

ACCOUNTING FACULTY RESEARCH COLLABORATION: A STUDY OF RELATIONSHIP BENEFITS AND GENDER DIFFERENCES

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ABSTRACT

This study examines the collaborative research relationships which accounting faculty identified as having the greatest influence on their career development. We investigate whether the benefits of working collaboratively on research projects extend beyond research guidance to include career guidance and psychosocial support. We report on accounting faculty views of benefits associated with collaborative research relationships, focusing on the effect of gender and career stage. Gender barriers in developing important academic research relationships are not manifest in the results of the study, which differs from prior research suggesting that cross-gender relations are more difficult to develop. Forty-six percent of the respondents considered the co-author that had the greatest influence on their career development to be a mentor, but most relationships were viewed as peer collaborations, especially when between female co-authors. Women were less likely to report initiating research collaborations. The gender composition of the research dyad demonstrated explanatory power in respondents' expectations of benefits to be provided to co-authors, as well as in the actual benefits provided.

INTRODUCTION

Development of academic mentoring and collaborative research relationships can be beneficial for junior faculty because standards for evaluating faculty research, teaching and service are often written in general terms or communicated informally. Additionally, an informal network of senior scholars often determines what research issues are important and what research is valued. “Admission to and advancement through a colleague system is easier when newcomers have the support of an already established member of the system and thus are presumed to fit the system’s shared norms and standards” (Association of American Colleges, 1983. p. 2).

The importance of published research in the promotion decision for accounting faculty has been documented by a number of studies (Cargile and Bublitz, 1986; Hagerman and Hagerman, 1989; Schultz et al., 1989). One strategy junior faculty can use to develop a research stream is to work collaboratively (Urbancic, 1992; Nathan et al., 1998). Hassleback et al. (2000) report an increasing trend in the average number of authors per article in the accounting literature.

Research collaborations can also develop into support relationships. Experienced researchers are well aware of the challenges and disappointments that can be encountered in various phases of research projects, and researchers may look to their co-authors for emotional support. However, a large body of mentoring literature suggests that women may be at a disadvantage in developing such support relationships in predominantly male organizations (Blackburn et al., 1981; Association of American Colleges, 1983; Noe, 1988; Ragins and Cotton, 1991; Burke et al., 1994).¹

The objective of this study is to examine collaborative research relationships which accounting faculty identified as having the greatest influence on their career development. We report on accounting faculty views of their most important research collaboration relationships and perceptions of associated benefits expected, received and provided. We present survey data on how faculty viewed their research relationships, paying particular attention to the effect of gender and career stage. Understanding influential relationships should be helpful to business faculty in understanding their professional relationships and in dealing with career issues. If the gender composition of collaboration is found to have positive or negative impacts, faculty can examine the implications for their career decisions.

BACKGROUND

Relationship Benefits

Collaborative research relationships vary widely in terms of interpersonal dynamics and relationship benefits. At one end of the spectrum, the participants may view collaborative relationships as void of development functions, while at the other end are mentor relationships of varying intensity. Whether one or both of the participants view a collaborative relationship as a mentor relationship is influenced by the benefits received and by emotional factors. Kram (1985) defines two broad categories of developmental functions beyond research collaboration that can be enhanced by mentoring: 1) career functions (i.e. “learning the ropes”), which contribute to advancement in the organization; and, 2) psychosocial functions that enhance a person’s sense of

¹ Although women have entered academic accounting in increasing numbers over the past two decades, the profession is still predominantly male (Streuly and Maranto, 1994; Carolfi et al., 1996).

competence, clarity of identity, and effectiveness in a professional role. The mentorship literature contains many studies of these factors.

Career functions provided by a mentor include sponsoring, protecting, promoting visibility in the organization, and providing challenging work. Psychosocial functions include role modeling, counseling, acceptance and confirmation, and friendship. Kram and Isabella (1985) found that conventional mentors provide the protégé both career-enhancing functions such as sponsorship and coaching, as well as the psychosocial functions of acceptance and confirmation, counseling, role modeling, and friendship. However, a mentoring relationship is also reciprocal, with the mentor deriving not only psychosocial benefits, but also tangible benefits such as respect from colleagues for successfully developing younger talent (Kram, 1985).

Junior faculty can also work collaboratively with their peers. Peer relationships also provide the career-enhancing functions of information sharing, career strategizing, and job-related feedback. Psychosocial functions included in the peer relationships include confirmation, emotional support, personal feedback, and friendship. Between peers, these functions are performed for each other, so there is a mutuality attribute to the relationship (Kram and Isabella, 1985), and this is sometimes referred to as peer mentoring.

University Environment

In a university setting, full professors and experienced associate professors can nurture the careers of junior faculty. A junior faculty member's advancement is based on research productivity, teaching ability, and service; senior faculty can provide guidance in any of these areas. However, given the primacy of research in promotion and tenure decisions (Schultz et al., 1989; Englebrecht et al., 1994), research is likely to be an area where relationships will be sought and developed (Green et al., 1995). Blackburn et al. (1981) found that academic mentors overwhelmingly identified successful protégés as those who shared similar research interests.

Both junior and senior faculty can benefit from research collaboration. A senior faculty member has more experience with the publication process and can bring practical direction to the research efforts of junior faculty. In return, the senior faculty member has the satisfaction of helping another person's career development, and may gain ideas and assistance in carrying out his or her research agenda. With regard to promotion and salary increase decisions, Nathan et al. (1998) report that co-authors each receive full credit for co-authored articles at a vast majority of schools surveyed. Thus, senior faculty co-authors can also benefit in the merit evaluation process.

Gender Differences in Scholarly Research

A number of studies have examined gender differences in scholarly activity, and the findings have implications for our study of gender differences in research collaborations. Streuly and Maranto (1994) and Dwyer (1994) reviewed studies of research output among female academicians in fields other than accounting. Regardless of discipline, women published significantly fewer articles than did men. Authors of the various studies offer a number of competing explanations for this finding, but the explanation relevant to this study is the suggestion that women publish less because they collaborate or co-author less often than do men. Sayre et al. (2000) studied a sample of public universities and report that on average males had a greater number of publications and more

seniority, which were variables in their research model on the association of academic salaries and gender.

Dwyer (1994) looked at the relationship of gender to scholarly activities of academic accountants who received doctoral degrees in 1981. She found that women had significantly fewer publications than their male colleagues, although the difference was less pronounced when publications were “discounted” for the number of co-authors. Streuly and Maranto (1994) also examined gender differences in research productivity of accounting faculty, but looked at faculty who graduated between 1960 and 1986. They only compared number of publications after weighting by the inverse of the number of co-authors, not absolute number of publications. Using a weighted publication rate, they did not find overall significant differences in the research productivity of women and men, but their data did suggest that women co-author less frequently than men.

McDowell and Smith (1992) found a relationship between gender and co-authoring relations among economics faculty in that co-authors were more frequently of the same gender than of the opposite gender. In addition, female economists generally co-authored less often than men. If the tendency is prevalent among accounting faculty, it could pose a problem for women faculty in developing collaborative research relationships, given the smaller number of senior women faculty with whom they can work.

Gender Differences in Relationships

Research on the development of mentoring relationships in organizations provides a possible explanation for gender differences in collaborative research experiences. Some researchers have theorized that the scarcity of women occupying the upper ranks in an organization creates gender differences in access to mentors. Of necessity, women have to develop cross-gender relationships, while their male peers do not (Ragins and Cotton, 1991; 1993). Even if potential male mentors have positive attitudes toward women, research suggests that male mentors will choose male protégés because personal identification with the protégé is a key element in the selection process (Ragins, 1989).

If cross-gender relations are more difficult to develop, then junior female accounting faculty may be disadvantaged relative to their male peers in developing relationships with senior faculty. There are relatively few female full professors in accounting available to act as mentors or sponsors to female junior faculty. In the period between 1988 and 1993, women received approximately 30 percent of Ph.D.s and held a comparable proportion of tenure track positions, but less than nine percent of full professors were women. A majority of schools listed in Hasselback’s *Accounting Faculty Directory* had no, or only one, terminally qualified female faculty member in their accounting departments (Carolfi et al., 1996). Hasselback et al. (2003) report on a model of prolific authors of accounting literature. They identify the most productive doctoral graduates for the period between 1968 and 1997. Approximately 11 percent of the 315 authors are female, which is an indication there are relatively few highly experienced female researchers available as mentors or sponsors.

DEVELOPMENT OF THE RESEARCH QUESTIONS

Some research on the effect of gender on mentoring relationships suggests that the gender composition of the mentoring relationship (gender of both protégé and of mentor) influences the

dynamics of the relationship (Noe, 1988; Ragins, 1989; Ragins and McFarlin, 1990). Therefore, this study examines benefits associated with important research collaborations using gender composition of the research dyad (DYAD) as an explanatory variable, rather than just gender of the respondent alone.

The first research question relates to the extent to which women and men enter into cross-gender research collaborations. The literature cited above suggests that cross-gender relationships are more difficult to develop than same gender relationships. However, our study examines a professional activity, scholarly research, where gender barriers to developing relationships may be less important. Since there are more male than female accounting academicians, it seems likely that more co-authors will be male than female; in a survey of co-authorship patterns in accounting journals, Bremser and Welsh (1998) found relatively few instances in which women co-authored with other women. In contrast, there is limited evidence from McDowell and Smith (1992) that co-authors are more frequently of the same gender. Thus, females may seek out female co-authorship, even though there are more potential male co-authors. It may be that a co-authorship experience with someone of the same gender is viewed as more likely to develop into a strong influential relationship. Therefore, the first research question is:

R1: Is the gender of the chosen co-author a function of the respondent's gender?

Mentoring literature suggests that the initiation stage of a professional relationship is where gender barriers may be most pronounced (Kram 1985; Ragins 1989; Ragins and Cotton, 1991). Women often must find a male mentor if looking for a mentor in the upper ranks of the organization, and cross-gender relationships may be more difficult to initiate. Therefore, our second research question is:

R2: Are there gender differences in initiation of a research relationship?

Research questions three and four relate to benefits received or provided as a result of the respondent's relationship with the co-author. Some theories of women's career development suggest that women may expect and receive more benefits from mentoring relationships because these relationships meet developmental needs and are also more aligned with traditional gender-role expectations (Ragins and Scandura, 1994). However, research evidence has been mixed. There is evidence that cross-gender mentoring relationships provide less psychosocial support (Burke et al., 1990; Scandura and Viator, 1994; Ragins and Cotton, 1999). However, some studies that have used gender as a variable, rather than the research dyad composition, have found no evidence of gender differences (Ragins and McFarlin, 1990; Turban and Dougherty, 1994).

Career development stage could also have a significant effect on expectations regarding additional benefits from research relationships. Senior (junior) faculty should be more likely to expect to provide (receive) sponsorship, research, career and teaching guidance. However, academic rank at the time the relationship was initiated would not necessarily affect expectations about psychosocial benefits. We examine the benefits that respondents expected to receive or provide at the beginning of the research relationship as well as their assessment of the benefits received from or provided to their co-author.

- R3:** Does the gender composition of the research dyad and the rank at initiation of the respondent affect *expectations* of benefits to be received or provided at the beginning of a joint research project?
- R4:** Does the gender composition of the research dyad and the rank at initiation of the respondent affect benefits that respondents feel they *received* from or provided to their co-authors?

METHOD

Accounting faculty members were asked to respond to questions about the collaborative research relationship that they felt had had the greatest influence on their career development. Items on the questionnaire came from literature on mentoring, a prior study by the authors, and an instrument developed by Sands et al. (1991). The questionnaire was developed after reviewing the literature on mentoring, and more specifically literature on mentoring in academic institutions. Attributes of the collaborative relationship were derived from theoretical work on mentoring (Kram, 1985; Kram and Isabella, 1985; Ragins, 1989) and applied research (Noe, 1988; Sands et al., 1991; Burke et al., 1994).

The survey instrument ([click here to view survey instrument](#)) listed relationship benefits received and benefits provided, which were identified in our literature review. The faculty surveyed were asked to rank them on a six-point Likert scale (0 = no benefit to 5 = very high benefit). A random sample of accounting faculty was selected from Hasselback's *Accounting Faculty Directory* (1998). Faculty surveyed had to have a Ph.D. or DBA, and academic rank of assistant, associate or full professor. In order to have a sufficient number of female respondents for data analysis, the population was stratified into male and female strata, and the sample was equally divided between male and female faculty.

Of the 600 surveys mailed in 1999, 162 usable responses were received. Five surveys were returned as undeliverable or were returned from faculty who indicated that they did not publish. We excluded three responses from faculty who indicated that they were doctoral students at the time the research collaboration was initiated. Thus, the usable response rate was 27 percent, with 81 men and 81 women returning the questionnaire. Twenty-four of our usable responses were from a second mailing. Early and late responders were compared to assess possible non-response bias, and no significant differences were identified. Our response rate was similar to the 30 percent response rate reported for a survey of successful accounting faculty co-authors by Nathan et al. (1998), and we have a similar interpretation of our response rates. Since many accounting faculty never publish (Zivney et al., 1995), respondents to the survey may have had more successful experiences with research collaborations than the general population of accounting faculty.

RESULTS

Descriptive Data

Selected demographic data is presented in Table 1. With regard to rank when the first project was initiated, there were more female assistant professors and more male associate and full professors. However, a chi-square analysis of rank at research initiation by gender was not significant. Eighty-two percent of the respondents were tenured and a chi-square analysis also found

TABLE 1

Selected Demographic Data (n = 162)

Panel A: Academic Rank when the First Project was Initiated

	<u>Male</u>	<u>Female</u>	<u>Total</u>
Assistant Professor	38	50	88
Associate Professor	31	25	56
Full Professor	<u>12</u>	<u>6</u>	<u>18</u>
Total	<u>81</u>	<u>81</u>	<u>162</u>

Chi-square 4.28, df 2, p = .12

Panel B: Research activity

	<u>Mean</u>	<u>Median</u>	<u>Mode</u>
Number of projects with same co-author	4.4	3.0	2.0
Number of single-authored articles published or accepted	4.5	2.0	0.0
Total number of articles published or accepted	15.1	11.0	10.0

no significant difference in the tenure status of the men and women responding, or in the type of institution in which they were employed (characterized as Ph.D. granting or non-Ph.D. granting).

Heck and Bremser (1986) reported on the importance of institutional affiliations in research productivity. Co-authorship would appear to be more likely to become an important career development relationship if both co-authors are employed at the same institution, and proximity certainly appears to be a major factor contributing to the development of research collaborations among respondents in this study. Seventy percent of the respondents were at the same institutions as their co-authors when the projects began, and another 16 percent had been at the same institutions with their co-authors at some point in their careers.

The respondents were asked to answer the questions with respect to “the co-authorship experience that had the greatest influence on their career development.” Generally, these influential collaborations encompassed more than a single research project. The average number of research projects respondents reported with the same co-author was 4.4. Table 1, Panel B provides a profile of the research activity. The mean number of articles published or accepted was reported as 15.1 total and 4.5 single authored, reflecting 10.6 co-authored articles.² The means reflect in part the number of very prolific authors who responded to the survey. The median (mode) total number of articles published was 11.0 (10.0) and single articles published were 2.0 (0.0).

Men reported an average of 17.0 and women reported an average of 14.0 total articles published or accepted. We tested for differences in means; however, the difference was not

² These reported amounts are similar to the 10.7 mean reported co-authored articles and 3.8 mean single authored articles (3.8 calculated by using the reported 74 percent of career publications co-authored) reported by Nathan et al. (1998).

significant. This suggests that the women and men in our sample publish at a comparable frequency. With respect to single-authored articles published or accepted, men reported 5.1 articles on average and women reported 3.8, and the difference in means was not significant at $p = .10$. While Streuly and Maranto (1994) and Dwyer (1994) report that women in academic accounting settings published significantly fewer articles than did men, our more recent study suggests a more comparable frequency.

Research Question 1

The first research question asked whether the gender of the chosen co-author is a function of the respondent's gender. A chi-square analysis of author gender and co-author gender was significant at the .01 level, indicating a greater-than-chance propensity for respondents to have a co-author of the same gender.

Given that academic accounting departments are predominantly male, we expected that most of the respondents' influential co-authors would be male. Ninety percent of the men and 75 percent of the women responding cited a male co-author as the most influential (Table 2), which suggests that the women in our sample are able to develop important research relationships with men. Since 75 percent of the women respondents named a male co-author, it might seem that women in accounting do not face gender barriers in developing cross-gender research relationships. However, the study only identified women who had been able to develop successful collaborative relationships. The implications of this finding will be discussed further in the concluding section.

The incidence of men citing a female co-author as being the most influential was only eight cases, or ten percent. However, 25 percent (20 cases) of the women responding cited a female co-author as the most influential on their career development, suggesting that research relationships between academic women, while perhaps not common, can be very important to the participants.

TABLE 2

Gender Composition of the Research Dyad

<u>Respondent Gender</u>	<u>Co-author Gender</u>		<u>Total</u>
	<u>Male</u>	<u>Female</u>	
Male	73	8	81
Female	61	20	81
Total	134	28	162
Chi-square 6.22, df 1, $p = .01$ (one-tailed)			

Research Question 2

We then looked at whether there were gender differences in the initiation of the research collaboration. Our results suggest that there are gender differences in the initiation of the research collaboration. Consistent with prior research, we found that female respondents were less likely to report that they had initiated the relationship (Table 3, Panel A). Forty-two percent of the men, but only 18 percent of the women indicated that they had initiated the project (chi square 11.5, $p < .005$).

TABLE 3**Initiation of Relationship and Gender****Panel A: Gender**

Respondent Gender	Initiated by Respondent	row %	Initiated by Co-author	row %	Initiated Jointly	row %	Cannot recall	row %	Total	column %
Male	34	42%	19	23%	25	31%	3	4%	81	50%
Female	15	18%	31	38%	32	40%	3	4%	81	50%
Total	49	30%	50	31%	57	35%	6	4%	162	100%

Chi-square = 11.11, df 3, p=.005 (one-tail)

Panel B: Research Dyad

Research Dyad Respondent/Co-author	Initiated by Respondent	row %	Initiated by Co-author	row %	Initiated Jointly	row %	Cannot recall	row %	Total	column %
Male/Male	29	40%	18	25%	24	33%	2	3%	73	45%
Female/Female	4	20%	8	40%	8	40%	0	0%	20	12%
Male/Female	5	62%	1	13%	1	13%	1	13%	8	5%
Female/Male	11	18%	23	38%	24	39%	3	5%	61	38%
Total	49	30%	50	31%	57	35%	6	4%	162	100%

Gender composition of the dyad did not appear to affect how women described initiation of the project (Table 3, Panel B). Women respondents reported that they had initiated the project in 20 percent of the cases with a female co-author and in 18 percent of the cases with a male-co-author. In contrast, in only one of the eight cases in which a male respondent had identified a female co-author as the most important, did the male report that the female co-author had initiated the relationship. In the 15 cases in which women indicated that they had initiated the project, 11 were with a male co-author and four were with a female co-author. Thirty-five percent of the co-authorships were described as developed jointly, and men and women responded in equal numbers that the project was developed jointly in cases in which the co-author was male. The research design cannot determine whether women are actually less likely to initiate a project, or are more willing to give their co-author credit as being part of a joint effort, or as the project initiator.

Research Question 3

The next research question is whether the gender composition of the research dyad and the respondent's rank at initiation affects expectations of benefits to be received or provided at the beginning of a joint research project. Respondents rated five benefits – research guidance, career guidance, teaching guidance, psychosocial benefits, and sponsorship – on a scale of zero to five (none to very high). Responses were analyzed in two MANOVAs, one with “benefits expected to be received” as the response variables, and the other with “benefits expected to be provided” as the response variables. The fixed factors were the gender composition of the research dyad (DYAD) and academic rank at the initiation of the project (RANK). Prior research has suggested that it is gender composition of the dyad that affects benefits provided and received in a mentoring relationship, not just gender alone. Therefore DYAD was the variable used to test the hypothesis. The analysis was also repeated with respondent gender as an independent variable, but gender was not significant.

We found that the respondents' rank did affect expectations of benefits to be received, but that composition of the research dyad did not. RANK was significant but DYAD was not significant in the MANOVA on benefits respondents expected to receive. However, the DYAD X RANK interaction was also significant. As a follow-up analysis, separate MANOVAs were done at each rank, holding DYAD constant, and for each DYAD, holding RANK constant. Significant MANOVAs are reported in Table 4, Panel B for RANK in the all-male dyads and in the all-female dyads.

There were more significant differences across ranks in the all-male dyads, in part because full professors were represented in that group (The all-female dyads included no full professors). A follow-up ANOVA on the individual benefits identified significant differences among men across ranks in four benefits respondents expected to receive: research guidance, career guidance, teaching guidance, and sponsorship.³ Assistant professors expected to receive significantly more research guidance and career guidance than did associate and full professors, and more sponsorship benefits than did associate professors. Although the ANOVA on teaching guidance in the male-male dyad was significant and the pair-wise comparison between assistant and full professors was significant, overall, the respondents did not expect a great deal of teaching guidance (means of 0.85 and 0.00 for assistant and full professors respectively), which is reasonable since the relationship centered on a

³ An open-ended response “Other” was provided, but respondents left that blank.

TABLE 4

**Expectations at the Beginning of your Collaboration
of Benefits Expected to be Received from the Co-author**

Panel A: MANOVA Test of Benefits Expected to Receive
(n=162)

Factor	Wilk's Lambda	Hypothesis df	F	Prob>F
DYAD	0.87	15	1.44	.13
RANK	0.87	10	2.14	.02
DYAD x RANK	0.77	25	1.60	.03

Panel B: Mean Responses

DYAD: Respondent Gender/Co-author Gender

Male-Male (n=73; MANOVA F=2.17, p=.023)

Type of mentoring benefit expected to receive	Academic Rank at First Project Initiation		
	Assistant Professor (n=34)	Associate Professor (n=28)	Full Professor (n=11)
Research guidance*	3.56 ^{a,b}	2.50 ^a	2.09 ^b
Career guidance*	1.85 ^{a,b}	0.57 ^a	0.45 ^b
Teaching guidance*	0.85 ^a	0.43	0.00 ^a
Psychosocial	2.00	1.67	1.00
Sponsorship**	1.15 ^a	0.43 ^a	0.45

Female-Female (n=20; MANOVA F=3.64, p=.025)

Type of mentoring benefit expected to receive	Academic Rank at First Project Initiation	
	Assistant Professor (n=10)	Associate Professor (n=10)
Research guidance*	3.50 ^a	1.90 ^a
Career guidance	0.80	1.10
Teaching guidance	1.70	0.70
Psychosocial	2.90	1.90
Sponsorship	0.01	0.50

* Mean scores where: None = 0, Very low = 1, Low = 2, Medium = 3, High = 4, Very high = 5

** ANOVA significant at p<.05

* ANOVA significant at p<.10

^a Letters indicate significant pair-wise comparison at p<.05

research project. The only significant benefit expectation in the all-female dyad group was in research guidance, with assistant professors expecting more research guidance. The mean response on research guidance was 3.50 for assistant professors and 1.90 for associate professors. On psychosocial benefits, the means of 2.90 for assistant professors versus 1.90 for associate professors was noticeable, but not a significant difference.

In contrast, Table 5 shows that in the analysis of benefits respondents expected to provide, DYAD was significant but RANK was not. Although male respondents expected to provide more research guidance and sponsorship to their co-authors than did female respondents, the differences were not significant. However, there were significant differences in responses across DYAD on career guidance, teaching guidance, and psychosocial benefits (at $p < .05$). Male respondents working with a female co-author expected to provide more career guidance and teaching guidance than males working with a male co-author. With respect to the cross-gender dyads, male respondents expected to provide more benefits to their female co-authors than did female respondents working with a male co-author, although the only significant differences were in career and teaching

TABLE 5

**Expectations at the Beginning of your Collaboration of
Benefits Expected to be Provided to the Co-author**

**Panel A: MANOVA Test of Benefits Expected to Provide
(n=162)**

Factor	Wilk's Lambda	Hypothesis df	F	Prob>F
DYAD	0.80	15	2.27	.01
RANK	0.92	10	1.26	.25
DYAD x RANK	0.80	25	1.39	.10

Panel B: Mean Responses

Type of mentoring benefit expected to provide	DYAD: Respondent Gender/Co-author Gender			
	Male/Male (n=73)	Female/Female (n=20)	Male/Female (n=8)	Female/Male (n=61)
Research guidance	2.30 ^a	1.65	2.88 ^{a,b}	1.90 ^b
Career guidance*	0.89 ^a	1.15	2.25 ^{a,b}	0.79 ^b
Teaching guidance*	0.56 ^a	0.95 ^{a,b}	1.50 ^{a,b}	0.50 ^b
Psychosocial*	1.42 ^a	2.45 ^{a,b}	1.88	1.51 ^b
Sponsorship	0.56	0.40	1.00	0.41

* Mean scores where: None = 0, Very low = 1, Low = 2, Medium = 3, High = 4, Very high = 5

^a ANOVA significant at $p < .05$

^a Letters indicate significant pair-wise comparison at $p < .05$

guidance. We also found that female respondents working with a female co-author expected to provide significantly more psychosocial benefits than did female respondents working with a male co-author or male respondents working with a male co-author.

Research Question 4

The last research question is whether the gender composition of the research dyad and the rank at initiation of the respondent affect benefits respondents feel they received from or provided to their co-authors. Again, respondents were asked to rate the same five benefits – research guidance, career guidance, teaching guidance, psychosocial benefits, and sponsorship – on a scale of zero to five (none to very high); but this time, respondents were rating their perceptions of the actual benefits received from and provided to their co-authors. Responses were analyzed in two MANOVAs, with research DYAD and academic RANK at project initiation as fixed factors.⁴

Overall, the MANOVAs on benefits received and provided generally were consistent with the analysis of benefits expected from the collaboration. In the analysis of benefits received (Table 6), RANK was significant, but DYAD was not. Unlike the analysis of expected benefits, the interaction was not significant, so mean responses were not analyzed separately by DYAD. Assistant professors felt they received significantly more research, career, and teaching guidance than did full professors. They also reported significantly more career guidance than did associate professors. Associate professors also ranked research guidance received significantly higher than did full professors.

DYAD was significant in the analysis of perceived benefits provided to the co-author, which was consistent with the analysis of benefits expected. However, the only significant ANOVA was on career guidance, and there were no significant pair-wise comparisons between dyads (Table 7). Although there were significant differences in *expectations* (Table 4) about teaching guidance and psychosocial benefits to be provided to co-authors, those variables were not significant in the analysis of actual benefits *provided* (Table 7). When asked about *expectations* of providing psychosocial benefits, female respondents in a female dyad had significantly higher expectations (mean 2.45) than did respondents in a male dyad (mean 1.42) or female/male dyad (mean 1.51). Although the mean score for psychosocial benefits *provided* was still higher in the female/female dyad (2.65), an examination of means shows that respondents in all dyads reported providing a higher level of psychosocial benefits than expected.

SUMMARY, CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

Our exploratory study of the collaborative research relationship which accounting faculty reported as having the greatest influence on their career development should be helpful to accounting faculty in understanding relationships and dealing with career issues. Hasselback et al. (2003) report on a model of prolific authors of accounting literature, which indicates that there are relatively few highly experienced female researchers available as mentors or sponsors. This study and others cited above suggest that women may be at a disadvantage in developing research relationships. In our study, women appeared less likely to initiate research collaborations. However, if we assume that

⁴ The research instrument included 15 other specific benefits, which were analyzed using factor analysis. However, the factor analysis has been omitted from the paper because it does not provide additional insight.

TABLE 6

Benefits Received from the Co-author

Panel A: MANOVA Test of Benefits Received

(n=162)

Factor	Wilk's Lambda	Hypothesis df	F	Prob>F
DYAD	0.91	15	0.96	.50
RANK	0.87	10	2.06	.03
DYAD x RANK	0.86	25	0.89	.62

Panel B: Mean Responses

Type of mentoring benefit received	Academic Rank at First Project Initiation		
	Assistant Professor (n=87)	Associate Professor (n=56)	Full Professor (n=16)
Research guidance	3.20 ^a	2.77 ^{a,b}	1.72 ^{a,b}
Career guidance*	1.93 ^{a,b}	1.20 ^a	0.28 ^b
Teaching guidance*	1.01 ^a	0.71	0.00 ^a
Psychosocial	2.56	2.38	1.88
Sponsorship	0.95	0.76 ^a	0.50

* Mean scores where: None = 0, Very low = 1, Low = 2, Medium = 3, High = 4, Very high = 5

ANOVA significant at $p < .05$

^a Letters indicate significant pair-wise comparison at $p < .05$

the co-author did, in fact, initiate the collaboration as reported, then it appears that among accounting academics, men are not reluctant to initiate research projects with women. Seventy-five percent of the women identified a male co-author as having the greatest career influence on them. Therefore, gender barriers in developing important research relationships are not apparent in this study.

The research dyad gender composition demonstrated explanatory power in how respondents viewed their relationships. However, with the exception of research guidance, expectations of other benefits received and provided by the relationship were low. Although literature on mentoring suggests that women have higher expectations than men about the benefits of a professional relationship, our study identified no significant differences in expectations at the beginning of research collaborations, regardless of the gender composition of the research dyad. These results suggest that at least initially, women and men do not have different expectations about the benefits of co-authorship, regardless of whether their co-author is male or female, and define benefits rather narrowly in terms of research guidance. When views on benefits received were analyzed, gender

TABLE 7

Benefits Provided to the Co-author

Panel A: MANOVA Test of Benefits Provide

(n=162)

Factor	Wilk's Lambda	Hypothesis df	F	Prob>F
DYAD	0.84	15	1.80	.03
RANK	0.93	10	1.07	.39
DYAD x RANK	0.82	25	1.24	.20

Panel B: Mean Responses

DYAD: Respondent Gender/Co-author Gender

Type of mentoring benefit provided	Male/Male (n=73)	Female/Female (n=20)	Male/Female (n=8)	Female/Male (n=61)
Research guidance	2.52	1.85	2.88	2.07
Career guidance*	0.93	1.00	2.13	0.82
Teaching guidance	0.67	0.90	1.13	0.57
Psychosocial	1.81	2.65	2.25	1.75
Sponsorship	0.51	0.65	0.75	0.46

*Mean scores where: None = 0, Very low = 1, Low = 2, Medium = 3, High = 4, Very high = 5
ANOVA significant at $p < .05$

composition of the research dyad was not significant. Therefore, women's and men's experiences working in collaborative research relationships did not appear to differ.

There were some differences in women's and men's perceptions of the benefits they provide in research collaborations. Women expected to provide more psychosocial benefits to their female co-authors than they did to their male co-authors. Further, men expected to provide significantly lower psychosocial benefits to their male co-authors than did women to female co-authors. This result is consistent with the common assumption that female mentors provide more psychosocial benefits (Ragins and McFarlin, 1990). There is also a common assumption that male mentors provide more career development roles than do female mentors. However, men responding in this study expected to provide more career guidance when their co-authors were female than when they were male. The study was not designed to determine whether women academicians actually need more career guidance than their male counterparts, or whether men believe that they need that guidance. Despite the expectations, there were few differences among research dyads when a self-assessment of benefits actually provided was analyzed.

The limitations of our study provide a basis for future research recommendations. There may be self-selection bias toward successful authors. Since eighty-two percent of the respondents were tenured, most respondents had achieved an important goal linked to research productivity. The

questionnaire was anonymous, so we were limited with regard to non-response procedures. The professors not responding may tend to be less successful researchers than the respondents, or they may be very busy people. The respondents to the survey may also have had more successful experiences with research collaborations than the general population of accounting faculty. Respondents generally had worked with the same co-author on a number of projects and had published frequently, both as single-authors and as co-authors. The research was not designed to determine whether respondents would have been as successful in their publishing activity without the benefit of research collaborations. However, research on mentoring suggests that mentors choose protégés who they believe will be successful, and that protégés choose mentors with the desired level of expertise (Ragins and Cotton, 1999; Allen et al., 2000). By extension, faculty who are considering joint research projects may select co-authors whom they believe will contribute to a successful project.

The questionnaire data are limited because they rely on respondents' memory about what they expected to provide and receive from a collaborative relationship at the beginning of the relationship, which is in the past. Since the respondents were well-established researchers, these experiences probably occurred long ago for most respondents. We also asked what benefits they provided and received, which is more recent, but may still be long ago if the co-authors have not worked together recently. While the respondents' recollection may be blurred, this is a way of asking how they viewed the relationship in retrospect, and perceptions are important in developing relationships. We reported that forty-six percent of the respondents considered the co-author that had the greatest influence on their career development to be a mentor. This response is a perception about the relationship and about mentorship.

Our study provides additional insight into the exploratory findings on collaboration in accounting research reported by Nathan et al. (1998). This prior study reported that accounting faculty members' most recent co-authoring experiences resulting in publication were extremely positive. Both studies reported on views of successful co-authors, and the response rate and total number of respondent articles published or accepted was similar. While the Nathan et al. (1998) study asked about the most recent co-author experience (one project), we asked accounting faculty about the collaborative research relationship that had the greatest influence on their career development (career focus). Since 70 percent of our respondents were at the same institution as their co-author when the first project began and another 16 percent had been at the same institution with their co-author, we gain a perspective of the importance of institutional affiliation as a factor in career development. While Nathan et al. (1998) reported that 52 percent of all co-authors were from the same university, this only relates to the most recent co-authoring experience. Since both studies report on mail questionnaire surveys, we recommend future research on co-authoring experiences and support relationships using other methodologies such as structured interviews.

Our study raises other issues for future research. The women responding to the survey had all developed successful research collaborations, the majority of which were with male colleagues. Yet the women were much less likely to report that they had initiated the research relationships. Since other studies have found evidence that women co-author articles less frequently than do men, there might be gender barriers in developing research collaborations that have yet to be identified. Future research might focus on the initiation state of the collaboration and examine faculty that have been successful as well as those that have not been successful in establishing research collaborations.

While we surveyed a sample of accounting faculty, future research might show that there are research relationship differences among disciplines in business schools. Streuly and Maranto (1994) and Dwyer (1994) reported that women in all disciplines published significantly fewer articles than men, but our more recent study results for accounting faculty suggests more comparable publication frequency. This suggests the need for a broader study of gender and publication frequency.

REFERENCES

- Allen, T.D., M.L. Poteet, and J. E. A. Russell. 2000. Protégé Selection by Mentors: What Makes the Difference? *Journal of Organizational Behavior* (Vol. 21, No. 3) 271-282.
- Association of American Colleges. 1983. *Academic Mentoring for Women Students and Faculty: A New Look at an Old Way to Get Ahead*. (Washington, D.C.: Association of American Colleges).
- Blackburn, R. T., D. W. Chapman, and S. M. Cameron. 1981. "Cloning" in Academe: Mentorship and Academic Careers. *Research in Higher Education* (Vol. 15) 315-327.
- Bremser, W. G., and M. J. Welsh. 1998. Accounting Faculty Co-authorship as Indicators of Mentoring Relationships: A Study of Gender Influences. Paper presented at the *21st Annual Congress of the European Accounting Association* (Antwerp, Belgium), April 1998.
- Burke, R. J., C. A. McKeen, and C. McKenna. 1990. Sex Differences and Cross-sex Effects on Mentoring: Some Preliminary Data. *Psychological Reports* (Vol. 67, No. 3) 1011-1023.
- _____, _____, and _____. 1994. Benefits of Mentoring in Organizations: The Mentor's Perspective. *Journal of Managerial Psychology* (Vol. 9, No. 3) 23-32.
- Cargile, B.R., and B. Bublitz. 1986. Factors Contributing to Published Research by Accounting Faculties. *The Accounting Review* (Vol. 61, No. 1) 158-178.
- Carolfi, I. A., J. R. Hasselback, and C. M. Pillsbury. 1996. The Hiring of Women in Accounting Academia. *Journal of Education for Business* (Vol. 71, No. 3) 151-156.
- Dwyer, P. D. 1994. Gender Differences in the Scholarly Activities of Accounting Academics: An Empirical Investigation. *Issues in Accounting Education* (Vol. 9, No. 2) 231-246.
- Englebrecht, T. D., G. S. Iyer, and D. M. Patterson. 1994. An Empirical Investigation of the Publication Productivity of Promoted Accounting Faculty. *Accounting Horizons* (Vol. 8, No. 1) 45-68.
- Green, S. G., G. Bauer, and N. Talya. 1995. Supervisory Mentoring by Advisers: Relationships with Doctoral Student Potential, Productivity, and Commitment. *Personnel Psychology* (Vol. 48, No. 3) 537-561.
- Hagerman, R.L., and C. M. Hagerman. 1989. Research Promotion Standards at Selected Accounting Programs. *Issues in Accounting Education* (Vol. 4, No. 2) 256-279.
- Hasselback, J. R. 1998. *Accounting Faculty Directory*. (New Jersey, Prentice-Hall).
- _____, A. Reinstein, and E.S. Schwan. 2000. Benchmarks for Evaluating the Research Productivity of Accounting Faculty. *Journal of Accounting Education* (Vol. 18, No. 2) 79-97.
- _____, _____, and _____. 2003. Prolific Authors of Accounting Literature. *Advances in Accounting* (Vol. 20) 95-125.
- Heck, J. L., and W. G. Bremser. 1986. Six Decades of The Accounting Review: A Summary of Author and Institutional Contributions. *The Accounting Review* (Vol. 61, No. 4) 735-744.

- Kram, K. E. 1985. *Mentoring at Work: Developmental Relationships in Organizational Life*. (Glenview, Illinois, Scott, Foresman).
- _____, and Isabella, L. 1985. Mentoring Alternatives: The Role of Peer Relationships in Career Development. *Academy of Management Journal* (Vol. 28, No. 1) 110-132.
- McDowell, J. M., and J. K. Smith. 1992. The Effect of Gender Sorting on Propensity to Co-author: Implications for Academic Promotion. *Economic Inquiry* (Vol. 30, No. 1) 68-82.
- Nathan, S., D. R. Hermanson, and R. H. Hermanson. 1998. Co-authoring in Refereed Journals: Views of Accounting Faculty and Department Chairs. *Issues in Accounting Education* (Vol. 13, No. 1) 79-92.
- Noe, R. A. 1988. Women and Mentoring: A Review and Research Agenda. *Academy of Management Review* (Vol. 13, No. 1) 65-78.
- Ragins, B. R. 1989. Barriers to Mentoring: The Female Manager's Dilemma. *Human Relations* (Vol. 42, No. 1) 1-22.
- _____, and J. L. Cotton. 1991. Easier Said Than Done: Gender Differences in Perceived Barriers to Gaining a Mentor. *Academy of Management Journal* (Vol. 34, No. 4) 939-951.
- _____, and _____. 1993. Gender and Willingness to Mentor in Organizations. *Journal of Management* (Vol. 19, No. 1) 97-111.
- _____, and _____. 1999. Mentor Functions and Outcomes: A Comparison of Men and Women in Formal and Informal Mentoring Relationships. *Journal of Applied Psychology* (Vol. 84, No. 4): 529-550.
- _____, and D. B. McFarlin. 1990. Perceptions of Mentor Roles in Cross-Gender Mentoring Relationships. *Journal of Vocational Behavior* (Vol. 37) 321-339.
- _____, and T. A. Scandura. 1994. Gender Differences in Expected Outcomes of Mentoring Relationships. *Academy of Management Journal* (Vol. 37, No. 4) 957-971.
- Sands, R. G., L. A. Parson, and J. Duane. 1991. Faculty Mentoring Faculty in a Public University. *Journal of Higher Education* (Vol. 62, No. 2) 174-193.
- Sayre, T. L., S. A. Holmes, J. R. Hassleback, R. H. Strawser, and B. J. Rowe. 2000. The Association of Gender with Academic Accountant Salaries. *Journal of Accounting Education* (Vol. 18, No. 3) 189-213.
- Scandura, T. A., and R. E. Viator. 1994. Mentoring in Public Accounting Firms: An Analysis of Mentor-Protégé Relationships, Mentorship Functions and Protégé Turnover Intentions. *Accounting, Organizations and Society* (Vol. 19, No. 8) 717-734.
- Schultz, J. J., Jr., J. A. Meade, and I. Khurana. 1989. The Changing Roles of Teaching, Research, and Service in the Promotion and Tenure Decisions for Accounting Faculty. *Issues in Accounting Education* (Vol. 4, No. 1) 109-119.
- Streuly, C. A. and C. L. Maranto. 1994. Accounting Faculty Research Productivity and Citations: Are There Gender Differences? *Issues in Accounting Education* (Vol. 9, No. 2) 247-258.
- Turban, D. B., and T. W. Dougherty. 1994. Role of Protégé Personality in Receipt of Mentoring and Career Success. *Academy of Management Journal* (Vol. 37, No. 3) 698-702.
- Urbancic, F. 1992. The Extent of Collaboration in the Production of Accounting Research. *Accounting Educators' Journal* (Vol. 4, No. 2) 47-61.
- Zivney, T. L., W. J. Bertin, and T. A. Gavin. 1995. A Comprehensive Examination of Accounting Faculty Publishing. *Issues in Accounting Education* (Vol. 10, No. 1) 1-25.