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Publication Patterns of Male and Female Faculty Members in the Communication Discipline

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MOST colleges and universities attach great significance to research and scholarly productivity in evaluating faculty members. In fact, the pendulum which swings frequently between teaching and research seems to be moving presently toward research as the primary category for making academic personnel decisions. Emmert and Rollman (1997) studied requirements for promotion and tenure in communication programs across the country and observed that there is "a trend toward a greater emphasis on scholarship with a decreasing concern for teaching and service" (p. 10). While this trend warrants attention by all faculty members, its impact may be greater for female academics. According to Schneider (1998), who recently reported that female faculty publish less than their male counterparts, women face certain obstacles which must be addressed. For instance, female academics indicate that they do more teaching, administrative work, and advising than male academics. In the latter area, Nadler and Nadler (1993) found that female faculty are expected to and do devote significantly more time (35 percent more, which usually goes unrewarded) to advising, which leaves less opportunity to pursue their research. This pattern has important implications, especially for female faculty, in terms of key areas such as promotion and tenure decisions and merit pay increases. Specifically, if universities and colleges increasingly value scholarship for such decisions and if institutional factors mediate against women's scholarly output, then women's opportunities regarding promotion and tenure and salary advancement may be affected adversely. Thus, in this article we examine sex-based patterns regarding research productivity.

Surprisingly, relatively little research has focused on the issue of research productivity by female and male scholars. Hickson, Stacks and Amsbary (1989, 1993) and Hickson, Stacks, Scott and Amsbary (1992) have reported research about the most active scholars in communication, speech communication, and mass communication. While their research provides information about average publication rates and the most active scholars, these studies did not provide information about the sex of authors. Cooper,

Stewart, and Friedley (1989) examined 5,879 articles in nine national and regional journals in communication from 1967-1986 and found that 69% involved only male authors, 14.2% entailed only female authors, and 11.7% had male and female authors. Clearly, this study needs to be updated to reflect possible changes in sex-based authorship patterns in the last decade. Further, several variables which are related to sex-based authorship patterns merit consideration. For example, authorship position (in cases of co-authorship) and research type (e.g., social scientific/quantitative versus rhetorical/critical) have emerged as salient factors which should be explored. As a result, this article examines the literature regarding sex-based publication patterns, delineates research questions concerning these key variables, reports the results of a study regarding publication patterns, and addresses the implications of the study's findings for faculty and administrators.

SEX-BASED PUBLICATION PATTERNS

As noted earlier, Cooper et al. (1989) found that male faculty in communication published considerably more frequently than female faculty from 1967-1986. Further, Burroughs, Christophel, Ady, and McGreal (1989) discovered that, from 1915-1985, only 6 of the top 99 authors in communication journals were women.

A major focus of this research involves delineating explanations for these differences. In addition to greater teaching and advising burdens, Schneider (1998) asserts that female academics receive less tangible support (e.g., secretarial support, graduate assistants). Further, Nicoloff and Forrest (1988) maintain that female faculty perceive less collegial and administrative support for their research. This perceived lack of tangible and social support, in turn, can reduce female academics' self-confidence and self-perceived expertise. According to Nicoloff and Forrest (1988), "these self-perceptions of ability, lack of support, lack of access to training opportunities, and fewer role models, may create an accumulative effect to further explain why women publish less than men" (p. 526).

Many other explanations have been provided regarding differential publication rates for men and women. These explanations include more women working in teaching colleges or in non-tenured slots in universities (Schneider, 1998), less integration of women into informal networks (Nicoloff and Forrest, 1988), and women taking longer and completing their doctorates at an older age (Schneider, 1998; Nicoloff and Forrest, 1988).

Despite this well-documented pattern of women publishing less frequently, change is occurring. As Cooper et al. (1987) note, "there appears to be a continuing trend toward more articles written by women as well as more articles co-authored by men and women" (p. 4). In light of such shifts in sex-based publication patterns, research should directly address this issue. As a result, the following research question is posed:

RQ1: Are there sex-based differences in publication patterns in communication journals?

SEX DIFFERENCES IN SOLE AND JOINT AUTHORSHIP

A key issue in analyzing publication rates involves sole versus joint authorship. This issue often arises in promotion and tenure deliberations for male and female scholars. Historically, greater weight has been assigned to sole authorship. In fact, Emmert and Rollman (1997) found, in a survey of 169 department chairs in communication, that 59 percent weighted sole authored publications more heavily than joint authored articles. As Violanti (1992) observes, "the clear presumption is that research is and should be an individual effort" (p. 65). This perspective appears to be based on Western values such as indi-

vidual achievement and competitive success. In this regard, Violanti (1992) concludes that "the current reward system has constraining power over researchers because it reinforces the 'norm' of individual research" (p. 81).

Other explanations for this bias toward sole authorship have emerged from research in this area. Rosenblum (1997) discovered that multiple authorship can introduce ethical problems. Specifically, he noted that authorship credit can be granted to advance the career of a junior partner, to obtain grant support, or to give the impression that a new or controversial finding by a junior investigator is supported by a respected senior researcher. As a result, a concern can arise regarding how to evaluate a scholar's contribution to jointly authored research.

Despite these possible drawbacks, collaborative research can have many potential benefits. Landry et al. (1996) found that collaboration can increase researchers' productivity. Similarly, Heffner (1981) observed a link between likelihood of grant funding and an increase in the number of authors. In addition to these outcome-based benefits, Belenky, Clinchy, Goldberger, and Tarule (1986) reported that collaborative research entails mutual stretching and sharing which allow the achievement of "a vision richer than any individual could achieve alone" (p. 119). In a related sense, Dickens (1993) delineated five themes which emerged in a study of 26 feminist (i.e., the philosophy espoused by their formal association with women's studies programs) scholars as to why they engage in collaborative research. These themes included synergy; affirmation; pragmatism; resistance and rebellion (resistance to hierarchy, exclusion, and exploitation, as well as creative rebellion); and confirmation and empowerment. These benefits may explain Dickens and Sagaria's (1997) finding that collaboration is a common practice among feminist scholars. Similarly, Steeves (1988) asserts that feminist scholarship attempts to extend traditional theories and methods (e.g., single authorship, quantitative research). In publications co-authored by men and women, some pitfalls may exist. For instance, Schneider (1998) reports that women often receive less credit from promotion and tenure reviewers.

In light of these benefits and pitfalls of joint authorship, actual publication patterns merit attention. While Lundgren (1995) found that 37 percent of articles in business journals were co-authored, little is known about such patterns in the communication field. As Violanti (1992) notes, "... no one has examined the authorship patterns in mainstream communication journals to determine whether scholars in our field are publishing more co-authored or single-authored articles" (p. 66). Her research provided evidence that co-authored publications have increased over time. For example, Violanti found that 78.1% of the articles in *Communication Education* were sole-authored in 1980, while only 20.8% of this journal's articles were sole authored in 1986. While *Communication Monographs* remained fairly constant over time (50% sole-authored - 1980, 56.5% sole-authored in 1989), the *Southern Speech Communication Journal* went from 83.3% sole authorship in 1980 to 60.9% sole authorship in 1989, and *Communication Studies* went from 83.3% sole authorship in 1980 to 53.8% sole authorship in 1988.

This research needs to be updated. In addition, the link between author sex and authorship position should be examined. For instance, Cooper et al. (1989) report that communication journals have shifted over time toward more mixed authorship. Specifically, they note that only 6.8% of all articles involved mixed authorship in 1967, while that figure increased to 17.7% in 1986. They also indicated that, for articles with three or more authors, men were in the first author position 82.2% of the time. Further, Nicoloff and Forrest (1988) observed that women were more likely to have been joint authors than men, who were single authors ($N=62$) more often than women ($N=47$).

Based on the limited knowledge regarding the relationship between author sex and authorship (sole versus joint, authorship position), the following research questions are advanced regarding the communication field:

RQ2: Are there sex-based differences in the frequency of sole authorship?

RQ3: Are there sex-based differences in the frequency of joint authorship?

RQ4: Are there sex-based differences in authorship order for jointly authored publications?

SEX DIFFERENCES IN TYPE OF RESEARCH – SOCIAL SCIENTIFIC/QUANTITATIVE VERSUS RHETORICAL/CRITICAL

In examining the tremendous diversity in communication research, a key distinction involves social science/quantitative versus rhetorical/critical research. Surprisingly, no prior research has focused on this dimension. Cooper et al. (1989), in attempting to explain women's overall lower publication rate, suggest that it could be due in part to women performing more critical/qualitative studies, which can take more time and be more difficult to publish. Further, Violanti (1992) asserts that feminist research often attempts to extend traditional methods, thereby moving beyond quantitative research. While a scholar could certainly conduct quantitative and critical/qualitative research, most academics seem to have a clear methodological preference. In fact, Hickson, Stacks, and Amsbary (1989) found that there is a negative correlation between publishing in the *Quarterly Journal of Speech* (an almost entirely rhetorical publication) and *Communication Monographs* (a journal which is now more balanced but was mainly quantitative through 1989). As little research exists concerning the link of author sex and research type, the following research question is advanced:

RQ5: Do sex differences exist regarding publication patterns involving social scientific/quantitative and rhetorical/critical studies?

A related issue involves the connection between research type and authorship status (i.e., sole or joint). Violanti (1992) found that the *Quarterly Journal of Speech* and the *Southern Speech Communication Journal* (both mainly rhetorical/critical) had more sole authored articles than other journals, while *Communication Education* and *Communication Quarterly* (both more social scientific/quantitative) had a more equal distribution of sole and joint authored articles. As little research has addressed this link, the following research question is posed:

RQ6: Do social scientific/quantitative and rhetorical/critical studies differ in terms of the frequency of sole and jointly authored publications?

METHOD

Sample

The sampling frame involved utilizing the six journals sponsored by the National Communication Association (NCA). These six journals include *Communication Education* (CE); *Communication Monographs* (CM); *Critical Studies in Mass Communication* (CSMC); *Journal of Applied Communication Research* (JACR); *Quarterly Journal of Speech* (QJS); and *Text and Performance Quarterly* (TPQ). As several prior studies were published in the late 1980's, all articles from 1988 to 1998 were

counted in the sample. While book reviews, instructional and editorial practices, and debates and rejoinders were excluded, all theoretical and empirical articles were included. A total of 1216 articles comprised the sample. The breakdown involved the following distribution in the six journals: CE-262 (21.5%); CM-206 (16.9%); CSMC-187 (15.4%); JACR-165 (13.6%); QJS-211 (17.4%), and TPQ-189 (15.5%).

PROCEDURES

Two coders were employed in classifying the articles into various categories. The coders divided the workload, but 49 articles (approximately four percent of the sample) were categorized by both coders to determine interrater reliability. As the coders agreed on 98 percent of these common journal articles, the categorization process has demonstrated interrater reliability.

Each article was coded in terms of sex of author(s), sole versus joint authorship, and research type (i.e., social scientific/quantitative versus rhetorical/critical).

Sex of Author.

Author sex was determined by judgments regarding clearly sex-typed first names or by personal knowledge. Articles in which author sex could not be ascertained (based upon initials, foreign names, or unisex names) were excluded. As a result, 45 articles (approximately four percent) were discarded, leaving a total of 1216 articles.

Authorship Order.

In the case of multiple authorship ($N=436$ co-authored articles and $N=780$ sole authored articles), the sex of each author (e.g., first, second) was recorded. When there were more than three authors, each author's sex was delineated, but no-sex based differentiation was made beyond the third author position.

Research Type.

Each article was categorized as either social scientific/quantitative or rhetorical/critical. Any article which involved hypothesis testing, statistical results, and/or theory development geared toward hypothesis testing was classified as social scientific/quantitative. Any article which entailed rhetorical criticism, qualitative analysis (e.g., ethnography), or theory construction geared toward rhetorical analysis was classified as rhetorical/critical ($N=389$ social scientific and $N=827$ rhetorical articles).

Data Analysis

In order to answer the research questions, chi-squares were computed regarding author sex, authorship order, and research type. In all cases, an alpha level of .05 was used to answer these research questions.

RESULTS

The first research question focused on whether sex differences exist regarding publication patterns in communication journals. In comparing publication patterns where there are only male authors (sole or joint, $N=606$) versus only female authors (sole or joint, $N=401$), men publish more articles than women ($\chi^2=41.73$, $df=1$, $p<.01$). When comparing publication patterns where men ($N=815$) or women ($N=610$) appear as an author overall (in other words, including mixed-sex authored publications), men publish more than women ($\chi^2=41.73$, $df=1$, $p<.01$). Cooper et al. (1987) reported that the number of male and the number of female members in SCA were roughly equal. As current mem-

bership rates for men and women in the National Communication Association were not available, we randomly sampled the 1998-1999 NCA directory to determine the sex-based composition of the organization. Specifically, we examined five of 202 membership pages, involving 204 of approximately 8000 NCA members (2.5%). In looking at membership rates, there were 85 males and 109 females (with 10 unidentifiable members). The chi-square analysis was insignificant ($\chi^2=2.97$, $\chi^2_{crit}=3.84$), and in fact, there were more female than male members. We delineated these results further in terms of professional and student members. There were 55 male professionals and 64 female professionals. Again, the chi-square analysis was not significant ($\chi^2=0.68$, $\chi^2_{crit}=3.84$). Also, there were 22 male student members and 37 female student members, which entailed a non-significant difference ($\chi^2=3.81$, $\chi^2_{crit}=3.84$). Thus, this sampling of NCA membership patterns by sex and professional standing indicated that no sex differences exist and, thus, that sex-related findings in this study cannot be attributed to differential membership patterns for men and women.

The second research question dealt with whether there are sex differences in the frequency of sole authorship in communication journals. Male authors published 471 such articles, while female authors had 309 such publications. The chi-square analysis was again significant ($\chi^2=33.6$, $df=1$, $p<.01$), such that men published more sole authored articles than women.

The third research question asked whether there are sex-based differences in the frequency of joint authorship in communication journals. Again, in counting all articles where men ($N=344$) and women ($N=301$) are authors (i.e., same-sex and mixed-sex authored articles), no significant sex differences ($\chi^2=1.90$, $\chi^2_{crit}=3.84$) were found. Thus, there are no sex differences in joint authorship. There was, though, a significant difference for male-only co-authored articles ($N=135$) versus female-only co-authored articles ($N=92$), such that there were more such co-authored articles by men ($\chi^2=8.15$, $df=1$, $p<.01$). Interestingly, when comparing male sole-authored articles ($N=471$) to male co-authored articles ($N=344$), men publish more sole-authored articles ($\chi^2=19.79$, $df=1$, $p<.01$). However, when contrasting female sole-authored articles ($N=309$) with female co-authored articles ($N=301$), no difference exists in such publications ($\chi^2=0.10$, $\chi^2_{crit}=3.84$, $df=1$).

The fourth research question focused on whether there are sex-based differences in authorship order for jointly authored publications. In this regard, men ($N=271$) were more likely to be the first author than were women ($N=195$; $\chi^2=12.39$, $df=1$, $p<.01$). Similarly, men ($N=241$) were more likely to be the second author than were women ($N=195$; $\chi^2=4.85$, $df=1$, $p<.05$).

The fifth research question asked whether there are sex differences in publication patterns in terms of social scientific/quantitative versus rhetorical/qualitative research. For sole-authored research in the social scientific area, men ($N=68$) and women ($N=56$) did not differ in publication rates ($\chi^2=1.16$, $\chi^2_{crit}=3.84$). In the rhetorical realm, men ($N=403$) published more sole-authored articles than women ($N=253$; $\chi^2=34.30$, $df=1$, $p<.01$). For jointly authored articles (counting same-sex and mixed-sex articles), men ($N=198$) and women ($N=161$) did not differ in publishing social scientific articles ($\chi^2=3.81$, $\chi^2_{crit}=3.84$). Similarly, in the rhetorical area, men ($N=126$) and women ($N=120$) did not differ in regard to joint authorship ($\chi^2=0.15$, $\chi^2_{crit}=3.84$). One follow-up analysis revealed an interesting pattern, such that for social scientific research only, men ($N=153$) were more likely than women ($N=112$) to be the first author in jointly authored publications ($\chi^2=6.34$, $df=1$, $p<.05$).

The sixth research question focused on whether social scientific and qualitative research differ in terms of the frequency of sole and joint authored publications. In this regard, social scientific research was more often co-authored ($N=265$) than sole authored ($N=124$), while rhetorical research was more often sole authored ($N=656$) than co-authored ($N=171$; $\chi^2=323.13$, $df=1$, $p<.01$).

DISCUSSION

This study's findings are quite consistent with prior research in this area. Male faculty published more than female faculty in multiple ways. Specifically, men were more frequently sole authors than women, and men were more often in the first and second position in cases of joint authorship. While no sex differences were found overall for frequency of co-authored articles, there were more male-only than female-only co-authored publications.

The implications of these findings, in terms of sex-based differences in publication patterns, are considerable. As noted earlier, research has become increasingly important in promotion and tenure decisions. Further, a connection exists between publication rates and other forms of professional activity. According to Nicoloff and Forrest (1988), women are underrepresented (compared to their numbers) not only as authors and senior authors, but as journal editors and editorial board members. Similarly, Burroughs et al. (1989) note that more active scholars more often hold offices in professional organizations and serve as journal editors and reviewers. They conclude that their research "seems to suggest there is a substantial causal link between publication productivity and professional achievement in the field of communication studies" (Burroughs et al., 1989, p. 40). Thus, if women publish less, they are less likely to be chosen as journal editors and editorial board members.

At first glance, academic administrators might simply conclude that women should be made aware of these findings and encouraged to publish more journal articles. In fact, there is some support for this notion. For example, Schneider (1998) reports that 43% of all women at all types of colleges and in all types of disciplines (versus 23% of men) have never published a journal article. At universities, the percentages drop to twenty for women and seven for men. Similarly, Nicoloff and Forrest (1988) found that author sex was a significant predictor of publication rate even when educational level, years of service, and type of position were held constant.

Certainly, women (and men) can strive to bolster their research productivity. In reviewing the limited research in this area, though, we believe that women face some unique barriers which should be delineated and addressed. In this regard, Nicoloff and Forrest (1988) assert that academicians need to look at what is happening to men and women inside and outside of the classroom in contributing to this pattern of inequity. For example, as discussed earlier, female faculty are expected to and do devote more time to academic advising, leaving less time for scholarship. Further, Burgoon (in Schneider, 1998) acknowledges that women may have a harder time tapping into networks of established scholars. Further, Nicoloff and Forrest (1988) suggest that the review practices of most scholarly journals may create unique difficulties for women. Specifically, they maintain that the practice of blind review, which entails separateness (e.g., no relationship between authors and reviewers, no ongoing communication) rather than connection, could affect women's publication patterns. As few manuscripts are accepted on first submission, they contend that female scholars may be discouraged by the critical feedback received from anonymous strangers with whom they cannot engage in mutual communication. Similarly, male authors may believe reviewers are wrong and work to revise manuscripts

while female authors may believe reviewers are correct and be hesitant to send in revisions.

For female scholars, perhaps the most significant concern involves the issue of co-authorship. The limited prior research on this issue revealed that sole-authored publications are viewed somewhat more favorably than co-authored articles. This study found that men publish more sole versus co-authored articles, while women publish about the same number of co-authored and sole-authored articles. As a result, a discrepancy exists between institutional values regarding sole versus joint authorship and women's publication patterns. While administrators again might conclude that women should publish more sole-authored articles, some scholars would question this conclusion. For example, Dickens (1993) casts collaboration as a way to model and promote feminist values in scholarship. She contends that collaborative efforts by feminist scholars reflect a response to the competitive and individualistic culture of the research university. Violanti (1992) goes a step further, stating that faculty on promotion and tenure committees can assume responsibility for educating their colleagues about the value of collaborative research and can challenge colleagues who devalue it.

A related issue regarding author sex and co-authorship involves the type of research being performed. Cooper et al. (1989) argue that women may publish less than men because they conduct more critical/qualitative studies, which take more time and may be more difficult to publish. In fact, our findings indicate that more rhetorical/critical studies ($N=827$) than social scientific/quantitative ($N=389$) pieces were published in NCA-sponsored journals from 1988-1998 (not a surprising finding as QJS, TPQ and CJMC are dedicated to rhetorical/critical studies). Also, we found that social scientific articles were more often co-authored, while rhetorical articles were more frequently sole-authored. Further, men published more sole-authored rhetorical articles than women (and this was the only significant difference involving these variables). In light of these inconsistencies, further research should clarify the links between author sex, co-authorship, and research type.

SUGGESTIONS FOR PROMOTING SEX-BASED EQUITY IN SCHOLARLY PUBLICATION

Whether research is sole-authored or collaborative, strategies for enhancing research productivity are needed, given the importance of this professional activity. Such suggestions may be bolstered by Nicoloff and Forrest's (1988) finding that men and women do not differ in expressed interest in or in rank ordering of the importance of scholarly publications. For example, Reskin (in Schneider, 1998) observes that male scientists divide their research into multiple pieces (yielding multiple publications), while women emphasize the quality of fewer comprehensive projects. This approach might be applied more easily to social scientific rather than rhetorical research in the communication field. In light of Emmert and Rollman's (1997) finding that the primary differentiating characteristic from one communication program to the next for promotion and tenure expectations in research is the highest degree students can earn in the program (e.g., Ph.D. granting programs set the highest expectations), expectations for scholarship, which fit the nature of the program, should be set for male and female faculty. In this regard, any inequities in teaching load, advising duties, and other professional responsibilities should be considered in setting these expectations. Another suggestion is that scholars must document their contributions to co-authored publications to ensure that they receive proper credit for their scholarly efforts. For example, rather than indicating that one contributed 50 percent to a co-authored article in an annual activities report or promotion and tenure application (which could lead to the scholar being given credit for half a publication), a

scholar should note specifically the tasks (including coordination with one's co-author) which he/she performed as part of the research project. In this manner, concerns about possible abuse regarding co-authorship credit and the ability to determine a colleague's contributions can be addressed. Finally, co-authors should negotiate authorship order at the beginning of a project; hopefully, authorship order would reflect relative contributions (when equal, co-authors can reverse authorship order over multiple projects) rather than office politics which might unfairly affect authors based on sex or position.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

A few limitations of this project should be noted. For example, we did not (and future research could) measure year-by-year changes in authorship patterns involving sex, authorship order and research type. Further, we recognize that publication is not the only sign of scholarly activity (e.g., grants, convention papers) and that communication scholars publish in other journals (as well as books) within and outside their discipline. A more comprehensive study of publication patterns would be interesting and informative. Finally, it should be noted that as more and more women attain graduate degrees in Communication, the findings reported in this article may change over time. Still, it appears from our results that female researchers currently do face unique barriers regarding scholarly publication and that future research should further delineate and explore the nature and impact of these barriers.

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