) per week (18A2)
10.18	7.63	.44	9. Desired number of hours of graduate instruction (preparation, teaching, evaluation, directing theses, etc.) per week (19A2)

The GFM, on the average, wanted to increase their time in graduate instruction (variables 8 and 9) from 9.46 to 10.18 hours per week.

Factor 8. Higher Education Experience

The data in Table XXXVIII explains the higher education experience of the GFM in doctoral units. There is an inverse relationship between the loadings of the variables 2 and 8, year the degree was received and course credit hours first time to teach, and the rest of the variables in this factor. The GFM averaged directing theses almost eight years. On the average they received their degree in the last half of 1963 and had almost 13 years experience in higher education. They averaged being at their present academic rank a little over seven years. They had been at their present rank at their present institution about five and one-half years on the average. A mean of two would indicate a 50 percent split between tenured and nontenured GFM at doctoral units (variable 6). The present mean of 2.33 indicates a few more GFM are tenured than nontenured. The GFM in doctoral units averaged between \$18,000 and \$21,000 per year in income and averaged teaching less than one course credit hour for the first time in the Fall, 1975.

Factor 9. Research Preparation

This factor, research preparation, (Table XXXIX) groups together five variables dealing with educational training by the GFM in doctoral units as graduate students. Overall, GFM averaged about 13 semester or 20 quarter credits earned on their doctoral dissertation (variable 1) and about six semester or nine quarter credits earned on their master's

TABLE XXXVIII

DOCTORAL FACTOR 8. HIGHER EDUCATION EXPERIENCE

\bar{X}	S.D.	Loading	Variable
7.87	7.24	.78	1. Number of years directing theses (22)
63.73 ^a	8.88	-.78	2. Year degree received ^b (13b)
12.76	9.46	.75	3. Number of years professional experience in home economics in higher education (15)
7.14	1.68	.73	4. Academic rank ^b (5)
5.53	5.02	.72	5. Number of years experience at present academic rank at this institution (16)
2.33	.94	.69	6. Tenure (6) 1 was No 3 was Yes
7.46	1.76	.56	7. Income range for 1975-1976 ^b (8)
.83	1.69	-.32	8. Number of course credit hours first time to teach (20b)

^aAdd prefix 19 to \bar{X} to get exact year.

^bSee Appendix D for coding.

TABLE XXXIX

DOCTORAL FACTOR 9. RESEARCH PREPARATION

\bar{X}	S.D.	Loading	Variable
40.88	42.24	-.63	1. Transformed number of credits earned in doctoral dissertation ^a (13k)
18.29	18.18	-.61	2. Transformed number of credits earned in master's thesis ^a (13j)
13.73	13.06	-.51	3. Transformed number of graduate credits earned in research methods/design ^a (13g)
1.78	4.82	-.47	4. Transformed number of graduate credits earned in computer science ^a (13i)
17.01	13.23	-.46	5. Transformed number of graduate credits earned in statistics ^a (13h)

^aSee Appendix D for coding.

thesis (variable 2). The GFM had averaged earning more than four semester or slightly less than seven quarter credits in research methods/design (variable 3) and almost six semester or almost nine quarter credits in statistics (variable 5). However, they averaged less than one quarter credit or about a half a semester credit in computer science.

Factor 10. Informal Communication

about Research

The seven variables concerned with informal communication about research by GFM in doctoral units are in this factor (Table XL). There is an inverse relationship between highest degree earned and the rest of the variables which are: total credits earned beyond the latest degree; past and future discussion of research; leave of absence or sabbatical taken in the last two years; years professional experience in business, industry, or government; and the number of home economists who have contacted the GFM during the two year period. GFM averaged earning a little over five quarter credits or three semester credits since they received their highest degree. Since the Ed.D. was coded 7 and the Ph.D. was coded 9, they averaged between an Ed.D. and a Ph.D. in degree earned. The GFM discussed research during the two year period with less than six other people, on the average, and were planning to discuss it with less than four other people. One in 10 GFM took a leave of absence or sabbatical in the last two years. They averaged less than two years professional experience in business, industry, or government. On the average, six and one-half home economists contacted each GFM in doctoral units for research information in

TABLE XL

DOCTORAL FACTOR 10. INFORMAL COMMUNICATION ABOUT RESEARCH

\bar{X}	S.D.	Loading	Variable
10.46	32.70	-.55	1. Transformed total number of credits earned beyond latest degree ^a (131)
7.89	2.18	.45	2. Highest degree earned ^a (13a)
5.71	12.00	-.44	3. Number of times informally discussed research with others between September, 1973 and September, 1975 (33a)
3.41	8.28	-.38	4. Number of times plan to informally discuss research with others between September, 1975 and September, 1976 (33b)
.10	.30	-.32	5. Number of leaves of absence or sabbaticals taken between September, 1973 and September, 1975 (33a)
1.79	4.75	-.29	6. Number of years professional experience in home economics in business, industry or government (15)
6.52	15.63	-.29	7. Number of home economists who have contacted you for research information between September, 1974 and September, 1975 (30)

^a See Appendix D for coding.

the past year.

Factor 11. Efforts to Improve

Research Competence

This factor (Table XLI) clusters together six variables dealing with two different aspects of efforts to improve research competence. The behavior of GFM in doctoral units to improve research competence and their perception of encouragement, which probably comes from an administrator, to improve research competence are the two variables. These variables were answered in terms of agreement or disagreement on a scale of 1 to 99. The means of variables 1 and 2 (41.19 and 35.10) indicate disagreement that GFM were working on improving their research competence by sitting in on courses or working with more experienced researchers more often than agreement that GFM were doing so. The means indicate slightly more agreement (63.50) in perceiving encouragement to improve research competence by participating in professional conferences (variable 5) and encouragement to explore mutual research interests with faculty in other units (variable 6). Comparing the means of variables 3 and 4 (42.73 and 40.47) indicates slightly more disagreement than agreement with the perception that GFM were encouraged to schedule classes in order to have blocks of time for research and that GFM were encouraged to work away from their offices for blocks of time such as a day or half day on research.

TABLE XLI

DOCTORAL FACTOR 11. EFFORTS TO IMPROVE RESEARCH COMPETENCE

\bar{X}^a	S.D.	Loading	Variable
41.19	37.74	-.62	1. This faculty member is now studying or working with more experienced researchers as a means of improving research competence. (25)
35.10	37.07	-.58	2. This faculty member sits in on courses on campus as a means of improving research competence. (26)
42.73	35.95	-.54	3. Graduate faculty are encouraged to schedule their classes so as to have blocks of time for research. (28)
40.47	35.37	-.53	4. Graduate faculty are encouraged to work away from their offices for blocks of time such as a day or half-day to develop research proposals, manuscripts, etc. (27)
65.50	31.49	-.50	5. Graduate faculty are encouraged to participate in workshops, conferences, etc. to improve research competence. (30)
61.80	33.53	-.48	6. Graduate faculty are encouraged to explore mutual research interests with faculty in other units. (29)

^aThe means for factors 11-24 refer to the degree of agreement with the questionnaire item. One represents absolute disagreement, 50 represents uncertainty, and 99 represents absolute agreement.

Factor 12. Publication Credit Ethics

All of the variables on the subject of publication credit ethics are clustered together by the factor analysis (Table XLII). The means of the variables indicate that GFM in doctoral units tended to agree with all of the statements. However the means range from 54.23 (uncertain) to 79.61 (agreement) which meant that there were different levels of agreement with the variables. It seemed that the GFM were agreeing that one should get some kind of publication credit (authorship) but maybe not primary authorship for each of these behaviors. Variable 8, concerning receiving primary authorship for writing the research report for publication had the highest mean (79.61) but the lowest loading or lowest degree of association with the overall factor. The lowest mean is for variable 7, expecting to receive primary authorship for guiding graduate student research independent of funded projects. The GFM were more uncertain about this variable than any other on this factor. More often graduate students tend to be listed as primary author on their own research, lending validity to this finding.

Factor 13. Expectations to Conduct and

Disseminate Research - A Factor 14.

Expectations to Conduct and

Disseminate Research - B

The two factors concerned with expectations of GFM in doctoral units to conduct and disseminate research are shown in Tables XLIII and XLIV. These two factors occurred as separate factors because the

TABLE XLII

DOCTORAL FACTOR 12. PUBLICATION CREDIT ETHICS

\bar{X}	S.D.	Loading	Variable
64.21	30.00	-.85	1. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she designs the research project. (80)
59.62	31.31	-.80	2. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she secures funding for the research project. (81)
59.67	30.51	-.76	3. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she collects the data. (82)
68.47	29.57	-.75	4. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she analyzes and interprets the data. (83)
72.72	29.60	-.72	5. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she serves as project director. (78).
54.84	31.90	-.70	6. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she provides the research idea. (79)
54.23	33.83	-.66	7. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she guides graduate students in their research independent of funded projects. (85)
79.61	26.29	-.52	8. A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she writes the research report for publication. (84)

TABLE XLIII

DOCTORAL FACTOR 13. EXPECTATIONS TO CONDUCT AND DISSEMINATE RESEARCH - A

\bar{X}	S.D.	Loading	Variable
63.00	31.37	-.83	1. A graduate faculty member is expected to present research at state meetings of home economists or related groups. (66)
72.42	29.98	-.81	2. A graduate faculty member is expected to present research at regional or national meetings of home economists or related groups. (67)
75.64	26.93	-.59	3. A graduate faculty member is expected to conduct research by serving as a member of a team of co-leaders in one's field of specialization. (69)
67.90	28.90	-.57	4. A graduate faculty member is expected to conduct research by serving as a member of a team of co-leaders for an interdisciplinary research project. (70)
71.65	31.19	-.54	5. A graduate faculty member is expected to publish research in professional journals in home economics such as <u>Home Economics Research Journal</u> . (60)
79.79	24.87	-.53	6. A graduate faculty member is expected to conduct research by serving as a leader of a research project. (68)
67.51	28.92	-.48	7. A graduate faculty member is expected to participate in research by serving as a consultant to research project leaders. (52)
69.05	33.48	-.45	8. A graduate faculty member is expected to present research at meetings or seminars in one's department, college, or school. (64)

TABLE XLIII (Continued)

\bar{X}	S.D.	Loading	Variable
56.32	31.56	-.44	9. A graduate faculty member is expected to publish research in publications for lay audiences. (63)
61.73	32.52	-.33	10. A graduate faculty member is expected to participate in research by responding on request to well-designed research instruments. (47)

TABLE XLIV

DOCTORAL FACTOR 14. EXPECTATIONS TO CONDUCT AND DISSEMINATE RESEARCH - B

\bar{X}	S.D.	Loading	Variable
87.17	20.84	.87	1. A graduate faculty member is expected to participate in research by publishing research articles in professional journals. (50)
80.99	23.02	.86	2. A graduate faculty member is expected to participate in research by presenting research reports at professional meetings or seminars. (51)
81.58	25.29	.79	3. A graduate faculty member is expected to participate in research by conducting individual research projects. (49)
84.60	20.93	.68	4. A graduate faculty member is expected to publish research in professional journals related to one's field of specialization. (62)
83.08	21.48	.51	5. A graduate faculty member is expected to identify researchable problems by having an individual interest in one's field of specialization. (45)
67.39	29.06	.43	6. A graduate faculty member is expected to conduct research by consulting with authorities in other disciplines than one's own. (71)

variables were included in different factor analyses. These two factors were being considered at the same time because of their high correlation (Appendix G, $r=.70$). The GFM means indicate that there was more agreement than disagreement with the expectations that GFM in doctoral units are to publish (variables 5 and 9, factor 13, and variables 1 and 4, factor 14) and make presentations (variables 1,2 and 8, factor 13 and variable 2, factor 14). The means indicate that there was more agreement than disagreement with the expectations that GFM are to participate in research both individually and cooperatively (variables 3,4,6 and 7, factor 13 and variables 3 and 6, factor 14). The means indicate that there was more agreement than disagreement with the expectations that the GFM will have researchable interests in their field (variable 5, factor 14). The GFM agreed to a lesser extent to the expectations to present results at specific organizations (variables 1,2, and 8, factor 13).

Factor 15. Expectations about Administrator's
Role in Research - A Factor 16. Expec-
tations about Administrator's Role
in Research - B

Factors 15 and 16, shown in Tables XLV and XLVI, deal with the administrator's role in research. The expectations about administrator's role in research were divided into two factors because the variables were included in different factor analyses. The factors are being considered at the same time because of their high correlation (Appendix G, $r=.75$). The variables included deal with graduate assistants, release time, and funds. The means of the variables

TABLE XLV

DOCTORAL FACTOR 15. EXPECTATIONS ABOUT ADMINISTRATOR'S ROLE IN RESEARCH - A

\bar{X}	S.D.	Loading	Variable
68.44	30.95	.65	1. A home economics administrator (such as head of home economics, administrator for research, or department head) is expected to arrange for graduate assistants to be available for research activities. (73)
70.28	30.66	.65	2. A home economics administrator is expected to partially release certain professors from teaching responsibilities for their partial engagement in research. (77)
36.32	32.28	.58	3. A home economics administrator is expected to completely release certain professors from teaching responsibilities for fully engaging in research. (76)
72.63	31.75	.57	4. A home economics administrator is expected to help faculty secure grants for departmental research from non-university agencies. (75)
51.59	37.77	.31	5. The home economics unit controls some funds which may be allocated to this faculty member for research support. (4)

TABLE XLVI

DOCTORAL FACTOR 16. EXPECTATIONS ABOUT ADMINISTRATOR'S ROLE IN RESEARCH - B

\bar{X}	S.D.	Loading	Variable
63.13	31.96	.84	1. A home economics administrator (such as head of home economics, administrator for research, or department head) is expected to make funds available for research activities. (72)
67.15	29.95	.81	2. A home economics administrator is expected to encourage consultants to collaborate with faculty in doing research in home economics. (74)

indicate that GFM in doctoral units had higher agreement with expectations about the role of the administrator in assisting the GFM to obtain outside funds (72.63) than any other variable on this factor. The lower mean of variable 3 (36.32) indicates that GFM tended to agree that they should not be completely released from teaching to perform research. The GFM were uncertain regarding the expectation that the home economics units control funds for research.

Factor 17. Research Facilitating

Conditions Outside the Unit

Variables included in this factor, research facilitating conditions outside the unit (Table XLVII), are availability of consultation about research design and statistics, specialists in other fields for preparing manuscripts and art forms and directing research, and computer services and library resources. Generally the GFM in doctoral units agreed that the resources from outside the unit were available and adequate. The means of variables 2 and 4 indicate that computer facilities and statistical consultation received the highest level of agreement as being adequate. Consultation for preparing manuscripts or art forms was the least available to the GFM (variable 9). The mean of variable 7 (71.66) shows that there is agreement that library resources were adequate.

Factor 18. Internal Rewards for

Research Productivity

This factor, internal rewards for research productivity (Table XLVIII), includes rewards such as increased supporting staff for

TABLE XLVII

DOCTORAL FACTOR 17. RESEARCH FACILITATING CONDITIONS OUTSIDE THE UNIT

\bar{X}	S.D.	Loading	Variable
76.90	26.96	-.79	1. Consultation on research design is available as needed by this faculty member. (7)
83.18	23.16	-.78	2. Statistical consultation is available as needed by this faculty member. (6)
75.50	25.33	-.69	3. Specialists in other fields are available to this faculty member for consultation on research. (9)
85.38	21.34	-.62	4. Adequate computer services are available to this faculty member. (8)
67.79	27.06	-.52	5. Researchers in related disciplines are available to cooperate in directing projects with this faculty member. (10)
61.18	32.22	-.51	6. Persons knowledgeable in proposal writing are available to assist this faculty member in developing research proposals. (12)
71.66	28.17	-.48	7. Library resources are adequate for conducting the research of interest to this faculty member. (5)
62.54	31.13	-.40	8. Facilities are adequate for conducting the type of research for which this faculty member has any responsibility (student theses and faculty research). (1)
59.96	32.97	-.36	9. Persons knowledgeable in preparing manuscripts for submission (<u>Home Economics Research Journal</u> or other refereed journals) or in submitting art forms for exhibition are available to assist this faculty member. (13)

TABLE XLVIII

DOCTORAL FACTOR 18. INTERNAL REWARDS FOR RESEARCH PRODUCTIVITY

\bar{X}	S.D.	Loading	Variable
39.65	32.35	.81	1. Research productivity (student completing thesis, completing projects, publishing, exhibiting, securing external funding, etc.) is rewarded by increased supporting staff to assist with research. (37)
42.13	31.06	.79	2. Research productivity is rewarded by increased funding for research. (36)
39.61	30.93	.77	3. Research productivity is rewarded by improved research facilities (housing, equipment, etc.). (35)
36.36	30.49	.75	4. Research productivity is rewarded by increased supporting staff to assist with teaching. (38)
43.79	34.00	.71	5. Research productivity is rewarded by adjustment in work load to allow more time for research. (34)
56.36	32.93	.53	6. Research productivity is rewarded by opportunities to attend out-of-state professional meetings. (39)

teaching and research, increased funding, improved facilities, adjustments in work load, and opportunity to attend out-of-state meetings. The means indicate that generally the rewards mentioned in this factor were not perceived by the GFM as being present at their doctoral unit as often as they were missing. Only for variable 6, opportunities to attend out-of-state professional meetings, was the mean on the agreement side of uncertain. These rewards might be termed incentives for research productivity. They would be the types of behavior that would make research more enjoyable. These rewards would not be of a financial nature for the GFM but would be of a financial nature to the administrative unit which supplied them.

Factor 19. Research Facilitating

Conditions Inside the Unit

Research facilitating conditions inside the doctoral unit (Table XLIX) include variables dealing with work loads allowing for development of research proposals, availability of graduate assistants and clerical assistance, opportunities to communicate about research, provisions of financial research records provided to GFM, encouragement to generate research ideas, existence of departmental barriers to research, and the availability of reviewers for manuscripts. The means of variables 6 and 1 indicate that GFM tended to agree (75.47) that they were encouraged to generate research ideas but slightly disagreed (42.22) that they were allowed time to put these ideas into research proposal form. They were uncertain (49.45) if graduate research assistants would be available (variable 2). On the average they agree (65.74) that clerical assistance would be provided

TABLE XLIX

DOCTORAL FACTOR 19. RESEARCH FACILITATING CONDITIONS INSIDE THE UNIT

\bar{X}	S.D.	Loading	Variable
42.22	33.41	.63	1. Faculty loads are such that this faculty member can develop research proposals for possible funding. (3)
49.45	36.65	.62	2. Graduate assistants are available to this faculty member for conducting research. (15)
65.74	34.01	.53	3. Clerical assistance is available to this faculty member for typing manuscripts, proposals, or research reports. (14)
63.53	30.71	.48	4. Graduate faculty have opportunities for communication regarding research ideas. (20)
65.68	31.54	.45	5. Faculty members with research projects are provided with adequate periodic financial records of research accounts. (17)
75.47	29.91	.43	6. This faculty member is encouraged to generate research ideas. (18)
69.89	29.97	.42	7. No departmental barriers exist for researchers who wish to work together on a research project. (11)
59.64	34.08	.34	8. Persons experienced in reviewing research manuscripts for the <u>Home Economics Research Journal</u> or other refereed journals or serving as a judge in selecting art forms for exhibition are available to review works prior to submission. (16)

(variable 3) and they agree (63.53) that they could talk to each other about their research ideas (variable 4). The means of variables 5 and 7 show that, on the average, they were somewhat in agreement that adequate financial statements about research are supplied to the researcher and that departmental barriers do not exist for researchers who wish to work together on a research project.

Factor 20. Compensation for
Research Productivity

Compensation for research productivity (Table L) includes rewards in doctoral units such as promotion, tenure, salary increases, and commendations from administrators and colleagues. The GFM in doctoral units tended to agree (but not very strongly) that these types of rewards were available at their unit. As the factor loadings decrease so do the means. Promotions were seen as the most likely compensation for research productivity followed by tenure, salary increases, and finally commendations from administrators and colleagues.

Factor 21. Perception of Research as a
Function of the Home Economics Unit

The variables included in this factor, perception of research as a function of the home economics unit (Table LI), are concerned with the perception of GFM regarding the function of research in the training of graduate and undergraduate students. The mean (85.21) of variable 2 indicates that GFM were in strong agreement that research was a function of the doctoral units. The high means (87.17 and 75.00) of variables 1 and 3 also indicates that the doctoral GFM saw

TABLE I

DOCTORAL FACTOR 20. COMPENSATION FOR RESEARCH PRODUCTIVITY

\bar{X}	S.D.	Loading	Variable
68.25	31.62	.73	1. Research productivity (students completing theses, completing projects, publishing, exhibiting, securing external funding, etc.) is rewarded by promotions. (32)
67.44	32.11	.68	2. Research productivity is rewarded by tenure. (33)
62.29	32.74	.65	3. Research productivity is rewarded by salary increases. (31)
60.58	34.36	.55	4. Research productivity is rewarded by commendations from administrators. (40)
59.93	32.22	.51	5. Research productivity is rewarded by commendations from colleagues. (41)

TABLE LI

DOCTORAL FACTOR 21. PERCEPTION OF RESEARCH AS A FUNCTION OF THE HOME ECONOMICS UNIT

\bar{X}	S.D.	Loading	Variable
87.17	22.37	-.72	1. Teaching graduate students to do research is perceived as a function of this home economics unit. (23)
85.21	25.26	-.67	2. This faculty member perceives research as a function of this home economics unit. (22)
75.00	29.87	-.66	3. Teaching undergraduates to utilize research is perceived as a function of this home economics unit. (24)

teaching graduate students to do research and teaching undergraduates how to utilize research as functions of their unit.

Factor 22. Expectations for Research

Involvement

Six variables related to expectations for research involvement loaded high on factor 22. The variables in Table LII include expectations of guiding graduate students' research projects, publishing research, conducting research, receiving pressure to obtain funds, and having freedom of choice to work as an individual in charge of research projects. The GFM in doctoral units very strongly agreed (mean 93.27) that they expected to guide students' research as part of their involvement in research. They also agreed that they were expected to direct students in the master's or doctoral thesis work. Expectations were high for publishing in one's field of specialization as well as conducting research. The GFM considered themselves free to choose who to work with but they were less certain (mean 66.22) that they received pressure to obtain outside funds.

Factor 23. Expectations to Use

Research Findings

Variables associated with expectations to use research findings loaded high on factor 23 (Table LIII). This factor includes four variables. In factor 21 the GFM in doctoral units agreed that research was perceived as a function of the doctoral units. Using the results of research (factor 23) also was perceived as being important. GFM were most in agreement with using research to revise curricula in

TABLE LII

DOCTORAL FACTOR 22. EXPECTATIONS FOR RESEARCH INVOLVEMENT

\bar{X}	S.D.	Loading	Variable
93.27	15.46	-.74	1. A graduate faculty member is expected to guide students' research projects. (53)
90.71	19.66	-.71	2. A graduate faculty member is expected to direct students in their research for the master's thesis if the graduate faculty member has a doctoral degree. (54)
82.24	26.50	-.68	3. A graduate faculty member is expected to conduct research if the graduate faculty member has a doctoral degree. (55)
88.24	19.88	-.53	4. A graduate faculty member is expected to publish research in professional journals in one's field of specialization. (61)
66.22	33.25	-.44	5. This faculty member receives pressure to obtain external funding for research activities. (19)
75.67	30.83	-.42	6. This faculty member is free to choose to work as an individual researcher in charge of research projects. (21)

TABLE LIII

DOCTORAL FACTOR 23. EXPECTATIONS TO USE RESEARCH FINDINGS

\bar{X}	S.D.	Loading	Variable
72.20	28.75	.90	1. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when evaluating educational programs. (57)
69.96	29.32	.90	2. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when choosing methods of teaching. (56)
70.59	28.81	.82	3. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when revising curricula in home economics. (59)
84.57	22.09	.59	4. A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when identifying researchable problems. (58)

home economics (variable 3). Using research findings as a means of evaluating educational programs (variable 1) was rated the next most certain. The GFM were lowest in agreement with using research evidence as a basis for decisions when choosing methods of teaching and when identifying researchable problems (variables 2 and 4).

Factor 24. Expectations to Identify

Researchable Problems

Factor 24, expectations to identify researchable problems (Table LIV), contains five variables that indicate different ways of identifying researchable problems. The GFM in doctoral units were not extremely certain about how to identify researchable problems as shown by all means ranging in the 50's and 60's in agreement. They were most in agreement about evaluating methodology in one's field of specialization and collecting data or arranging for collection of data for research projects in home economics as a means of identifying researchable problems (variables 3 and 5) and least certain about identifying researchable problems by observing family related events (variable 1). These same variables held together in previous research by Chandra (1969).

Comparison of Nondoctoral and Doctoral Factors

One can make a comparison of the two lists of factors for nondoctoral and doctoral units and find many of the factors have the same name. However, in some cases where they had the same name they did not necessarily contain the same variables. Thus, the factors for the two groups of GFM were not identical. This supported the rationale

TABLE LIV

DOCTORAL FACTOR 24. EXPECTATIONS TO IDENTIFY RESEARCHABLE PROBLEMS

\bar{X}	S.D.	Loading	Variable
52.20	31.36	-.83	1. A graduate faculty member is expected to identify researchable problems by observing family related events. (42)
63.16	30.52	-.78	2. A graduate faculty member is expected to identify researchable problems by having an individual interest in problems related to families. (44)
66.54	28.08	-.63	3. A graduate faculty member is expected to identify researchable problems by evaluating methodology in one's field of specialization. (43)
61.38	28.83	-.61	4. A graduate faculty member is expected to identify researchable problems by evaluating students' progress toward selected objectives. (46)
66.23	30.48	-.43	5. A graduate faculty member is expected to participate in research by collecting data or arranging for collection of data for research project(s) in home economics. (48)

for separating the GFM into two groups for nondoctoral and doctoral units.

Comparing the two groups brought out some interesting similarities and differences. Factor 1, research productivity, contained some of the same variables for each group. However, the doctoral factor encompassed many more activities. The mean productivity in terms of publishing or presenting was greater for the GFM in doctoral units. This could be a function of the difference in the number of variables grouped together by the factor analyses for the nondoctoral and doctoral groups.

From a comparison of factor 2, undergraduate instruction, it can be seen that the GFM in nondoctoral units were employed on the average 15 percent more for instruction than the GFM in doctoral units. They taught almost three more credit hours, were in the classroom over three hours per week more, had nine more hours per week of undergraduate instruction, and were employed for a shorter number of months.

The GFM in doctoral units supervised more master's students, factor 3, regardless of the time period or type of responsibility involved. However, there was very little difference between the two groups on the number of master's theses for which they were the major adviser in the last two years.

For factor 4, humanistic interaction and services, there was little difference for the nondoctoral and doctoral groups for interaction time or desired interaction time with students. For the GFM in nondoctoral units, public service clustered with the student interaction and for the GFM in doctoral units, professional development clustered with the student interaction. This difference seemed to

point to differences in GFM for some characteristics, maybe in the area of personality or professional commitment.

Factors 5,6 and 7 were not the same for the two groups. The variables in the nondoctoral factors were not even included in the corresponding doctoral factors. Some of the variables in the doctoral factors were not included in any of the nondoctoral factors while other variables were scattered throughout the rest of the nondoctoral factors.

Factor 8, higher education experience, was very similar for both groups. The same inverse relationship was apparent in both factors. The GFM in doctoral units received their highest degree about a year earlier on the average. They had about a year more experience in home economics in higher education, at their present rank, and they averaged a slightly higher academic rank. The biggest difference between the two groups came in the number of years directing theses. The GFM in doctoral units had almost three more years experience directing theses than the GFM in the nondoctoral units.

Factor 9, non-instructional activities and research preparation for the nondoctoral group and research preparation for the doctoral group, included almost the same variables for both groups for the research preparation part of the factor. The nondoctoral factor contained additional variables entitled non-instructional activities that were not on the doctoral factor. This could mean that the GFM in nondoctoral units with the educational background for research were doing other activities in the nondoctoral units. This could be one of the reasons for the lower research productivity of the nondoctoral units.

Factor 10 was not the same for the two groups. However, the same two variables, total credits earned beyond latest degree and highest degree earned, loaded highest on both factors. Additionally these two variables were inversely related to each other on both factors. Possibly these two factors represented the same type of people at different stages of development or attainment and in different types of institutions.

Efforts to improve research competence, factor 11, was much more comprehensive for the GFM in doctoral units. While the GFM in nondoctoral units recognized the development of beginning competencies the GFM in doctoral units recognized the importance of continual development of research competencies.

Publication credit ethics, factor 12, were identical factors as far as variables included for GFM in both nondoctoral and doctoral units. The order of loadings, magnitude of the loadings, and the means of the variables differed. This indicates that the two groups had some different ideas about the assignment of publication credit or that they had experienced differing practices for assigning publication credit.

Factors 13 and 14, expectations to conduct and disseminate research, were very similar for the two groups. The order of loading for the variables was also similar. There was only one variable on each of the nondoctoral and doctoral factor 13 that was not on the other one. The same was true for factor 14. However, the means were higher for the variables on the doctoral factor indicating a higher degree of agreement about the expectations to conduct and disseminate research for GFM in doctoral units.

Factors 15 and 16, expectations about administrator's role in research, were again identical for the GFM in nondoctoral and doctoral units except for one variable on the doctoral factor 15 that was not on the nondoctoral factor 15. This variable had the lowest loading and barely met the criteria for inclusion. The doctoral means were all higher than the nondoctoral means indicating a higher degree of agreement for the perception of the administrator's role in research for the GFM in doctoral units.

The research facilitating conditions outside the unit, factor 17, were very similar for the two groups. A larger number of variables were in the doctoral factor and where there were corresponding variables, the GFM in doctoral units rated the variables at least ten agreement points higher. This might indicate that the GFM in doctoral units were more aware of the conditions outside the unit and more certain of the conditions outside the unit that facilitate research. This could possibly be explained through their higher level of research involvement whereby they had come in contact with these facilitating conditions. Computer and statistical services received the highest degree of agreement while library resources had the lowest mean for the GFM in nondoctoral units and one of the lowest for the GFM in doctoral units.

Factor 18, internal rewards for research, was very similar in the variables included for the two groups. However, the nondoctoral factor had many more variables than the doctoral factor. Almost all of the variables tended to be rated on the disagreement end of the scale (1 to 49) or at least uncertain. The means were about ten points less for the GFM in nondoctoral units. This could indicate the lack of

support for research within the nondoctoral units which could contribute to the lower levels of research productivity in the nondoctoral units.

Factor 19, support from consultants for writing (nondoctoral) and research facilitating conditions inside the unit (doctoral), was not the same for the two groups of GFM. The nondoctoral factor included variables such as assistance in research writing, which they might need if the GFM in nondoctoral units were beginning researchers, while the doctoral factor clustered together assistance important to GFM in doctoral units. These factors represented different levels of sophistication in research. One group (nondoctoral units) needed assistance in writing and the other (doctoral units) needed assistance in carrying out the research. Both saw their need not being met to some extent.

Factor 20, compensation for research productivity, was identical for the two groups except for one variable on the nondoctoral factor that failed to cluster in factor 20 for the GFM in doctoral units. Possibly this one variable represented a behavior considered to be a reward for research productivity by the GFM in nondoctoral units but not the GFM in doctoral units. The range of difference for the means for the variables is between 5 and 15 points with the GFM in doctoral units expressing more agreement.

Factor 21, perception of research as a function of the home economics unit, was very similar for the two groups except for two variables included in the nondoctoral factor. The GFM in doctoral units viewed their unit much more favorably as having research as a function of the unit. The GFM in nondoctoral units indicated that they

were not so sure research was a function or that they could communicate with each other about research.

Factor 22, expectations for research involvement, included similar variables for both groups except two more variables for measuring research involvement were included in the doctoral factor. Publishing and freedom of choice in research projects were included in the doctoral factor. This could mean that these variables would be considered more of a norm for research involvement among GFM in doctoral units than among GFM in nondoctoral units. Again the GFM in doctoral units had a much higher level of agreement with the variables than did the GFM in nondoctoral units.

Factor 23, expectations to use research findings, had identical variables with exactly the same order of loading and almost the same loadings. The difference was found between the two groups in the means. The GFM in doctoral units were 15 points more in agreement with the use of research findings to revise curricula in home economics while the GFM in nondoctoral units were seven points more in agreement with the statement of using evidence obtained by self and others through research as a basis for decisions when identifying researchable problems.

Factor 24, expectations to identify researchable problems, had identical variables for the two groups except for the last variable in each group. The order of variables was very similar, the loadings were similar, and the means were similar indicating similar attitudes about identifying researchable problems for GFM in nondoctoral and doctoral units.

Correlations of Factor Scores

Several steps in data manipulation were necessary before hypotheses could be tested. First, variable scores had to be constructed that were in some common unit of measurement. This was necessary because of the different scaling used with different variables. To achieve common units of measurement each individual's response on a particular variable was divided by the overall standard deviation of that variable for either the nondoctoral or doctoral group to produce transformed variable scores. The sign of the variable was determined by the sign of that variable's factor loading. However, if all variables in a factor were negative, the signs were ignored in the addition process to be performed next. Factor scores were determined next by adding together these transformed variable scores for each particular factor, resulting in a unique factor score for each factor. Each factor score was then correlated with every other factor score producing a separate correlation matrix for the GFM in the nondoctoral and doctoral units. The correlations between research productivity factor (factor 1) and all other factors were used to test the first four hypotheses. The correlation matrix for GFM in nondoctoral units and the correlation matrix for GFM in doctoral units can be found in Appendices F and G. The hypotheses involve only the correlations in column one. Column one contains the correlations of the research productivity factor with every other factor.

Since the computer program which was used ignored missing data so that the available data from each pair of scores could maximally be used, it was possible that the number of degrees of freedom was

different for each correlation. Because the number of observations was rather large, the size of r needed for significance was rather small. Consequently only correlations statistically significant at least at the .01 level were marked (*).

Meaningful relationships might arbitrarily be interpreted as those accounting for at least 10 percent of the variance. An $r=.32$ accounted for 10.24 percent of the variance common to those two factors.

It should be noted the factor analysis using the rotation employed by this study produced factors that were as independent of each other as possible. Consequently some of the correlations could be conservative estimates of the relationships. Many of the research climate factors are highly correlated. It is possible that some response pattern could cause this. For example, if many of the questions were answered with 1, 50, and 99, then the data would not be continuous but discrete, and one of the assumptions for factor analysis would have been violated. It is also possible that the many research climate variables really are highly intercorrelated.

Nondoctoral Hypotheses

Tests of hypotheses based on correlations of the factors for GFM in nondoctoral units are included in Table LV with significance levels noted. Factor 6, pre-research productivity, was not included in tests of hypotheses since it did not seem to fit into any of the hypotheses.

TABLE LV
NONDOCTORAL HYPOTHESES

Hypotheses	Correlation	Significance Level
1. There is no relationship between research productivity (factor 1) and work load (factors 2,3,4,5) of graduate faculty members in home economics units.		
Factors		
(2) Undergraduate instruction	-.33	p<.01
(3) Direction of master's students	.19	p<.01
(4) Humanistic interaction and service	.03	N.S.
(5) Research team involvement (p<.03)	.14	N.S.
2. There is no relationship between research productivity (factor 1) and educational experience (factors 7,8,9,10,11) of graduate faculty members in home economics units.		
Factors		
(7) Professional development activities	.18	p<.01
(8) Higher education experience	-.18	p<.01
(9) Non-instructional activities and research preparation	.11	N.S.
(10) Academic attainment or striving	-.07	N.S.
(11) Efforts to improve research competence (p<.05)	.14	N.S.
3. There is no relationship between research productivity (factor 1) and publication credit ethics (factor 12) of graduate faculty members in home economics units.		
Factor		
(12) Publication credit ethics (p<.03)	.15	N.S.

TABLE LV (Continued)

Hypotheses	Correlation	Significance Level
4. There is no relationship between research productivity (factor 1) and the research climate (factors 13-24) of graduate faculty members in home economics units.		
Factors		
(13) Expectations to conduct and disseminate research - A	.18	p<.01
(14) Expectations to conduct and disseminate research - B	.31	p<.01
(15) Expectations about administrator's role in research - A	.06	N.S.
(16) Expectations about administrator's role in research - B	.09	N.S.
(17) Research facilitating conditions outside the unit	.09	N.S.
(18) Internal rewards for research	.10	N.S.
(19) Support from consultants for research writing	-.05	N.S.
(20) Compensation for research productivity	-.02	N.S.
(21) Perception of research as a function of the home economics unit	.01	N.S.
(22) Expectations for research involvement	.20	p .01
(23) Expectations to use research findings	.06	N.S.
(24) Expectations to identify researchable problems	-.02	N.S.
5. There is no difference in research productivity of graduate faculty members in home economics units of different size. F=1.33		N.S.

There is No Relationship Between Research
Productivity and Work Load

Hypothesis 1 was rejected at the .01 level for correlations between research productivity and factor 2, undergraduate instruction and factor 3, direction of master's students. There was a meaningfully significant inverse relationship between research productivity and work load as described by factor 2, undergraduate instruction. Even within the factor, undergraduate instruction, there was an inverse relationship between instructional task and the time which was either spent or which was desired for research (Table VIII). Therefore, these data show that as GFM in nondoctoral units became more productive, they engaged in less undergraduate instructional activities.

As GFM in nondoctoral units became more involved with the direction of master's students, factor 2, research productivity increased. The other two work load factors, factor 4, humanistic interaction and service and factor 5, research team involvement, were not significantly correlated with research productivity at the pre-determined significance level.

These findings seemed to support the relationships that would be expected. Heavy undergraduate loads were not associated with research productivity while some research involvement, even if in the form of directing graduate students, was associated with research productivity for GFM in nondoctoral units.

There is No Relationship Between Research
Productivity and Educational Experience

Hypothesis 2 was rejected at the .01 level for two of the correlations between research productivity and the professional development activities, factor 7, and higher education experience, factor 8, and was not rejected at that level for the other three correlations. There was a significant positive relationship between research productivity and factor 7, professional development activities of GFM in nondoctoral units. This relationship suggests that those who desired to keep up with their area of specialization were productive researchers.

There was an inverse relationship for GFM in nondoctoral units between higher educational experience, factor 8, and research productivity. As educational experience increased research productivity decreased for GFM in nondoctoral units. The GFM who had more educational experience may have chosen to develop expertise in some other area or they may not have had the opportunity for preparation for research at the time they secured their terminal degrees.

The other three educational experience factors did not relate to research productivity in any significant manner for GFM in nondoctoral units. These three factors were: factor 9, non-instructional activities and research preparation; factor 10, academic attainment or striving; and factor 11, efforts to improve research competence.

There is No Relationship Between Research

Productivity and Publication

Credit Ethics

Hypothesis 3 was not rejected at the designated .01 significance level; however, a significant correlation was found at the .03 level. It appeared that for the GFM in nondoctoral units there was no meaningful relationship between research productivity and factor 12, publication credit ethics. This could have been associated with low research productivity of GFM in nondoctoral units. They may not have had enough experience with research or they may not have been aware of any ethical normative behavior for assignment of publication credit.

There is No Relationship Between Research

Productivity and Research Climate

Hypothesis 4 was rejected at the predetermined .01 significance level for three of the correlations, between research productivity and the research climate factors 13,14 and 22. It was not rejected for the other nine correlations. It seems consistent that factors 13, 14 and 22, dealing with expectations to conduct and disseminate research and expectations about research involvement, would be highly related to research productivity. As the expectations of the GFM in nondoctoral units increased for research involvement and conducting and disseminating research, so did research productivity. It seemed that their expectations were consistent with their behavior.

There were several possibilities for the nonsignificance of the other relationships. First of all, the GFM in nondoctoral units could

have been unaware of what to expect in an administrator's role in research, factors 15 and 16. Secondly, if GFM do not consider conducting research to be one of their primary functions, one would not expect to find a high correlation between research productivity and expectations for the administrator's role in research. The same two arguments could be offered for the lack of significant relationship found between research productivity and the other factors: research facilitating conditions outside, the unit, factor 17; internal rewards for research, factor 18; support from consultants for research writing, factor 19; compensation for research productivity, factor 20; perception of research as a function of the home economics units, factor 21; expectations for research involvement, factor 22, expectations to use research findings, factor 23; and expectations to identify researchable problems, factor 24. It was possible that the results were nonsignificant simply because these factors were not associated with research productivity of GFM in nondoctoral units.

There is No Difference in Research

Productivity of GFM in Home

Economics Units of

Different Size

Hypothesis 5 was tested by way of an analysis of variance. The nondoctoral home economics units were divided into two groups by first ranking the units by the number of GFM in them and then finding the naturally occurring break in the number of GFM per unit. Approximately 40 percent of GFM in nondoctoral units fell in the small size and 60 percent fell in the large size. The analysis of variance indicates

that there was no significant difference between the research productivity means (4.33 vs. 5.08, $F=1.33$, 1 and 222 d.f.) of the GFM in small and large nondoctoral home economics units. Consequently hypothesis five was not rejected.

Doctoral Hypotheses

Tests of hypotheses based on correlations of the factors for GFM in doctoral units are included in Table LVI. All factors were included in some one of the first four hypotheses.

There is No Relationship Between Research Productivity and Work Load

Only one correlation was significant for hypothesis 1. There was a strong positive relationship between research productivity and factor 5, research work load for GFM in doctoral units. The more a GFM worked at research, the more productive he/she was. The positive correlation is high ($r=.49$), accounting for almost 25 percent of the common variance. There was no significant relationship between research productivity of GFM in doctoral units and the other four work load factors: undergraduate instruction, factor 2; direction of master's students, factor 3; humanistic interaction and professional development, factor 4; extension and public service, factor 6; and direction of doctoral students, factor 7, for GFM in doctoral units.

TABLE LVI
DOCTORAL HYPOTHESES

Hypotheses	Correlation	Significance Level
1. There is no relationship between research productivity (factor 1) and work load (factors 2,3,4,5,6,7) of graduate faculty members in home economics units.		
Factors		
(2) Undergraduate instruction	-.02	N.S.
(3) Direction of master's students	.05	N.S.
(4) Humanistic interaction and professional development	.04	N.S.
(5) Research work load	.49	p<.01
(6) Extension and public service	-.01	N.S.
(7) Direction of doctoral students	.05	N.S.
2. There is no relationship between research productivity (factor 1) and educational experience (factors 8,9,10,11) of graduate faculty members in home economics units.		
Factors		
(8) Higher education experience	-.09	N.S.
(9) Research preparation	.12	N.S.
(10) Informal communication about research	.08	N.S.
(11) Efforts to improve research competence	.06	N.S.
3. There is no relationship between research productivity (factor 1) and publication credit ethics (factor 12) of graduate faculty members in home economics units.		
Factor		
(12) Publication credit ethics	-.17	p<.01

TABLE LVI (Continued)

Hypotheses	Correlation	Significance Level
4. There is no relationship between research productivity (factor 1) and the research climate (factors 13-24) of graduate faculty members in home economics units.		
Factors		
(13) Expectations to conduct and disseminate research - A	-.02	N.S.
(14) Expectations to conduct and disseminate research - B	.09	N.S.
(15) Expectations about administrator's role in research - A ($p < .03$)	-.12	N.S.
(16) Expectations about administrator's role in research - B ($p < .04$)	-.12	N.S.
(17) Research facilitating conditions outside the unit	.04	N.S.
(18) Internal rewards for research productivity	-.02	N.S.
(19) Research facilitating conditions inside the unit	.03	N.S.
(20) Compensation for research productivity	.01	N.S.
(21) Perception of research as a function of the home economics unit	-.01	N.S.
(22) Expectations for research involvement	.02	N.S.
(23) Expectations to use research findings	.03	N.S.
(24) Expectations to identify researchable problems	.00	N.S.
5. There is no difference in research productivity of graduate faculty members in home economics units of different size. $F=2.34$		N.S.

There is No Relationship Between Research
Productivity and Education Experience

No relationship was found between educational experience and research productivity for GFM in doctoral units. Productivity did not correlate significantly with any of the educational experience factors: higher education experience, factor 8; research preparation, factor 9; informal communication about research, factor 10; or efforts to improve research competence, factor 11. This result could mean that by the time individuals become GFM in doctoral units they had had enough experience in research so that their educational experiences do not relate to the research productivity, but rather, to some such characteristic as personal interest, personal motivation, or liking for research (Cole and Bowers, 1975).

There is No Relationship Between Research
Productivity and Publication

Credit Ethics

Hypothesis 3 was rejected at the designated level of significance. There was a significant inverse relationship between research productivity and publication credit ethics for GFM in doctoral units. It appeared that as agreement with the ethical statements increased research productivity decreased for GFM in doctoral units. This could be interpreted as those who were most concerned about getting their name as the first author were the least productive in research. Conversely, the correlation might mean that GFM who were most productive were least concerned about obtaining primary authorship. They may

believe in practicing noblesse oblige as has been reported for other disciplines (Over and Smallman, 1973).

There is No Significant Relationship Between
Research Productivity and Research Climate

None of the correlations between research productivity and the 12 factors for hypothesis 4 were significant at the designated significance level for GFM in doctoral units. However, correlations of two of the factors approached the .01 level and are discussed here. The two factors, 15 and 16, dealing with expectations about administrator's role in research approached the .01 significance level. These factors were inversely related to research productivity. As research productivity increased the expectations for the administrator to participate in research decreased. This could be interpreted to mean that the more productive researchers in doctoral units could manage their affairs without receiving special considerations from administrators.

Within doctoral units in home economics, no relationship was found between research productivity and expectation to conduct and disseminate research, factors 13 and 14, or the expectation for research involvement, factor 22. Fulton and Trow (1974), however, found expectations to continue researching present in the high quality institutions. No significant correlations were found between research productivity and the remaining research climate factors: research facilitating conditions outside the unit, factor 17; internal rewards for research productivity, factor 18; research facilitating conditions inside the unit, factor 19; compensation for research productivity, factor 20; perception of research as a function of the home economics

unit, factor 21; expectations to use research findings, factor 23; expectations to identify researchable problems, factor 24, for GFM in doctoral units.

There is No Difference in Research

Productivity of GFM in Home

Economics Units of

Different Size

For the GFM in doctoral units hypothesis five was tested by way of an analysis of variance. The doctoral home economics units were divided so that approximately 40 percent of the GFM fell in the small size and 60 percent of them fell in the large size doctoral home economics units. The division was made by first ranking the units by number of GFM and then finding the naturally occurring break in the number of GFM per unit. There was no significant difference between the research productivity means (6.02 vs. 3.65, $F=2.34$, 1,331 d.f.) of the GFM in small and large doctoral home economics units. Consequently hypothesis five was not rejected.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

This study attempted to determine the present levels of research productivity and factors associated with research productivity among graduate faculty members (GFM) in home economics. These GFM were from home economics units belonging to the Association of Administrators of Home Economics (AAHE) that had programs leading to a graduate degree in the Fall, 1975. The concepts of work load, educational experience, publication credit ethics, research climate, and size of unit were focused upon as factors associated with research productivity.

The first four hypotheses were that there is no relationship between research productivity and the following characteristics of GFM in home economics units: (1) Work load; (2) Educational experience; (3) Publication credit ethics; (4) Research climate. The fifth hypothesis was that there is no difference in research productivity of graduate faculty members in home economics units of different size.

A stratified random sample of 849 GFM was taken from the list of 1,181 (72 percent) in home economics supplied by the administrators in 91 home economics units in AAHE that had programs leading to a graduate degree. These GFM were sent a questionnaire in the fall of 1975. The questionnaire, Factors Associated with Research Productivity

in Home Economics Units, was divided into two parts. The first part contained 33 questions about demographic and factual data. The second part contained 85 degree of certainty of agreement questions that were answered on a 1 to 99 scale, with one being absolutely disagree, 50 uncertain, and 99 absolutely agree. Seventy percent of the sample responded after two mailings. The respondents were divided into two groups, nondoctoral and doctoral, based on the highest graduate degree granted by their home economics unit.

As questionnaires were returned the responses were coded, key-punched onto computer cards, and then stored on magnetic computer tape for use in data analyses. All analyses were conducted using the SAS computer programs. The progression for analysis moved from frequency distributions to factor analyses to hypotheses testing by means of correlation matrices of factor scores and analysis of variance of mean scores.

Three factor analyses were performed for each of the groups, nondoctoral and doctoral. These factor analyses produced 24 factors for each of the two groups. The differences and similarities of GFM in nondoctoral and doctoral units were discussed by comparing the two sets of factors.

A brief investigation of demographic data about the GFM revealed that doctoral units employed significantly more males and major providers of family income than did nondoctoral home economics units. There was no significant difference between the GFM in nondoctoral and doctoral units on marital status, age, or number of dependents.

Two correlation matrices of factor scores were constructed to test the first four hypotheses for the nondoctoral and doctoral groups. The

fifth hypothesis was tested by analysis of variance. Different factors were found to be associated with research productivity for the GFM in the nondoctoral and doctoral units.

The first four hypotheses and factors used to test them for the GFM in the nondoctoral units were:

1. There is no relationship between research productivity (factor 1) and work load (factors 2,3,4,5) of graduate faculty members in home economics units.

Factors

- (2) Undergraduate instruction
- (3) Direction of master's students
- (4) Humanistic interaction and service
- (5) Research team involvement

2. There is no relationship between research productivity (factor 1) and educational experience (factors 7,8,9,10,11) of graduate faculty members in home economics units.

Factors

- (7) Professional development activities
- (8) Higher education experience
- (9) Non-instructional activities and research preparation
- (10) Academic attainment or striving
- (11) Efforts to improve research competence

3. There is no relationship between research productivity (factor 1) and publication credit ethics (factor 12) of graduate faculty members in home economics units.

Factor

- (12) Publication credit ethics

4. There is no relationship between research productivity (factor 1) and the research climate (factors 13-24) of graduate faculty members in home economics units.

Factors

- (13) Expectations to conduct and disseminate research - A
- (14) Expectations to conduct and disseminate research - B
- (15) Expectations about administrator's role in research A
- (16) Expectations about administrator's role in research B
- (17) Research facilitating conditions outside the unit
- (18) Internal rewards for research
- (19) Support from consultants for research writing
- (20) Compensation for research productivity
- (21) Perception of research as a function of the home

economics unit.

- (22) Expectations for research involvement
- (23) Expectations to use research findings
- (24) Expectations to identify researchable problems

For the GFM in nondoctoral units there were significant correlations for research productivity and seven of the factors. There was a significant inverse relationship between research productivity and factor 2, undergraduate instruction, and a significant positive relationship between research productivity and factor 3, the direction of master's students. A significant positive relationship was found between research productivity and factor 6, professional development activities, and a significant inverse relationship between research productivity and factor 8, higher education experience. Significant positive relationships were found between research productivity and factors 13 and 14, expectations to conduct and disseminate research, and factor 22, expectations for research involvement, for GFM in nondoctoral units.

Of the remaining 16 correlations of research productivity with factors for GFM in nondoctoral units, three correlations approached the .01 significance level, one was not included in the hypotheses testing, and 12 were nonsignificant. The correlations between research productivity and factor 5, research team involvement ($p < .03$), factor 11, efforts to improve research competence ($p < .05$), and factor 12, publication credit ethics ($p < .03$), approached significance.

The first four hypotheses and factors used to test them for the GFM in doctoral units were:

1. There is no relationship between research productivity (factor 1) and work load (factors 2,3,4,5,6,7) of graduate faculty members in home economics units.

Factors

- (2) Undergraduate instruction
 - (3) Direction of master's students
 - (4) Humanistic interaction and professional development
 - (5) Research work load
 - (6) Extension and public service
 - (7) Direction of doctoral students
2. There is no relationship between research productivity (factor 1) and educational experience (factors 8,9,10,11) of graduate faculty members in home economics units.

Factors

- (8) Higher education experience
 - (9) Research preparation
 - (10) Informal communication about research
 - (11) Efforts to improve research competence
3. There is no relationship between research productivity (factor 1) and publication credit ethics (factor 12) of graduate faculty members in home economics units.

Factor

- (12) Publication credit ethics
4. There is no relationship between research productivity (factor 1) and the research climate (factors 13-24) of graduate faculty members in home economics units.

Factors

- (13) Expectations to conduct and disseminate research - A
- (14) Expectations to conduct and disseminate research - B
- (15) Expectations about administrator's role in research
A
- (16) Expectations about administrator's role in research
B
- (17) Research facilitating conditions outside the unit
- (18) Internal rewards for research productivity
- (19) Research facilitating conditions inside the unit
- (20) Compensation for research productivity
- (21) Perception of research as a function of the home economics unit
- (22) Expectations for research involvement
- (23) Expectations to use research findings
- (24) Expectations to identify researchable problems

For the GFM in doctoral units research productivity correlated significantly with two factors, factor 5, research work load. .

A significant inverse relationship was found between research productivity and factor 12, publication credit ethics.

Of the remaining 21 correlations for GFM in doctoral units, two approached significance and the rest were nonsignificant. The correlations between research productivity and factors 13 and 14, expectations about administrator's role in research, approached significance ($p < .03$ and $p < .04$).

All four of the hypotheses tested by correlation had had significant correlations or correlations that approached the designated .01 significance level for one or the other of the two groups, GFM in nondoctoral or doctoral units. Size of unit, the concept investigated in the fifth hypothesis, was not a significant factor associated with research productivity of the GFM in either the nondoctoral or doctoral units.

Recommendations

The project funded by AAHE, of which this study is a part, provides one benchmark for the examination of the relationship between research productivity and other aspects of home economics. Because it did provide a comprehensive view of research this investigation should be replicated at some future date.

More extensive analysis of these data are recommended. The data are stored on magnetic computer tape to facilitate future analyses. There were numerous relationships that were not studied that would lend themselves to future investigation. The comparison of the factors found for GFM and those also found for administrators in the project funded by AAHE could be investigated in the near future.

Since this present study focused on the quantity of research productivity, future investigations could consider the quality of

research productivity. To date the four methods used to examine the quality of research seem inadequate individually. Some combination of citations, differential credit for multiple authorship, differential credit for various kinds of publications, and differential credit for publications in different journals seem appropriate for consideration.

Future investigation could concentrate on the relationships found to be significant in this study. Each of these relationships could be examined in more detail to determine the more subtle aspects of the relationships and then move on to determine cause and effect between the factors.

Within the nondoctoral units it seems most appropriate to begin with relationships between research productivity and professional development activities, expectations for research involvement and expectations to conduct and disseminate research. These relationships were significant for the GFM in nondoctoral units. The reexamination of the present data to determine relationships between specific variables and the collection of new data related to these variables and also to the factors would be the most beneficial for increasing research productivity within nondoctoral units. It would provide vital information to both GFM and administrators in home economics who are interested in increasing their research productivity. Two other relationships with research productivity that approach significance for GFM in nondoctoral units, efforts to improve research competence and publication credit ethics, deserve more detailed consideration.

Future investigation of research productivity of GFM within doctoral units could begin with the factors research work load and publication credit ethics. These relationships were significant for

GFM in doctoral units. The reexamination of the present data to determine relationships between specific variables and the collection of new data related to these variables and also to the factors would be the most beneficial for increasing research productivity within doctoral units. The continued study of these relationships would provide vital information about the research work load and the publication credit ethics associated with high research productivity to both GFM and administrators in doctoral home economics units that are interested in increasing research productivity. The correlation between research productivity and expectations about administrator's role in research approached significance for GFM in doctoral units and this relationship also deserves further study.

For the GFM in both the nondoctoral and doctoral units there were numerous correlations between factors other than research productivity that could be studied. Many of the correlations were significant and more detailed examination of these could benefit home economics in unforeseen ways.

In addition to the significant relationships previously mentioned for future examination, the relationships between research productivity and internal rewards for research productivity, compensation for research productivity, and facilitating conditions for research productivity should be further studied. These correlations were non-significant for GFM in both nondoctoral and doctoral units when the literature and common sense suggest these relationships would be positive and significant.

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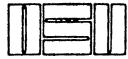
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APPENDIX A

TRANSMITTAL LETTERS TO ADMINISTRATORS AND GRADUATE
FACULTY MEMBERS IN HOME ECONOMICS



Oklahoma State University

DIVISION OF HOME ECONOMICS

STILLWATER, OKLAHOMA, 74074
HOME ECONOMICS WEST
(405) 372-6211, EXT. 243

July 31, 1975

Dear Dean :

Your assistance is requested with the study funded this year by the small grants program of the Association of Administrators of Home Economics. The study focuses on factors associated with research productivity in home economics units in institutions belonging to the National Association of State Universities and Land Grant Colleges or the Association of Administrators of Home Economics. Factors being studied involve present levels of research productivity of graduate faculty, research facilitating conditions in home economics units, expectations of home economics graduate faculty and home economics administrators regarding research-related behavior and the interrelationship of these variables.

What will be involved? Data will be collected early this fall through questionnaires to two types of people in home economics, deans or research administrators and graduate faculty members. For the purpose of this study graduate faculty members will include persons eligible to be major professors (advisors) for students working toward masters' and doctoral degrees and graduate faculty who are researchers but who do not serve as major advisors.

Your help is sought in providing information needed for selecting a sample of graduate faculty members to participate in this study. Please complete and return the enclosed form by August 25. If this is not possible please send it at your earliest convenience. A questionnaire will be sent to you and each selected graduate faculty member early this fall.

Thank you for your assistance.

Sincerely yours,

Ruth Pestle

Dr. Ruth Pestle, Associate Professor
Project Director

Marguerite Scruggs R

Dr. Marguerite Scruggs, Assoc. Dean
Project Co-Director

RP/pc
Enclosure

FORM FOR GRADUATE FACULTY INFORMATION*

	Name & Address	Dept. or Area of Specialization	Responsibilities for which Eligible		Check if at Least 10% of Time Funded for Research
			Major Prof. for Masters' Student	Major Prof. for Doctoral Student	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

*Please include all home economics area even if administered outside of the home economics unit.

Dean or Research Administrator: _____
 Institution: _____ Address correction requested: _____

RETURN BY AUGUST 25 IN THE ENCLOSED STAMPED, SELF-ADDRESSED ENVELOPE



Oklahoma State University

DIVISION OF HOME ECONOMICS

STILLWATER, OKLAHOMA, 74074
HOME ECONOMICS WEST
(405) 372-6211, EXT. 243

September 3, 1975

Your assistance was requested in our letter of early September with the study funded this year by the small grants program of the Association of Administrators of Home Economics. We understand the problems associated with sending the letter during the summer. The study focuses on factors associated with research productivity in home economics units in institutions belonging to the National Association of State Universities and Land Grant Colleges or the Association of Administrators of Home Economics. Factors being studied involve present levels of research productivity of graduate faculty, research facilitating conditions in home economics units, expectations of home economics graduate faculty and home economics administrators regarding research-related behavior and the interrelationship of these variables.

What will be involved? Data will be collected early this fall through questionnaires to two types of people in home economics, deans or research administrators and graduate faculty members. For the purpose of this study graduate faculty members will include persons eligible to be major professors (advisors) for students working toward masters' and doctoral degrees and graduate faculty who are researchers but who do not serve as major advisors.

Your help is again being sought in providing information needed for selecting a sample of graduate faculty members to participate in this study. Please complete and return the enclosed form by September 25. If this is not possible please send it at your earliest convenience. A questionnaire will be sent to you and each selected graduate faculty member early this fall.

Thank you for your assistance.

Sincerely yours,

Dr. Ruth Pestle, Assoc. Professor
Project Director

Dr. Marguerite Scruggs, Assoc. Dean
Project Co-Director

MS/pc
Enclosure



Oklahoma State University

DIVISION OF HOME ECONOMICS

STILLWATER, OKLAHOMA, 74074
HOME ECONOMICS WEST
(405) 372-6211, EXT. 243

November 7, 1975

Your assistance is requested with the study funded this year by the small grants program of the Association of Administrators of Home Economics. The study focuses on the workloads of graduate faculty members in home economics including the extent to which research is or is not a part of these loads. Whether or not you have research as a responsibility, we need the information which only you can provide. The title of the study is "Factors Associated with Research Productivity in Home Economics Units."

Questionnaires are now being sent to a sample of graduate faculty members in each of the home economics units in institutions belonging to the National Association of State Universities and Land Grant Colleges or the Association of Administrators of Home Economics. A different questionnaire is also being sent to an administrator in each of these units.

Your name was selected for the survey sample from a master list composed of names of graduate faculty members submitted by deans or research administrators in home economics at your institution. Please respond to the enclosed questionnaire according to the instructions. It will take approximately 45 minutes to complete your response. Please return the questionnaire in the enclosed envelope by November 26.

Your reply can be anonymous and will be treated confidentially. The number on the questionnaire will be used only for the purpose of recording that your response has been received. Neither your name nor the name of your institution will be identified with the replies in any manner during the project or after it is completed.

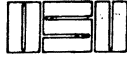
Thank you for your assistance. Your response is essential to the success of the project in providing information for continued strengthening of home economics in higher education.

Sincerely yours,


Dr. Ruth Pestle, Associate Professor
Project Director

Dr. Marguerite Scruggs, Associate Dean
Project Co-Director

RP/pc
Enclosure



Oklahoma State University

DIVISION OF HOME ECONOMICS

STILLWATER, OKLAHOMA, 74074
HOME ECONOMICS WEST
(405) 372-6211, EXT. 243

December 18, 1975

In a letter dated November 7 your assistance was requested with the study funded this year by the small grants program of the Association of Administrators of Home Economics. The study focuses on the workloads of graduate faculty members in home economics including the extent to which research is or is not a part of these loads. Whether or not you have research as a responsibility, we need the information which only you can provide. The title of the study is "Factors Associated with Research Productivity in Home Economics Units."

Questionnaires are now being sent again to those graduate faculty members in each of the home economics units in institutions belonging to the National Association of State Universities and Land Grant Colleges or the Association of Administrators of Home Economics (who have not returned the original form). A different questionnaire is also being sent to an administrator in each of these units.

In case our original letter never reached you, your name was selected for the survey sample from a master list composed of names of graduate faculty members submitted by deans or research administrators in home economics at your institution. Please respond to the enclosed questionnaire according to the instructions. It will take approximately 45 minutes to complete your response. Please return the questionnaire in the enclosed envelope by January 20.

Your reply can be anonymous and will be treated confidentially. The number on the questionnaire will be used only for the purpose of recording that your response has been received. Neither your name nor the name of your institution will be identified with the replies in any manner during the project or after it is completed.

Thank you for your assistance. Your response is essential to the success of the project in providing information for continued strengthening of home economics in higher education.

Sincerely yours,

Dr. Ruth Pestle, Associate Professor
Project Director

Dr. Marguerite Scruggs, Associate Dean
Project Co-Director

RP/pc
Enclosure

APPENDIX B

NUMBERS OF GRADUATE FACULTY MEMBERS IN
PARTICIPATING HOME ECONOMICS UNITS

Nondoctoral	Number of GFM other than administrator
Delaware State College	0
Virginia State College	0
Georgia College	1
Northeast Missouri State University	1
Northwest Missouri State University	1
State University of New York at Buffalo	1
University of North Dakota	1
Miami University (Ohio)	1
California State University - Long Beach	2
Eastern Illinois University	2
Kentucky State University	2
Framingham State College	2
Western Michigan University	2
East Carolina University	2
Prairie View A&M University	2
Alabama A&M University	3
University of Alaska	3
Florida A&M University	3
Louisiana Tech University	3
University of New Hampshire	3
University of New Mexico	3
North Carolina A&T State University	3
Indiana University	4
Northwestern Louisiana State University	4
Southern University	4
University of Mississippi	4
New Mexico State University	4
South Carolina State University	4
University of Idaho	5
University of Maine	5
Mississippi University for Women	5
University of Wyoming	5
University of Arkansas	6
Kent State University	6
Ohio University	6
University of Nevada	6
Indiana University of Pennsylvania	6
South Dakota State University	6
University of Washington	6
Montana State University	7
University of Houston	7
Wayne State University	9
West Virginia University	9
University of Arizona	10

Nondoctoral	Number of GFM other than administrator
California State University - Northridge	11
Montclair State College	11
Winthrop College	11
University of Texas - Austin	11
University of Iowa	12
North Dakota State University	12
University of Oklahoma	12
University of Alabama	13
University of Delaware	13
Northern Illinois University	13
University of Massachusetts	14
University of Wisconsin - Stout	15
University of Hawaii	16
Arizona State University	17
University of Rhode Island	17
University of Vermont	18
Louisiana State University	19
Doctoral	Number of GFM other than administrator
Rutgers University	4
University of Maryland	5
Mississippi State University	5
University of Illinois	9
University of Kentucky	12
University of Georgia	13
Texas Women's University	13
Auburn University	19
Utah State University	19
Southern Illinois University	20
Oklahoma State University	20
Kansas State University	21
Ohio State University	21
University of North Carolina	22
University of Minnesota	23
Washington State University	23
Texas Tech University	24
Florida State University	25
University of Nebraska	25
Colorado State University	26
Oregon State University	26
Virginia Polytechnic Institute & State University	27
University of Wisconsin - Madison	29
University of Missouri	34
University of Tennessee	34
Michigan State University	43
Iowa State University	45
Pennsylvania State University	52
Purdue University	54
Cornell University	84

APPENDIX C

QUESTIONNAIRE: FACTORS ASSOCIATED WITH RESEARCH
PRODUCTIVITY IN HOME ECONOMICS UNITS



INSTRUCTIONS: In the following questions check the box before the category that most appropriately describes you.

1. Sex: Male Female
 2. Marital status: Single Widowed Divorced Married
 3. Age: 25-30 31-35 36-40 41-45 46-50
 51-55 56-60 61-65 over 65
 4. Indicate if you are the major provider of income in your household. Yes No
 5. Indicate your present academic rank.
 Professor Assoc. Professor Asst. Professor Instructor
 Other (specify) _____
 6. Do you hold tenure? Yes No
 7. Indicate the usual number of months you are employed this year.
 12 months 10 months 9 months Other (specify) _____
 8. Indicate your salary for this year.
 \$0-3000 \$9001-12,000 \$18,001-21,000 \$27,001-30,000
 \$3001-6000 \$12,001-15,000 \$21,001-24,000 Over \$30,000
 \$6001-9000 \$15,001-18,000 \$24,001-27,000
 9. Indicate the percent of time in which you are employed by this institution.
 less than 25 25-49 50-74 75-99 100
 10. Indicate your field of specialization.
 Related Art, Interior Design Home Economics Education
 Child Development, Family Relations, Human Development Housing, Equipment
 Communications, Journalism Home Management, Family Economics
 Extension, Welfare, Community Service Institution, Hotel, Restaurant Management
 Foods, Nutrition, Dietetics Textiles, Clothing, Merchandising
 General Home Economics Other (specify): _____
- INSTRUCTIONS: In the following questions fill in the appropriate information as related to you.
11. Indicate the number of your children living at home in each category.
_____ preschool _____ grades 9-12 _____ other (specify)
_____ grades 1-4 _____ college _____
_____ grades 5-8 _____ adult _____
 12. Indicate the number of other individuals (parents, etc.) who are dependent upon you for their physical needs even if not living with you. _____

13. Academic background:

- a. Highest degree earned _____
- b. Year received _____
- c. Major _____
- d. Institution _____
- e. State _____
- f. Semesters or quarters employed as a graduate research assistant.
 _____ semesters _____ quarters

Fill in the approximate number of semester or quarter graduate hours you have earned in each of the following:

	Semester	Quarter
g. Research methods/design.....	_____	_____
h. Statistics	_____	_____
i. Computer science.....	_____	_____
j. Master's thesis	_____	_____
k. Doctoral dissertation	_____	_____
l. Total beyond your latest degree in any field..	_____	_____

14. Indicate the percentage distribution of your work load in each of the following:

- _____ % Administration
- _____ % Instruction
- _____ % Research
- _____ % Extension
- _____ % Other (specify): _____
- 100% Total

15. Indicate the number of years professional experience in Home Economics you have in:

- _____ Higher education
- _____ Secondary education
- _____ Business/Industry/Government

16. Indicate the number of years experience you have at your present academic rank at this institution. _____ years

17. Indicate a rough estimate of the number of hours per week you work at this job. _____

18. Indicate how many hours you spend in each of these work areas in a typical week this fall term (left column).

Present job hours/week	Desired job hours/week
A. Instructional time (preparation, teaching, evaluation, directing theses, etc.)	
_____ 1. Undergraduate	_____
_____ 2. Graduate	_____
_____ B. Interacting with students (counseling on all types of matters, etc.)	_____
_____ C. Research and creative activities (writing, reviewing works of colleagues, weaving, etc.)	_____
_____ D. Professional development (reading, meetings, taking courses, etc.)	_____
_____ E. Institutional service (committee meetings, administration, etc.).	_____
_____ F. Public service (extension, holding professional or public offices, consulting, etc.)	_____

19. Indicate how you would desire your work hours to be distributed if your hopes can be materialized sometime within the next five years (right column above).

20. What is your teaching load during this fall semester or quarter?
 a. Number of course credit hours _____ semester _____ quarter
 b. Number of course credit hours this is your first time to teach _____
 c. Number of class contact hours (in classroom) per week _____
 d. Number of different courses (in contrast to different sections of the same course) _____
21. a. Indicate the number of graduate students you advised who completed their research between September 1, 1974 and September 1, 1975 (left column).
 b. Indicate the number of graduate students you are currently advising in their research (right column).

Number completed between Sept. 1, 1974 and Sept. 1, 1975		Number currently underway
_____	Major advisor for master's thesis	_____
_____	Committee member for master's thesis	_____
_____	Major adviser for doctoral thesis	_____
_____	Committee member for doctoral thesis	_____
_____	Supervisor for student research project other than master's or doctoral thesis	_____

22. Indicate the number of years you have been directing theses. _____ years
23. Indicate the number of theses completed under your direction since September 1, 1972.
 _____ Master's _____ Doctoral
24. a. Indicate the number of times you reported your research or exhibited a creative work while you were a graduate student (column A).
 b. Indicate the number of times you reported your research or exhibited a creative work since September, 1973 (column B).
 c. Indicate the number of times you are planning to report research projects or exhibit a creative work currently underway or planned (column C).

Form of Research Report	As a Graduate Student	As a faculty member Since Sept. 1973 planned or underway	
	A	B	C
Professional journal research article	_____	_____	_____
Popular journal article	_____	_____	_____
Professional book	_____	_____	_____
Popular book	_____	_____	_____
National or regional conference presentation .	_____	_____	_____
State conference presentation	_____	_____	_____
Local seminar presentation (dept./univ.).....	_____	_____	_____
University or extension bulletin	_____	_____	_____
Other (specify): _____	_____	_____	_____

25. Indicate the number of research articles that have been rejected or returned to you in the last year for revision which you have not revised. _____
26. If research articles have been submitted and decisions are pending indicate the number of papers pending. _____
27. a. Indicate the number of research papers presented by your graduate students at professional meetings since September, 1973. _____
 b. Indicate the number of research papers your graduate students are planning to present at professional meetings in the next year. _____
28. Indicate how conferences, conventions, and meetings are most helpful to you as a researcher. _____

29. Indicate how conferences, conventions, and meetings could be improved to better meet your professional research needs. _____
30. Indicate the number of home economists who have contacted you for professional research information since September, 1974. _____

31. a. Indicate the number of successful research proposals you have submitted for funding since September, 1973 (column A).
 b. Indicate the number of research proposals that have been rejected and returned since September, 1973 (column B).
 c. If proposals have been submitted and decisions are pending indicate the number (column C).
- | | A | B | C |
|--|------------------------|----------|---------|
| | Successfully submitted | Rejected | Pending |
| Within the Home Economics unit | _____ | _____ | _____ |
| Within the university | _____ | _____ | _____ |
| External to the university (government)..... | _____ | _____ | _____ |
| External to the university (non-government) .. | _____ | _____ | _____ |

32. a. The column on the left refers to completed research projects in which you have been involved since September, 1973. Fill in the number for each area of responsibility.
 b. The middle column refers to research projects in which you are currently involved. Fill in the number for each area of responsibility.
 c. The column on the right refers to research projects involving you that are being planned but have not begun. Fill in the number for each area of responsibility.

Area of Responsibility	Completed	Underway	Planned
The investigator for independent research project.....	_____	_____	_____
Principal investigator for cooperative research project within your area of specialization	_____	_____	_____
Principal investigator for cooperative research project within two or more areas of home economics	_____	_____	_____
Principal investigator for cooperative research project within and outside home economics.....	_____	_____	_____
Co-principal investigator for cooperative research project within your area of specialization	_____	_____	_____
Co-principal investigator for cooperative research project within two or more areas of home economics	_____	_____	_____
Co-principal investigator for cooperative research project within and outside home economics	_____	_____	_____
Member of research team in cooperative research project within your area of specialization	_____	_____	_____
Member of research team for cooperative research project within two or more areas of home economics.....	_____	_____	_____
Member of research team for cooperative research project within and outside home economics	_____	_____	_____

33. a. Indicate the number of times you have done each of the following since September, 1973 to improve your research competence (left column).
 b. Indicate the number of times you plan to do each of the following during the next 12 months to improve your research competence (right column).

Since Sept., 1973	Next 12 months
_____ Attend workshop	_____
_____ Attend professional conference	_____
_____ Visit other home economics units	_____
_____ Communicate personally with colleagues internationally	_____
_____ Discuss research problem with extension home economist	_____
_____ Take sabbatical	_____
_____ Take leave of absence for professional development ...	_____
_____ Other (specify): _____	_____

INSTRUCTIONS: Respond to the following statements in terms of your agreement or disagreement with each particular statement. Answer each statement independently. Respond in regard to the extent that the statement is descriptive of the conditions for research (student theses and faculty research) and creative and artistic activities where you work. Record your response to each statement by writing the appropriate number from 1 to 99 in the blank at the first of each statement.

- a. If you absolutely disagree with the statement write 1 in the blank.
- b. If you absolutely agree with the statement write 99 in the blank.
- c. If you are uncertain about agreeing or disagreeing with the statement write a 50 in the blank. Uncertainty is the appropriate response if the question seems inapplicable.
- d. Use the numbers 2 to 49 to indicate various degrees of disagreement and use the numbers 51 to 98 to indicate various degrees of agreement.

absolutely disagree	uncertain	absolutely agree
1	50	99

1. _____ Facilities are adequate for conducting the types of research for which this faculty member has any responsibility (student theses and faculty research).
2. _____ This faculty member has adequate competences for conducting research.
3. _____ Faculty loads are such that this faculty member can develop research proposals for possible funding.
4. _____ The home economics unit controls some funds which may be allocated to this faculty member for research support.
5. _____ Library resources are adequate for conducting the research of interest to this faculty member.
6. _____ Statistical consultation is available as needed by this faculty member.
7. _____ Consultation on research design is available as needed by this faculty member.

Absolutely disagree	uncertain	absolutely agree
1	50	99
8.	_____ Adequate computer services are available to this faculty member.	
9.	_____ Specialists in other fields are available to this faculty member for consultation on research.	
10.	_____ Researchers in related disciplines are available to cooperate in directing projects with this faculty member.	
11.	_____ No departmental barriers exist for researchers who wish to work together on a research project.	
12.	_____ Person(s) knowledgeable in proposal writing are available to assist this faculty member in developing research proposals.	
13.	_____ Person(s) knowledgeable in preparing manuscripts for submission (<u>Home Economics Research Journal</u> or other refereed journals) or in submitting art forms for exhibition are available to assist this faculty member.	
14.	_____ Clerical assistance is available to this faculty member for typing manuscripts, proposals, or research reports.	
15.	_____ Graduate assistants are available to this faculty member for conducting research.	
16.	_____ Person(s) experienced in reviewing research manuscripts for the <u>Home Economics Research Journal</u> or other refereed journals or serving as a judge in selecting art forms for exhibition are available to review works prior to submission.	
17.	_____ Faculty members with research projects are provided with adequate periodic financial records of research accounts.	
18.	_____ This faculty member is encouraged to generate research ideas.	
19.	_____ This faculty member receives pressure to obtain external funding for research activities.	
20.	_____ Graduate faculty have opportunities for communication regarding research ideas.	
21.	_____ This faculty member is free to choose to work as an individual researcher in charge of research projects.	
22.	_____ This faculty member perceives research as a function of this home economics unit.	
23.	_____ Teaching graduate students to do research is perceived as a function of this home economics unit.	
24.	_____ Teaching undergraduates to utilize research is perceived as a function of this home economics unit.	
25.	_____ This faculty member is now studying or working with more experienced researchers as a means of improving research competence.	
26.	_____ This faculty member sits in on courses on campus as a means of improving research competence.	

Absolutely disagree	uncertain	absolutely agree
1	50	99

Graduate faculty are encouraged to:

27. _____ Work away from their offices for blocks of time such as a day or half-day in order to develop research proposals, manuscripts, etc.
28. _____ Schedule their classes so as to have blocks of time for research.
29. _____ Explore mutual research interests with faculty in other units.
30. _____ Participate in workshops, conference, etc. to improve research competence.

Research productivity (students completing theses, completing projects, publishing, exhibiting, securing external funding, etc.) is rewarded by:

31. _____ Salary increases.
32. _____ Promotions.
33. _____ Tenure.
34. _____ Adjustments in work load to allow more time for research.
35. _____ Improved research facilities (housing, equipment, etc.)
36. _____ Increased funding for research.
37. _____ Increased supporting staff to assist with research.
38. _____ Increased supporting staff to assist with teaching.
39. _____ Opportunities to attend out-of-state professional meetings.
40. _____ Commendations from administrators.
41. _____ Commendations from colleagues.

A graduate faculty member is expected to identify researchable problems as a result of the following:

42. _____ Observing family related events.
43. _____ Evaluating methodology in one's field of specialization.
44. _____ Having an individual interest in problems related to families.
45. _____ Having an individual interest in one's field of specialization.
46. _____ Evaluating students' progress toward selected objectives.

A graduate faculty member is expected to participate in research in the following ways:

47. _____ Respond on request to well designed research instrument(s).
48. _____ Collect data or arrange for collection of data for research project(s) in home economics.
49. _____ Conduct individual research project(s).
50. _____ Publish research article(s) in professional journals.

Absolutely disagree	uncertain	absolutely agree
1	50	99

51. _____ Present research report(s) at professional meetings or seminars.
52. _____ Serve as a consultant to research project leader(s).
- A graduate faculty member is expected to:
53. _____ Guide students' research projects.
54. _____ Direct students in their research for the master's thesis if the graduate faculty member has a doctoral degree.
55. _____ Conduct research if the graduate faculty member has a doctoral degree.
- A graduate faculty member is expected to use evidence obtained by self and others through research as a basis for decisions when:
56. _____ Choosing methods of teaching.
57. _____ Evaluating educational programs.
58. _____ Identifying researchable problems.
59. _____ Revising curricula in home economics.
- A graduate faculty member is expected to publish research through the following types of journals:
60. _____ Professional journals in home economics, such as Home Economics Research Journal.
61. _____ Professional journals in one's field of specialization.
62. _____ Professional journals related to one's field of specialization.
63. _____ Publications for lay audiences.
- A graduate faculty member is expected to present research at the following meetings:
64. _____ Meeting or seminar in one's department, college, or school.
65. _____ Meeting, seminar, or institute at one's institution.
66. _____ State meeting of home economists or related groups.
67. _____ Regional or national meeting of home economists or related groups.
- A graduate faculty member is expected to conduct research by:
68. _____ Serving as a leader of a research project.
69. _____ Serving as a member of a team of co-leaders in one's field of specialization.
70. _____ Serving as a member of a team of co-leaders for an interdisciplinary research project.
71. _____ Consulting with authorities in other disciplines than one's own.

Absolutely disagree	uncertain	absolutely agree
1	50	99

A home economics administrator (such as head of home economics, administrator for research, or department head) is expected to:

72. Make funds available for research activities.
73. Arrange for graduate assistants to be available for research activities.
74. Encourage consultants to collaborate with faculty in doing research in home economics.
75. Help faculty secure grants for departmental research from non-university agencies.
76. Completely release certain professors from teaching responsibilities for fully engaging in research.
77. Partially release certain professors from teaching responsibilities for their partial engagement in research.

A graduate faculty member is expected to receive publication credit of primary authorship to the extent that he/she:

78. Serves as a project director.
79. Provides the research idea.
80. Designs the research project.
81. Secures funding for the research project.
82. Collects the data.
83. Analyzes and interprets the data.
84. Writes the research report for publication.
85. Guides graduate students in their research, independent of funded projects.

Please provide the following information:

86. Indicate the chief satisfactions you derive from doing research.
87. Indicate your chief dissatisfactions with doing research.

Any comments are welcomed. Thank you for your assistance.

APPENDIX D

CODING FOR VARIABLES IN QUESTIONNAIRE

ITEM

Respondent identification number: 001-849

Area of respondent as identified by administrator:

1. Related Art, Interior Design
 2. Child Development, Family Relations, Human Development
 3. Communications, Journalism
 4. Foods, Nutrition, Dietetics
 5. Home Economics Education
 6. Housing, Equipment
 7. Home Management, Family Economics
 8. Institution, Hotel, Restaurant
 9. Textiles, Clothing, Merchandising
 0. Other
-
1. Sex:
 1. Male
 2. Female

 2. Marital status:
 1. Single
 2. Widowed
 3. Divorced
 4. Married

 3. Age category:
 1. 25-30
 2. 31-35
 3. 36-40
 4. 41-45
 5. 46-50
 6. 51-55
 7. 56-60
 8. 61-65
 9. over 65

 4. Major provider of income in your household:
 1. No
 2. Equal
 3. Yes

 5. Academic rank:
 3. Instructor, Lecturer, Visiting Lecturer
 4. Senior Lecturer
 5. Assistant Professor
 7. Associate Professor

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8. Visiting Professor
9. Professor

6. Tenure:
 1. No
 2. Don't know
 3. Yes

7. Months employed:
 1. 9 months
 2. 10 months
 3. 11 months
 4. 12 months, academic year + summer

8. Income range:
 01. \$0-3,000
 02. \$3,001-6,000
 03. \$6,001-9,000
 04. \$9,001-12,000
 05. \$12,001-15,000
 06. \$15,001-18,000
 07. \$18,001-21,000
 08. \$21,001-24,000
 09. \$24,001-27,000
 10. \$27,001-30,000
 11. Over \$30,000

9. Percent time employed by institution:
 1. Less than 25%
 2. 25-49%
 3. 50-74%
 4. 75-99%
 5. 100%

10. Field of specialization:
 01. Related Art, Interior Design
 02. Child Development, Family Relations, Human Development
 03. Communications, Journalism
 04. Foods, Nutrition, Dietetics
 05. Home Economics Education
 06. Housing, Equipment
 07. Home Management, Family Economics
 08. Institution, Hotel, Restaurant Management
 09. Textiles, Clothing, Merchandising
 10. Extension, Welfare, Community Service
 11. General Home Economics
 12. Other

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11. Number of children living at home in each category:
- Preschool (actual number of children 0-9)
 - Grades 1-4 (actual number of children 0-9)
 - Grades 5-8 (actual number of children 0-9)
 - Grades 9-12 (actual number of children 0-9)
 - College (actual number of children 0-9)
 - Adult (actual number of children 0-9)
 - Other (actual number of children 0-9)
12. Number of other individuals (parents, etc.) who are dependent upon you for their physical needs even if not living with you (actual number)
- 13a. Highest degree earned:
- 1. B.A. or B.S.
 - 3. M.S., M.A., or any other master's degree
 - 7. Ed.D.
 - 8. M.D.
 - 9. Ph.D.
- 13b. Year degree received (actual year)
- 13c. Major:
- 01. Related Art, Interior Design
 - 02. Child Development, Family Relations, Human Development
 - 03. Communications, Journalism
 - 04. Foods, Nutrition, Dietetics
 - 05. Home Economics Education
 - 06. Housing, Equipment
 - 07. Home Management, Family Economics
 - 08. Institution, Hotel, Restaurant Management
 - 09. Textiles, Clothing, Merchandising
 - 10. Extension, Welfare, Community Service
 - 11. General Home Economics
 - 12. Agriculture, Biochemistry and Nutrition
 - 13. Secondary Education
 - 14. Counseling and Guidance
 - 15. Animal Nutrition
 - 16. Educational Psychology and Child Development
 - 17. Curriculum Construction and Supervision
 - 18. Education
 - 19. Home Economics in Business
 - 20. Organic Chemistry
 - 21. Physiological Chemistry
 - 22. Biochemistry
 - 23. Painting
 - 24. Counseling Psychology
 - 25. Developmental Psychology
 - 26. Consumer Affairs
 - 27. Child Psychology
 - 28. Educational Administration

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29. Curriculum in Higher Education
 30. Higher Education
 31. Chemistry
 32. Economics
 33. Consumer Economics
 34. Psychology
 35. Sociology
 36. Psychological Measurement
 37. Physiology
 38. Earth Science
 39. Educational Psychology
 40. City Planning
 41. Vocational Education
 42. Social Psychology
 43. Cooperative and International Education
 44. Public Health
 45. Man-Environment Relations
 46. Fine Arts Education
 47. Social Work
 48. Engineering Chemistry
 49. Theory of Arts and Crafts
 50. Adult and Occupational Education
 51. Arts and Education
 52. Health Organization Research
 53. Evaluation
 54. Agriculture Economics
 55. Occupational Therapy
 56. Human Ecology
 57. Ceramics and Research
 58. Art - Fine Art
 59. Applied Art
 60. Political Economy
 61. Architecture
 62. Medicine
 63. Educational Administration and Supervision
 64. Gerontology
 65. Art History
 66. Biology
 67. Health, Physical Education and Recreation
 68. Anatomy
- 13ed. State where degree received; Institution within state where degree received:
012. Alabama - University of Alabama
 031. Arizona - University of Arizona
 032. Arizona - Arizona State University
 041. Arkansas - University of Arkansas
 052. California - California State University - Northridge
 053. California - University of California - Berkley
 054. California - Stanford University
 055. California - U.C.L.A.

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056. California - University of California - Davis
057. California - University of Southern California
058. California - California College of Arts and Crafts
061. Colorado - Colorado State University
062. Colorado - University of Colorado
071. Connecticut - University of Connecticut
072. Connecticut - Yale University
092. Florida - Florida State University
093. Florida - University of Florida
101. Georgia - University of Georgia
111. Hawaii - University of Hawaii
121. Idaho - University of Idaho
131. Illinois - University of Illinois
134. Illinois - Southern Illinois University
135. Illinois - Chicago University
136. Illinois - Illinois State University
137. Illinois - Northwestern University
141. Indiana - Purdue University
142. Indiana - Indiana University
143. Indiana - University of Notre Dame
151. Iowa - Iowa State University
152. Iowa - University of Iowa
161. Kansas - Kansas State University
162. Kansas - University of Kansas
181. Louisiana - Louisiana State University
185. Louisiana - Tulane University
191. Maine - University of Maine at Orono
202. Maryland - Johns Hopkin University
211. Massachusetts - University of Massachusetts
213. Massachusetts - Harvard University
214. Massachusetts - Radcliff University
215. Massachusetts - Boston University
221. Michigan - Michigan State University
222. Michigan - Wayne State University
224. Michigan - University of Michigan
231. Minnesota - University of Minnesota
242. Mississippi - Mississippi State University
243. Mississippi - Mississippi University for Women
251. Missouri - University of Missouri
254. Missouri - St. Louis University
255. Missouri - Washington University
271. Nebraska - University of Nebraska
281. Nevada - University of Nevada
301. New Jersey - Rutgers University
303. New Jersey - Princeton University
304. New Jersey - Fairleigh Dickinson University
311. New Mexico - New Mexico State University
312. New Mexico - University of New Mexico
321. New York - Cornell University
322. New York - New York University
323. New York - Columbia University

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- 325. New York - State University of New York - Albany
 - 326. New York - Syracuse University
 - 331. North Carolina - University of North Carolina
 - 332. North Carolina - North Carolina State University
 - 342. North Dakota - University of North Dakota
 - 351. Ohio - Kent State University
 - 352. Ohio - Ohio University
 - 353. Ohio - Ohio State University
 - 355. Ohio - Case Western Reserve University
 - 356. Ohio - University of Akron
 - 361. Oklahoma - Oklahoma State University
 - 362. Oklahoma - University of Oklahoma
 - 371. Oregon - Oregon State University
 - 372. Oregon - University of Oregon
 - 382. Pennsylvania - Pennsylvania State University
 - 383. Pennsylvania - University of Pittsburgh
 - 391. Rhode Island - University of Rhode Island
 - 392. Rhode Island - Brown University
 - 401. South Carolina - Clemson University
 - 402. South Carolina - Winthrop College
 - 411. South Dakota - South Dakota State University
 - 421. Tennessee - University of Tennessee
 - 423. Tennessee - Vanderbilt University
 - 424. Tennessee - Peabody College
 - 432. Texas - Texas Tech University
 - 433. Texas - University of Houston
 - 435. Texas - Texas Women's University
 - 436. Texas - University of Texas at Austin
 - 437. Texas - Texas A & M University
 - 438. Texas - Southern Methodist University
 - 439. Texas - Baylor Medical School
 - 441. Utah - Utah State University
 - 442. Utah - Brigham Young University
 - 443. Utah - University of Utah
 - 461. Virginia - Virginia Polytechnic Institute and State University
 - 471. Washington - Washington State University
 - 472. Washington - University of Washington
 - 481. West Virginia - West Virginia University
 - 492. Wisconsin - University of Wisconsin - Madison
 - 501. Wyoming - University of Wyoming
 - 511. India - Bombay - Seth C.H. Medical College
 - 521. Israel - Israel Institute of Technology
 - 531. Canada - University of Toronto
 - 541. England - University of London
 - 542. England - Leeds University
 - 551. Switzerland - Zurich
- 13f. Graduate research assistant time = Semesters X 3 + Quarters X 2
- 13g. Credits earned in research methods/design = Semester hours X 3 + Quarter hours X 2

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- 13h. Credits earned in statistics = Semester hours X 3 + Quarter hours X 2
- 13i. Credits earned in computer science = Semester hours X 3 + Quarter hours X 2
- 13j. Credits earned in master's thesis = Semester hours X 3 + Quarter hours X 2
- 13k. Credits earned in doctoral dissertation = Semester hours X 3 + Quarter hours X 2
- 13l. Credits earned beyond latest degree = Semester hours X 3 + Quarter hours X 2
14. Percentage distribution of work load:
 Administration
 Instruction
 Research
 Extension
 Other
15. Number years professional experience in home economics: (actual number of years)
 Higher Education
 Secondary Education
 Business/Industry/Government
16. Number of years experience at present academic rank at this institution (actual number of years)
17. Estimate of number of hours worked per week (actual number of hours)
18. Work load for present job in a week (actual hours spent in each area)
 A1. Undergraduate instructional time
 A2. Graduate instructional time
 B. Interacting with students
 C. Research and creative activities
 D. Professional development
 E. Institutional service
 F. Public service
19. Desired work load for a week (actual hours desired per week for each area)
 A1. Undergraduate instructional time
 A2. Graduate instructional time
 B. Interacting with students
 C. Research and creative activities
 D. Professional development

ITEM

- E. Institutional service
 - F. Public service
20. Teaching load Fall: (actual number of hours)
- a. Number of course credit hours
 - b. Course credit hours first time teaching
 - c. Number of class contact hours per week
 - d. Number of different courses
- 21a. Completed graduate student research advisement September 1, 1974 to September 1, 1975 (actual number of graduate students):
- Major adviser for master's thesis
 - Committee member for master's thesis
 - Major adviser for doctoral thesis
 - Committee member for doctoral thesis
 - Supervisor for graduate student research project other than master's or doctoral thesis
- 21b. Advisement of graduate student research currently underway (actual number of graduate students):
- Major adviser for master's thesis
 - Committee member for master's thesis
 - Major adviser for doctoral thesis
 - Committee member for doctoral thesis
 - Supervisor for graduate student research projects other than master's or doctoral theses
22. Number of years directing theses (actual number of years)
23. Number of theses completed under your direction since September 1, 1972 (actual number of theses):
- Master's
 - Doctoral
- 24a. Reporting of research as a graduate student (actual number for each category):
- Professional journal research article
 - Popular journal article
 - Professional book
 - Popular book
 - National or regional conference presentation
 - State conference presentation
 - Local seminar presentation (department/university)
 - University or extension bulletin
 - Other
- 24b. Reporting of research as a faculty member since September, 1973 (actual number for each category):
- Professional journal research article
 - Popular journal article
 - Professional book
 - Popular book

ITEM

National or regional conference presentation
 State conference presentation
 Local seminar presentation (department/university)
 University or extension bulletin
 Other

- 24c. Reporting of research underway or planned (actual number for each category):
 Professional journal research article
 Popular journal article
 Professional book
 Popular book
 National or regional conference presentation
 State conference presentation
 Local seminar presentation (department/university)
 University or extension bulletin
 Other
25. Returned research articles not yet revised (actual number)
26. Submitted research articles, decision pending (actual number)
- 27a. Papers presented by your graduate students at professional meetings since September, 1973 (actual number)
- 27b. Planned presentations by your graduate students at professional meetings in the next year (actual number)
30. Number of home economists contacting you for research information since September, 1974 (actual number)
- 31a. Proposals successfully submitted since September, 1973 (actual number):
 Within the home economics unit
 Within the university
 External to the university (government)
 External to the university (non-government)
- 31b. Proposals rejected and returned since September, 1973 (actual number):
 Within the home economics unit
 Within the university
 External to the university (government)
 External to the university (non-government)
- 31c. Submitted proposals, decisions still pending (actual number):
 Within the home economics unit
 Within the university
 External to the university (government)
 External to the university (non-government)

ITEM

- 32a. Involvement in completed research projects (actual number):
- Investigator for independent research project
 - Principal investigator for cooperative research project within your area of specialization
 - Principal investigator for cooperative research project within two or more areas of home economics
 - Principal investigator for cooperative research project within and outside home economics
 - Co-principal investigator for cooperative research project within your area of specialization
 - Co-principal investigator for cooperative research project within two or more areas of home economics
 - Co-principal investigator for cooperative research project within and outside home economics
 - Member of research team in cooperative research project within your area of specialization
 - Member of research team in cooperative research project within two or more areas of home economics
 - Member of research team in cooperative research project within and outside home economics
- 32b. Involvement in research projects underway (actual number):
- Investigator for independent research project
 - Principal investigator for cooperative research project within your area of specialization
 - Principal investigator for cooperative research project within two or more areas of home economics
 - Principal investigator for cooperative research project within and outside of home economics
 - Co-principal investigator for cooperative research project within your area of specialization
 - Co-principal investigator for cooperative research project within two or more areas of home economics
 - Co-principal investigator for cooperative research project within and outside of home economics
 - Member of research team for cooperative research project within your area of specialization
 - Member of research team for cooperative research project within two or more areas of home economics
 - Member of research team for cooperative research project within and outside of home economics
- 32c. Involvement in planned research projects (actual number):
- Investigator for independent research project
 - Principal investigator for cooperative research project within your area of specialization
 - Principal investigator for cooperative research project within two or more areas of home economics
 - Principal investigator for cooperative research project within and outside of home economics
 - Co-principal investigator for cooperative research project within your area of specialization

ITEM

Co-principal investigator for cooperative research project
within two or more areas of home economics
Co-principal investigator for cooperative research project
within and outside of home economics
Member of a research team for cooperative research project
within your area of specialization
Member of a research team for cooperative research project
within two or more areas of home economics
Member of a research team for cooperative research project
within and outside home economics

33a. Involvement in activities to improve research competence since
since September, 1973 (actual number):

Attend workshop
Attend professional conference
Visit other home economics units
Communicate personally with colleagues internationally
Discuss research problems with extension home economist
Take sabbatical
Take leave of absence for professional development
Other

33b. Planned involvement for next twelve months in activities to
improve research competence (actual number):

Attend workshop
Attend professional conference
Visit other home economics units
Communicate personally with colleagues internationally
Discuss research problems with extension home economist
Take sabbatical
Take leave of absence for professional development
Other

For the degree of agreement questions 1 to 85 the actual response of
1 to 99 was recorded.

absolutely disagree	uncertain	absolutely agree
1	50	99

APPENDIX E

CONSTRUCTED VARIABLES

Constructed Variable	Original Variable Summed
Total dependents	Number of children Preschool Grades 1-4, 5-8, 9-12 College Adult Other Number of other dependents (Questions 11 and 12)
Academic productivity as a graduate student	Number of publications: Professional journal research article Professional books University or extension bulletins Number of other publications or creative works Number of national, regional, or state conference presentations (Six variables from question 24a)
Popular productivity as a graduate student	Number of popular journal articles and popular books published (Two variables from question 24a)
Academic productivity as a faculty member since September, 1973	Number of publications: Professional journal research articles Professional books University or extension bulletins Number of other publications or creative works Number of national, regional, or state conference presentations (Six variables from question 24b)
Popular productivity as a faculty member	Number of popular journal articles and popular books published (Two variables from question 24b)
Academic productivity planned or underway	Number of publications: Professional journal research articles Professional books University or extension bulletins

Constructed Variable	Original Variable Summed
	Number of other publications or creative works Number of national, regional, or state conference presentations (Six variables from question 24c)
Popular productivity planned or underway	Number of popular journal articles and popular books (Two variables from question 24c)
Research proposals successfully submitted within university since September, 1973	Number within home economics unit and university (Two variables from question 31a)
Research proposals successfully submitted external to the university since September, 1973	Number external to the university (government and non-government) (Two variables from question 31a)
Research proposals rejected within university since September, 1973	Number within home economics unit and university (Two variables from question 31b)
Research proposals rejected external to the university since September, 1973	Number external to the university (government and non-government) (Two variables from question 31b)
Research proposals pending within university (Fall, 1975)	Number within home economics unit and university (Two variables from question 31c)
Research proposals pending external to the university (Fall, 1975)	Number external to the university (government and non-government) (Two variables from question 31c)
Principal investigator on completed research project since September, 1973	Investigator for independent project Principal or co-principal investigator for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Seven variables from question 32a)
Member of research team who completed research project since September, 1973	Member of research team for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Three variables from question 32a)

Constructed Variable	Original Variable Summed
Principal investigator on research project underway	Investigator for independent project Principal or co-principal investigator for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Seven variables from question 32b)
Member of research team with research project underway	Member of research team for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Three variables from question 32b)
Principal investigator for research project that is planned	Investigator for independent project Principal or co-principal investigator for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Seven variables from question 32c)
Member of research team planning a research project	Member of a research team for cooperative research: Within area of specialization Within two or more areas of home economics Within and outside home economics (Three variables from 32c)
Workshops and professional conferences attended since September, 1973 to improve research competence	(Two variables from question 33a)
Communications since September, 1973 to improve research competence	Number of: Visits to other home economics units Personal communications with colleagues internationally Discussions with extension home economists (Three variables from question 33a)
Leave taken since September, 1973 for improving research competence	Number taken: Sabbaticals Leaves of absence (Two variables from question 33a)

Constructed Variable	Original Variable Summed
Planned attendance in next 12 months at events to improve research competence	Number planning to attend: Workshops Professional conferences (Two variables from question 33b)
Number of communications planning in next 12 months to improve research competence	Number of: Visits to other home economics units Personal communications with colleagues internationally Discussions with extension home economists (Three variables from question 33b)
Planned leave in next 12 months to improve research competence	Number planned: Sabbaticals Leaves of absence (Two variables from question 33b)

APPENDIX F

CORRELATION MATRIX FOR NONDOCTORAL FACTOR SCORES

FACTOR SCORES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1														
2	-.33*													
3	.19*	-.15												
4	.03	-.03	-.06											
5	.14	-.11	-.05	-.04										
6	.27*	-.08	.13	.04	.06									
7	.18*	-.10	.25*	.04	.09	.12								
8	-.18*	-.05	.19*	-.01	-.07	-.09	.04							
9	.11	-.27*	.13	.05	.02	-.02	.04	.17						
10	-.07	.12	-.16	-.03	-.05	-.01	-.02	.21*	-.05					
11	.14	-.05	.02	-.03	.04	.00	.15	-.24*	-.06	.16				
12	.15	-.13	.09	-.27*	.13	-.07	.00	-.12	.11	-.13	.19*			
13	.18*	-.22*	.03	-.09	.12	.01	-.07	-.20*	-.02	.03	.21*	.52*		
14	.31*	-.30*	.03	-.25*	.12	.14	-.05	-.25*	.01	-.06	.24*	.56*	.84*	
15	.06	-.03	.09	-.11	.08	.08	.03	-.06	-.03	.00	.09	.44*	.41*	.33*

*p<.01

FACTOR SCORES

	1	2	3	4	5	6	7	8	9	10	11	12
16	.09	-.06	.07	-.07	.02	.10	.00	-.08	.01	-.03	.17	.43*
17	.09	-.18*	.01	-.12	-.06	.03	.10	.00	-.26*	.02	.14	.14
18	.10	-.37*	-.02	-.26*	.15	.01	.24	-.10	.12	.03	.29*	.39*
19	-.05	.00	-.07	-.08	-.09	-.13	-.04	-.10	-.18	.00	.17	.15
20	-.02	-.20*	-.01	-.25*	.07	-.13	.03	.00	-.02	.05	.21*	.41*
21	.01	-.18*	.03	-.11	.04	.05	.13	-.04	-.18	-.03	.19*	.31*
22	.20*	-.13	.09	-.09	-.03	.06	.02	-.17*	-.16	-.15	.12	.39*
23	.06	-.04	-.10	.09	.05	-.03	-.07	-.06	.07	.09	.13	.35*
24	-.02	-.05	.06	-.10	.07	.07	.02	-.07	.00	.01	.17	.28*

*p < .01

FACTOR SCORES

	13	14	15	16	17	18	19	20	21	22	23	24
16	.47*	.39*	.84*									
17	.23*	.26*	.09	.10								
18	.53*	.58*	.31*	.35*	.35*							
19	.26*	.24*	.15	.19*	.44*	.44*						
20	.45*	.45*	.27*	.27*	.35*	.61*	.30*					
21	.47*	.45*	.30*	.32*	.36*	.51*	.38*	.39*				
22	.54*	.65*	.19*	.26*	.19*	.37*	.16	.25*	.33*			
23	.58*	.42*	.28*	.31*	.07	.26*	.25*	.22*	.35*	.26*		
24	.47*	.43*	.21*	.27*	.17	.41*	.25*	.24*	.29*	.30*	.25*	

*p < .01

APPENDIX G

CORRELATION MATRIX FOR DOCTORAL FACTOR SCORES

FACTOR SCORES

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	-.02											
3	.05	-.08										
4	.04	.10	.25*									
5	.49*	-.13	.14*	.13								
6	-.01	-.26*	-.06	-.05	-.10							
7	.05	-.13	.40*	.18*	.21*	-.17						
8	-.09	-.31*	.17*	-.07	-.11	-.02	.25*					
9	.12	-.18*	.12	.09	.29*	.09	.05	-.18*				
10	.08	-.03	.01	.06	.00	.17	-.06	.06	-.03			
11	.06	-.24*	-.08	-.02	.13	.01	-.06	.00	.12	.06		
12	-.17*	-.04	-.03	-.01	.00	.00	-.01	.01	-.11	.07	.09	
13	-.02	-.09	.01	.10	.03	.05	-.05	-.04	.14	.12	.36*	.30*

*p < .01

FACTOR SCORES

	1	2	3	4	5	6	7	8	9	10	11	12
14	.09	-.07	.01	.08	.17*	-.06	.01	-.06	.16	.01	.35*	.29*
15	-.12*	-.06	-.08	.03	.12	.10	-.13	-.01	.00	-.05	.26*	.33*
16	-.12*	-.02	-.04	.07	.07	.09	-.11	.03	.05	.01	.27*	.32*
17	.04	-.27*	.01	-.08	-.02	-.02	.13	.15*	.12	-.03	.37*	.12
18	-.02	-.20*	-.12	.00	.05	.13	-.10	-.02	.09	-.02	.47*	.14*
19	.03	-.39*	-.08	-.04	.25*	.02	.07	.12	.14	-.10	.51*	.13
20	.01	-.26*	-.18*	-.01	-.03	.13	-.08	-.06	.04	-.01	.44*	.23*
21	-.01	-.16*	-.01	.02	.03	.01	.08	.07	.06	.06	.36*	.24*
22	.02	-.10	.06	.03	.26*	-.12	.10	-.07	.20*	-.08	.18*	.29*
23	.03	-.13	.03	.05	-.11	.13	-.03	.01	.14	.09	.25*	.20*
24	.00	-.02	-.01	.04	-.09	.13	-.10	-.05	.16	.14	.35*	.21*

*p < .01

FACTOR SCORES

	13	14	15	16	17	18	19	20	21	22	23	24
14	.70*											
15	.32*	.35*										
16	.43*	.39*	.75*									
17	.33*	.39*	.29*	.28*								
18	.21*	.21*	.39*	.33*	.33*							
19	.28*	.41*	.32*	.25*	.59*	.51*						
20	.37*	.41*	.30*	.23*	.40*	.59*	.53*					
21	.48*	.44*	.24*	.23*	.37*	.23*	.43*	.34*				
22	.50*	.69*	.31*	.30*	.33*	.15*	.37*	.31*	.33*			
23	.54*	.43*	.28*	.34*	.27*	.22*	.21*	.27*	.35*	.34*		
24	.54*	.48*	.28*	.38*	.20*	.22*	.20*	.33*	.26*	.35*	.49*	

*p < .01

VITA

Walter Willis Beam, Jr.

Candidate for the Degree of
Doctor of Education

Thesis: FACTORS ASSOCIATED WITH RESEARCH PRODUCTIVITY OF
GRADUATE FACULTY MEMBERS IN HOME ECONOMICS UNITS

Major Field: Home Economics Education

Biographical:

Personal Data: Born in Freeport, Texas, November
10, 1946, the son of Mr. and Mrs. Walter Beam.

Education: Graduated from Ponca City High School,
Ponca City, Oklahoma, in May, 1965; received
the Bachelor of Science degree from Abilene
Christian College in 1969, with a major in
Psychology; received the Master of Science
degree in Clinical Psychology from Oklahoma
State University in 1975; completed require-
ments for the Doctor of Education degree at
Oklahoma State University in July, 1976.

Professional Experience: National Institute of
Mental Health trainee in clinical psychology
at Oklahoma State University, 1972-1973;
psychological associate at Payne County
Guidance Center, 1972-1973; psychological
associate at Psychological Guidance Center,
Oklahoma State University, 1973-1974; research
assistant, Home Economics Education, Oklahoma
State University, 1975-1976.

Professional Organizations: American Home Economics
Association; American Psychological Association;
National Council of Family Relations; Phi Delta
Kappa; Omicron Nu; Oklahoma Home Economics
Association.