

Understanding Barriers and Supports to Proposal Writing as Perceived by Female Associate Professors: Achieving Promotion to Professor

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ABSTRACT

Research administrators play many roles in higher education institutions. One of those roles involves encouraging and assisting faculty in the development of proposals for external funds. Becoming familiar with the barriers faced by faculty as they work to develop proposals is an important part of any research administrator's work. This article describes research conducted on the barriers and supports perceived by female associate professors at three state universities in Idaho as these faculty write proposals for external funds. Female associate professors are the focus of this article because recent research has shown that women do not progress to the rank of professor as quickly or as often as men do. After a review of the research, suggested solutions are presented to help female associate professors increase the number of proposals they write, and in turn, possibly increase their chances of achieving promotion.

INTRODUCTION

In 2005 several faculty and staff at Idaho State University (ISU) began work on a proposal to the National Science Foundation ADVANCE program. The ADVANCE program seeks to “develop systemic approaches to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce” (National Science Foundation, n.d.). The culture and climate of ISU were examined to determine what focus the ADVANCE grant should take to best accommodate the advancement of female faculty at the university. It became evident that women at ISU were achieving tenure and promotion to associate professor, but often either left ISU before reaching the rank of professor or did not go up for promotion to that rank, frequently staying at the associate professor level for most of their career.

Beginning with a review of the literature, this article considers the phenomenon of female faculty lagging behind male faculty in terms of reaching the rank of professor, not only at ISU but across the United States at degree-granting universities (Conley & Leslie, 2002). The literature reveals that the number of grant proposals submitted by faculty for external funds can be one facet of the academic rank promotion process. As such, this article describes research conducted by the authors, examining barriers and supports perceived by women faculty as they write proposals for external grant funds. This research could provide insight into some of the issues that hold women back, as well as those that can support them in their journey to the rank of full professor.

This research is important to research administrators as they assist and advocate for faculty. Pogatshnik (2008) wrote that research administrators must acknowledge “the duties, responsibilities and hurdles faced by...faculty colleagues” (p. 12) as they write proposals for external funds. When writing about research administrators’ work with faculty, Robinson (2008) stated, “However, when these two factions actually start communicating and understanding each other’s goals and issues, the resulting collaboration inevitably leads to significant improvements for everybody” (p. 40). Research, such as that described in this article, has the potential to assist research administrators in understanding hurdles faced by faculty.

RELATED LITERATURE

Increasingly since the 1960s, relaxed societal norms and values have opened the college experience to women (Nidiffer & Bashaw, 2001). Females now make up a higher percentage of students who earn an undergraduate degree. In 2001, 56% of college undergraduates were female (Hudson, Aquilino, & Kienzi, 2005). In 2004–2005, women received just under 60% of bachelor’s and master’s degrees (*Chronicle of Higher Education*, 2007).

Just as the number of female higher education students has increased, so has the number of female faculty (Nidiffer & Bashaw, 2001). Increasingly, women have earned advanced degrees, qualifying them to teach in institutions of higher education, and as more female students have entered college, women have been hired in staff and faculty positions to oversee and instruct female students (Nidiffer & Bashaw, 2001). Despite these gains, a difference in the numbers of men and women working as faculty in academia persists. More often, female faculty members are concentrated at master’s-, baccalaureate-, and associate-level institutions. In 2003, the only field that had more female than male faculty was education. Women as faculty are more prevalent at church-related institutions and are more often found in the lower academic ranks (i.e., instructors and assistant professors) (American Association of University Professors, 2004). These

demographics show that, in general, there are sex-based differences in terms of faculty numbers, rank, and institution affiliation. Table 1 offers several comparisons of female versus male students and faculty in higher education.

Table 1. Comparison of Significant Issues in Higher Education, Based on Gender

Issue	Women	Men
Number of students enrolled in higher education, fall 2002	57%	43%
Number of students graduating with bachelor's degree, 2003	57%	43%
Number students enrolled in higher education since 1981	54%	46%
Full-time faculty, fall 2003	38%	62%
Faculty with spouse in academia	49%	12%
Full professors, 2003	24%	76%
Assistant professors, 2003	45%	55%

Women do not advance in faculty rank as quickly, if at all, from associate professor to professor as men do. According to the National Center for Education Statistics (NCES; 2000), in 1997, 16% of female faculty at degree-granting institutions had attained the rank of professor; in 2005, 15% of female faculty were professors (i.e., a relative decrease over the 8-year period). White (2005) examined the status of women at several research universities and found that the number of female professors had not increased from 2000 to 2005. White stated: "Real progress in creating gender equity in the future will require acknowledging the gendered state of our current workplace" (White, 2005, p. 22).

Fowler et al. (2004) conducted research that revealed a tendency for women to stall at the associate professor rank. They discovered that female faculty at the University of Texas at Austin were not represented in the full professor ranks at the same level as male faculty. Fowler et al. proposed several hypotheses to explain this, and showed that a "leaky pipeline" (a term used to indicate that women drop out of the sciences at many stages of their career, such as high school science, after the bachelor's degree, when they go from assistant to associate professor) was not the reason for the difference over the years.

Geisler, Kaminski, and Berkley (2007) wrote of a process to document the patterns of women's "nonpromotion to full professor" (p. 145). Their study provided evidence at Rennselaer Polytechnic Institute and other universities, that women were not being promoted to the rank of professor as often as were men. Looking at salary data, time in position, and rank, Geisler et al. were able to track "nonpromotion" rates.

Stout, Staiger, and Jennings (2007) listened to the stories of female faculty to discover why women were not achieving the rank of professor as often as men. Consistent with the earlier work of Fowler et al. (2004), their study showed that it is not necessarily a "leaky pipeline" that is behind this phenomenon, but an "accumulation of disadvantages" (p. 124). According to Stout et al., "Future research should explore the ways in which institutional programs and social networks enable women to gain information and support for advancing to senior faculty ranks in the academy" (p. 140).

To achieve promotion to higher ranks, faculty at most universities and colleges must go through a process typically consisting of work assessment in three areas: teaching, research, and service. Although colleges and universities stress all three areas in faculty evaluation, there appears to be a growing focus on research accomplishments (Whicker, Kronenfeld, & Strickland, 1993). One of the measures of research success often used in the higher education promotion, tenure, and post-tenure review processes is the number of grants for external funds received by a faculty member (Bagilhole, 2002; Bentley & Black, 1992; Crossland, 1995; Gaugler, 2004; Goldsmith, Komlos, & Gold, 2001; Massey & Wilgern, 1995; Schoenfeld & Magnan, 1994). Schoenfeld and Magnan (1994) stated, “The tender loving care you devote to your students is equaled in importance only by the attention you bring to conceiving and writing research proposals” (p. 299). Similarly, Argon (1995) said, “Individuals will continue to feel pressured to receive funding and publish results as publication records and grantsmanship are used as evaluation criteria in promotion and tenure” (p. 234). Kleinfelder, Price, and Dake (2003) discovered that writing proposals for external grant funds is a faculty expectation at many, if not most, U.S. universities. In a review of job advertisements for faculty positions, Kleinfelder et al. (2003) found that a majority of the ads listed proposal writing as a position requirement. These authors also ascertained that many faculty felt external fund proposal writing was an expectation of their position. Applying for and receiving extramural funds is “fundamental to career development of faculty” (p. 208).

Daniel and Gallaher (1990), Monahan (1993), Dooley (1995), and Boyer and Cockriel (1998, 1999) addressed barriers and supports perceived by faculty as they write proposals for external funds. The results of these studies were used in developing the survey for this study. Several of these studies compared female and male perceptions of those barriers and supports.

Research has shown that female faculty in higher education, in general, do not submit as many proposals for external funds as do male faculty (Boyer & Cockriel, 1999; personal observation, 1996–2008; Waisbren et al., 2008), which may in turn negatively impact their survival and success in academia in terms of tenure and promotion. Mayer et al. (2008), in research examining gender differences in the academic advancement of faculty in medicine, found that female faculty did not publish as many papers or receive as many grants as male faculty. They further noted the “...slow progress of women in medicine in achieving academic rank” (p. 206).

STUDY PURPOSE

Given the above, the purpose of this study was to explore and understand the barriers and supports perceived by female faculty at the three state universities in Idaho—Boise State University (BSU), Idaho State University (ISU), and University of Idaho (UI)—as they write proposals to secure external funds for research, teaching, and service activities. In reviewing the responses of female associate professors, it may be possible to identify issues associated with the impediments and necessary supports likely to increase proposal writing for external funds, and in turn improve faculty chances of achieving promotion to professor.

This study does not include a comparison of the perceptions held by male faculty regarding barriers and supports for proposal writing. The focus of this study was exploratory and descriptive, not comparative. Men may or may not perceive the same issues as barriers and supports; as such, a comparative review of male/female faculty perceptions would be a useful next inquiry.

Research has shown that women have unique faculty perceptions and experiences in academia (Bain & Cummings, 2000; Perna, 2005; Stout, Staiger, & Jennings, 2007). For example, women, traditionally and still today handle the majority of issues related to home and family (Singer et al., 2001; Young & Wright, 2001). According to Young and Wright (2001), women spend approximately 80 hours/week on home and work responsibilities, while men spend an average of 57 hours on these same activities. Recent research conducted by Mason, Goulden, and Frasch (2009) showed that many doctoral students (future faculty) feel that academia and the tenure system are not family-friendly institutions. "Less than half of men (46 percent) and a only [sic] third of women imagine jobs in these settings to be somewhat or very family friendly" (p. 3). Given that women typically bear more responsibility for family/life issues, it is logical that when functioning in a setting perceived to be unfriendly toward families, their perceptions would and will differ from those of their male counterparts. This article focuses on this, along with the fact that female faculty face impediments in achieving the rank of professor. This article considers ways to help female faculty secure external funding (because the number of proposals for external funding written is often a criterion for promotion), and suggests that by mitigating barriers and providing supports, research administrators will be better able to help faculty generally, and female faculty in particular, achieve promotion to professor.

METHODOLOGY

After securing human subjects committee approval, 450 female faculty members at BSU, ISU, and UI were sent email messages about the purpose and significance of the study, use of the data, and confidentiality issues, as well as the process for participation in the electronic survey. The email also provided the URL for the survey, inclusive of informed consent information. In an effort to increase the response rate, second and third emails were sent as a follow-up to faculty who did not respond.

This study employed a mixed-methods design. Quantitative data were derived from a self-report survey employing a five-point Likert scale to reflect level of agreement with the survey items (37). The points on the Likert scale ranged from 1—strong barrier/support, 2—moderate barrier/support, 2.5—not applicable to me, but would serve as a barrier/support, 3—marginal barrier/support, and 4—not a barrier/ support to me (Gall, Gall, & Borg, 2003). Not a barrier/support was included because the five-point scale may have contained statements that described barriers or supports some of the respondents may not have perceived. Similarly, a sixth response option was added: not applicable to me but would serve as a barrier/support. Qualitative data were derived from two open-ended questions wherein respondents were asked to elaborate on the barriers and supports they perceived in writing proposals for external funds. While qualitative data were collected these data are not reported in this article since the emergent themes are not relevant to the issue of female associate professors moving to the rank of full professor.

Survey items were initially developed based on (a) information gleaned from the literature review, inclusive of other similarly targeted surveys; and (b) the researchers' expertise in research administration, attained through twelve years of experience in this field at ISU and seven years of previous experience at other universities. From this starting point, the instrument went through expert review and pilot testing. The final survey included 48 items—24 addressed barriers and 24 addressed supports to proposal writing for external funds (Boyer & Cockriel, 1999; Daniel & Galleher, 1990; Mayer et al., 2008; Monahan, 1993). Twenty-seven demographic questions were also asked.

Survey items were analyzed for inter-item reliability, in total, as well as relative to the groupings associated with: all barriers, work barriers, personal barriers; and all supports, work supports, and personal supports. Strong inter-item reliability was demonstrated among all scales ($\alpha > .60$ on each total variable scale). See Table 2. Because this study was exploratory and descriptive in nature, the quantitative analysis involved basic descriptive statistics, including response frequencies and corresponding percentages.

Table 2. Scale Titles, Number of Items, and Alpha Reliabilities for Survey

Title of Scale	Number of Items in Scale	Alpha Reliability
Total Barriers	23	.867
Work Barriers	11	.773
Personal Barriers	12	.781
Total Supports	23	.857
Work Supports	11	.850
Personal Supports	12	.721

Note: Survey responses were: 1 = Strong Barrier/Support; 2 = Moderate Barrier/Support; 2.5 = Not Applicable to Me, But Would Serve as a Barrier/Support; 3 = Marginal Barrier/Support; 4 = Not a Barrier/Support for Me

FINDINGS

Demographics

One-hundred and thirty-three surveys were returned for a response rate of 30%. Forty-one respondents (30.8%) were BSU faculty, 68 (51.1%) were ISU faculty, and 24 (18.0%) were UI faculty. The majority were employed full-time (96.2%), and 60.9% were tenured. Associate professors (39.8%) composed the largest faculty response group. Most of the respondents were in the Science, Technology, Engineering, and Mathematics (STEM) disciplines (49.6%), with 13.0% each in the Arts and Humanities, Education, and Social Sciences. As per survey directions, 75.5% of respondents at the associate professor rank indicated they were in a committed partnership, or living with a partner or significant other as of September 1, 2005, and 75.5% did not provide the majority of childcare for dependent children. Of those respondents at the associate professor level living with someone else, 47.2% reported that they did most of the housework. Eighty-six percent of the associate professors reported that they had written proposals for external funds, with 43.4% having written only one proposal. Awards for external funds had been received by 78.4% of the associate professors.

Barrier/Support Perceptions

This study showed that female faculty in higher education faced issues in terms of perceived barriers and supports to the proposal writing process. The presentation of these findings follows, first by work and personal barriers, and then by work and personal supports, as reported by respondents who had attained the associate professor rank.

Barrier perceptions. Table 3 provides an overview of female associate professor perceptions of work barriers relative to their efforts to write proposals for external funds. Work barriers were delimited to those focused on specifics in the workplace. Similarly, Table 3 displays

personal barrier perception findings—that is, barriers perceived to be individual and/or created by one’s choice of lifestyle.

Table 3. Frequencies of Work Barriers Perceived by Female Associate Professors as They Wrote Proposals for External Funds

Barriers—Work	Strong to Moderate Barrier	Not Applicable but Would Serve as a Barrier	Marginal Barrier	Not a Barrier for Me	Not Applicable
Heavy teaching load	45(84.9%)	2(03.8%)	2(03.8%)	4(07.5%)	0(00.0%)
Too many committee assignments	40(75.5%)	2(03.8%)	9(17.0%)	2(03.8%)	0(00.0%)
Lack of knowledge of funding sources	26(49.1%)	2(03.8%)	15(28.3%)	10(18.9%)	0(00.0%)
Inadequate support available at the institutional level to submit a proposal	17(32.0%)	1(01.9%)	18(34.0%)	16(30.2%)	1(01.9%)
Lack collaborators at my university	25(47.2%)	0(00.0%)	14(26.4%)	12(22.6%)	2(03.8%)
Advisor responsibilities for too many students	26(49.0%)	3(05.7%)	16(30.2%)	6(11.3%)	2(03.8%)
Writing grant proposals not required part of my job	10(18.9%)	7(13.2%)	11(20.8%)	10(18.9%)	15(28.3%)
Lack of funds to travel to meet with peers and funding agencies in preparation for writing proposals	29(54.7%)	1(01.9%)	12(22.6%)	11(20.8%)	0(00.0%)
Lack of peer network at my university to offer support in proposal development	30(56.6%)	1(01.9%)	7(13.2%)	14(26.4%)	1(01.9%)
Writing proposals for external funds is not valued at my institution	10(11.3%)	4(07.5%)	5(09.4%)	20(37.7%)	18(34.0%)
Writing proposals for external funds is not necessary in my discipline	7(13.2%)	3(05.7%)	13(24.5%)	18(34.0%)	12(22.6%)

Note: Survey responses were: 1 = Strong Barrier/Support; 2 = Moderate Barrier/Support; 2.5 = Not Applicable to Me, But Would Serve as a Barrier/Support; 3 = Marginal Barrier/Support; 4 = Not a Barrier/Support for Me

As Table 3 reveals, the issues most often reported as barriers to writing proposals for these faculty (i.e., rated as strong to moderate work barriers) were: heavy teaching load (84.9%); too many committee assignments (75.5%); lack of knowledge of funding sources (49.1%); lack of peer network at my university to offer support in proposal development (56.6%); and lack of

funds to travel to meet with peers and funding agencies in preparation for writing proposals (54.7%).

Table 4 reveals the following: Lack of a mentor (58.5%) and lack of training in proposal development (47.1%) were the two personal barriers perceived most often as strong barriers. A relatively high percentage of the respondents (approximately 45% to 60%) indicated that several of the barriers were not a barrier for them: discrimination because I am a woman (58.5%); fear of failing to get proposal funded (49.1%); and lack of women with children in my department to serve as a role model (49.1%).

Table 4. Frequencies of Personal Barriers Perceived by Faculty as They Wrote Proposals for External Funds

Barriers —Personal	Strong to Moderate Barrier	Not Applicable but Would Serve as a Barrier	Marginal Barrier	Not a Barrier for Me	Not Applicable
Feel pressure to have children	2(03.8%)	9(17.0%)	6(11.3%)	23(43.4%)	13(24.5%)
Lack of training in proposal development	25(47.1%)	1(01.9%)	12(22.6%)	14(26.4%)	1(01.2%)
Discrimination because I am a woman	6(11.4%)	3(05.7%)	11(20.8%)	31(58.5%)	2(03.8%)
Work not good enough to get funded	17(32.0%)	3(05.7%)	11(20.8%)	19(35.8%)	3(05.7%)
Uncomfortable using “life-friendly” policies such as stop the tenure clock for childbirth	6(11.5%)	15(28.3%)	1(01.9%)	17(32.1%)	14(26.4%)
Major childcare provider in family	5(09.5%)	17(32.1%)	5(09.4%)	10(18.9%)	16(30.2%)
Major care provider for adult family member	4(07.5%)	20(37.7%)	6(11.3%)	11(20.8%)	12(22.6%)
Lack of a mentor	31(58.5%)	0(00.0%)	12(22.6%)	8(15.1%)	2(03.8%)
Lack of publications so would not be competitive	24(45.3%)	4(07.5%)	16(30.2%)	6(11.3%)	3(05.7%)
Lack of other women in my department	9(17.0%)	4(07.5%)	6(11.3%)	23(43.3%)	11(20.8%)
Fear of failing to get proposal funded	9(17.0%)	3(05.7%)	14(26.4%)	26(49.1%)	1(01.9%)
Lack of women with children in my department to serve as a role model	4(07.6%)	4(07.6%)	6(11.3%)	26(49.1%)	13(24.5%)

Note: Survey responses were: 1 = Strong Barrier/Support; 2 = Moderate Barrier/Support; 2.5 = Not Applicable to Me, But Would Serve as a Barrier/Support; 3 = Marginal Barrier/Support; 4 = Not a Barrier/Support for Me

Support perceptions. Supports perceived by faculty when writing proposals for external funding were analyzed next. Table 5 displays faculty perceptions relative to work supports associated with writing proposals for external funds, and reveals that eight of the eleven work-related items were perceived as strong to moderate supports by over 50% of the respondents.

These included: writing proposals for external funding is valued at my institution (73.5%); adequate university infrastructure for writing and submitting proposals (71.6%); collaborators at my university (66.1%); and assistance in grant proposal preparation (66.0%). As indicated, institutional support was perceived as a strong support in the proposal writing process.

Table 5. Frequencies of Work Supports Perceived by Female Faculty as They Wrote Proposals for External Funds

Supports—Work	Strong to Moderate Support	Not Applicable but Would Serve as a Support	Marginal Support	Not a Support for Me	Not Applicable
Number of proposals written and submitted is used in tenure or promotion decisions	26(49.0%)	4(07.5%)	11(20.8%)	8(15.1%)	4(07.5%)
Proposal writing workshops are available	29(54.7%)	1(01.9%)	17(32.1%)	6(11.3%)	0(00.0%)
Assistance contacting funding sources	33(62.3%)	0(00.0%)	15(28.3%)	3(05.7%)	2(03.8%)
Assistance in grant proposal preparation	35(66.0%)	1(01.9%)	14(26.4%)	3(05.7%)	0(00.0%)
Writing proposals for external funding is valued at my institution	39(73.5%)	3(05.7%)	9(17.0%)	1(01.9%)	1(01.9%)
Internally funded grants providing release time to write proposals	34(64.2%)	3(05.7%)	11(20.8%)	3(05.7%)	2(03.8%)
A proposal writing support network made up of other faculty and staff at the university to talk with about ideas	25(47.1%)	3(05.7%)	18(34.0%)	5(09.4%)	2(03.8%)
Collaborators at my university	35(66.1%)	5(09.4%)	6(11.3%)	6(11.3%)	1(01.9%)
Adequate university infrastructure for writing and submitting proposals	38(71.6%)	0(00.0%)	11(20.8%)	2(03.8%)	2(03.8%)
Number of proposals awarded is used in tenure or promotion decisions	25(47.2%)	3(05.7%)	15(28.3%)	6(11.3%)	4(07.5%)
Writing proposals for external funds is necessary in my discipline	27(50.9%)	1(01.9%)	10(18.9%)	7(13.2%)	8(15.1%)

Note: Survey responses were: 1 = Strong Barrier/Support; 2 = Moderate Barrier/Support; 2.5 = Not Applicable to Me, But Would Serve as a Barrier/Support; 3 = Marginal Barrier/Support; 4 = Not a Barrier/Support for Me

Personal supports associated with writing proposals for external funds are displayed in Table 6. This table shows that 83.0% of respondents reported that their partner and/or family were supportive of academic work as a strong to moderate support. Other strong to moderate supports perceived when writing proposals for external funds were: confident that ideas are worthy of

external funds (77.4%), personal knowledge of proposal development process (69.8%), and a life partner who shares equally home/family duties (69.8%).

Table 6. Frequencies of Personal Supports Perceived by Female Faculty as They Wrote Proposals for External Funds

Supports—Personal	Strong to Moderate Support	Not Applicable but Would Serve as a Support	Marginal Support	Not a Support for Me	Not Applicable
“Life-friendly” policies in place at my university, such as stop the tenure clock or help finding a trailing spouse a job	12(22.6%)	10(18.9%)	10(18.9%)	8(15.1%)	13(24.5%)
Personal knowledge of proposal development process	37(69.8%)	0(00.0%)	11(20.8%)	4(0.5%)	1(01.9%)
Department chair is understanding when I must deal with life issues such as elder or childcare	25(47.2%)	11(20.8%)	8(15.1%)	5(09.4%)	4(07.5%)
A life partner who shares equally with home/family duties	37(69.8%)	8(15.1%)	2(03.8%)	2(03.8%)	4(07.5%)
University calendar is same as local school district	14(26.4%)	16(30.2%)	2(03.8%)	7(13.2%)	14(26.4%)
Partner and/or family is supportive of academic work	34(83.0%)	6(11.3%)	1(01.9%)	1(01.9%)	1(01.9%)
My desire to write proposals for external funds	34(64.2%)	2(03.8%)	14(26.4)	2(03.8%)	1(01.9%)
A mentor	33(62.3%)	4(07.5%)	9(17.0%)	3(05.7%)	4(07.5%)
Childcare provided by university	4(07.6%)	25(47.2%)	2(03.8%)	8(15.1%)	14(26.4%)
Confident that ideas are worthy of external funds	41(77.4%)	5(09.4%)	6(11.3%)	1(01.9%)	0(00.0%)
An adequate number of publications, so as to be able to show my expertise in the field	35(66.0%)	3(05.7%)	11(20.8%)	2(03.8%)	2(03.8%)
My work schedule is such that I have time to write proposals	27(51.0%)	5(09.4%)	7(13.2%)	14(26.4%)	0(00.0%)

Note: Survey responses were: 1 = Strong Barrier/Support; 2 = Moderate Barrier/Support; 2.5 = Not Applicable to Me, But Would Serve as a Barrier/Support; 3 = Marginal Barrier/Support; 4 = Not a Barrier/Support for Me

DISCUSSION

According to Park (1996):

Less external research monies, combined with an increased internal emphasis on the importance of research has made current tenure and promotion criteria increasingly difficult to meet. This has been especially true for women who may have little time (and in some cases, little inclination) for grant-writing and article-publishing given their

extensive teaching and service responsibilities and their tendency to take these responsibilities seriously. (p. 82)

Female faculty write fewer grant proposals for external funds than male faculty and, as noted above, proposal writing is often taken into account in tenure and promotion decisions (Boyer & Cockriel, 1998; Vesilind, 2000). This may play a part in the observed reality that women often seem to be “stuck” at the associate professor level (Stout, Staiger, & Jennings, 2007).

Because faculty are increasingly being encouraged and/or even required to bring in external funds, facilitating faculty efforts to write proposals for external funds generally, and female faculty efforts in particular, will require: (a) attending to the barriers and supports that impact those efforts; and (b) changes in university policy, practice, and structure to provide a more facilitative and ultimately level playing field for all faculty. The findings reported in this study revealed that the barriers and supports ranked most often as strong to moderate were those defined as work barriers/supports, a fact that validates using the information gathered from this study to provide foundational support for data-based decision-making regarding needed institutional changes. Based on this, the following recommendations are offered in terms of alleviating barriers and building supports.

Alleviating Barriers

As noted, heavy teaching loads and too many committee assignments were listed as strong to moderate barriers by over 75% of the respondents. Women are often assigned more courses to teach, especially those at the lower level, such as lecture courses, which often have large numbers of students and more grading work (Etzkowitz, Kemelgor, & Uzzi, 2000; Rosser, 2004). Women also tend to take on, through volunteering or assignment, more committee work, often because a lone female department member is needed to provide a female presence. This practice further disadvantages minority women (Toth, 1995). Department chairs need to monitor the course load and committee service of all faculty to ensure that female associate professors are not overloaded in terms of teaching and committee work, to the detriment of proposal writing efforts.

Waisbren et al. (2008) posited that a lack of female faculty at higher ranks who could serve as mentors for junior-level female faculty might add to the differences in the number of grant proposals written by women as compared to men. Thirty-one, or 58.5%, of the respondents in this research rated lack of a mentor as a strong to moderate barrier. Providing a mentoring system at universities could be of assistance as faculty move through the academic ranks. Mentors can provide guidance with the promotion process or specifically with the proposal development process (Gardiner et al., 2007). Gardiner et al. (2007) found “mentees attracting four times the external research income” as compared to faculty who did not have a mentor (p. 440). While not a traditional function of a research administration office, this office could: (a) initiate contact and collaboration with faculty development offices/centers to suggest faculty mentorship program curricula inclusive of information about, and networking opportunities for, external funding proposal writing; and/or (b) lead efforts to develop a proposal writing mentorship program.

Lack of travel funds to meet with peers and funding agencies was indicated as a strong to moderate barrier by 54.6% of the respondents. Lack of a peer network was reported by 56.6% of the respondents as a strong to moderate barrier. These barriers are similar to those noted by female faculty in higher education in general. Cooper and Stevens (2002) and Johnsrud and Atwater (1993) discovered that one of the barriers often cited by female faculty is isolation.

Rosser and Lane (2002) conducted a study of women who had received Professional Opportunities for Women in Research and Education (POWRE) awards from the National Science Foundation in 1997–2000. In 2000, 30.5% listed “low numbers of women, isolation, and lack of camaraderie/mentoring” as significant career challenges for them as higher education faculty (p. 167). Increasing faculty travel funds would facilitate options and opportunities for faculty to meet with collaborators and/or with funding source representatives. Many research administration offices provide funds for travel, and increased cognizance of funding distribution (based on sex) could be an important foundational step in considering how best to support female faculty. If women are not applying for travel fund support, perhaps more outreach could be engaged to increase funding opportunity awareness. In addition, facilitating internal collaboration opportunities through networking meetings could help counter this barrier and benefit female faculty. Research administration offices can provide services to facilitate such meetings. Informal gatherings, workshops, seminars, and/or brown-bag presentations could be scheduled to increase cross-disciplinary research activity and opportunity awareness.

Building Support

Supports ranked as strong to moderate included adequate university infrastructure for writing (71.6%) and submitting proposals and assistance in grant proposal preparation (66.0%). Lack of knowledge of funding sources was reported as a strong to moderate barrier by 49.1% of the respondents. These items, which reflect services provided by most universities through an Office of Research or Sponsored Programs, and are consistent with this research, should be continued and strengthened. By becoming aware of the services faculty perceive as supports and those that they feel pose barriers, research administrators can provide more meaningful and effective assistance to all faculty.

Perhaps one of the important issues revealed through this research concerns the functioning of the Sponsored Programs/Research Administration office. The three universities represented in this study have traditional research administration/sponsored programs services, but many respondents indicated that they perceived a lack in some of these traditional services, or indicated they were not aware of the availability of such services. This research helps make the case regarding the importance of context-specific knowledge. Knowing the faculty of one’s university is vital to providing them with services. It is important to know if certain segments of the faculty perceive barriers to proposal writing and offer insights into how those barriers might be overcome. Excessive reliance on email communications and “cookie-cutter” services may not be effective or appropriate. University administrators can use this knowledge to ensure that available resources are put to the most efficient use. Research, such as has been described in this article, provides a foundation for awareness.

CONCLUSION

Recent research has shown that women do not progress to the rank of professor as quickly or as often as men do. To achieve higher rank, faculty must be successful in teaching, research, and service. As noted, one of the measures of successful research is the submission and receipt of grant awards from external agencies. In many instances women do not write and submit as many proposals for grant funds as men do. As state support for public institutions declines and more emphasis is put on proposal writing, faculty in general and female faculty in particular will need to become increasingly productive in terms of writing proposals for external funds. Alleviating

barriers and strengthening supports has the potential to further, and better, support faculty endeavors to write proposals for external funds

As stated by Waisbren et al. (2008):

It is critical that we bring more stringent analysis to the question of the gender disparity in grant funding. Otherwise, potentially biased impressions prevail, often preventing the initiation of remedial steps to increase grant success and academic advancement for women. (p. 213)

This study contributes to the empirical body of knowledge regarding the roles and realities of female faculty in higher education as they work to write proposals for external funds. As such, it not only provides support for the initiation of remedial steps to increase grant success, and thereby academic advancement for women, but specifically identifies practice-based options and opportunities to help alleviate barriers and strengthen needed supports. It can also help research administrators further their knowledge of how to help faculty in their pursuit of external grants.

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