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GENDER DIFFERENCES IN FACULTY PUBLICATIONS IN INFORMATION TECHNOLOGY

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Abstract

The unmet demand for Information Technology faculty has created unprecedented opportunities at academic institutions for qualified individuals. In an academic setting, opportunity is often defined by hiring, promotion, and tenure decisions that are in turn strongly influenced by an individual's publication record. The objective of this study was to determine if significant gender differences exist in publication among IT faculty. Specific variables to be examined include gender related differences in the rate of publication as well as the quality & ranking of journal in which an article is published.

Keywords: Gender differences, faculty, information technology

Introduction

The academic community is widely believed to be a meritocracy (Dwyer, 1994) in which the talented progress based on achievement or intellectual criteria. At most institutions, faculty achievements in the areas of research, teaching and service form the basis for promotion and tenure decisions. Research has increasingly received top priority in those evaluations (Schultz, 1989), and forms a trend that seems to cut across research and teaching institutions.

The increasing importance placed on research has made it worthwhile to examine gender-related differences in publication rates, authorship, and type of journal for the Information Systems area. Evidence of performance differences by gender would be of interest to those in charge of faculty development programs and development of equitable reward systems.

The literature has examined this issue for several other areas such as accounting (Rama, 1997),) as well as education (Knudson, 2002) but there have been no analysis of faculty in the specific area of IT/IS. In this paper, our objective is to determine if significant gender-related differences exist in the publication productivity of Information Technology faculty.

Hypothesis

Hypothesis 1: Women proportionately publish less than their male counterparts.

Sex segregation often emerges early in the path toward many careers. Both males and females appear to make voluntary career-relevant decisions that often carry them in substantially different occupational directions. These decisions are made in early stages in the supply-side process, and have a substantial impact on academic and traditional labor markets. Understanding why men and women make the choices that they do is an important step in explaining gender related labor issues.

In the academic arena, career relevant decisions, i.e., hiring, promotion, and tenure, are strongly related to publication productivity. Studies of publication rates by gender have found significant differences in the Science disciplines but not in other academic areas. In a review of 260 articles published between 1990 and 1999 no significant trend was observed for the number of articles published by men, women, or male/female co-authors (Knudson, 2002).

Studies of Business faculty in the Accounting area have produced mixed results. Dwyer (1994) found that women “published significantly fewer articles in total, and significantly fewer articles in academic journals than their male colleagues.” Streuly (1994) found that there were no significant gender differences in the number of journal articles, and suggested “women accounting faculty have achieved comparable levels of research quantity, quality and impact as their male peers.” In contrast, (Rama, 1997) found that promoted female faculty had more publications than did promoted male faculty.

In the Science disciplines, studies have consistently found that women publish fewer papers than men. In a study of factors contributing to women’s reward outcomes, Cole (1979) concluded that there is little empirical evidence of discrimination against women in the scientific community that can account for women’s lower publication rates. Neither marital/family responsibilities nor the disproportionate placement of women in teaching-oriented colleges could explain the differences. He found that women produced less published research than men in both colleges and research-oriented universities. Newer studies also show a lower number of publications by women, (Zuckerman, 1987; Rebne, 1987; Rebne, 1992) but suggest some external factors that impair female’s productivity.

Hypothesis 2: Women proportionately publish in journals of lower rank than their male counterparts.

Potential gender related differences in journal selection may well exist and be related to social processes theorized to work against women. Reskin (1978) suggests that success as a researcher in prestigious journals is largely a function of the so-called “invisible college”-- a social network comprised of prominent researchers and those most likely to join them. The socialization-advantage thesis would suggest that the dominant position men hold in IT/IS areas of academe, especially at higher ranks, would largely exclude women from collaboration with this “invisible college”.

Another social process theory that suggests an explanation for women’s lower success rate in higher ranked journals is the thesis of “cumulative advantage” (Zuckerman, 1977). Zuckerman notes that many women come into graduate programs in science with a low degree of self-confidence (Zuckerman, 1987). Low self-confidence in conjunction with lack of mentor of rank (the invisible college) may produce reduced aspirations. Broadly, this approach suggests that female IT/IS scientists are socialized into accepting patterns of success and failure at early, even pre-doctoral, stages of their careers (Rebne, 1987).

Of interest, Rama (1997) found no difference by gender in publication in the top five journals for accounting faculty from doctoral schools. However, significant differences were observed in top tier publications for accounting faculty from non-doctoral schools. Twenty-seven percent of promoted female faculty had at least one publication in the top-tier journals, while only 12 percent of promoted men faculty had at least one publication in such journals. It is interesting that these women remained in lower-tiered institutions.

Hypothesis 3: Men proportionately are more likely to be first author.

It can be safely assumed that often the first author of a paper has fulfilled the role of chair for a committee, mentor for a student, or supervisor of research for students or faculty of lower rank. Therefore, we can suppose that for many papers, the first author has a higher rank than the second author. Examining the attained rank of faculty, (Dwyer, 1994) found that males were more likely to have a higher rank (after controlling for publication productivity). In addition, Cole (1979) found that given training of equal quality women take junior posts at a proportional rate to men (Cole, 1979).

Hypothesis 4: Women proportionately are more like to be joint authors.

Some gender theorists claim that women are more relational than men due to the differential socialization of men and women. The roots of this hypothesis lie in the different gender experiences of boys and girls. As young girls and women, females are socialized to seek help and be help givers rather than to be self-reliant or to function autonomously or competitively, as are boys (Etzkowitz, 1994). This behavior is expected despite the suggestion by these authors that the needs of women, based on socialization which encourages supportive interaction with others, is frowned upon by many male and some female faculty as indicative of inability.

Hypothesis 5: Women will publish more in management-oriented journals as compared to technically oriented journals.

A variety of social process theories examine why women and men hold different kinds of jobs (Respkin 1993; Jacobs 1995; Jacobsen 1994). Men are widely thought to be more competent than women except when performing “feminine tasks” (Consway,

Pizzamglio and Mount 1996; Wagner and Berger 1997; Williams and Best 1990). Substantial evidence suggests that mathematical tasks are often stereotyped as “masculine tasks”. This expectation has been shown to modify behavior and bias judgments (Steele 1997). This may explain why men and women are expected (and possibly socialized) to have different research interests. Since the technical field is considered a “masculine task”, we can expect to see women in the IT/IS field pursue more Management oriented research.

Other explanations of the persistence of sex segregation in research topics can be found in labor theories, which are economic in nature, demand side oriented, and include job queue gendering (Reskin and Roos 1990), statistical discrimination, and internal labor markets. Rebne suggests that women’s performance as researchers varies by occupational group (Rebne, 1987) and that study of women’s performance as academicians are approached on a paradigmatic basis. The gender difference in occupation distribution is further supported by a recent summary of the academic labor force (Long, 2001). In a study of gender differences of Science academics, women make up very different proportions of the academic labor force in different fields. Across fields in 1995, the percent of women among all full time academics ranges from 6 percent female in engineering to 31 percent in the social and behavioral sciences. Since women are represented proportionately higher in social and behavioral sciences fields, we expect their publication topics to focus more on Management issues, rather than Programming or Database (technical) issues.

Hypothesis 6: Men publish proportionately more in journals that are editorially reviewed, or in special issues composed of invited articles.

Again, social process theories suggest a possible gender difference when the article is not part of the blind, peer-reviewed process. Benjamin (1991) has found the devaluation of women’s scientific contributions to be widespread. For those articles where gender can be ascertained by author names, and where those names are known by the editorial board, gender bias may take place.

Methodology

As stated before, faculty and tenure decisions are partially based on publications, and further, on the rankings of journals within the field. To be practical, we could not include every journal in the study. We chose a stratified population sampling method that included journals from each quintile in an existing journal listing of the top 50 ranked IS journals (this listing is described below).

To determine journal ranking, we used a recently published survey of journal quality in the IS field (Mylonopoulos, 2001). This survey resulted in the top 50 ranked journals on an international scale. Mylonopoulos included 87 journals to aid in respondents recall and asked them to rank the top ten journals that they considered “tier one” and the top ten journals they would place in “tier two”. This resulted in the top 50 journals ranked by regions of North America, Europe, and Australia, plus an inclusive category for world rankings.

Fifteen journals will be selected for this study using random number generation. It is expected that a fairly even distribution across five tiers will result. In addition, the top three and bottom three journals will be included, to make sure we have the anchors of a stratified sample well represented. The review process of the journal (blind peer reviewed or editorial selection) will be recorded.

From these journals, the first issue per quarter for the last 10 years will be examined for the following measures: gender of author, number of author(s), co-authorship or ranked listing of author, and general nature of journal content (management or technical). Data collection thus far has been very successful, since access to these “top fifty” journals has been available online or through electronic databases. The nature of the journal content will be determined using assessments by doctoral faculty in the field. Surveys will ask faculty to rate the journal’s content using a Likert scale of 1 to 5, with 1 being High Technical and Low Management focus, 3 being Neutral or Equal focus, and 5 being Low Technical and High Management focus. The review process of the journal (editor, peer, blind review) will also be collected for control. To avoid bias due to a possible imbalance in numbers of male vs female faculty, the number of each in the field will be used as a denominator to standardize results into percentages of women that publish vs. percentages of men that publish.

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