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Factors Associated with Research Anxiety of University Human Resource Education Faculty

Chadwick C. Higgins
West Virginia University

Joe W. Kotrlik
Louisiana State University

Abstract

Factors associated with research anxiety of university faculty members in human resource educations fields were examined. Most of the participating faculty members were male and half were full professors. The mean age was 52 and all but one held a doctorate. Relationships between selected demographic characteristics and The Higgins-Kotrlik Research Anxiety Inventory revealed moderate correlations with rank, the number years employed in higher education, and experience teaching research methods courses. There was a low correlation between research anxiety and the presence of a formal research mentoring program, age, and experience teaching statistics. The regression analysis with research anxiety as the dependent variable revealed that the faculty members' educational preparation, years employed in higher education, and professional environment explained a large amount (48%) of the variance.

Introduction

The latest Carnegie Foundation (2000) categorization of the nation's institutions of higher education increased the numbers of Research Extensive and Research Intensive Universities. The accretion in numbers also increased the quantity of faculty members who are expected to produce scholarly research. Institutions that enjoy an abundance of scholarly research through faculty production also enjoy a heightened reputation as universities on the cutting edge of scholarly issues. The heightened reputation enables these universities to bring in larger grant amounts as well as larger student numbers (Austin & Rice, 1998). Therefore, research productivity has become a benchmark of national and global prestige and has been a key variable for attaining promotion and tenure for many university faculty members. The heightened emphasis placed on scholarly productivity through research may promote anxiety associated with scholarly research productivity of faculty members. A study addressing research anxiety may be instrumental in defining the means to increase research productivity and, at the same time, ease the research anxiety of faculty members.

Faculty members at research universities have, in the past and at the present, had to deal with pressures associated with roles as researchers, teachers, and service initiators (Miller & Sandman, 1994). The "publish or perish" atmosphere accompanying most university faculty positions often generates questions regarding confidence in one's ability to not only confidently conduct meaningful research, but also to develop a solid and statistically sound research study. The pressures do not stop there, however. Once a study has been developed and conducted, the researcher's next goal is persuading editors of reputable journals to publish the findings. Generally, the process involves sending a manuscript off for a blind, peer review of the study. Anxiety can certainly be expected when one's work is judged and critiqued by peers. Further, the critique may hold the key for future promotions and/or tenure, thus elevating possible anxiety for the researcher. It becomes paramount that the researchers must be confident in the methods of research and the appropriate application of statistics or other methodology in analyzing data collected for research studies.

Anxiety, as defined by the 2001 edition of *Webster's Encyclopedic Unabridged Dictionary*, is ". . .distress or uneasiness of mind caused by fear of danger or misfortune" (p. 96). For the purposes of the study, the definition will take on a more empirical tone of "danger and misfortune" as it relates to professional output and not to a life and death situation. The "dangers and misfortunes" are thus related to not receiving promotion and tenure, stress related to a lack of confidence in one's ability to conduct valid and reliable research, departmental demands, and the anxiety related to peer reviews in the publishing process. Anxiety and stress will have a synonymous connotation and will be used interchangeably.

It has been noted that many in higher education place more value on the teaching aspect of the job and are not so interested in the research aspect of education (Levine, 1997). This notion may place an employee in a quagmire, quite early in his or her career, as many universities place high priority on success in both research and teaching to secure promotion, tenure, and merit pay (McElhinney & Fleming, 1997). Not having a clear definition of what is expected of a faculty member, in terms of research, can be an impetus for anxiety. When perusing the advertisements for employment in higher education, one finds that almost every job description is accompanied by the mission statement of the university or college. These missions almost always state that a prospective applicant should be establishing, or must have already established, a research agenda related to the position. Applicants who have not given thought to a research agenda must do so, as well as put together a portfolio that documents this agenda to enhance their chances of attaining employment in higher education.

Studies have also delved into the effects that stress may have on faculty health. It is one thing to lose a promotion, but an altogether different thing to lose one's health. High levels of anxiety have been linked to serious health problems such as physiological, psychological, and behavioral disorders (Blackburn, Horowitz,

Edington, & Klos, 1986). These health problems are not only inherent in Corporate America, but also to academia. Studies also link "burnout" to anxiety, which leads to a stagnation in scholarly productivity as well as social seclusion. Depending upon severity, these are not small problems which can be associated with anxiety (Libby & Walz, 1987). Anxiety in higher education can affect faculty members' performance on several different fronts. It may impede scholarly productivity, lessen perceptions of job satisfaction, and even negatively affect the health of the faculty member.

Purpose and Objectives of the Study

The purpose was to determine if certain factors explained the variance in research anxiety in Human Resource Education faculty. The objectives of this exploratory study were to:

1. Determine selected demographic characteristics (gender, age, rank, highest degree held) of university faculty members, their perceptions of the professional en v ironment, and their educational preparation.
2. Determine research anxiety levels of university faculty members.
3. Determine if significant correlations exist between the independent variables (educational preparation, selected personal characteristics, and professional environment) and the research anxiety of university faculty members.
4. Determine if selected variables (educational preparation, personal characteristics, and professional environment) explain significant portions of variance regarding research anxiety in university faculty members.

For the purposes of this study, human resource education includes those faculty in the following workforce and human resource education fields: adult education, agricultural education, business education, human resource development, marketing education, occupational education, technology education, vocational special needs, and workforce development. These fields include some fields commonly associated with career and technical education.

Theoretical Framework

General Anxiety

The National Anxiety Foundation (2005) in Lexington, Kentucky, stated that everyone has or will experience anxiety at different stages in life, and that it can be quite normal in certain instances (http://www.lexington-on-line.com/ naf.whatare.html). A positive side to anxiety is that it may keep one busy doing things that aid in success. For example, having anxiety due to the pressures to publish research for promotion and tenure purposes may prompt faculty members in higher education to avidly pursue their research agenda. But, the foundation also relates that sometimes anxiety can become a detriment to one's progress in life. High levels of anxiety can create roadblocks causing health problems or preventing one from

attaining success in any field or profession. Since the reputation of prestigious research universities depends on the amount and caliber of research produced, faculty members find themselves in the midst of a rubber band effect, juggling research endeavors and teaching assignments.

Educational studies in the past have generally concentrated on two types of anxiety, trait anxiety and state anxiety. Trait anxiety deals primarily with the nature of being, in that a person is prone to anxiety in all or many phases of life (Gaudry et al., 1975). State anxiety refers to situational anxiety, in that a condition is favorable to cause this emotion in certain people at a particular time, such as pressures to publish scholarly work within a department of higher education. Research anxiety, in this study, falls under the auspices of state anxiety and refers to the characteristics which a faculty or member perceives as discomforting, to the extent that productivity may be reduced. If research anxiety is approached as a case of state anxiety, then it is not perceived as a disorder that must be treated with medication or serious counseling, but which can be corrected through proper instruction and indoctrination in the methods of research. This indoctrination may occur in graduate programs or in mentorships upon attaining employment as a junior faculty member at a university. If faculty members do not perceive themselves as having a solid background in research methodology, there is a possibility that fear of rejection or simply the fear of using the wrong statistical procedure for a study to be peer reviewed may cause enough anxiety to decrease the amount and level of scholarly works produced.

The relationship between research anxiety and scholarly activity has practical implications in the field of education. The possibility of high anxiety levels resulting from perceived inefficiencies in research methodology or statistical procedures may have a direct impact on the amount and quality of scholarly productivity. The concept of research anxiety may have its roots in faculty members' educational experience during their graduate program component, but may also be due to a lack of practice or effort on the part of the faculty member. Also, depending on particular departmental expectations, restrictions placed on mentoring or collaboration with seasoned researchers may propagate research anxiety. It is no secret that pressures associated with the ‘publish or perish’ atmosphere in higher education weigh heavily upon the promotion and tenure process of faculty members (Blackburn & Bentley, 1993). These pressures may cause job dissatisfaction due to poor preparedness in graduate programs in the areas of research methodology and statistical procedural knowledge, high departmental expectations regarding research, and perceived personal barriers such as gender.

Faculty Anxiety

A higher education position is accompanied by multidimensional tasks. Faculty members are expected to engage in scholarly activity, which is usually equally or not so equally divided among research, teaching, and service (Miller & Sandman, 1994). Those entering the profession or looking for transfer possibilities at

other universities will notice how important an established research agenda is in meeting the qualifications for many of the positions, especially those positions at Research Extensive and Intensive Universities (Carnegie Foundation, 2000). Almost all of the position descriptions advertised in such periodicals as the Chronicle of Higher Education include a statement on research expectations. Competition among universities concerning funding has become intense and research agendas defining individual universities and departments are becoming trademarks for recruiting top students. The prestige that accompanies noted research programs places pressure on faculty members to stay abreast in the field as well as to maintain active research ventures.

Miller and Sandman (1994) described an engaged teacher as one who is knowledgeable or informed, and stated this knowledge comes from research. This description indicates that an effective teacher should also be an effective researcher, which may stretch the teacher in several different directions at once during the academic year. Also, most faculty members at universities handle assignments in graduate programs, further spreading the workday among research, undergraduate responsibilities, and aiding students through the thesis and dissertation process. Kelly and Warmbrod (1985) found that the most productive faculty members were full professors at high-prestige universities where the pressures of faculty productivity outweighed that of their counterparts at four-year colleges. Kotrlik, Bartlett, Higgins, and Williams (2002) reported faculty members working closely with doctoral students and that had access to graduate assistantships were more scholarly productive reflecting the educational culture of level one-research institutions. It makes sense that if there is more pressure to produce at universities, then research anxiety may be more prevalent.

Stress and workplace anxiety have become an accepted part of higher education. Several researchers examining selected characteristics of faculty members have found faculty experience anxiety due to research pressures, teaching loads, and time restraints associated with the job environment (Thompson & Dey, 1998). Researchers examined what faculty members perceived to be causes of workplace anxiety. Several variables overlap in the studies and most seem inherent to the field, like teaching loads and restricted funding.

Theoretical Model for Research Anxiety

Figure 1 displays three categories of variables that may combine to elevate levels of research anxiety of faculty members. The first category, *educational variables,* includes possible independent variables that have roots in the actual graduate and pre-employment experience of the faculty member. These variables are confidence in research practices, confidence in statistical procedures, math competence, computer competence, number of hours or credits in research/statistics courses taken in a graduate program, and the research prowess of the chair of the graduate committee. In essence, this category explores the faculty members'

preparedness upon entering higher education. Also, it looks at how faculty members perceive their math and computer skills upon entering a position in higher education. Blackburn, Horowitz, Edington, and Klos (1986) noted that faculty members who received strong or adequate instruction during their graduate work may experience less stress when engaging in research endeavors. The researchers also found lower anxiety levels could lead to higher confidence levels in their professional environment and that faculty members with higher self-esteem may become better at reducing stress levels from the pressures of higher education. These findings support the notion that a well-grounded graduate program may stem the propagation of research anxiety.

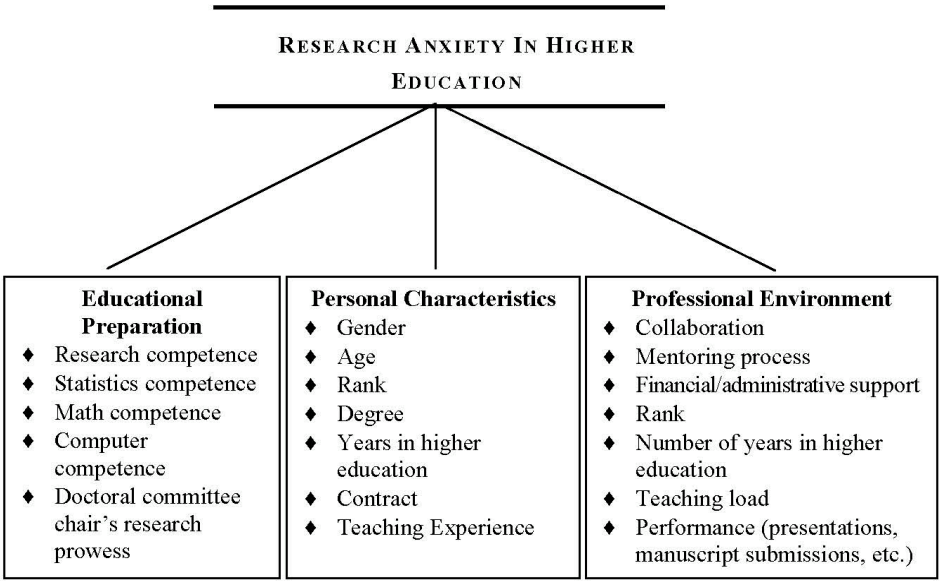

Figure 1. *Theoretical Model Showing Hypothesized Contributors to Research Anxiety*

The second category includes *personal characteristics* that may add to research anxiety. The individual's attributes could manifest themselves in the form of established perceptions in higher education and society of gender, age, and ethnic origin. Past researchers have noted that female and junior faculty members are lagging behind experienced male faculty members in research productivity and that female faculty members experienced higher levels of stress (Gmelch, Wilke, & Lovrich, 1986; Sax et al., 1996; Smith, Anderson, & Lovrich, 1995). Also, other authors have noted, due to job related stress, that minority faculty members perceive themselves to be behind in

the productivity element of higher education when compared to their white colleagues (Smith & Witt, 1993, Thompson & Dey, 1998).

The third category proposes that characteristics associated with the *professional environment of* faculty members may cultivate research anxiety. These characteristics include the pressure to publish in particular departments, options of collaboration with other researchers inside and outside the department, mentor relationships, financial/administration support of research efforts, rank, and class load (Levine, 1997). Higher education is usually broken down into three components, namely teaching, research and service. This category explores how environmental elements possibly add to anxiety when it comes to research productivity mixed with teaching and service.

The level of success in these three areas may be decreased or limited by anxiety caused when a faculty member is not confident they can design and carry out meaningful, accurate research (Seiler & Pearson, 1985). This anxiety toward research productivity may manifest itself in the graduate program of the prospective faculty member, be an inherent personal characteristic, or may be enhanced in a departmental atmosphere that does not encourage collaboration in research affairs or initiate a mentoring program for junior faculty. Understanding where research anxiety originates and how it is being propagated during the professional experience of a faculty member could provide pertinent information for administrators to better prepare and support potential and present faculty members in the area of research.

Summary

Table 1 contains a listing of 13 prominent studies regarding anxiety of faculty members in higher education. The studies dating from 1984 to 1998, representing the most recent studies on research anxiety, have been placed in order from latest to earliest. Authors in all 13 studies reported that research endeavors and pressures to publish scholarly research cause anxiety in faculty members. It is the only variable found to be related to anxiety levels of faculty in all of the studies, but the focus of each study differed which may be the reason other variables did not appear to be a significant stressor. Even if that were the case, it is still evident that research and publishing pressures give cause for concern and merit further investigation as to how to alleviate anxiety associated with these factors.

This study addresses research anxiety of human resource education faculty. This population was selected because the authors have personally observed substantial research anxiety among various faculty across the country as they conducted research and worked with researchers in various sectors of this field. No recent study had addressed research anxiety in this population. Although minimal research had been conducted in the area of research anxiety of human resource education faculty, research from other fields cited in this manuscript indicated that similar research anxiety may exist in human resource education.

Table 1. *Top Five Variable Categories Related To Anxiety of Faculty Members*

Findings of 13 Prominent Research Studies	Top 5 Stress Categories in Literature				
	Self-expectations	Time Restraints	Research, Funding & Pressures to Publish	Professional Status: Tenure Salary & Rank	Personal Variables: Gender, Age Ethnic Origin
Thompson & Dey (1998)	x	x	x	x	x
Gertrude et al. (1996)		x	x	x	x
Marcy (1996)			x	x	x
Smith et al. (1995)	x	x	x	x	x
Smith & Witt (1993)		x	x		x
Burns & Gmelch (1992)	x		x		x
Grant (1991)		x	x		
Perlberg & Kremer-Hayon (1988)			x	x	
Richard & Krieshok (1989)			x	x	
Keinan & Perlberg (1987)	x	x	x	x	x
Gmelch et al. (1986)	x	x	x	x	x
Seiler & Pearson (1985)	x	x	x		x
Gmelch et al. (1984)	x	x	x	x	x

Method

Population and Sample

The target population was human resource education faculty members holding academic appointments within research universities. The accessible population included faculty members holding academic appointments at the rank of lecturer or higher within departments associated with the University Council for Workforce and Human Resource Education (UCWHRE). This population was selected because it was the only reliable and substantially accurate listing available of human resource education faculty and also because UCWHRE institutions have extensive or intensive research programs. The sample was randomly chosen from the frame of faculty members associated with UCWHRE. It was determined, by visiting university home pages, and through personal communication with individual departments, that the population frame for this organization was 343 faculty members (http://

www.hre.uiuc.edu/ucwhre/Directory_UCWHRE.pdf). The 20 member universities of the UCWHRE are listed in Table 2.

Cochran's sample size formula, including the small population correction formula, was used to calculate a minimum required sample size of 88 faculty members (a = 05, estimate of SE = .03, estimate of SD = .83) for the study (Cochran, 1977). Since the researcher anticipated a response rate in the 50-60% range, the sample size for the study was set at 156.

Table 2. *The University Council for Workforce and Human Resource Education, Participating Universities.*

♦ Auburn University	♦ Pennsylvania State University	♦ University of Minnesota
♦ Colorado State University	♦ Southern Illinois University	♦ University of Missouri-Columbia
♦ Louisiana State University	♦ Texas A&M University	♦ University of Nebraska-Lincoln
♦ North Carolina State University	♦ University of Arkansas	♦ University of Tennessee
♦ Ohio State University	♦ University of Georgia	♦ University of Wyoming
♦ Oklahoma State University	♦ University of Idaho	♦ Virginia Polytechnic Institute and State University
	♦ University of Illinois	
	♦ University of Kentucky	

Instrumentation

The *Higgins-Kotrlik Research Anxiety Inventory* was developed via a thorough review of existing research and based on the theoretical model presented earlier. A questionnaire consisting of four sections was designed to measure faculty members' perceptions regarding research anxiety, and was configured into a booklet format. Questions in sections one, two, and three were rated using a five point Likert-type scale with numerical ratings as follows: 1- strongly disagree, 2- disagree, 3- neutral, 4- agree, 5- strongly agree. **Section 1** contained 18 items focusing on the concept of research anxiety. This section examined the perceptions of the faculty members regarding how confident they are in designing and conducting relevant research and how they feel their research is accepted by their peers. **Section 2** contained 18 items focusing on the faculty member's professional research environment. It examined the actual working environment of the faculty member as it relates to support from the administration and other faculty members as well as examining the amount of pressure placed on the faculty members to produce scholarly research. **Section 3** of the instrument contained 14 items focusing on the educational preparation of the faculty members in the area of research. The questions were intended to investigate the effectiveness of the graduate programs completed by the faculty members regarding research procedures and statistical methodology. **Section 4** contained 11 items designed to collect pertinent demographic information regarding the faculty members

participating in the study. The questions in this section focused on the status of the participants with regard to employment in higher education.

A panel of experts in the field reviewed the instrument for face and content validity. Their comments were beneficial in revising the instrument. A pilot test of the instrument was conducted to assess the validity (face and content) and reliability of the *Higgins-Kotrlik Research Anxiety Inventory* and the other two scales of the instrument. The pilot test was conducted with 100 UCWHRE faculty who had not been selected in the random sample for the study. This process aided the researcher in identifying items in the instrument that needed modification. The pilot test attempted to identify any possible problems associated with the design of the instrument as well as any problems in the data collection procedures. Minor modifications were made to the instrument based on the analysis of the data from the pilot study.

Data Collection

Data collection was conducted using recommendations by Dillman (1978). The faculty members received a packet containing a cover letter explaining the intent and significance of the study, a questionnaire, and a stamped, self-addressed envelope. Those who did not respond to the first mailing within a two week time period received a subsequent mailing containing the identical contents used in the initial mailing. A telephone follow-up was conducted with a random sample of 50 individuals in the non-respondent category two weeks after the second mailing. The anonymity of all respondents was guaranteed, but they were made aware of the coding system to guard against duplicate responses.

Data Analysis

A *t*-test procedure was used to determine if differences existed between the respondent group and those who participated in the telephone follow-up process on the key variables (graduate preparation, personal characteristics, and professional environment) of the study. The grand mean scores of the three primary variable scales within the instrument were used for the *t*-test procedure. Since no significant differences existed, the data were combined for further analyses. Descriptive statistics were used to describe the demographic and personal variables as well as all the data from three scales of the instrument. The alpha level for the study was set *a priori* at .05. Pearson, Spearman, and point-biserial correlations were used to address the correlations described in objective 3. Forward multiple regression was used for objective 4.

Findings

The sample consisted of 156 university faculty members. Of those who were sampled, 97 returned the survey and a telephone follow-up garnished another eight

responses, totaling 105 completed instruments (67%). All of the responses (*N*=105) were used for the analyses required by the objectives of this study. Table 3 shows, through the employment of independent samples *t*-tests, that there were no significant differences between the mail and telephone responses on the *Higgins-Kotrlik Research Anxiety Inventory*, the Professional Environment Inventory, or the Educational Preparation Inventory.

Table 3. *Comparison of Respondents and Non-Respondents on the Higgins-Kotrlik Research Anxiety Inventory, The Professional Environment Inventory, and The Educational Preparation Inventory*

Scale	Respondents[a]		Non-Respondents[b]		*df*	*t*	*p*
	M	*SD*	*M*	*SD*			
Higgins-Kotrlik Research Anxiety Inventory	41.02	10.99	43.05	8.88	103	.57	.46
Professional Environment Inventory	59.00	10.86	59.86	11.64	103	.22	.78
Educational Preparation Inventory	50.61	8.42	50.63	6.14	103	.01	.33

[a]*n* = 97 (mail). [b]*n*= 8 (telephone).

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Demographic Characteristics of UCWHRE Faculty Members

Objective One was to explore selected demographic characteristics of the faculty included in the study. Table 4 shows the age, number of years employed in higher education and rank of the faculty members. The average age of the faculty members was 52.33, with a range from 38 to 70 years. The average number of years employed in higher education was 18 years with a range from 2 to 37 years. The table also contains the average amount of time that participating faculty members reported their departments allocated them personally for conduct teaching, research, service, and administrative duties. The respondents reported that the mean percent of appointments was 53.70% for teaching, 21.67% for research, 14.21% for service, and 8.83% for administrative tasks.

Table 5 displays the data on the other demographic and personal variables. Males made up 74 (72.10%) of the sample with the remaining 30 (28.80%) respondents being female. Fifty (48.10%) participants held the rank of full professor, 32 (30.80%) were classified as associate professors, 19 (18.30%) were listed as assistant professors, 1 (1.00%) was categorized as a lecturer, and 2 (1.90%) of the respondents labeled themselves as administrative personnel. Of the participants, 65 (63.10%) held a Ph.D., 37 (35.90%) held an Ed.D., and one (1.00%) respondent reported holding a Master's degree.

Table 4. *Age, Number of Years Employed in Higher Education and Time Allocated for Teaching. Research, Service and Administrative Duties*

Demographic	*M*	*SD*	Range
Age (years)	52.33	7.51	38-70
Years employed in Higher Education	18.55	8.88	2-37
Average percentage of appointment allocated to:			
Teaching	53.70	26.00	0-100%
Research	21.67	15.92	0-60%
Service	14.21	15.79	0-95%
Administrative	8.83	24.30	0-100%

Note. $N = 105$

Regarding the possibility of being influenced by a mentoring program, 70 (66.70%) faculty members reported that there departments had no official mentoring program, while 34 (32.7%) responded that there was an unofficial mentoring system that they were either the benefactor or facilitator. Fifty-nine (56.20%) of the faculty members reported they held nine month contracts, as opposed to 45 (42.90%) faculty members holding a 12 month contract. Almost one-third (32 or 30.50%) taught a research methods course, and 6 (5.70%) taught a statistics course.

Research Anxiety of UCWHRE Faculty

The second objective of the study was to explore the level of research anxiety in UCWHRE faculty members. The researcher developed the *Higgins-Kotrlik Research Anxiety Inventory* to measure the construct of research anxiety in higher education. Factor analysis was used to determine if the items in the represented a single construct, with all items forced into one main construct. All of the items loaded at or above .3, which is considered to be the minimum acceptable factor loading level (Hair, Anderson, Tatham, & Black, 1998). The item with lowest loading of .31 was "When reading research articles, I am apprehensive about being able to synthesize the findings". The item with the highest loading of .78 was "I am confident when conducting the data analysis of a study for possible publication in a refereed research journal". Table 6 displays the one factor solution, with the items arranged in order by factor loading level.

The responses to the 18 item inventory, based on the five point Likert type scale used, ranged from 19 to 68. The top quartile, 49-68, represents high levels of research anxiety, the two middle quartiles, 34-48, represent moderate levels of research anxiety, and the bottom quartile, 19-33, represents low levels of research anxiety (see Table 7).

Table 5. *Professional Demographic Information of UCWHRE Faculty Members*

Professional Variables	*F*	%
Degree Held		
Master's	1	1.00
Ed.D	37	35.90
Ph.D.	65	63.10
Rank		
Instructor/lecturer	1	1.00
Assistant Professor	19	18.30
Associate Professor	32	30.70
Full Professor	50	48.10
Administrative	2	1.90
Official Mentoring Program		
Department offered an official mentor program	34	33.30
Department did not offer an official mentor program	70	66.70
Type of contracts held		
9 month academic contract	59	56.10
12 month academic contract	45	43.90
Research methods		
Taught course	32	31.50
Did not teach course	72	68.50
Statistics methods		
Taught course	6	5.70
Did not teach course	98	94.30
Gender		
Male	74	71.20
Female	30	28.80

Table 8 shows the responses to the 18 items contained in the scale. Item 16, "I need to improve my statistical skills", had the highest mean score of 3.68 (*SD* = 1.01). Item 6, "I am confident when writing the findings for a research study", had the lowest mean score at 1.62 (*SD*=.64), indicating a lack in confidence when writing the findings for a research study. The Cronbach's *alpha* for the scale was .89. Litwin (1995) reported that an *alpha* level above *a*=.70 represents good reliability. The scaled date from the *Higgins-Kotrlik Research Anxiety Inventory* revealed an overall summated mean of 41.38. Using the research anxiety levels in Table 7, the interpretation of the means indicate a moderate level of research anxiety existed among UCWHRE faculty members.

Table 6. *One Factor Solution for the Higgins-Kotrlik Research Anxiety Inventory*

Item	Factor Loading
I am confident when conducting the data analysis of a study for possible publication in a refereed research journal	.79
I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.	.78
When I conduct research, I worry about the possibility of using incorrect data analysis.	.73
I am confident when writing the findings for a research study.	.70
When I conduct research, I fear that it is poor compared to others in my field.	.69
When working on a research project, I experience anxiety	.68
I am confident when writing the conclusions of a study for possible Publication in a refereed research journal	.64
I would (or do) have difficulty reviewing manuscripts for refereed research journals	.64
I often feel uncomfortable when discussing research methods.	.64
I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.	.63
It bothers me that my research may not be judged as acceptable by reviewers for research journals.	.62
I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.	.56
I need to improve my statistical skills.	.51
It bothers me that my research may not be judged as quality work.	.49
When I conduct research, I worry about the possibility of the manuscript not being accepted for publication.	.47
I need to improve my research skills.	.43
I produce research that is respected by my peers.	.423
When reading research articles, I am apprehensive about being able to synthesize the findings	.31

Table 7. *Research Level of University Council for Workforce and Human Resource Education Faculty Members*

Respondent Range	Quartiles	Research Anxiety Category
19-33	0-25%	‘Low’ level of research anxiety
34-48	26-75%	‘Moderate' level of research anxiety
49-68	76-100%	‘High' level of research anxiety

Table 8. *Responses to the Higgins-Kotrlik Research Anxiety Inventory*

Item	*Higgins-Kotrlik Research Anxiety Inventory* Items	*M*	*SD*
16	I need to improve my statistical skills.	3.68	1.01
15	I need to improve my research skills.	3.37	1.09
11	It bothers me that my research may not be judged as quality Work.	2.85	1.20
9	It bothers me that my research may not be judged as acceptable by reviewers for research journals.	2.81	118
18	It bothers me that my research may not be judged as acceptable by reviewers for research journals.	2.69	1.20
12	When working on a research project, I experience anxiety.	2.64	1.37
14	I often feel uncomfortable when discussing research methods.	2.45	1.22
10	When I conduct research, I worry about the possibility of using incorrect data analysis.	2.33	1.12
3[a]	I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.	2.05	.88
13	When I conduct research, I fear that it is poor compared to others in my field.	2.04	1.17
5[a]	I am confident when conducting the data analysis of a study for possible publication in a refereed research journal.	2.01	.97
8	When reading research articles, I am apprehensive about being able to synthesize the findings	1.95	.97
1[a]	I produce research that is respected by my peers.	1.90	.80
4[a]	I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.	1.84	.90
17	I would (or do) have difficulty reviewing manuscripts for refereed research journals.	1.78	.89
7[a]	I am confident when writing the conclusions of a study for possible publication in a refereed research journal	1.72	.77
	I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.	1.67	.63
6[a]	I am confident when writing the findings for a research study.	1.62	.64

Note. N = 105. Scale for the *Higgins-Kotrlik Research Anxiety Inventory* is as follows: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree. Summated Mean = 41.38.

[a]Items have been reverse scored.

Professional Environment of University Faculty Members

Objective two also sought to explore the professional environment of the faculty members that participated in the study. The instrument contained a scale, the Professional Environment Inventory, which was constructed to assess the current professional climate that the faculty members are confronted with in higher education. Table 9 displays the responses to the 18 item scale. The high mean of 4.10

belonged to "My department places too much emphasis on teaching." The faculty members agreed that their departments placed too much emphasis on teaching. The low mean, 1 .89, was for "My department offers desirable teaching assignments as a reward for publishing in refereed research journals." The respondents strongly disagreed that their departments offered desirable teaching assignments as a reward for publishing in research journals. The overall reliability for this scale was a = .85. The mean Professional Environment Inventory score was 56.07 out of a possible 70 (SD = 10.86).

Educational Preparation of University Faculty Members

The third portion of objective two was to examine the graduate educational preparation of the respondents. The final scale of the survey, The Educational Preparation Inventory, was constructed to give the researcher data that would define the faculty members' perceptions of their personal graduate experience. Table 10 displays the responses to the 14 item scale. Of the responses, "My presentation skills were adequate for success in higher education" had the highest mean of 4.39. The respondents agreed that their graduate experience provided adequate preparation regarding presentation skills. The lowest mean of 2.22 was for "I published research in peer reviewed journals with other students during my graduate course work." The faculty members disagreed that they published research with other students during their graduate experience. The Cronbach's Alpha reliability coefficient for this scale was .79. The mean Education Preparation Inventory score was 50.61 out of a possible 70 (SD = 8.25).

Relationship Between Selected Demographic Variables and Research Anxiety

Objective three sought to determine if significant correlations exist between selected demographic variables and the research anxiety of University Council faculty members. The demographic variables in question were rank, gender, age, mentoring, the number of tenure track faculty members in the department, type of contract held, highest degree held, research methods classes taught, statistics class taught, and years employed in higher education. The coefficients were interpreted using Davis'(1971) set of descriptors.

The correlation coefficient for rank was r_s = -.38, which is a moderate negative correlation that suggests as one progresses in rank in higher education, research anxiety declines. Whether a faculty member had a formal research mentor (dichotomous) had a low correlation coefficient of to = .21, suggesting that a formal mentoring program helped alleviate research anxiety. The variable age had a low correlation coefficient of -. 19, revealing that as one ages, research anxiety lessens. The variables regarding teaching research and statistics courses had coefficients of

Table 9. *Responses to the Professional Environment Inventory*

Item	Professional Environment Inventory Items	*M*	*SD*
3[a]	My department places too much emphasis on teaching.	4.10	.91
18	I involve students, as co-researchers, in my efforts to publish in refereed research journals.	3.90	.99
6[a]	My department discourages collaboration on research projects with other faculty members within my department.	3.90	1.17
12	My peers recognize my efforts to publish in refereed research journals.	3 72	.93
13	My peers support my efforts to conduct research.	3.70	.96
14	My university administration recognizes my efforts to publish in refereed research journals.	3.69	1.01
15	My university administration supports my efforts to conduct research.	3.56	1.07
1[a]	My department places too much emphasis on research.	3.51	1.15
5	My department promotes collaboration on research projects with other faculty members outside my department.	3.48	1.17
4	My department promotes collaboration on research projects with other faculty members within my department.	3.48	1.15
16	My department encourages collaboration when publishing refereed journal manuscripts.	3.44	1.09
2[a]	My department places too much emphasis on publishing in refereed research journals.	3.37	1.22
10	My department provides travel money to support my research and publishing endeavors.	3.07	1.29
I l	My department has asked me to serve as a research mentor for new faculty members.	2.90	1.32
17	A senior faculty member has served as a research mentor to me.	2.55	1.41
7[a]	My teaching load often makes it difficult to find time for conducting research projects.	2.46	1.24
9	My department adequately finances my research agenda.	2.35	1.13
8	My department offers desirable teaching assignments as a reward for publishing in refereed research journals.	1 89	.89

Note. $N = 105$. Scale for the Professional Environment Inventory is as follows: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree. Summated $M = 56.07$ ($SD = 10.86$)

[a]Items have been reverse scored.

Table 10. *Responses to the Educational Preparation Inventory*

Item	Educational Preparation Inventory Items	*M*	*SD*
5	My presentation skills were adequate for success in higher education.	4.39	.64
6	My library skills were adequate for success in higher education.	4.20	.78
7	My doctoral committee chair was a highly respected researcher in his/her field.	4.06	1.08
8	My doctoral committee chair adequately advised students on research projects.	4.04	1.11
1	My research methodology skills were adequate for success in higher education.	4.03	.83
9	My doctoral committee chair encouraged me to publish research in peer reviewed research journals.	4.00	1.18
4	My computer skills were adequate for success in higher education.	3.96	.95
3	My mathematic skills were adequate for success in higher education.	3.94	.82
2	My statistics skills were adequate for success in higher education.	3.80	.95
11	My doctoral committee chair was a prolific publisher.	3.43	1.32
10	My doctoral committee chair collaborated with me on publishing research manuscripts.	3.03	1.52
14	I published research in peer reviewed journals on my own during my graduate course work.	2.76	1.44
12	I published research in peer reviewed journals with other faculty members during my graduate course work.	2.75	1.47
13	I published research in peer reviewed journals with other students during my graduate course work.	2.22	1.27

Note. $N = 105$. Scale for the Educational Preparation Inventory is as follows: 1-strongly disagree, 2- disagree, 3-undecided, 4-agree, 5-strongly agree. Summated $M = 50.61$ ($SD = 8.25$).

r = .35 and = .21, indicating moderate and low correlations, respectively. Interestingly, these coefficients suggest that those faculty members who teach research methods and statistics courses (dichotomous) experience higher anxiety levels when it comes to research. The number of years employed in higher education had a coefficient of $r = -.38$, suggesting that as the years of employment increased, research anxiety decreased. No relationships existed between research anxiety and gender, number of tenure track faculty in the respondent's department, highest degree held (Ed.D. or Ph.D.), and type of contract (9 or 12 months). Table 11 displays the relationships between research anxiety and the selected variables.

Table 11. *Correlations Between the Higgins-Kotrlik Research Anxiety Inventory and Selected Demographic Variables.*

Demographic Variables	*Higgins-Kotrlik Research Anxiety Inventory*			
	r	Interpretation	*P*	*N*
Rank[a]	-.38	Moderate	<.01[d]	104
Years of employment in higher education[b]	-.37	Moderate	<.01[d]	104
Number of tenure track faculty members in the department[b]	NS[e]	None	.3 1	102
Age[b]	-.19	Low	.02[d]	104
Gender[c]	NS[e]	None	.09	102
Highest degree held[c]	NS[e]	None	.21	103
Type of contract[c]	NS[e]	None	.15	104
Mentor Program[c]	.21	Low	.01[d]	104
Taught research methods courses[c]	.35	Moderate	<.01[d]	104
Taught statistics courses[c]	.21	Low	.01	104

Note. Interpretations according to Davis's (1971) descriptors of association: .01-.09 (negligible), .10-.29 (low), .30-.49 (moderate), .50-.69 (substantial), .70-.99 (very high), and 1.0 perfect.
[a]Spearman's Rho. [b]Pearson's Product Moment. [c]Point Biserial. [d]Significant correlations. [e]=Not significant.

Model to Explain Variance in the *Higgins-Kotrlik Research Anxiety Inventory*

Objective four sought to determine if selected variables explain significant portions of variance in research anxiety in University Council faculty members. Using the forward multiple regression procedure, the researcher explored the amount of variance selected independent variables (educational preparation, professional environment, gender, rank, years employed in higher education, and age) explained in research anxiety associated with UCWHRE faculty members. Six potential explanatory variables were entered into the analysis, which resulted in the analysis having 17 cases per independent variable. According to Hair, Anderson, Tatham, & Black, (1998) "Although the minimum ratio is 5 to 1, the desired level is between 15 to 20 observations for each independent variable to ensure . When this level is reached, the results should be generalizable if the sample is representative." (P. 166)

The collinearity test revealed that no multicollinearity existed in the regression model, as all VIF values were under 2.00 (Neter, Kutner, Nachtsheim, & Wasserman, 1996). A histogram aided in the diagnosis which confirmed the normality of the distribution. The regression analysis revealed that only educational preparation, years employed in higher education, and professional environment were significant explanatory variables. These three variables explained 48% of the variance found in the dependent variable, research anxiety, which is a large effect size according to Cohen (1988). As educational

preparation level, years employed in higher education, and quality of professional environment increased, the UCWHRE faculty members' research anxiety decreased. Table 12 displays the regression analysis.

Table 12. *Forward Multiple Regression Analysis of Whether Selected Variables Explained the Variance in Research Anxiety*

Source of Variation	*SS*	*df*	*MS*	*F*	*P*
Regression	5815.47	3	1938.49	29.93	<.01
Residual	6282.39	97	64.76		
Total	12097.86	100			
Variables that entered the equation			R^2 Cum	*b*	*P*
Educational Preparation			.30	-.50	<.01
Years employed in higher education			.45	-.37	<.01
Professional Environment			.48	-.17	.02
Variables that did not enter the model				*t*	*P*
Rank				-.68	.49
Gender				.10	.91
Age				.38	.70

Conclusions

The first objective of the study was to determine selected demographic characteristics (gender, age, rank, highest degree held) of university faculty members. The typical UCWHRE faculty member was male, held the rank of full professors, possessed a doctoral degree, and was 52 years old.

Objective two was to determine if research anxiety existed in university faculty members. The data from the *Higgins-Kotrlik Research Anxiety Inventory* revealed that UCWHRE faculty have moderate levels of research anxiety. Most faculty members felt a need to improve both research and statistics skills regarding research in higher education and were not confident when writing the findings to their studies. Faculty members also were not confident that their peers respect their research. This conclusion is supported by Thompson and Dey (1998) who found that faculty experience anxiety due to research pressures as well as teaching loads and time restraints associated with the job environment.

The third objective explored if significant correlations existed between the independent variables (educational preparation, selected personal characteristics, and professional environment) and the research anxiety of university faculty members. *Moderate* correlations exist between research anxiety and rank, research methods courses taught, and years of employment in higher education. As rank and years

experience in higher education increase, research anxiety decreases while research anxiety increases for those who teach research methods classes. *Low* correlations exist between research anxiety and whether the faculty member participated in a research mentoring program, the age of the faculty member, and experience teaching statistics courses. As age increases, research anxiety decreases while research anxiety increases for those who have a mentor program in their university and for those who teach statistics classes. The relationship between having a faculty mentor and research anxiety supports Levine (1997) who indicated that mentoring relationships may be related to research anxiety. No relationships exist between research anxiety and gender, the number of tenure track faculty members within their department, and type of contract currently held (9 or 12 months). The fact that gender was not related to research anxiety does not appear to support several studies that found that female faculty experience more stress than men (Gmelch, Wilke, & Lovrich, 1986; Sax et al., 1996; Smith, Anderson, & Lovrich, 1995).

Objective four was to determine if selected variables explain significant portions of variance regarding research anxiety in university faculty members. Educational preparation, professional environment, and years employed in higher education combine to explain a large amount of variance in research anxiety. As educational preparation level, years employed in higher education, and quality of professional environment increases, UCWHRE faculty members' research anxiety decreases. No other variables studied explain research anxiety.

The research model developed for this study was generally supported by the data from this study. Both educational preparation and professional environment emerged as strong explanatory variables in the regression analysis, explaining a large proportion of the variance in research anxiety. Although several of the personal characteristics were correlated with research anxiety, two were not related to the dependent variable in this study, namely, gender and contract length.

Implications and Recommendations

This exploratory study revealed that there is indeed anxiety in higher education with regards to scholarly productivity. The data suggest that research anxiety may be lessened by certain personal characteristics such as holding a higher rank at a university, years of experience in higher education, and advance in age. The results also show that as a faculty member gains experience in higher education, the stresses of the research process lessen. The results also suggest that young faculty members are more prone to experience research anxiety. Since the professional environment is also related to research anxiety, administrators may wish to take steps to help alleviate the research anxiety experienced by junior faculty.

The educational preparation was a significant contributor to research anxiety. Those who perceive their graduate programs prepared them for a position in higher education experience less research anxiety. Administrators may want to ensure that

graduate students are introduced to the publishing process and urged to take part in research projects during their graduate experience. The faculty members reported that they did not, for the most part, publish with other faculty members, other students, or on their own during their graduate experience. A better graduate preparation and a more collaborative, friendly department may be two factors to consider when improving the scholarly productivity of faculty members. Universities that prepare potential faculty members may also be able to reduce the research anxiety experienced by their graduates who are employed in UCWHRE institutions by improving the quality of their research preparation.

Further Research

Future researchers may want to explore the perceptions of graduate students currently enrolled in research universities regarding scholarly productivity and the anxiety that accompanies it. Also, a closer look at perceptions of faculty members who have taken part in an official or unofficial research mentoring program compared to those who did not have this option may reveal the significance of mentoring new faculty members regarding research anxiety. Studying the correlations between publishing record and research anxiety may also prove instrumental in determining variables associated with research anxiety.

The research anxiety construct should be studied further. Additional factor analysis of the *Higgins-Kotrlik Research Anxiety Inventory* data should be conducted to determine if there are any underlying subconstructs within the research anxiety construct. Also, even though the *Higgins-Kotrlik Research Anxiety Inventory* has sound psychometric qualities, attempts should be made to improve the measurement ability of this instrument.

Several other questions related to research anxiety should be addressed.

- What is the current status of the publishing process in human resource education fields?
- Are appropriate publishing outlets available for the type of research that are being conducted?
- Do HRE faculty have specific problems or an easier time getting published or promoted and tenured than those in other fields?
- What are the acceptance rates and the level of "rigor" in human resource education publications?
- What is the status of human resource education programs in the academy with special emphasis on career and technical education? Since some career and technical teacher education departments and programs have been discontinued or heavily restructured by universities as a result of a decrease in federal funding for research and development, there could be a

relationship between the status of these programs and the research anxiety of these faculty.

This study is like so many others. It has spawned several research questions that need to be answered by future research endeavors.

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The Authors

Chadwick C. Higgins is an Assistant Professor in the 4-H Youth Development Center at West Virginia University, P.O. Box 6031, 8th Floor Knapp Hall, Morgantown, WV, 26506-6031. Dr. Higgins specializes in curriculum development, program evaluation, and personnel development. Phone: (304) 293-2796 Extension3430. E-mail: chad.higgins@mail.wvu.edu.

Joe W. Kotrlik is a Professor in the LSU School of Human Resource Education and Workforce Development, 142 Old Forestry Bldg., S. Stadium Drive, Baton Rouge, LA 70803-5477. Dr. Kotrlik specializes in program and personnel performance evaluation. Phone: 225-578-5753. Cell: 225.241.5758. E-mail: kotrlik@lsu.edu.