



# Grant Writing: Practice and Preparation of University Health Educators

*JoAnn Kleinfelder, James H. Price, and Joseph A. Dake*

## ABSTRACT

*This national survey of health education faculty (n = 282) found that the vast majority (88%) had been awarded a grant in the past 5 years, usually in amounts of less than \$10,000. Less than one in four had received grants of \$250,000 or more. Although less than one in four faculty (23%) felt prepared to write grants immediately following graduation, four of five currently felt prepared to do so. Two barriers to grant writing were identified by a majority of faculty: heavy teaching loads (68%) and administrative or committee assignments (55%). Finally, 90% of the faculty thought grant writing should be part of formal graduate student training, yet only 65% reported offering grant writing training to their graduate students.*

The position of university/college professor requires a wide variety of skills. These skills are traditionally divided into three broad areas: teaching, research, and service. Within each of these three areas, there are numerous competencies which professors are expected to meet (Tucker, 1992). For example, in the research arena faculty are expected to be able to remain current in the literature; synthesize large volumes of information; design studies; carry out studies; analyze data; write their manuscript results for publication; and write grants to fund their research agenda (Sowers-Hoag & Harrison, 1998).

Recently health education journals and online job banks were reviewed regarding faculty positions for university health educators during the 2001/2002 academic year. Of the job postings found, 14 specifically identified the job as a health education faculty position. Nine of the 14 positions mentioned an expectation of grant writing activity. If grant writing is viewed as an important professional attribute, it would be expected that research could be easily found on this topic. However, there is a dearth of studies that have explored grant writing activity of faculty. Furthermore, these studies have mostly targeted barriers

and incentives to grant writing.

In an early study, Monahan (1993) surveyed full-time faculty at eight New Jersey

---

*JoAnn Kleinfelder, MEd, is a graduate assistant in the Department of Public Health, University of Toledo, Toledo, OH 43606; James H. Price, PhD, MPH, is a professor of public health in the Department of Public Health at the University of Toledo. Joseph A. Dake, MPH, is an instructor of health education in the Division of Health, Wayne State University, Detroit, MI 48202.*

*Review of this manuscript was conducted by the Board of Associate Editors.*



state colleges regarding their perspectives on barriers to grant writing. They identified heavy teaching and advising loads, other scholarly and entrepreneurial interests, committee/administrative assignments, and lack of advance warning of funding opportunities as barriers. Provisions for technical assistance in seeking external funding sources, preparing proposals and budgets, getting necessary approvals, and dealing with campus business staff were cited as important incentives to grant writing. In addition to recognizing barriers and incentives, it was found that less than 20% of faculty at the surveyed institutions were actively involved in grant activities, whereas about half said they rarely or never engaged in grant writing activity.

In a similar study tenure track faculty in the College of Education at Texas A & M University reported identical barriers as found by Monahan (1993) and also cited lack of training in grant writing, lack of knowledge of funding sources, and budgeting as additional barriers. Respondents suggested that, as incentives, universities should create grant offices, provide staff support/equipment, and place equal emphasis on grant writing and receipt of grant awards (Dooley, 1995).

Boyer and Cockriel (1998) approached the barrier/incentive dichotomy of grant writing through the perceptions of tenured and nontenured faculty selected from American Association of University Professors member institutions. Consistent with Dooley (1995), lack of knowledge regarding budgets and funding sources and lack of training were regarded as significant barriers to grant writing. Consideration of grant writing for tenure or promotion decisions and the inclusion of a strong commitment to grant writing from the college president qualified as strong incentives. Although tenured and nontenured faculty reported the same barriers and incentives, nontenured faculty regarded both as more important than did tenured faculty.

In a follow-up study Boyer and Cockriel (2001) examined the factors that influenced the pursuit of grants by junior faculty from

a variety of disciplines at a Midwestern research university. They found that junior faculty who had acquired some grant training as part of their doctoral or postdoctoral programs still required additional training in the grant writing process. Barriers to grant writing identified by more than 90% of these junior faculty included teaching loads, inadequate administrative support, and too many committee assignments, whereas incentives were creating new knowledge through their grant funded research, the importance of grants in tenure decisions, and being able to build a professional reputation as a capable researcher.

A recent study of a Midwestern predominately undergraduate institution found that the top three barriers to faculty grant writing were heavy teaching loads, too many committee and/or administrative assignments, and heavy advising loads (Sternier, 1999). Incentives for grant writing identified by these faculty were released time to work on funded projects, released time to prepare grant proposals, and being provided the opportunity to support their research. These studies identified nearly identical barriers and incentives for general faculty and College of Education faculty.

The Graduate Competencies for Health Educators from the National Commission for Health Education Credentialing (1998) and the Core Competencies for Public Health Professionals from the Council on Linkages Between Academia and Public Health Practices (2001) both cite the need for health education professionals to be able to prepare proposals for funding from external sources. However, questions regarding grant activity exclusive to graduate health education programs remain unanswered. No studies were found that targeted professors in health education and their grant writing activities nor the training of graduate students in grant writing. Therefore, the purpose of this study was to identify barriers and incentives to grant writing, explore the level of faculty grant activity and determine grant writing preparation in graduate health education programs. It was hypothesized that health education faculty

face similar barriers and incentives to grant writing as nonhealth education faculty, that courses in grant writing preparation would not be required in the majority of graduate health education programs, and that barriers to grant writing would be significantly related to the amount of grant activity in which faculty are involved.

## METHODS

### *Respondents*

The *Directory of Institutions Offering Undergraduate and Graduate Degree Programs in Health Education* was used to identify all universities with health education majors (American Association for Health Education, 1997). The institutions were cross-referenced with the Eta Sigma Gamma (1999) *Directory of College and University Health Education Programs and Facilities* to obtain the names and addresses of health education professors. Institutions were then randomly spot-checked at their Web sites to confirm that data was current. A total of 970 health education faculty members were identified. From this list a computerized random sample of 500 faculty were selected. The research protocol was approved by the Human Subjects Research Review Committee of the university.

### *Instrument*

A questionnaire on faculty and graduate student grant writing activities and perceptions was created through a comprehensive review of the literature and through personal communication with several highly published health education faculty members. The four-page, 24-item questionnaire had 18 items that addressed faculty grant writing training, perceived preparation, perceived barriers to grant writing, importance of grant writing at their institution, perceptions of grant writing training for graduate students, and their actual grant writing activity, as well as 6 demographic and background questions. Most items required the respondents to select their responses from a series of potential answers. Five items required responses on a 5-point Likert-type scale. The questionnaire was



sent to five published authorities in the areas of university teaching or survey research, requesting their critical review to establish content validity. Minor changes were made to item format or item wording based on recommendations of the questionnaire reviewers. Internal reliability was assessed on the responses to the final survey using Kuder-Richardson 20 for the dichotomous response items and Cronbach alpha for the Likert-type response items. Because of the wide variety of grant topics on the questionnaire, it was anticipated that the internal reliabilities would be low,  $KR_{20} = .52$  and  $.56$ , respectively, were found for the two types of items.

### Procedure

A variety of techniques was used to help increase the response rate for this survey, including limiting the length of the questionnaire to four pages; printing the questionnaire on colored paper (green); using a personally addressed, hand-signed cover letter assuring confidentiality of responses; including a stamped, self-addressed return envelope; and mailing the questionnaire through first-class mail (Church, 1993; King, Pealer, & Bernard, 2001). Additionally, a three-wave mailing was used to maximize the return rate (Dillman, 2000). Two weeks after the initial mailing, a second mailing of the questionnaires and coded, stamped, self-addressed return envelopes were mailed to nonrespondents with a hand-signed cover letter urging a prompt response. Two weeks later a hand-signed, color-matched postcard mailing was sent as a reminder for those who had not yet responded to the second mailing.

### Statistical Analysis

SPSS 10.0 for Windows was used to analyze the data. Descriptive data were created for individual items (e.g., frequencies, percentages, and ranges), and measures of central tendency (e.g., means and standard deviations) were calculated for selected variables. Comparisons by perceived barriers to writing grants, perceived importance of obtaining grants for promotion and tenure, and perceived importance in grant

writing training for graduate students were calculated using Pearson product moment correlation coefficients and chi-square analyses. Differences in perceptions of grant writing by academic rank were calculated by analysis of variance (ANOVA) and chi-square analysis. Significance was set at  $p \leq .05$ .

## RESULTS

### Demographics and Background Characteristics

A total of 500 questionnaires was sent to health education faculty and 28 were nondeliverable (e.g., moved, deceased, etc.). The response rate was 60% (282/472). The responding faculty members were almost evenly divided by sex, three-fourths were tenured, and almost half were full professors. The vast majority of respondents had doctoral degrees (99%) and were full-time faculty (97.5%). A plurality (38%) taught in departments with 6–10 colleagues (Table 1).

### Grant Writing Activity of Faculty

The vast majority (88%) of faculty had been awarded one or more grants in the past 5 years as a primary or coinvestigator. The majority (59%) had been awarded 5 or fewer grants in the past 5 years. The majority (51%) of faculty had received grant amounts of less than \$10,000. Less than one in four had received grants of \$250,000 or more. Of those who had received grant funding, the majority (53%) had received internal university funding. Faculty were equally likely to have received federal or state grants, 45 and 44%, respectively (Table 2).

Less than one in four faculty (23%) felt prepared to write grants immediately following their graduate education. However, four of five felt they were currently prepared to write grants. The faculty were asked to identify where they had received training to write grants by selecting from eight alternative answers, one of which was the generic category "other." Only two sources of training were identified by 50% or more of the faculty: through trial and error (57%) and informally through colleagues (50%).

Almost 98% of the faculty reported their

institutions had a grants office. Furthermore, the majority of faculty reported their institution's grants office provided the following three services: conducts searches for grants (73%), conducts grant related training workshops (70%), and helps write segments of the grants (58%) (Table 2).

**Table 1. Demographics and Background Characteristics of Health Education Faculty**

Characteristics	N	%
Sex:		
Male	151	53.5
Female	129	45.7
Tenure status:		
Tenured	216	76.6
Tenure track	47	16.7
Nontenure track	16	5.7
Rank:		
Full professor	135	47.9
Associate professor	90	31.9
Assistant professor	55	19.5
Instructor	1	.4
Employment status:		
Full time	275	97.5
Part time	5	1.8
Highest degree obtained:		
Doctorate	279	98.9
Masters	3	1.1
Number of full-time faculty in department:		
1–5	81	28.7
6–10	108	38.3
11–20	80	28.4
21–50	8	2.7
Number of years teaching full time at college level: (Range=1–45 years)		
1–10 years	86	30.4
11–20 years	89	31.5
21–30 years	79	27.9
31–45 years	26	9.4

Note: N=282.



A Pearson product moment correlation coefficient was calculated to examine the relationship between faculty members' perceived level of help from their grants office and the number of grants a faculty member received. The correlation was found not to be significant ( $r=-.007, p=.91$ ). However, there was a significant correlation ( $r=.426, p<.001$ ) between a faculty members' perceived current level of preparation to write grants and the number of grants the faculty member had received.

### Barriers to Grant Writing and Their Solutions

Faculty members were asked to identify their perceived barriers to grant writing from a list of seven potential responses. Two of the barriers were identified by a majority of faculty members: heavy teaching loads (68%) and administrative or committee assignments (55%). About one in four (28%) claimed they were currently not adequately prepared to write grants (Table 3).

The faculty were also requested to identify how their university could help them increase their grant writing activity by selecting all applicable choices from a list of seven, one of which was "other." There were four items selected by half or more of the faculty: provide released time (72%), offer technical support (56%), offer personal support (56%), and assign a portion of the indirect funds to the faculty member (49%). The faculty were least supportive of giving greater consideration to grant writing for promotion and tenure (28%) (Table 3).

It was hypothesized that there would be a significant relationship between the number of perceived barriers to writing grants and the number of grants obtained. However, the relationship (Pearson product moment correlation) was not significant ( $r=-.053, p=.37$ ).

### Importance of Grants for Careers

The faculty were asked to rate the importance of obtaining grants for tenure and promotion by selecting their answers from Likert-type responses (*very important*=5 to *not important*=1). The responses to both questions were similar; a majority claimed grants were important or very important for

both tenure (55%) and promotion (60%) (Table 4).

When the faculty were asked whether their department expected new faculty to be involved in grant writing almost 82% responded affirmatively. This is the same percentage as those who claimed it was moderately important, important, or very important for promotion (82%).

A series of Pearson product moment correlation coefficients were calculated for level of faculty grant activity by perceived importance of obtaining grants for promotion ( $r=-.107, p=.07$ ) or to receive tenure ( $r=-.116, p=.052$ ). The importance of grants for promotion or tenure was not a significant impetus for faculty to write grants.

### Graduate Student Preparation

The faculty were asked if they thought grant writing should be part of the formal training of graduate students, and 90% responded affirmatively (Table 5). However, when faculty were asked if their departments offered grant writing training for their graduate students, considerably fewer (65%) responded affirmatively. Of the programs that did offer grant writing training, they were almost evenly divided as elective (32%) or required (28%) courses.

It was hypothesized that the majority of health education faculty believed that graduate students could learn grant writing through more informal training, such as by having them assist the faculty in their grant writing activity. This hypothesis was supported; 64% of respondents claimed

**Table 2. Grant Writing Activity of College Health Education Faculty**

Item	N	%
Have you been awarded grants as a primary or coinvestigator?		
Yes	49	88.3
Full time faculty with grants in the last 5 years:		
1-5 grants	167	59.2
6-10 grants	62	21.9
11-20 grants	16	5.8
21-30 grants	3	1.2
Grant amounts received:		
Less than \$10,000	144	51.2
\$10,000-\$49,999	111	39.6
\$50,000-\$149,999	97	34.5
\$150,000-\$249,999	64	22.8
\$250,000-\$499,999	60	21.5
\$500,000-\$1 million	45	16.2
Greater than \$1 million	49	17.5
Source of grants awarded in past 5 years:		
Internal university	149	52.7
Federal	128	45.4
State	123	43.6
Private	102	36.2
Local	39	13.9
Other	19	6.8
Services provided by grant office:		
Searches for grants	205	72.7
Conducts grant related workshops	196	69.5
Helps write grants	164	58.2

*Continues on next page*



that their faculty attempted to involve graduate students in grant writing activity. However, when faculty were queried regarding how well prepared their average graduate student was in grant writing after graduation, less than half (46%) of respondents perceived the students as moderately to very well prepared.

A chi-square (2 x 2) analysis of whether faculty members perceived formal grant writing training as important in graduate student training by whether their department offered a grant writing course found no significant difference ( $\chi^2=.095, p=.76$ ). Furthermore, a *t*-test was calculated for whether the department offered a grant writing course by the mean percentage of faculty in the department who had written

grants, and no significant difference was found (offered a course,  $M=.61, SD=.27$  versus did not offer a course,  $M=.60, SD=.27; t=.301, df=247, p=.76$ ). Finally, it was hypothesized that faculty who were not well prepared to write grants when they graduated but who now perceived themselves to be well prepared to write grants would more likely support formal grant writing for their graduate students than faculty who believed they had not been prepared at graduation and who believed they were currently not prepared. A chi-square (2 x 2) analysis ( $\chi^2=.130, p=.79$ ) failed to confirm this hypothesis.

#### **Grant Writing Perceptions by Rank**

An ANOVA for barriers by academic rank (assistant vs. associate vs. full profes-

sors) found no significant differences ( $F=2.23, df=2, 278, p=.11$ ). Also, a chi-square (2 x 3) on perceptions of whether formal grant writing should be part of graduate education by academic rank found no significant differences ( $\chi^2=5.00, p=.29$ ).

#### **DISCUSSION**

The vast majority of health education faculty appear to be active in grant writing. This most likely reflects the importance reported by the faculty of obtaining grants for promotion and tenure. Grant writing by health educators was usually for modest amounts (less than \$150,000 per grant). This may be due to a variety of reasons: more grants for health education may be available at the lower funding range; many quality studies in health education may be able to be done for lesser amounts; and the faculty may not have been prepared enough in grant writing to compete for larger grants (those greater than \$250,000). The results of the current study partially support the last reason, not professionally prepared to write grants. Less than one in four faculty claimed they felt prepared to write grants immediately after their graduation, but four of five felt they were currently prepared to do so. Thus, many of these faculty members seem to have learned grant writing in an apprenticeship fashion through trial-and-error and through colleagues.

Because most faculty write grants for smaller sums, the current apprenticeship form of learning grant writing needs to be replaced with more formal graduate training. The findings of this study also indicate that the vast majority of faculty think grant writing should be part of the formal training of graduate students, even though only two-thirds claimed their departments were currently offering grant writing training. However, more than half of the respondents said their health faculty attempt to involve graduate students in grant writing activity. Still, the majority of faculty believe that the average graduate student is only moderately to minimally prepared to write grants after graduation. The authors believe that grant writing training should be offered in doc-

**Table 2. (Continued)**

Item	<i>N</i>	%
Completes all administrative work for grant submission	133	47.2
Other	43	15.2
There is no grant office at our institution	7	2.5
Grant writing training:		
Through trial and error	161	7.1
Informally through colleagues	141	50.0
I have had no formal grant writing training	105	37.2
Through college or university workshops	96	34.0
In my graduate program	78	27.7
Professional conferences or workshops	75	26.6
Through professional readings	73	25.9
Other	29	10.3
How prepared do you feel you were to write grants immediately following your graduate education?		
Very well prepared	7	2.5
Well prepared	22	7.8
Moderately prepared	35	12.4
Neutral	53	18.8
Minimally prepared	65	23.0
Not at all prepared	63	22.3
How well prepared do you feel you are currently to write grants?		
Very well prepared	80	28.4
Well prepared	100	35.5
Moderately prepared	53	18.8
Neutral	26	9.2
Minimally prepared	18	6.4
Not at all prepared	4	1.4

Note: *N*=282.



toral programs as a required course and as an elective in master's degree programs. We support this recommendation based partially on this study's finding that the majority of faculty reported that their department expects new faculty to write grants. Boyer and Cockriel (2001) also concluded that "it is imperative that graduate programs institute training programs in proposal writing for future faculty" (p. 22). In addition to training for future faculty, this training in proposal writing would also serve students who obtain jobs outside of academia whose jobs may demand grant writing skills.

It is noteworthy that our findings identified barriers (heavy teaching loads; administrative or committee assignments; other scholarly or entrepreneurial interests) and inducements (provide release time; offer technical support and offer personnel support) that were identical to those found in previous research (Boyer & Cockriel, 2001; Monahan, 1993; Sterner, 1999). This corroboration helps to confirm the external validity of the current study's results.

Although the findings from this study concur with previous research and reveal new information relative to health education faculty, its results are descriptive. New research should focus on findings that are quantitative and predictive. The reasons why grant writing courses are not required in doctoral programs or offered as electives in master's programs needs to be explored. It is also suggested that grant writing activity of faculty in undergraduate programs be surveyed and compared to grant writing activity in graduate health education programs. Additionally, studies should explore how some graduate students became involved in grant writing activity and others did not, and whether such activity resulted in faculty members who were more successful at obtaining grants. Studying faculty members who have been highly successful in their careers at obtaining grants should be explored to help develop a potentially common core of factors (e.g., personal and/or environmental attributes) that might be used to facilitate the grant

**Table 3. Perceived Barriers to Grant Writing and Suggested Solutions**

Item	N	%
Common barriers to grant writing:		
Heavy teaching loads	192	68.1
Administrative or committee assignments	156	55.3
Other scholarly and entrepreneurial interests	118	41.8
Lack of advance warning of funding opportunities	93	33.0
Not adequately prepared to write grants	79	28.0
Lack of assistance for proposal submission	77	27.3
Other	58	20.6
Suggestions to universities for increasing grant writing:		
Provide released time to work on grants	203	72.0
Offer technical support (locate grants, write proposals, budgeting)	159	56.4
Offer personnel support (graduate assistant, secretary)	159	56.4
Assign a portion of indirect funds to faculty members	138	48.9
Offer administrative support (travel funds, equipment)	131	46.5
Give greater consideration to grant writing in promotion & tenure	78	27.7
Other	23	8.2

Note: N=282.

**Table 4. Importance of Grants for Career Advancement**

Item	N	%
Importance for tenure:		
Very important	85	30.1
Important	71	25.2
Moderately important	65	23.0
Minimally important	36	12.8
Not important	23	8.2
Importance for promotion:		
Very important	83	29.4
Important	85	30.1
Moderately important	62	22.0
Minimally important	36	12.8
Not important	15	5.3
Does your department expect new faculty to engage in grant writing?		
Yes	230	81.6

Note: N=282.

writing capability of future and current health education faculty.

The results of this study and others cited should give department administrators a better understanding of the barriers and incentives for improving the proportion of

their faculty involved in grant writing. Few studies have been reported in the literature on innovative techniques for improving grant writing activities in university faculty. One such study reported the positive grant writing environment created when a stand-



Table 5. Graduate Student Preparation for Grant Writing

Item	N	%
Should formal grant writing be a part of graduate education?		
Yes	253	89.7
Department offers grant writing training for graduate students:		
Yes	182	64.5
Elective course	89	31.6
Required course	80	28.4
Do your faculty attempt to involve graduate students in grant writing activity?		
Yes	180	63.8
How prepared is the average graduate student in grant writing when he/she graduates?		
Very well prepared	5	1.8
Prepared	35	12.4
Moderately prepared	91	32.3
Minimally prepared	101	35.8
Not at all prepared	42	14.9

Note: N=282.

ing committee of colleagues offered social support, collaboration, and technical expertise (Easter & Shultz, 1998).

Finally, the limitations of this study, which could result in potential bias of the results, need to be reviewed. The current study surveyed health education faculty only. Therefore, these findings may not be generalizable to faculty and departments outside of health education. Graduate health education programs at universities in the United States only were surveyed. Therefore, these findings may not represent grant writing activity of faculty from programs at institutions outside of the continental United States. Due to the potentially sensitive nature of assessing faculty members' professional activities, some faculty may have answered questions in a socially desirable manner. If so, this would represent a threat to the internal validity of the study. The survey questionnaire was closed-format and did not attempt to obtain additional information from the faculty. If other important grant-related questions or alternate responses to the existing questions were missed, then this could be a threat to the internal validity of the study. The response rate to the survey was 60%. To the

extent that the 40% nonresponders differ from the 60%, a possible nonresponse bias exists. To the extent such a bias exists, this would be a threat to the external validity of the results. The survey explored only one area (monothematic), grant writing, in depth. To the extent this may have sensitized some faculty to grant writing issues and resulted in a response-set bias, then this would have been another threat to the internal validity of the results. The majority of the aforementioned limitations are characteristic of most self-report surveys and are not inherent weaknesses of this study.

#### ACKNOWLEDGMENT

The authors thank Susan K. Telljohann, HSD, CHES, for her assistance in data collection.

#### REFERENCES

- American Association for Health Education. (1997). Directory of institutions offering undergraduate and graduate degree programs in health education. *Journal of Health Education, 28*, 281-295.
- Boyer, P. G., & Cockriel, I. (1998). Factors influencing grant writing: Perceptions of tenured and nontenured faculty. *SRA Journal, 29*(3-

4), 61-68.

Boyer, P. G., & Cockriel, I. (2001). Grant performance of junior faculty across disciplines: Motivators and barriers. *Journal of Research Administration, 2*, 19-23.

Church, A. H. (1993). Estimating the effect of incentives on mail survey response rates: A meta-analysis. *Public Opinions Quarterly, 57*, 62-79.

Council on Linkages Between Academia and Public Health Practice. (2001). *Core Competencies for Public Health Professionals*. Retrieved ??? from [www.trainingfinder.org/competencies/comp.pdf](http://www.trainingfinder.org/competencies/comp.pdf) [AU: Please give date of retrieval.]

Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method*. New York: Wiley-Interscience.

Dooley, L. M. (1995). Barriers and inducements to grant related activity by a college of education faculty. *Research Management Review 7*(2), 10-24.

Easter, L. M., & Shultz, E. L. (1998). Ten heads work better than one: An innovative model for collaborative, college-wide grant writing. *Research Management Review, 10*, 24-32.

Eta Sigma Gamma (1999). *Directory of Institutions Offering Undergraduate and Graduate Degree Programs in Health Education*. Muncie, IN: Eta Sigma Gamma, Ball State University.

King, K. A., Pealer, L. N., & Bernard, A. L. (2001). Increasing response rates to mail questionnaires: A review of inducement strategies. *American Journal of Health Education, 32*, 4-15.

Monahan, T. C. (1993). Barriers and inducements to grant-related activity by New Jersey state college faculty. *SRA Journal, 24*(4), 9-26.

National Commission for Health Education Credentialing. (1998). *A Competency-Based Framework for Graduate Level Health Educators*. Allentown, PA: Author.

Sowers-Hoag, K., & Harrison, D. F. (1998). *Finding an academic job. Graduate survival skills*. Thousand Oaks, CA: Sage Publications.

Sterner, A. (1999). Faculty attitudes toward involvement in grant-related activities at a predominantly undergraduate institution (PUI). *SRA Journal, 31*, 5-21.

Tucker, A. (1992). *Chairing the academic department: leadership among peers*. Phoenix, AZ: Council on Education, Onyx Press.