

Great Researcher . . . Good Teacher?

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The purpose of this study was to investigate the relationship between the research productivity and teaching effectiveness of baccalaureate nurse educators. This was a nonexperimental, correlational, retrospective study. Sixty baccalaureate nurse educators completed a questionnaire that assessed their research productivity and administered a teaching effectiveness questionnaire to all students in their classes in a given week. No relationship of significance was found between faculty research productivity and teaching effectiveness. Faculty at research institutions were found to be significantly higher research producers than faculty at either comprehensive or liberal arts institutions. No significant difference was found in the teaching effectiveness between faculty employed at research, comprehensive, or liberal arts institutions. Recommendations included (1) broadening the definition of research to include the scholarship of integration, discovery, application, and teaching; (2) implementation of two career tracks for faculty in higher education, with different reward structures for each; and (3) allowing the academic department as opposed to individual faculty to be the basic unit of evaluation. (Index words: Faculty, publishing; Publish-or-perish; Research, universities; Scholarship.) *J Prof Nurs* 12: 31-38, 1996. Copyright © 1996 by W.B. Saunders Company

Scenario 1

PROFESSOR JONES is a tenured associate professor in the College of Nursing at Midwest University. She has received two large National Institute of Nursing Research research grants, has published extensively in refereed journals, and heads a team of five nurse researchers. In addition, she teaches Nursing Research in the undergraduate program and has received the university's Outstanding Teacher of the Year award on two different occasions. The word has gotten around that Professor Jones is the professor to get for Nursing Research. Because Professor Jones is such a good researcher, it is easy to understand why she is such a good teacher. She is highly intelligent, organized, and

enthusiastic, and she keeps current in nursing through her research activities. Those qualities that serve as an asset to her in the research arena easily "spill over" into the classroom, contributing to her success in that setting.

Scenario 2

Professor Smith is a tenured professor at Mideast University in the Division of Nursing. She also has been awarded an NINR research grant as well as published her research findings extensively in refereed research journals. A portion of her role at Mideast University is to serve as director of the Center for Nursing Research. She teaches Nursing Professionalism in the undergraduate program but is a professor whom students avoid. She has the reputation for being a very boring teacher; her student evaluations place her in the "below average" to "average" category. It is not surprising that Professor Smith lacks some abilities in the classroom because she really has abilities that allow her to shine in the area of research. The demands of self-discipline and isolation have done little to enhance her interpersonal skills, which are so essential for a good teacher. She is so engrossed in her research that it is difficult for her to come down to the level of her undergraduate students and get excited about the professionalism class. She also finds her role as a researcher so time demanding that she has little energy left for enthusiastic teaching.

These two scenarios are fictitious, yet they represent the dichotomy found in the literature regarding the relationship between the research productivity and teaching effectiveness of faculty in higher education. Which scenario reflects reality? Are better researchers better teachers, or is there an inverse relationship between those variables? Because concerns are being expressed regarding the decreasing quality of American higher education (Association of American Colleges, 1985; Bennett, 1984; Gray, Froh, & Diamond, 1992; Mooney, 1991), questions arise regarding the appropriate balance between research and teaching. Faculty find themselves torn between their concern to provide quality education for their students and the demands of research essential for professional advancement.

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8755-7223/96/1201-0009\$03.00/0

Review of the Literature

The teaching/research issue has some of its roots in the tenure and promotion structure in American higher education. Faculty perceive that if they want to earn tenure and promotion, the research they produce is what counts. The quality of their undergraduate teaching really has very little, if anything, to do with their job security and upward mobility (Levy & Cooke, 1990; Schoenfeld, 1992; Toch, 1990). This "publish-or-perish" issue, as it is often called, has contributed to a decline in the quality of undergraduate education in America, according to Ernest Boyer (1990, pp. xi-xii), former US Commissioner of Education, who said:

In the current climate, students all too often are the losers. Today, undergraduates are aggressively recruited. In glossy brochures, they're assured that teaching is important. . . . But the reality is that, on far too many campuses, teaching is not well rewarded, and faculty who spend too much time counseling and advising students may diminish their prospects for tenure and promotion. . . . Research and publication have become the primary means by which most professors achieve academic status.

Crimmel (1984) succinctly summarized this view when he stated that faculty are "hired to teach, but paid to publish" (p. 183).

. . . very little time, if any, is spent teaching future professors how to teach.

The role of faculty in higher education today strongly encourages, if not actually requires, the PhD credential. One might logically assume that holders of this advanced degree are the better teachers, yet the educational preparation leading to this credential may be a contributing factor to the teaching/research issue. PhD programs focus primarily on teaching students to be researchers. In most PhD programs, very little time, if any, is spent teaching future professors how to teach. This results in faculty who tend to have a greater allegiance to scholarship than to teaching (Association of American Colleges, 1985; Wilshire, 1990). Atkins (1990) expressed concern that these PhD-prepared faculty become so specialized that they tailor courses to meet their own interests at the expense of students.

When reviewing the literature, explanations for a positive or negative relationship between research and teaching can be found. One explanation for a positive relationship between teaching and research is the "spill-over" effect (Centra, 1983; Friedrich & Michalak, 1983), which implies that the sense of excitement that the researcher derives from research may spill over into the classroom in the form of an excited, enthusiastic teacher. A second explanation is that personal characteristics that lead to success in research (organization, intelligence, self-discipline) often lead to success as a teacher (Association of American Colleges, 1985; Centra, 1983; Feldman, 1987; Jalongo, 1985). Faculty who are productive in research are more likely to be awarded external funds, which may be filtered down in the form of better resources available for student use, such as computers and software (Levy & Cooke, 1990).

One argument for a negative relationship between research productivity and teaching effectiveness is that, as faculty become more involved in research, they are frequently assigned lowered teaching loads. This results in the increased use of graduate teaching assistants and part-time instructors, both of whom are often even less prepared to teach than the PhD faculty (Sykes, 1988). Faculty who excel as researchers often work well in isolation, resulting in diminished interpersonal skills that are necessary for the classroom teacher (Feldman, 1987; Michalak & Friedrich, 1981; Seldin, 1980). As faculty become more engrossed in research, they become more specialized, resulting in decreased interest and effectiveness when teaching introductory, undergraduate courses (Kimball, 1988).

Purpose and Significance

The purpose of this study, which was a component of the author's dissertation research, was to investigate the relationship between the variables of research productivity and teaching effectiveness in the setting of nursing education. Specifically, the questions asked were:

Question 1: What is the relationship between the research productivity of individual baccalaureate nurse educators and their teaching effectiveness as perceived by nursing students?

Question 2: Is there a difference in the research productivity and teaching effectiveness between faculty employed at liberal arts, comprehensive, or research institutions?

This study was significant to nursing in that, as nursing strives to further establish itself as a profession, it must develop, through research, its own unique body of knowledge. In addition, because nursing education has moved onto university campuses, faculty find themselves challenged and encouraged to conduct research because of the tenure and promotion requirements of the university. Expertise in the area of research, as well as teaching, is now an expectation of most nurse educators.

Methodology

This was a nonexperimental, correlational, retrospective study. To protect participants' rights, approval for the study was obtained from the Committee on the Use of Human Subjects at the University of Minnesota.

The population of the study comprised all baccalaureate nurse educators employed at National League for Nursing (NLN)-accredited schools, excluding registered nurse (RN) completion programs, in the six-state Upper Midwest region of Iowa, Minnesota, Montana, North Dakota, South Dakota, and Wisconsin. Initially, a list of all NLN-accredited schools in the six-state region was obtained. These schools were then classified according to the Carnegie Classification (Table 1) with the following distribution of institutions emerging: 3 programs located in research institutions, 8 programs located in comprehensive institutions, and 29 programs located in liberal arts institutions. The names of all undergraduate nursing faculty at these 40 institutions were obtained from faculty lists in each institution's catalogue. Names were selected from that master list through the process of stratified random sampling. Letters requesting participation were sent to 60 faculty at each of the three types of institutions, for a total of 180 nursing faculty. Of those 180 educators, 71 agreed to participate in this component of the study by completing a Research

Productivity Questionnaire (RPQ) and administering a Teaching Effectiveness Questionnaire (TEQ) in all of their classes in a given week. Sixty nurse educators of the 71 agreeing to participate returned both questionnaires, resulting in a response rate of 33 per cent. Of those 60, 12 represented research institutions, 25 represented comprehensive institutions, and 23 represented liberal arts schools.

The RPQ, which was designed by the author, included 15 items assessing a variety of scholarly activities of the faculty. Inclusion of these items was based on the literature reviewed (Aleamoni & Yimer, 1973; Friedrich & Michalak, 1983; Michalek & Friedrich, 1981; Rotten, 1990; Swanson, McCloskey, & Bodensteiner, 1991; Wakefield-Fisher, 1987) (Figure 1). Respondents were asked to identify the number of times they had participated in each of the different activities in the past 5 years. These research activities were then converted into a publication score, using a procedure designed by the author and based on the literature (Table 2). The RPQ, as well as the weighting process, which was designed to assign a publication score to each participant, was reviewed by the author's dissertation committee and an expert panel of nurse educators for clarity and content validity.

Faculty were also asked to administer the TEQ to students in all of their classes that met in a given week. The TEQ, which was adapted from McKeachie (1969), included 12 items. Numbers 1 through 9 were included on the tool for face validity. Items 10 and 11 were included to assess student motivation and perceived ability in the class. Only item 12, "Overall, how would you rate this instructor?", was used to assess teaching effectiveness (Figure 2). This approach was consistent with the literature reviewed, which stated that overall ratings of teaching tend to be the most reliable and valid (Abrami, 1990; Hativa & Raviv, 1993).

Assumptions

Assumptions in this study were:

1. Student evaluations are a valid method of assessing the teaching effectiveness of professors.
2. Faculty self-reporting is a valid method of assessing research productivity.
3. Publications are an accurate reflection of the research productivity of professors.

TABLE 1. Institutional Classification Definitions

Research institutions: institutions that receive at least \$12.5 million in federal support and award at least 50 PhD degrees annually
Comprehensive institutions: institutions that award at least master's degrees, enroll at least 1,500 students, and award more than half of the baccalaureate degrees in two or more occupational or professional disciplines
Liberal arts institutions: institutions that are primarily undergraduate colleges and award more than half of their degrees in liberal arts fields (Boyer, 1990)

To the best of your ability describe the number of times you have participated in the following scholarly activities in the past 5 years. (For each item please enter a number or place a zero where applicable.)

_____ a. Joint author of an article in a refereed journal

_____ b. Sole author of an article in a refereed journal

_____ c. Joint author of an article in a nonrefereed journal

_____ d. Sole author of an article in a nonrefereed journal

_____ e. Joint author of a chapter in a book

_____ f. Sole author of a chapter in a book

_____ g. Joint or sole author of a book

_____ h. Joint author of a paper published in "proceedings of a meeting"

_____ i. Sole author of a paper published in "proceedings of a meeting"

_____ j. Author of other nonrefereed publications

_____ k. Research presented at an international conference

_____ l. Research presented at a national conference

_____ m. Research presented at a state or local conference

_____ n. Unpublished research study with results not presented at any conference

_____ o. Published teaching materials such as study guides, manuals, workbooks

Figure 1. Research productivity questionnaire.

Analysis

Question 1

To assess the relationship between research productivity and teaching effectiveness, mean research productivity and teaching effectiveness scores were obtained. The scores for the variable of research productivity ranged from 0 to 247; the mean was 24.4. This variable showed a positively skewed distribution of score as displayed in Figure 3. Because the distribution of research productivity scores was so asymmetri-

cal, it was transformed to symmetry using the square root procedure for statistical analysis as recommended by Ryan, Joiner, and Ryan (1985).

The scale of teaching effectiveness on the TEQ ranged from 1 ("very bad") to 5 ("excellent"). The mean teaching effectiveness score was 4.3075, and the standard deviation was 0.465, indicating that the participants were perceived overall as good teachers by the students.

The Pearson product moment correlation between teaching effectiveness and research productivity assessed on the RPQ and TEQ was found to be 0.107. This indicates little, if any, relationship between the two variables of research productivity and teaching effectiveness.

TABLE 2. Calculation of Research Productivity Score

$n \times 2$	a. Joint author of an article in a refereed journal
$n \times 3$	b. Sole author of an article in a refereed journal
$n \times 1$	c. Joint author of an article in a nonrefereed journal
$n \times 1$	d. Sole author of an article in a nonrefereed journal
$n \times 3$	e. Joint author in a chapter in a book
$n \times 4$	f. Sole author of a chapter in a book
$n \times 10$	g. Joint or sole author of a book
$n \times 1$	h. Joint author of a paper published in "proceedings of a meeting"
$n \times 2$	i. Sole author of a paper published in "proceedings of a meeting"
$n \times 1$	j. Author of other nonrefereed publications
$n \times 2$	k. Research presented at an international conference
$n \times 2$	l. Research presented at a national conference
$n \times 1$	m. Research presented at a state or local conference
$n \times 1$	n. Unpublished research study with results not presented at any conference
$n \times 1$	o. Published teaching materials such as study guides, manuals, workbooks
sum	= Research productivity score

Question 2

A one-way analysis of variance (ANOVA) indicated a significant difference between the means of the research productivity scores of faculty at the different classifications of institutions (Table 3). Bonferroni *t* tests were used to determine which means were significantly different. The mean research productivity of faculty at research institutions was found to be significantly different at the $P = .01$ level from the mean research productivity of faculty at comprehensive institutions ($t' = 4.39$; $df = 3, 88$) as well as significantly different at the $P = .01$ level from the mean faculty research productivity at liberal arts institutions ($t' = 4.44$; $df = 3, 88$). No significant

Each of the items below deals with a characteristic of instructors that students believe to be important. Indicate your ratings of your instructor by placing a check at the appropriate point on the scale. The exact point at which you rate is less important than the general impression.

The instructor:

1. Presents material in a well-organized manner
Disorganized _____ Well-organized _____
2. Interacts with students in a helpful manner
Not helpful _____ Helpful _____
3. Appears sensitive to student's feelings and problems
Unaware _____ Responsive _____
4. Is fair and impartial when dealing with students
Unfair _____ Fair _____
5. Speaks clearly, audibly, and at an appropriate rate
Unintelligible _____ Intelligible _____
6. Provides feedback that is constructive and prompt
Never _____ Always _____
7. Grading seems fair and impartial
Unfair _____ Fair _____
8. Seems enthusiastic and interested in the subject
Uninterested _____ Interested _____
9. Stimulates you to think
Dull _____ Stimulating _____
10. How would you rate your motivation to do well in this course?
High Motivation _____ Low Motivation _____
11. Before taking this course, how would you rate your ability to deal with the subject matter of this course?
High Ability _____ Low Ability _____
12. Overall, how would you rate this instructor?
Very bad _____ Excellent _____

Figure 2. Teaching effectiveness questionnaire (Adapted and reprinted with permission from McKeachie [1969].)

Mid-point	Count
0	48 *****
20	30 *****
40	7 *****
60	6 *****
80	5 *****
100	0
120	1 *
140	0
160	0
180	0
200	1 *
220	1 *
240	1 *

Figure 3. Histogram of research productivity scores.

difference in mean research productivity between faculty at comprehensive and liberal arts institutions was found. As shown in Table 4, ANOVA showed no significant difference in the teaching effectiveness of faculty at different classifications of employing institutions.

TABLE 3. Analysis of Variance of Differences in the Research Productivity of Faculty at Research, Comprehensive, and Liberal Arts Institutions

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F	P
Factor	2	28,596	14,298	11.78	0.00
Error	88	106,802	1,214		
Total	89	135,398			

NOTE. Research productivity means: 56.68 = research institutions, 13.57 = comprehensive institutions, 12.57 = liberal arts institutions. Scale: Research productivity scores ranged from 0 to 247.

TABLE 4. Analysis of Variance of Differences in the Teaching Effectiveness as Perceived by Students at Research, Comprehensive, and Liberal Arts Institutions

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F	P
Factor	2	0.285	0.142	0.65	.526
Error	57	12.477	0.221		
Total	59	12.761			

Teaching effectiveness means:
 4.4447 = Research institutions
 4.2532 = Comprehensive institutions
 4.2797 = Liberal arts institutions
 (Scale: Overall, how would you rate this instructor?
 Very Bad 1 2 3 4 5 Excellent)

Discussion

Little, if any, correlation between research productivity and teaching effectiveness was found. The findings of this study are consistent with several studies reviewed in the literature, which showed little or no relationship between the variables of teaching effectiveness and research productivity. This is understandable when one considers the many explanations for a positive relationship (eg, spill-over effect, faculty's general ability, more organized classroom presentation, keeping current), which are countered by just as many and just as plausible explanations for a negative relationship (eg, isolation resulting in poor interpersonal skills, increased specialization, decreased interest in teaching, decreased faculty time and energy, role conflict).

When considering this lack of correlation, an alternative explanation must also be considered. The teaching effectiveness scores may have lacked sufficient variability to adequately test for correlation with research productivity. In addition, the sample size within each institutional classification was possibly too small to test for a correlation between teaching and research.

As shown in Figure 4, most but not all of the highest research producers were from research institutions. These faculty from research institutions were found to be significantly higher research producers than faculty at either comprehensive or liberal arts schools. This was an expected finding in that the mission of the research institution is clearly oriented to the production of research by faculty, and it is consistent with the research of Flanigan et al. (1988), who found that nursing faculty employed at research universities are higher research producers. Even though the faculty at research institutions produced more

research, they were not perceived to be more or less effective teachers by students. This is consistent with the overall findings of no relationship between research productivity and teaching effectiveness.

Limitations

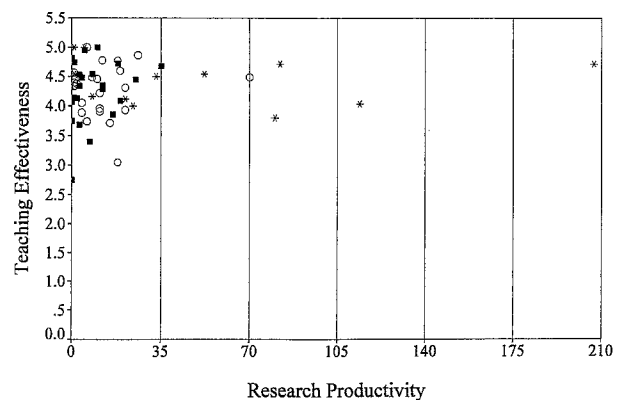
A limitation of the study was that both of the variables studied, teaching effectiveness and research productivity, are difficult to define and measure. The validity of the student evaluations may be questionable because of the Hawthorne effect; that is, students may have responded differently when evaluating their professors because they knew the evaluation was being done for research purposes.

All participants were selected randomly by the researcher, but the sample may have been biased. Faculty who are poorer teachers, or perceive themselves in that manner, may have been hesitant to participate, viewing the student evaluation component as a threat. This would reduce the variance of the teaching effectiveness scores.

The research productivity score was based on the participants' self-reporting of their research activities. Faculty may have neglected to include some of their research accomplishments or may have embellished their input. The formula for calculating a research productivity score for each participant was based on a literature review and assessed for clarity and content validity, but no formula was identified in the literature that had been tested for reliability and validity.

Recommendations and Conclusions

The study did not find that great researchers make poorer teachers, nor did it indicate that great research-



*Figure 4. Teaching effectiveness and research productivity by institutional classification. ■, Liberal arts; ○, comprehensive; *, research.*

ers make better teachers. Even at institutions where research is most highly valued and required, there was no significant difference in teaching effectiveness as perceived by students. It may be that these are essentially independent or unrelated variables and should be treated as such. These findings may have implications for the higher education enterprise both in terms of faculty evaluation and faculty assignments.

**. . . restructuring could come in the
form of the creation of two career
tracks.**

When considering the evaluation of faculty, if these are truly independent variables, administrators who conduct evaluations must be cautious to not allow a professor's work outcome in terms of one function (eg, research productivity) to impact on how that professor is evaluated in terms of the second function (eg, teaching). I believe, for example, that at times the number or quality of a professor's publications are used as a basis for guessing at the professor's skill as a teacher. This may be natural and easy to do because we often have limited information about how a professor teaches once the classroom door is closed. Conversely, I believe that at other times we may assume a teacher is not very effective because of a high publication record. When considering the findings of this study, neither of those approaches have merit. Faculty must have their

teaching, as well as their research efforts, evaluated in a comprehensive and systematic manner.

The fact remains that much concern is being expressed about the quality of undergraduate education in America today. Perhaps because these two variables have not been shown to be related, faculty workload assignments should be restructured with the potential result of increased research output and improved teaching. This restructuring could come in the form of the creation of two career tracks. Those faculty who most prefer to teach might be better teachers if no research requirements were placed on them. Those "teacher professors" would be held responsible for integrating into their teaching new knowledge, ie, the results of others' research. Those faculty most enthusiastic about conducting research would be allowed more time to do research and would be evaluated accordingly. Separate evaluation systems would need to be in place for each track, with either track providing a mechanism for faculty to attain promotion and tenure.

The role of research on university campuses is not going to diminish, nor should it. As nursing strives to establish its credibility as a professional discipline worthy of existence on the university campus, it will be even more critical for nursing faculty to conduct high-quality research and remain current in the rapidly changing health care field. Yet, as faculty, parents, legislators, and the business world raise concerns about the quality of undergraduate education, this teaching/research issue will be debated. Perhaps it is time to give credit to both teaching and research, to value them both, and to allow both to thrive in a complementary manner.

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