

## Faculty Research Productivity and Organizational Structure in Schools of Nursing\*

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### **Abstract:**

The purpose of this study was to identify the relationship between faculty research productivity and organizational structure in schools of nursing. The need for nursing research has been widely recognized by members of the nursing profession, yet comparatively few engage in conducting research. Although contextual variables have been investigated that facilitate or inhibit nursing research, the relationship between organizational structure and nursing research productivity has not been examined. This problem was examined within the context of the Entrepreneurial Theory of Formal Organizations. A survey methodology was used for data collection. Data on individual faculty research productivity and organizational structure in the school of nursing were obtained through the use of a questionnaire. A random sample of 300 faculty teaching in 60 master's and doctoral nursing schools in the United States was used. The Instruments for data collection were Wakefield-Fisher's Adapted Scholarly Productivity Index and Hall's Organizational Inventory. The data were analyzed using Pearson Product-Moment Correlation Coefficients and multiple correlation/regression techniques. The overall relationship between faculty research productivity and organizational structure in schools of nursing was not significant at the .002 level of confidence. Although statistically significant relationships were not identified, scholarly research productivity and its subscale prepublication and research activities tended to vary positively with procedural specifications in a highly bureaucratic organizational structure. Further research may focus on identification of structural variables that support highly productive nurse researchers. (Index words: Faculty; Organization; Productivity; Research; Structure)

### **Article:**

DESPITE REPEATED AFFIRMATION of the importance of nursing research, the research productivity of nurses continues to be low. In a study of 500 nurse educators teaching at all levels, Nieswiadomy (1984) found that only 25 per cent are currently conducting research. Other investigators have reported that of the 4,500 doctorally prepared nurses in the United States, fewer than 6 per cent are primarily engaged in research as a major responsibility (Brimmer, 1983; Pitel & Vian, 1975; Taylor, Gifford, & Vian, 1971).

In examining the phenomenon of low research productivity, a number of researchers have looked at personal and environmental characteristics that support or deter research activities (Batey, 1978; Behymer, 1974; Copp, 1984; Gortner, 1982; Hall, 1975; Hoagberg, 1985; Nieswiadomy, 1984; Ostmoe, 1986; Pranulis, 1984; Wakefield-Fisher, 1987). Significant factors that effect scholarly productivity included quantity and quality of publications; highest degree earned; teaching and research interests; beliefs about relationship between publication and promotion and tenure; motivation to publish for enjoyment, to advance knowledge, and to fulfill professional obligation; age at first publication; primary teaching responsibilities; percentage of time devoted to teaching and research; hours of clinical instruction; postmaster's credits; credits toward doctorate; number of professional journals received; years since doctorate and first master's degree; memberships in the Council of Nurse Researchers and Fellow of the American Academy of Nurses; and rank. According to Ostmoe (1985) and

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Wakefield-Fisher (1987), characteristics that enhance scholarship included teaching graduate students; allotting a significant amount of time for research; filling faculty positions with doctorally prepared faculty; and developing doctoral programs with an increased expectation for scholarly productivity.

Copp (1984) surveyed 102 nursing deans throughout the United States to determine factors that inhibited nursing research productivity and found that lack of time, preparation, and resources were among the barriers. Additionally, Lane, Lagodna, Brooks, Long, and Parsons (1981) concluded that institutional constraints to productivity involved work load, scheduling, lack of release time, and lack of financial support.

In Batey's (1978) classic study of research development of university schools of nursing, she noted that high-productivity schools possessed the following characteristics that distinguished them from less productive schools: allocation of funds to develop research; policy statements and decisions that reflected research goal attainment; and research as a visible unit of the organizational structure. Although visibility of research in the organizational structure is addressed in Batey's study, few studies have examined the relationship of the formal organizational structure in academia to faculty's research productivity.

In the practice setting, Wellington (1986) reported that decentralized organizational structures allowed nurses greater responsibility for decision making and development in their practice than would be possible with centralized structures, but loss of coordination and time-consuming administrative processes were inherent in decentralized organizational structures. Measuring the effects of change in organizational structure on services in a public health nursing agency, Moran and Sussman (1983) found no significant differences in care delivery between centralized and decentralized structures.

Some work has been done on effective organizational structures in the larger academic setting. Bresser and Dunbar (1986) studied the relationship between context, structure, and academic effectiveness in 35 university departments in West Germany. Within the social science departments, a bureaucratic structure was positively related to book publications by faculty and completion of research projects by junior faculty. Lia-Hoagberg (1985), who compared nurse academics with other women academics, found that although for both groups teaching was the primary academic function, women academics spent significantly more time on research and publishing, and nurse academics spent significantly more time on administrative activities.

### *Purpose*

In an effort to identify organizational structures that promote scholarly activity, this study examined the relationship between nursing faculty research productivity and the organizational structure in schools of nursing. Specifically, the study examined the relationship between prepublication and research activities, publication activities, and editorial activity and the organizational attributes of hierarchy of authority, division of labor, rules for participants, procedural specifications, impersonality, and technical competence.

The study was conceptually based on the Entrepreneurial Theory of Formal Organizations developed by Becker and Gordon (1966). The theory classifies the nature of organizational procedures and the nature of the organization's resources, yielding information about structure as well as how authority is exercised within that structure. Formal organizations arise when someone expends resources and establishes procedures for their use to achieve a goal. The kind of organization that develops is determined by (1) the degree to which resources are stored in specific or general form and (2) the degree to which procedures are specified in the organization. The greater the specificity of resources and procedures, the more bureaucratic the organization. The complete bureaucracy and the decentralized bureaucracy, as well as variations of the two, provided the theoretical context for analyzing structures in schools of nursing. Specialized and generalized procedures and resources within schools of nursing were identified that contribute to the goal of faculty research productivity.

### *Method*

Sixty schools of nursing were randomly selected from the current lists of master's and doctoral programs in nursing published by the National League for Nursing (1986 to 1987). The chief administrative officer (CAO)

in each school was asked to recommend, according to selected criteria, the names of five faculty for inclusion in the study. To decrease sampling bias, the CAO was asked to choose five tenure-track graduate teaching faculty whose last names began with or came closest to a particular letter of the alphabet. These faculty then were asked to participate in the study by completing questionnaires on their scholarly productivity and the organizational structure of their organization.

The instrumentation for the study included two tools, the Adapted Scholarly Productivity Index (Wakefield-Fisher, 1987) and the Organizational Inventory (Hall, 1968) as well as an investigator-designed demographic data sheet. The Adapted Scholarly Productivity Index was used to measure the total amount of prepublication and research activities, publications, and editorial work completed during one's career within a specific organizational structure. The inventory consists of three subscales, with a total of 13 questions. Seven questions ask for the number of completed research projects, papers presented, articles submitted, funded research proposals, membership on research committees, and theses and dissertations chaired and served on as a member. Three questions are on the number of articles published and books published and reviewed. Finally, three questions address the number of books edited and membership on editorial boards and external research review committees. The faculty member's cumulative score was obtained by adding the total number of activities engaged in during years served in the present organizational structure. A corrected score then was derived to determine the average annual productivity of a nursing faculty member within that organizational structure. The Guttman reliability for the index as a whole was .88. Reliabilities for the three subscales were as follows: prepublication and research activities, .75; publication activities, .86; and editorial activities, .52.

Content validity for the Adapted Scholarly Productivity Index was established through a review of literature and rankings by eight members of a university faculty promotions committee. With data collected from the Wakefield-Fisher's (1987) study, factor analysis using oblique rotation of the index was performed. This analysis yielded the three subscales.

The Organizational Inventory (Hall, 1968) was designed to measure six dimensions of organizational structure: hierarchy of authority, division of labor by functional specification, behavioral rules for participants, procedural specifications for dealing with situations, impersonality, and use of technical qualifications for personnel selection and advancement. The Organizational Inventory consists of 62 statements that were rated using a five-point Likert scale, ranging from definitely true to definitely false. On each of the items, a highly bureaucratic response was labeled 1 and a less bureaucratic response was labeled 5. Spearman-Brown reliability coefficients for the six subscales of the Organizational Inventory (Hall, 1968) were: hierarchy of authority, .90; division of labor, .80; rules for participants, .83; procedural specifications, .83; impersonality, .81; and technical competence, .80. Validity of the Organizational Inventory was established through two methods. Content validity was developed by conducting a review of the literature and designing six scales reflecting constructs that repeatedly occurred in the literature. Construct validity was established through the use of groups known to be at extremes on each dimension. The differences between scores for these groups on each scale were all significant at the .05 level of confidence using a two-tailed test.

An investigator-designed demographic data sheet asked for information on the subject's age, gender, rank, tenure status, and length of time served within the organizational structure.

### *Findings*

CAOs in 60 schools of nursing were asked to identify five faculty for inclusion in the study. A total of 49 CAOs (82 per cent) responded with 221 faculty names. Of these, 136 (61 per cent) participated in the study. Six faculty surveys were excluded because of incomplete responses, and two surveys were excluded because of the small number of faculty who were tenure-track graduate faculty at the rank of instructor.

Thus, a total of 128 faculty questionnaires (58 per cent) were used for data analysis. The subjects included 125 females (98 per cent) and 3 males (2 per cent). The age of subjects ranged from 35 to 72 years (mean, 47.49 years). By rank, 50 assistant professors (39 per cent), 54 associate professors (42 per cent), and 24 full

professors (19 per cent) participated in the study. Fifty-eight (45 per cent) were nontenured faculty, and 70 (55 per cent) were tenured. Faculty had served within the same organizational structure from 1 to 23 years (mean, 6.06 years).

Respondents were grouped by gender, rank, and tenure status. Means of scholarly research productivity corrected for years in organizational structure were then computed for each group (Table 1). Scholarly research productivity scores per year for these groups ranged from 6.54 for assistant professors to 9.07 for full professors. Female scores averaged 6.90, and males averaged 16.22.

The overall relationship between faculty research productivity and organizational structure in schools of nursing was not significant at the .002 level of confidence (Table 2). A protected alpha of .002 was selected to examine the relationships between the four scholarly productivity variables and the seven organizational variables. No significant relationships were found between the subscales for faculty research productivity and organizational structure (Table 2).

**TABLE 1. Mean Scholarly Productivity Scores Corrected for Years in Organizational Structure by Gender, Professorial Rank, and Tenure Status**

Category	N	Mean
Gender		
Male	3	16.22
Female	125	6.90
Professorial rank		
Assistant	50	6.54
Associate	54	6.96
Full	24	9.07
Tenure		
Nontenured	58	6.84
Tenured	70	7.49

The variables of rank and tenure were entered with organizational structure into a multiple regression equation to determine the ability of these variables to predict scholarly research productivity. No variable or combination of variables significantly predicted research productivity.

### *Discussion*

Although organizational structure scores in this study were normally distributed between less and more highly bureaucratic organizational structures, scholarly research productivity was positively skewed, with predominantly lower scores reported. The latter findings support the work of Nieswiadomy (1984), Moustafa (1985), and Hamilton (1986), who found that nursing scholarly research activities continue to be low, showing little growth. Swartzentruber (1971) reported that most research studies conducted by nursing faculty were done by those recently completing degrees and by those in the younger age group. In the present study, however, full professors and tenured faculty reported higher levels of productivity than untenured faculty and their academic counterparts at the assistant and associate levels.

**TABLE 2. Pearson Product-Moment Correlation Coefficients and Probabilities for Scholarly Research Productivity Scales With Organizational Structure Scales**

	SPTOT	SPI	SPII	SPIII
OSTOT	-0.14860 0.0941	-0.15730 0.0762	-0.02177 0.8073	-0.08767 0.3251
OSI	-0.02366 0.7910	-0.04967 0.5777	0.10003 0.2612	-0.06221 0.4854
OSII	-0.00984 0.9122	-0.03836 0.6673	0.07449 0.4033	0.05058 0.5707
OSIII	-0.14080 0.1129	-0.13485 0.1291	-0.07185 0.4203	-0.07777 0.3829
OSIV	-0.20637 0.0194	-0.21419 0.0152	-0.04520 0.6124	-0.12124 0.1728
OSV	-0.15960 0.0719	-0.13599 0.1259	-0.13109 0.1402	-0.11206 0.2079
OSVI	-0.03160 0.7233	-0.00746 0.9334	-0.10540 0.2364	0.00961 0.9143

Abbreviations: OSTOT, organizational structure total; OSI, hierarchy of authority; OSII, division of labor; OSIII, rules for participants; OSIV, procedural specifications; OSV, impersonality; OSVI, technical competence; SPTOT, scholarly productivity total; SPI, prepublication and research activities; SPII, publication activities; SPIII, editorial activity.

Although statistically significant relationships were not established between scholarly research productivity variables and organizational variables, scholarly research productivity and its subscale prepublication and research activities tended to vary positively with procedural specifications in a highly bureaucratic organizational structure (Table 2). These findings support the work of Bresser (1984), who found that the structural variable—bureaucratic control—was positively related to book publications by faculty. Highly bureaucratic organizations may have less complex communication channels and increased coordination (Wellington, 1986), allowing faculty additional time to pursue research activities.

Faculty and administrators in schools of nursing may wish to identify procedural specifications within their organizations that could maximize communication and coordination, thereby allowing additional time and resources for research activities. Nursing faculty repeatedly engage in significantly more administrative activities than their academic counterparts (Hoagberg, 1985). Procedural specifications may allow administrative demands to be met more efficiently, leaving more time for research.

Scholarly research productivity by nursing faculty is related to a number of personal and environmental factors. Qualitative studies of highly productive nursing faculty may show the factors that have contributed to their success. In addition, future studies might focus on specific organizational procedures thought to contribute to increased research productivity.

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