

# NURSING SCHOLARS, WRITING DIMENSIONS, AND PRODUCTIVITY

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The purposes of this study were to describe cognitive, affective, and behavioral dimensions associated with writing among doctorally prepared nurses, and to determine relationships between writing dimensions and journal article publication. The 343 respondents were predominantly female, and most were employed as faculty or administrators in schools of nursing. Respondents reported a mean of 2.34 research and 2.25 nonresearch articles published in the preceding three years. The mean number of hours spent writing each week was 3.2. Multiple regression analysis showed that five variables accounted for 18% of the variance in research article productivity: time spent writing, a low level of writer's block, not awaiting inspiration before writing, not using writing references, and obtaining feedback from colleagues. Four variables accounted for 12.9% of the variance in nonresearch article productivity: time, low levels of writer's block and writing apprehension, and not writing according to a schedule.

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Studies of the scholarly activities of faculty and faculty research performance have been in existence since the 1940s (Creswell, 1985). In recent years, as research performance and publication have been increasingly made part of the requirements for promotion and/or tenure, a considerable body of literature has been developed in regard to scholarly performance. Consistently, studies of scholarly productivity have shown that productive scientists and academicians begin publishing at an early age, possess a strong interest in research, and set aside time to conduct research and write (Clemente, 1973; Cole, 1979; Blackburn, Behymer, and Hall, 1978).

The field of nursing is a relative newcomer to university settings; as such, the discipline has been lacking an established research tradition. Nevertheless, nursing faculty are being held to the same rigorous standards for promotion, tenure, and salary increase as are faculty in more established disciplines. Studies of publication productivity among nursing academicians have been few;

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however, those that have been conducted largely substantiate the characteristics of productive scholars found in other disciplines (Nieswiadomy, 1984; Ostmo, 1982; Megel, Langston, and Creswell, 1988). Even less research has documented the relationship between writing behaviors, attitudes toward writing, and publication productivity of nurses who might be expected to contribute research-based knowledge to the discipline (Ostmo, 1982; Crutchfield, 1986; Megel, Langston, and Creswell, 1988). The study reported here is unique in its examination of three writing dimensions (cognitive, affective, and behavioral) and their relationship to journal article productivity.

### STUDY PURPOSES

The first purpose of this study was to describe the journal article publication productivity of doctorally prepared nurses. Specifically, how many research and nonresearch articles have been published or accepted for publication in refereed journals in the last three years? This information provides a productivity profile of individuals who have the educational preparation that should enable them to contribute to the profession's body of knowledge.

The second purpose of the study was to describe selected cognitive, affective, and behavioral dimensions associated with writing among doctorally prepared nurses. The specific cognitive dimensions, based upon Rose's (1984) analysis of writing as a cognitive, problem-solving process, included the habit of premature editing while writing and the problem of writer's block. The affective dimension, based upon Daly and Miller's (1975) investigations of attitudes toward writing, involved an apprehensive or negative attitude toward writing. Behavioral dimensions included practices and methods that facilitated writing, such as writing in seclusion, setting writing goals and rewarding oneself for meeting them, writing regularly regardless of mood or inspiration, writing for a particular audience, using a word processor, selecting competent coauthors, using previously published articles as examples, revising manuscripts multiple times, and having colleagues review manuscripts. Each of the variables included in the behavioral dimension has been related to successful writing and/or publishing among members of other disciplines (Kellogg, 1986; Hartley and Knapper, 1984; Boice and Johnson, 1984). It is of interest to note the prevalence of these writing practices and attitudes among nursing scholars.

The third purpose of the study was to explore the relationships between the selected cognitive, affective, and behavioral dimensions of writing and journal article publication productivity, and to compare salient dimensions associated with productivity between low, moderate, and high producing groups. This information should be important in illuminating characteristic writing behaviors and attitudes of highly productive scholars, and in providing strategies for

enhancing the publication success of scholarly writers in nursing as well as other disciplines.

## REVIEW OF LITERATURE

Theory development and research on scholarly writing, apart from the linguistic approach, can be broadly categorized into three dimensions: (1) cognitive, (2) affective, and (3) behavioral. The cognitive dimension typically involves problem-solving processes associated with writing: planning, generating text, reviewing, and revising the written product. The affective dimension involves the writer's attitude toward writing, and the behavioral dimension includes writing habits, practices, and methods that facilitate or inhibit writing.

### The Cognitive Dimension

Flower and Hayes (1981) are the primary proponents of writing as a problem-solving process. Developed through protocol analysis of writers composing aloud, their model conceptualizes writing as a distinctive set of thinking processes that writers use during the act of composing. The processes include (1) planning, which is the generation of ideas and their organization; (2) translating the ideas into prose; and (3) reviewing the text, which involves evaluating, editing, and revising text written thus far. Each process interacts with the writer's long-term memory (knowledge of the topic as well as stored writing plans and writing rules) and with the task environment (the specific writing assignment, intended audience, and the actual text as it is being produced).

Problems that interfere with writing can occur in any of the processes described by Flower and Hayes (1981). Their model is useful in clarifying the processes and identifying where particular problems lie. More specific identification of problems that interfere with writing has been done by Rose (1984) and Boice (1983, 1985a, b). The problems investigated by these writers include writer's block, rigid or inappropriate writing rules, premature editing of text, and inability to deal with complex writing tasks such as analysis and synthesis of ideas.

### The Affective Dimension

Rose (1984), as well as Daly and Miller (1975), argued that an individual's attitude toward writing is important to assess as a potential writing problem. Negative attitudes toward writing, or a high level of apprehension about one's ability to write, can inhibit successful writing. The unsuccessful writer learns to

avoid writing in order to avoid the sense of failure associated with it (Daly and Miller). Studies using the Writing Apprehension Test developed by Daly and Miller suggest that highly apprehensive subjects may select occupations that require little writing, and a high degree of apprehension may predict a low quality of writing among college students (Daly and Miller, *op. cit.*; Richmond and Dickson-Markman, 1985).

### The Behavioral Dimension

Studies of writing practices, habits, and methods of adult writers have typically involved small samples of undergraduate or graduate students (Rose, 1980; Sommers, 1980; Bloom, 1985; Franek, 1982). While these studies are helpful in clarifying writing practices of novice writers, they contribute little to an understanding of the writing practices of successful scholars. A few large-scale surveys of university faculty have revealed several practices that facilitate writing, including regularly scheduled writing time (Boice and Johnson, 1984), multiple revisions of manuscripts (Boice and Johnson, 1984; Hartley and Knapper, 1984), secretarial typing and review of manuscripts by colleagues (Hartley and Knapper, 1984), and a quiet working environment (Kellogg, 1986).

In each of the above studies, the importance of *time* spent writing was discussed, although no agreement was reached about optimal amounts or schedules for best results. Most of these studies involved the investigation of one or two dimensions associated with writing, such as problem-solving processes and interfering factors. This study combined elements of all three dimensions and examined them in relationship to the scholarly productivity of doctorally prepared members of the nursing discipline. Based upon the work conducted by Rose (1984), Daly (1985), Boice (1985a, b), and Boice and Johnson (1984), a composite picture of a productive nursing researcher/writer would include the following characteristics:

1. Generates ideas and translates them into text, following flexible rules of grammar (writer's block absent).
2. Does not engage in premature editing; rather, uses multiple revisions to improve clarity of communication.
3. Possesses a positive attitude about writing and enjoys expressing ideas in writing.
4. Perceives self as capable of successful (publishable) writing.
5. Writes at regularly scheduled intervals, regardless of mood or work load, usually more often than once per week.

## METHOD

The subjects who participated in this study were doctorally prepared nurses who were listed in one of two directories: the 1984 American Nurses' Association *Directory of Nurses with Doctoral Degrees* (Current Research Index) or the 1983 Sigma Theta Tau *Directory of Nurse Researchers* (all those listed with doctoral degrees and United States addresses). These directories were chosen to enable the selection of a sample of individuals with the educational preparation and time since completion of their doctorates to contribute to the nursing literature. Recognizing that the elapsed time since publication of the directories would result in some inaccurate addresses, a sample of 500 was selected in the hope of obtaining a representative sample of 261 participants. This number was estimated based upon an approximate population of 7,000 doctorally prepared nurses in the United States and a 90% confidence interval, using a formula based upon the chi-square statistic (Nunnery and Kimbrough, 1971).

The questionnaire sent to each of the subjects was composed of 52 items and contained elements of three previously developed instruments as well as items developed by the investigator. The conceptual model that outlined the variables included in the study and that formed the basis for questionnaire development is shown in Figure 1. In order to measure the cognitive dimensions of premature editing and writer's block, the Blocking and Premature Editing subscales from Rose's (1981, 1984) Questionnaire for Identifying Writer's Block (QIWB) were included. Each of these ten items requested respondents to indicate on a 5-point scale (from Almost Always to Almost Never) the extent to which they performed certain writing behaviors. Two such items are as follows: "My first paragraph has to be perfect before I'll go on" (premature editing) and "There are times when I sit at my desk for hours, unable to write a thing" (writer's block). Reliability coefficients for Rose's (1981, 1984) questionnaire ranged from .72 to .87 with a median coefficient of .84. Rose (1984) stated that his protocol analysis case studies of ten undergraduate students supported their earlier responses to the QIWB, providing some indication of instrument validity.

The affective dimension was measured by Daly and Miller's (1975) Writing Apprehension Test (WAT), excluding the 6 items intended for in-classroom use. The 20 remaining items required subjects to indicate on a 5-point scale (from Strongly Agree to Strongly Disagree) the extent to which the item applied to them. Examples of four items from this scale are as follows: "I avoid writing," "I like seeing my thoughts on paper," "I don't think I write as well as most other people," and "People seem to enjoy what I write." The WAT was initially composed of 63 items, which were administered to 164 undergraduate students. Factor analysis resulted in a 26-item instrument, all with loadings above .60.

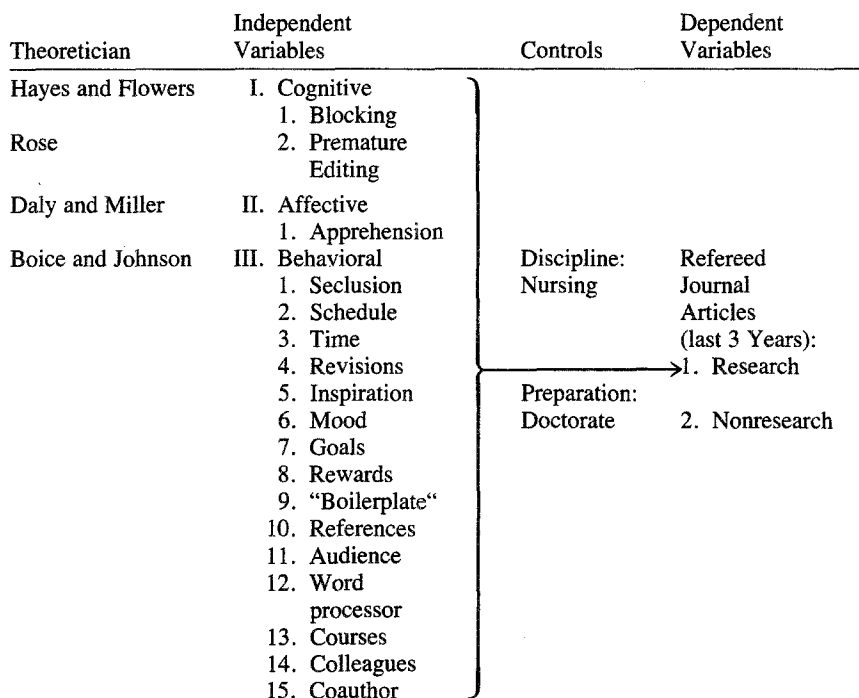


FIG. 1. Conceptual model.

Split-half reliability was .94; test-retest reliability after one week was .92. Administration of the WAT to 176 adults showed that highly apprehensive individuals perceived their occupations as having significantly fewer writing requirements than did subjects with moderate or low apprehension (Daly and Miller, 1975). Further testing of WAT validity showed that it was a significant predictor of the ACT English scores for 754 undergraduates and was a significant predictor of both overall quality of message and writing anxiety, particularly for highly apprehensive individuals (Richmond and Dickson-Markman, 1985).

The behavioral dimension was measured by five items that were based on Boice and Johnson's (1984) Writing Habits Survey (WHS). The WHS was originally composed of categorical items; in this study, the items were reconstructed as Likert-type 5-point scales that required subjects to estimate the extent to which they performed certain behaviors. Response choices were identical to those used for Rose's QIWB items. Examples of these items included: "Waiting for inspiration before writing," "Going into seclusion to write," and "Obtaining feedback about my writing from a colleague." In addition, subjects were asked to indicate the amount of time they spent writing

during a typical workweek, and the number of courses or workshops on writing attended during the past three years.

Items developed by the investigator included one demographic question on current type of employment and six items concerning publication productivity. Specifically, respondents were asked for numbers of research and nonresearch articles they had published or had accepted for publication in a refereed journal in the past three years. Additional demographic data, including the type of doctorate received and major area of specialization during the doctoral program, were obtained from the directories in which subjects were listed.

In order to determine if questionnaire items required further clarification, the instrument was pilot-tested using 32 volunteers from one midwestern university college of nursing. Responses were received from 30 of these volunteers, and minor changes in three items were made to increase the clarity of the items. Following the pilot test, the revised questionnaire and accompanying letter of explanation were sent to the 500 subjects. The cover letter requested assistance and assured anonymity of responses; questionnaires were assigned code numbers in order to follow up on nonrespondents and to provide results to interested participants. Nonrespondents (210) were sent a second letter and questionnaire four weeks after the initial mailing.

## RESULTS

### Response Rate

Data collection was concluded six weeks after the initial mailing of the survey instrument, and two weeks after follow-up questionnaires were mailed. A total of 379 questionnaires were returned. Of these, 31 were returned by the United States Postal Department as "nondeliverable." Five unanswered questionnaires were returned by individuals who declined to participate because they were not nurses, were "too busy," or "only participate in clinical studies." A total of 343 usable questionnaires were received (overall response rate = 68.6%); of these, 40 (8.2%) were received after the follow-up mailing.

### Response Bias

In order to estimate whether participants' responses differed significantly from those of the nonrespondents, a wave analysis was conducted by subjecting a few selected variables assumed to demonstrate differences among the subjects to one-way analysis of variance, based on the week in which the response was received (week 1 to week 6). The basic assumption underlying this approach is that late respondents tend to be more similar to nonrespondents than those who respond readily to mailed questionnaires (Kanuk and Berenson, 1975). The

variables subjected to the wave analysis were subjects' productivity totals, time spent writing each week, and subjects' Blocking and Premature Editing subscale scores. No statistically significant differences between respondents were found on any of these measures, which suggests that nonrespondents, if they had responded, would not have appreciably changed the results of the study.

### Subject Characteristics and Productivity

The majority of the subjects who participated in this study were female (96.5%), held the Ph.D. degree (64.2%), specialized in education in their doctoral programs (51.7%), and were currently employed as nursing faculty (47.4%) or administrators in nursing schools or other health care organizations (29%).

Respondents reported publishing a mean of 2.34 ( $SD = 3.11$ ) research articles over the preceding three-year period; a slightly lower mean (2.25,  $SD = 3.15$ ) was reported for nonresearch articles. One-third of the subjects had published no research articles in the past three years; the same proportion had not published any nonresearch articles within the same time period. Another third had published between one and two research or nonresearch articles, and the remaining third had published three or more research or nonresearch articles. The correlation between the two dependent variables (research articles and nonresearch articles) was moderately low (Pearson  $r = .31$ ). This suggests that subjects who published research articles, for example, did not publish many nonresearch articles.

### Description of Writing Dimensions

Low mean scores were obtained for each of the cognitive subscales, Premature Editing (mean = 1.33) and Blocking (mean = 2.14), which means that subjects experienced these writing problems only occasionally. The average writing apprehension score was 41 (range = 20–88), which is considerably lower than the mean of 55 obtained by Daly and Miller (1975) with undergraduate students. Writing behaviors least performed were attending workshops or courses on writing (mean = 0.4 courses in the past three years) and occasionally using rewards when writing goals were achieved (mean = 1.8). Behaviors performed "sometimes" included writing in seclusion, establishing a writing schedule, using previously written articles as examples, using a word processor, and selecting coauthors who were competent writers. Behaviors performed most often included revising manuscripts two or more times, writing for a specific audience, and obtaining feedback on manuscripts from colleagues.



The mean number of hours spent writing per week by subjects was 3.2. However, nearly one-third of the subjects reported having no time for writing. Another third reported between one and three hours of writing time each week, and the remaining third spent between four and forty hours writing each week. Anecdotal information from fifteen subjects indicated that their weekly schedules did not allow for writing; therefore, their writing was done in "binges" or blocks of time during vacations, evenings, or weekends.

### Interrelationships

Relationships between the 18 independent and 2 dependent variables included in this study were determined by computing separate univariate forward inclusion multiple regressions for each dependent variable. This was done because the correlation between the two dependent variables ( $r = .31$ ) indicated a moderately low relationship between publication of research and nonresearch articles and prohibited the use of total article productivity as a single dependent variable.

The first step of the regression analysis involved computation of a bivariate correlation matrix of all the variables entered into the analysis, as shown in Table 1. Low interitem correlations were generally achieved, and because no correlations of .80 or higher were obtained, the problem of multicollinearity did not arise (Hays and Winkler, 1971).

As previously mentioned, separate regression analyses were conducted for each dependent variable (Tables 2 and 3). The results showed that five variables accounted for 18% of the variance in research article productivity: time spent writing, a low level of writer's block, not awaiting inspiration before writing, not using references for writing, and obtaining feedback from colleagues. Time spent writing accounted for the largest percentage of the variance (10%) in research article publication productivity.

Time spent writing and lack of writer's block were also associated with the publication of nonresearch articles. In addition, a low level of writing apprehension and not writing according to a schedule added a small weight to this regression equation. These four variables accounted for 12.9% of the total variance; again, time accounted for the largest portion (6.4%).

### Differences between Groups

In order to determine how different demographic characteristics of subjects affected productivity, subjects were divided into low- and high-producing groups. Group 1 published between zero and three total articles in the past three years, and Group 2 had published more than three articles. This categorization divided subjects into two approximately equal groups. The two groups were

TABLE 1. Correlations between Variables Included in Multiple Regression Analysis

Variable	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>
Editing (X <sub>1</sub> )	1.000									
Blocking (X <sub>2</sub> )	.366	1.000								
Boilerplate (X <sub>3</sub> )	.090	.215	1.000							
Reference (X <sub>4</sub> )	-.017	.162	.231	1.000						
Audience (X <sub>5</sub> )	.052	-.094	.168	.154	1.000					
Inspiration (X <sub>6</sub> )	.159	.206	.098	.074	.020	1.000				
Mood (X <sub>7</sub> )	.201	.240	.013	.108	.049	.702	1.000			
Schedule (X <sub>8</sub> )	.012	-.167	.088	.052	.231	-.243	-.228	1.000		
Seclusion (X <sub>9</sub> )	.079	.064	.086	.099	.126	-.059	.008	.337	1.000	
Goals (X <sub>10</sub> )	-.019	-.143	.098	.126	.234	-.061	-.125	.447	.240	1.000
Rewards (X <sub>11</sub> )	.013	.084	.182	.079	.155	-.008	-.029	.246	.189	.516
Feedback (X <sub>12</sub> )	-.047	.087	.197	.122	.212	.061	.127	.086	.051	.107
Revisions (X <sub>13</sub> )	-.151	.133	.066	.179	.163	-.041	-.031	.096	.138	.072
Coauthors (X <sub>14</sub> )	.024	.023	.202	.104	.179	.077	.159	.087	.041	.230
Word processor (X <sub>15</sub> )	-.066	-.099	.099	.112	.196	-.038	-.015	.070	.003	.114
Courses (X <sub>16</sub> )	.151	.079	-.007	.190	.003	.169	.183	-.082	-.000	.033
Time (X <sub>17</sub> )	-.121	-.119	-.088	.009	.111	-.186	-.144	.215	.077	.118
WAT (X <sub>18</sub> )	.143	.506	.217	.079	-.212	.062	.093	-.171	-.033	-.093
Research (Y <sub>1</sub> )	-.057	-.220	-.045	-.143	.028	-.237	-.214	.098	.016	.065
Nonresearch (Y <sub>2</sub> )	-.138	-.223	-.066	-.036	.011	-.067	-.101	-.030	-.089	-.035

TABLE 1. (Continued)

Variable	$X_{11}$	$X_{12}$	$X_{13}$	$X_{14}$	$X_{15}$	$X_{16}$	$X_{17}$	$X_{18}$	$Y_1$	$Y_2$
Editing										
Blocking										
Boilerplate										
Reference										
Audience										
Inspiration										
Mood										
Schedule										
Seclusion										
Goals										
Rewards	1.000									
Feedback	.106	1.000								
Revisions	-.005	.388	1.000							
Coauthors	.200	.343	.124	1.000						
Word processor	.039	.255	.161	.201	1.000					
Courses	.081	-.013	-.098	.096	-.037	1.000				
Time	-.024	.060	.095	.034	.182	-.030	1.000			
WAT	.039	.022	.027	.025	-.174	.003	-.178	1.000		
Research	-.016	.087	-.001	.027	.143	-.121	.317	-.153	1.000	
Nonresearch	-.019	-.080	-.044	-.067	.091	-.032	.253	-.232	.311	1.000

**TABLE 2. Regression Analysis Summary for Publication of Research Articles**

Variable	Beta	<i>R</i>	<i>R</i> <sup>2</sup>	<i>T</i>	Sig <i>T</i>
Time	.2651	.3166	.1002	4.930	.0000
Blocking	-.1455	.3658	.1338	-2.667	.0081
Inspiration	-.1554	.3952	.1562	-2.852	.0046
References	-.1241	.4105	.1685	-2.318	.0211
Feedback	.1085	.4242	.1800	2.039	.0423

then subjected to chi-square analysis based on current type of employment, type of doctoral degree, and major area of specialization within the doctoral program. Significant differences between low and high producers were found for two characteristics: current position and type of doctorate. Specifically, more individuals who were employed to teach in schools of nursing constituted the high-producing group than did persons in the other occupational groups (chi-square = 13.13, 5 *df*, *p* = .022), and more persons holding the Ph.D. constituted the high-producing group than did individuals with other types of doctorates (chi-square = 15.06, 3 *df*, *p* = .002).

Further exploration of differences between four different levels of productivity among subjects was done by computing one-way ANOVA's and is shown in Table 4. In this analysis, Group 1 consisted of those subjects who had no research or nonresearch journal article publications in the past three years. Group 2 = subjects with one to three total articles; Group 3 = those with four to six total articles; and Group 4 = those with seven or more total articles. This grouping arranged subjects into approximately proportional groups. One-way ANOVA's were computed for time spent writing, writer's block, writing apprehension, and the extent to which subjects awaited inspiration, used reference books, and established writing schedules. Significant differences between high- and non- or low-producing groups were found for all but one variable, the use of reference books. The highest producers of published journal articles reported significantly lower levels of writer's block and writing apprehension than did the nonproducing and low-producing groups. In addition, the highest producers spent more time writing, awaited inspiration less, and attempted to write according to a schedule more than the nonproducers.

**TABLE 3. Regression Analysis Summary for Publication of Nonresearch Articles**

Variable	Beta	<i>R</i>	<i>R</i> <sup>2</sup>	<i>T</i>	Sig <i>T</i>
Time	.2395	.2536	.0642	4.287	.0000
Blocking	-.1459	.3191	.1018	-2.321	.0209
Schedule	-.1296	.3396	.1153	-2.312	.0214
WAT	-.1380	.3594	.1291	-2.178	.0302

TABLE 4. Differences Between Four Groups of Producers on Selected Cognitive, Affective, and Behavioral Dimensions

Dimension	Group 1 no articles		Group 2 1-3 articles		Group 3 4-6 articles		Group 4 >7 articles					
	<i>n</i>	<i>SD</i>	<i>n</i>	<i>SD</i>	<i>n</i>	<i>SD</i>	<i>n</i>	<i>SD</i>				
<b>I. Cognitive</b>												
1. Blocking	56	2.41	.85	123	2.33	.70	82	2.15	.71	82	1.95	.71 <sup>a</sup>
<b>II. Affective</b>												
1. WAT	56	45.80	13.14	122	43.77	11.03	82	41.66	11.66	82	36.93	12.37 <sup>b</sup>
<b>III. Behavioral</b>												
1. Time	54	1.72	4.13	120	2.36	3.83	79	2.87	2.83	78	5.91	6.02 <sup>c</sup>
2. Inspiration	55	2.64	1.31	123	2.41	1.18	82	2.45	1.18	81	1.97	1.09 <sup>d</sup>
3. References	55	2.91	1.28	123	2.90	1.25	82	2.43	1.31	82	2.59	1.52
4. Feedback	56	3.25	1.29	123	3.75	1.18	82	3.69	1.24	80	3.86	1.67 <sup>e</sup>
5. Schedule	56	2.66	1.43	123	3.10	1.27	82	3.09	1.15	79	3.29	1.37 <sup>f</sup>

<sup>a</sup> Group 4 < Groups 1, 2 at  $p = .05$  (Tukey HSD Procedure).

<sup>d</sup> Group 4 < Group 1 at  $p = .05$ .

<sup>b</sup> Group 4 < Groups 1, 2 at  $p = .05$ .

<sup>c</sup> Group 4 > Groups 1, 2, 3 at  $p = .05$ .

<sup>e</sup> Group 2, 4 > Group 1 at  $p = .05$ .

<sup>f</sup> Group 4 > Group 1 at  $p = .05$ .

### Factor Analysis of Independent Variables

To test the validity of the proposed structure underlying the independent variables included in this study (i.e., cognitive, affective, and behavioral dimensions) and to gain more insight into these constructs, the variables were subjected to principle-components factor analysis with varimax rotation. (See Ferguson, 1981.) Three factors were extracted since the original conceptualization consisted of three dimensions and three factors were believed to be sufficient to account for 18 variables. The rotated factor matrix is shown in Table 5.

An interesting result of the factor analysis is that all of the cognitive (writer's block and premature editing) and affective (writing apprehension) variables, as well as those behavioral characteristics that denoted psychological states of readiness for writing (being inspired or in the proper mood for writing), loaded most heavily on Factor I. Factors II and III were composed of behavioral variables only. The behavioral variables that loaded most highly on Factor II included those which involved assistance from other resources as well as performing multiple revisions: obtaining feedback from colleagues, selecting competent coauthors, using a word processor, and writing for a specific audience. Behavioral variables involving self-discipline loaded most highly on Factor III: establishing goals for writing and rewarding oneself for meeting

**TABLE 5. Rotated Three-Factor Matrix of Independent Variables**

Variable	Factor I	Factor II	Factor III
Block	.70684	.01291	.02703
WAT	.59811	-.17192	.03516
Mood	.59463	.23508	-.32489
Inspiration	.58784	.20571	-.33527
Editing	.51440	-.12553	.18588
Time	-.41309	.19852	.11173
Course/workshop	.34712	.04133	.03582
Feedback	.01025	.69818	.04745
Revisions	-.05163	.58076	.02556
Coauthors	.14570	.56076	.14586
Word processor	-.24151	.56652	-.02298
Audience	-.13882	.53577	.18809
References	.26773	.36716	.14474
"Boilerplate"	.33088	.33314	.23044
Goals	-.07950	.16262	.75135
Schedule	-.26651	.12880	.69732
Rewards	.17824	.10500	.67558
Seclusion	.07657	.08915	.52620

goals, establishing and sticking to a writing schedule, and writing in seclusion. The only variable which did not clearly fit any of the three factors was time spent writing each week.

Including only those variables with factor loadings of .50 or greater results in a revised conceptualization of dimensions associated with writing, as follows:

- I. Psychological Dimension (Inversely related to productivity)
  1. Writer's block
  2. Writing apprehension
  3. Mood
  4. Inspiration
  5. Premature editing
- II. Behavioral Dimension: Extrinsic (Positively related to productivity)
  1. Feedback from colleagues
  2. Multiple revisions
  3. Competent coauthors
  4. Word processor
  5. Writing for an audience
- III. Behavioral Dimension: Intrinsic (Positively related to productivity)
  1. Goals for writing
  2. Schedule for writing
  3. Rewards for meeting writing goals
  4. Writing in seclusion

Clearly, further research is needed to substantiate this conceptualization.

## DISCUSSION

Journal article productivity of the subjects in this study was remarkably similar to a sample of doctorally prepared nursing faculty who were identified by their deans as productive researchers (Megel et al., 1988).

In both of these studies, subjects reported an average of 2.3 research articles published in the past three years; a slightly higher average (2.8) was found for research articles by Megel et al. (1988) than was obtained in the present study (2.2). Approximately one-third of the subjects in both studies reported having no research articles published in the past three years; those who did publish produced between one and four research articles over the preceding three-year period. While this level of journal article productivity is lower than that reported for disciplines such as medicine, agriculture, biology, and engineering, it resembles the publication output of faculty in education, and exceeds that of library science doctorates (Krumland, Will, and Gorry, 1979; Schwebel, 1982;

Kellogg, 1986; Wilson, 1979). The practice orientation of groups such as teachers and nurses has been suggested as an obstruction to scholarly work, since many members view themselves as practitioners rather than as communicators of knowledge (Schwebel, 1982).

Despite relatively low levels of publication productivity, the subjects in this study were not particularly anxious about writing, nor did they suffer unduly from problems such as writer's block or premature editing. Correlational analyses showed that journal article productivity was not related to many of the behavioral dimensions that were suggested by Kellogg (1986) and Boice and Johnson (1984) (e.g., establishing writing goals, using multiple revisions, and writing in a quiet environment). Productivity *was* related to the amount of time spent writing each week.

The results of this study do support Boice's (1985b) contention that the most important recommendation that can be made to individuals who aspire to write successfully for publication is to write regularly at frequent intervals, without awaiting inspiration. For nurses and members of other disciplines who are actively involved in teaching, research, community service, and administrative activities, this means making time for writing and not allowing other activities to interfere with scheduled writing time. This is more easily said than done, and requires careful examination of work load as well as the values and norms of the workplace.

Academic administrators should carefully scrutinize the work load and work schedules of their faculty and actively assist individual faculty members to schedule time for research and writing. Resources that should be provided include assistance with grant writing, typing, data analysis, and computer interactions, and sabbatical leaves for concentrated research and writing time. Mentoring should be encouraged, for, as Boice (1985a) suggested, it is particularly helpful for novice writers to work with successful writers who can model good prose, writing habits, and methods of negotiating the publication process.

Finally, academicians in nursing as well as other fields need to examine carefully the writing assignments and expectations for writing of graduate and undergraduate students. Special attention should be directed to developing positive attitudes toward writing, as well as developing the writing skills of students, in order to enable them to contribute to the expanding body of disciplinary knowledge, and to prepare them for more scholarly writing at higher educational levels.

Clearly, writing takes time. While the proportion of publication productivity variance accounted for by writing time was found to be a relatively small amount (6%–10%), it is apparent that publication productivity is a complex construct which is influenced by many factors. The results of the present study show that regularity of writing time, absence of writer's block, and a positive



attitude about writing accounted for 12% to 18% of the variance associated with recent journal article publication. These findings may be of interest to those who teach and practice nursing as well as to those in other disciplines and suggest that careful planning should be done to incorporate time for writing into the work schedules of those who expect, or are expected, to contribute to the scholarly literature of their profession.

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