A Data-Based Agenda for Doctoral Nursing Education Reform

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**Background:** Continuing concerns over the diverse degree names and the quality and quantity of doctoral nursing programs make it essential that nursing leadership take consensus-driven action on the basis of today’s educational realities.

**Purpose:** To explore the state of US doctoral nursing education to determine what leadership initiatives are needed in program definition, scope, and resources.

**Method:** The researchers used a mailed survey (63.4% response rate) and Web site review (all remaining progress) to gather data on all US doctoral nursing education programs (n = 87). The survey included 12 items pertaining to each degree program and 11 institutional environmental questions.

**Discussion:** The doctor of philosophy was the most common degree title (n = 71). Degree title was not consistently associated with requirements (eg, dissertation and practica requirements) or stated degree purposes. Reports of program resources, as defined by faculty rank and research experience, indicated fiscal and educational threats to program integrity in many schools.

**Conclusions:** Although individual schools should continue efforts to increase educational quality, consensus and action by all doctoral programs is needed. Five recommendations for immediate action are proposed.

A national survey of nursing doctoral programs notes discrepancies between degree names, purposes, and requirements, leading the authors to make 5 recommendations to achieve consensus and improve doctoral education.

**BACKGROUND AND AIMS**

The number of doctoral nursing education programs has increased 16-fold since the mid-1970s. The expansion of programs has brought reports of varied degree names and program purposes, yet there is no current comprehensive information regarding the extent to which there is consistency in degree-naming conventions, the range of the postgraduation roles doctoral nursing programs prepare their graduates to hold, and the consistency of the requirements by program aims. Ascertaining this information is important if nursing is to have some basis on which to assess what, if any, reforms or additional resources are needed in doctoral nursing education as it seeks to meet the needs of the health care-seeking public. The creation of programs that are responsive to current and future health resource needs is a major professional responsibility of deans and faculty. Compared with most other forms of US education, doctoral education is largely unregulated, with the result that there are no national, reliable databases. Without such information, deans and faculty can only respond on the basis of what may be their own school’s experience and those experiences discussed by other schools’ administrators in informal settings. As we updated our own school’s strategic plan, the need for objective data became apparent.

Students and employers also need this information. For example, Hudacek and Carpenter recently noted in a study of doctor of philosophy (PhD), doctor of education (EdD), and doctor of nursing science (DNSc) students that although all these students recognized that the program they were enrolled in prepared them for research, when asked about other programs, they responded that PhD programs prepared nurses to conduct research. Hodges, Satkowski, and Ganchorre, in describing career opportunities for doctorally prepared nurses, cited positions ranging from faculty member to nurse executive to independent practitioner, yet the criteria for the degree are said to be research oriented. Common advice for selecting a program is the degree to which it provides high-quality research training. These authors and Jones and Lutz in a separate article noted that students need to do most of the information-seeking on a school-by-school basis.

Reviews of curricular requirements have been done, but none are recent enough to reflect the state of doctoral education in the new century vis-à-vis degree goals. Authors have suggested further discussion of professional practice doctorates. A literature review found no recent published efforts to systematically link program requirements with degree name, program objectives, or faculty capacity. Lenz and Hardin recently discussed the issues of quality in doctoral nursing education, with use of the American Association of Critical-Care Nurses’ (AACN) existing indicators as a backdrop. Absent of any objective national data, their analysis had to rely on individual schools and experiences. McEwen and Bechtel conducted a mailed survey in 1999 when there were 70 programs in 78 schools of nursing. On the basis of data from 48 programs (62%), they noted similarity in doctoral programs and an increased movement toward granting a PhD degree. They reported program emphasis on research preparation, with...
few programs requiring educational courses or experiences. The study’s approach did not allow comparisons of degree purpose with course requirements or a description of resources and capacities.

The general purpose of the study was to explore the state of US doctoral nursing education to determine what leadership initiatives may be needed in program definition, scope, and resources. The specific aims of the study were to (1) determine the use of degree names and the relationship of these names with program objectives and preparation for postgraduation employment, (2) describe the prevailing patterns of doctoral requirements, and (3) identify the capacities of doctoral programs.

METHOD

A mailed-survey strategy was planned. The survey, on the basis of the research aims, consisted of 12 questions per degree offered and 11 environmental questions (Table 1). For each degree offered, the survey included items related to degree name, requirements, availability of nontraditional education modalities, enrollment, and expectancies regarding roles after degree completion. The environment items included requests for information about numbers of faculty and their academic standing, research and training grant support, and predoctoral and postdoctoral fellows. This approach to research activity was used instead of the federal database of supported projects because some institutions receive major research support from the nonfederal sector. A few schools, such as Rush University, do not report College of Nursing research funding as the individual unit but, as a result of institutional policy, within the National Institutes of Health academic medical center listing.

The wording and sequencing of the survey items were determined on the basis of discussion and pilot testing with 3 doctorally prepared nursing administrators. In the spring of 2000, the investigators sent the survey with a self-addressed stamped envelope to the deans of all programs listed by the AACN as operating doctoral degree programs for nurses. The AACN list included 82 program addresses at 81 educational institutions. A second mailing was sent 18 days after the first to further elicit participation. After 6 weeks, the response rate was 63.4%. One program was noted to have closed. Fifteen of the institutions were noted to participate in 7 different doctoral cooperatives. The largest cooperative included 3 institutional members; the remainder were dyads. The most common respondent to the survey was the doctoral program coordinator/director/associate dean; the second was the dean.

Desirous of at least basic information about each program, we conducted telephone surveys and reviews of program Web sites on the basis of documents downloaded from program Web sites. If information for a survey item was not explicitly stated on the downloaded documents (eg, number of current enrollees, specific course requirement, or postgraduation employment possibilities), the item was coded as “missing.” Web sites are official public communication channels, thus the currency of their information is high. The results presented in the following are on the basis of 54 returned program surveys, reviews of 32 programs’ Internet sites, and 1 telephone interview, resulting in a basic description of 87 programs.

RESULTS

Names of Degrees and Degree Purposes

Eighty-seven programs were identified: 71 issued the PhD; 7 the DNSc; 4 the doctorate of nursing (ND); 4 the doctor of science, nursing, or the doctor of nursing science (DSN or DNS); and 1 the EdD degree. Seven universities offered 2 programs each that were identified as offering nursing doctoral-type degrees. There was no consistent pattern in the name of the 2 degrees offered. For example, at 1 institution the degrees were PhD and DNSc; at another it was DNSc and ND.

Administrators from 51 programs completed the item regarding the consistency of the program objectives with preparation for a variety of positions after graduation. Although the PhD programs were usually rated as “extremely consistent” with a future researcher/faculty role, there was considerable variation in the programs’ administrators’ reports about other roles (Table 2). Approximately one third of the PhD programs were described as having terminal objectives that were simultaneously “consistent” or “extremely consistent” with at least 3 career goals (research track faculty/researcher, clinical track faculty, and administrator). More than one fifth of respondents said that a clinician role was “consistent” or “extremely consistent” with the degree’s objectives.
There was also contrast among the responses regarding programs offering degrees with the word “nursing” in the title, e.g., DSN, ND, DNSc. The striking differences in the respondents’ rating of roles led us to abandon categorization by degree name and to regroup these programs by (1) the degree of similarity of these programs’ rating of research roles with those of PhD-granting programs and (2) the presence of a dissertation requirement, the traditional hallmark of achievement of basic preparation for a research career. With use of this system, 8 of the 11 DNSc/DSN/DNS programs were basically indistinguishable from the PhD programs. In 1 of the remaining DNSc/DSN/DNS programs, information regarding the dissertation was not reported, and, in another, the degree of consistency with a research career could not be ascertained. The eleven program reported its purposes to be “extremely inconsistent” with a research career. In addition, no dissertation was required. Further study of the ND degree programs and the remaining DNSc programs indicated a clinical or “other” focus and absence of a dissertation requirement.

A review of the Web site materials of the 31 programs whose administrators did not complete the survey but whose Internet sites contained degree goals and purpose statements indicated similar findings. The data produced through the Internet search made it impossible to differentiate consistency (eg, “consistent” vs “extremely consistent”). A dichotomous rating system of “inconsistent” (role not mentioned in degree goals and description) and “consistent” (role mentioned in degree goals and description) was thus adopted. Most (88%) of the PhD programs were rated “consistent” with entry into a research faculty/researcher career after graduation. Approximately 36% of the PhD programs mentioned preparation for a career as a clinician in their documents.

The findings from both types of data led to a categorization of the programs as “research priority programs” and “other.” Programs with data that indicated the programs’ purpose was “extremely consistent” with research and programs with Web sites that indicated a research goal as a priority were categorized by the former designation. All others were assigned the latter classifications.

**Commonalities and differences in requirements.** Programs categorized as “research priority,” regardless of degree title, required similar courses. The degree of variation in the required number of hours per specified course was not related to the degree name. All of the research priority programs indicated that every student must take some coursework in research design and methods; these included 2 PhD programs that reported that they did not have “required” courses on the grounds that faculty devised individual plans of study with students. With the exception of 3 PhD programs and 1 DNSc program, all degrees with a research priority required completion of at least 1 course in the philosophy and/or history of science and 1 in theories and concepts. A qualitative methods course was required at 57 of the research priority programs. Twenty-one of the research priority programs required a grantsmanship course, and 28 required a public policy course. Nine reported an educational course was required, and the same number reported an administration/management course requirement. Four of the research priority programs required epidemiology.

Twenty-two courses other than those already discussed were required by at least 1 doctoral degree program of any type. Eight doctoral programs reported requiring an ethics course, 2 reported requiring an outcomes research class, and 2 required courses in informatics/computers. The remainder of the requirements were noted by single schools and included diverse courses such as alternative therapies, rural nursing, transcultural nursing, vulnerability and resilience, family theory, financial management, health promotion, and the politics of nursing.

Practica requirements did not help differentiate PhD and other research priority nursing doctorate programs, lending support to the decision to typify programs by their research-role preparation priority. This is not to indicate, however, that all research priority programs, regardless of name, had the same practica requirements. For example, 20% of PhD program
Table 3. The extent of nontraditional offerings of doctoral courses

<table>
<thead>
<tr>
<th>Course type</th>
<th>Number of programs</th>
<th>Internet</th>
<th>Distance learning/alternative format</th>
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<tbody>
<tr>
<td>Philosophy/history of science</td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Theories/concepts</td>
<td>2</td>
<td>8</td>
<td></td>
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<tr>
<td>Epidemiology</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Research design</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Public policy</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Qualitative methods</td>
<td>2</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Grantmanship</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>1</td>
<td>1</td>
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respondents indicated that there was no research practicum requirement. Of the 5 programs that required a teaching practicum and the 3 that required a management practicum, all granted a PhD degree. A clinical practicum was also reported as a requirement in 2 PhD programs, yet 2 non-PhD nursing doctorate research priority programs reported that they did not require a clinical practicum.

The research priority doctoral programs did not differ markedly by degree name in terms of scholarly requirements. Of 37 research priority PhD programs for which data could be compiled, 43.25% reported some sort of publication requirement; one third (2 of 6 reporting) of the other named research priority doctoral programs had this requirement. Approximately two thirds (68.8%) of reporting research priority PhD-degree-granting programs specified an oral examination requirement; 5 of 6 reporting other-named research priority doctoral programs had this requirement. All of the non-PhD nursing research priority doctoral programs and 91.7% of the PhD-degree-granting programs reported a written examination or other writing demonstration as a requirement. One PhD-degree-granting program did not require a dissertation; all of the other reporting research priority programs, whether designated PhD or some other degree, required a dissertation and an oral defense.

On the basis of the schools for which complete requirement data were available, the amount of clinical hours required and the emphasis on statistics and research were not consistently different between PhD programs and programs offering nursing degrees within the research priority group.

**Capacities.** There are Internet or distance-learning opportunities in almost all commonly required doctoral research courses, but none are offered by a majority of programs (Table 3). Courses are slightly more likely to be available in distance-learning or alternative format (including compressed courses). Three PhD and 3 DNSc programs reported offering a summer option of some type.

Enrollments varied greatly within the research priority doctoral programs. Among the 55 programs reporting enrollments, 9% enrolled 10 or fewer students; 23.6% enrolled 11 to 20, 12.7% enrolled 21 to 30, 27.2% enrolled 31 to 40, and 27.2% reported enrollments exceeding 40. Determining the exact proportion of students who pursue full-time or close to full-time study is difficult because some of the programs did not report the number of full-time equivalent (FTE) students. From the 43 programs that reported FTE as well as head-count enrollment, a less robust picture of enrollments emerges: 25.5% of the programs enroll fewer than 11 FTE students; 37.2% enroll 11 to 20 FTE students, 20.9% enroll 21 to 30 FTE students, and 16.2% enroll more than 30 FTE students. Consistent with this finding is the report by the majority of programs, regardless of research priority standing, that full-time study was never required. Of 64 reporting programs, 33 indicated no full-time enrollment was necessary; 20 indicated 1 or 2 semesters or quarters of full-time work were required, and 11 indicated that more than 2 semesters/quarters of full-time enrollment were needed.

Although the survey attempted to ascertain the number of externally funded research and training projects as a measure of research-training potential, the inconsistency in institutional reporting and the large number of nonresponses make presentation of the reported data potentially nonrepresentative of the national situation. Until schools are willing to report these data and a consistent set of definitions for external funding can be agreed on, it is impossible to ascertain what proportion of programs can meet the basic requirements for the preparation of researchers. The numbers we did encounter gave us reason to believe that more than a few schools have large enrollments in relation to the degree of externally funded research activity.

The attempt to amass data regarding the relationship of numbers of students to faculty as a measure of capacity proved somewhat more successful. Forty-nine research priority doctoral programs provided number of program enrollees and senior (full and associate professor) faculty, enabling the calculation of a student-to-senior faculty score (number of students/sum of full and associate professors). In 61.9% of programs, the score was less than 0.5, or less than half a student per senior faculty member. In 12% of reporting programs, the score was 0.5 to less than 1, in 28.5% of programs the score was 1 to less than 1.5. Sixteen percent attained scores of 1.5 to less than 2; 18% had scores of 2 to 3, and 16% had scores of more than 3. School definitions and reporting conventions did not allow for accurate calculation of a score by FTE students nor for detection of numbers of senior faculty who currently lead or previously led substantial programs of research. A final limitation of these data was the inability to separate the number or fraction of those in senior faculty ranks who hold mainly administrative positions.

**Recommendations**

Adopt a voluntary moratorium on new degree names until a consensus can be reached. The current degree names are not applied consistently. Nursing uses a variety of titles for degrees that connote people with much the same skill set and single-degree titles for programs providing educational experiences designed to enhance vastly different skill sets. This is confusing for prospective students, supporters of educational programs
including governmental agencies, employers, clinical reimbursement agencies, and patients. Hudacek and Carpenter noted that the profession has not operationalized distinction by degree names despite more than 20 years of discussion. Although Miller has noted that the blessing of diverse doctoral programs lies in their provision of multiple options for nurses, the curse is intraprofessional and interprofessional confusion about the product. Adding more degree titles or new programs with new goals with use of old degree titles compounds this confusion. In light of the work by Mundinger et al to develop an advanced practice doctoral degree (DNP), now is the time to make explicit the difference between a research doctorate and an advanced practice doctorate. Producing these names in an atmosphere of consensus could lead to their more rapid adoption and public understanding. It would also strengthen the ability of individual nursing programs to negotiate names within their own universities.

**Convene a consensus panel through American Association of Colleges of Nursing sponsorship that would endorse degree-naming conventions.** The existence of naming conventions endorsed by the national body charged with improving higher education in nursing would help guide those schools trying to determine appropriate degree names and provide support to faculties considering revised degree titles. The naming convention would provide a mechanism by which program objectives and content could be consistently reflected in the degree name. At present, assuming all DNSc and other degrees with the word nursing in the title are practice or professional degrees is unsupported on the basis of requirements and stated purposes. Conversely, to say that all PhD degrees are nonclinical is also unwarranted, given the findings regarding clinical practica requirements and stated degree purposes. As noted by Lenz and Hardin, the decision regarding degree names was often dictated more by institutional policy than by the desired competency of graduates. As leaders, some deans will be challenged to translate the consensus panel’s findings to the parent institution. The challenge must be met, however, if nursing doctoral education is to have broadly and easily recognized products (graduates).

**Encourage the trend begun in some schools to concentrate research foci on the basis of the resources present in the doctoral research program.** Funding sources can encourage consortial trends by adopting criteria that favor funding for group efforts. The small number of experienced researchers who can and will serve as faculty limits the number and type of research foci students should be encouraged to select. Research doctoral graduates who are the products of programs in which there are no research mentors in their areas of interest are at a disadvantage in entering the competitive grants arena. Deans and faculty must be objective in considering what resources are required and their ability to provide them as they consider the institution or expansion of a research doctoral program. Nursing cannot afford to produce weak doctoral graduates if the respect of the community of science is to be maintained. In 2 of the research-intensive programs, the ratio of doctoral students to faculty was more than 6 to 1. Although this may be sustainable during coursework, mentorship at the dissertation level, when research guidance is most crucial, may be compromised by this high ratio.

**Consider a moratorium on the establishment of additional nursing research doctoral programs.** Given the number of students per existing program and the fact that in 64% of the research-oriented programs there are fewer than 2 students per senior faculty member, the establishment of new research programs is unjustifiable. This is especially true given 2 other facts: (1) there is a shortage of qualified faculty (ie, those who have led major research projects) and (2) alternative education that will make doctoral education possible for students in even the most remote of locations is a reality and likely to expand. Attempts to begin new programs cannot be squelched through the efforts of a single, all-powerful organization; one does not and should not exist. A publicized consensus among deans, funders, and accrediting bodies can, however, have an impact on the establishment of programs. As individual deans and senior faculty are asked to review proposals for new doctoral programs, they need to consider how, as persons who need to have the best interests of the public as their chief priority, they can endorse additional programs. At the very least, reviewers need to ask what alternatives, such as the cooperatives noted in this study’s findings, have been fully explored? As technology continues to change how one works and learns, multistate cooperative agreements are opportunities to provide excellent research training at lower cost. Geography is no longer an excuse for continued proliferation. Schools that are struggling to meet enrollment and expense targets while offering a quality program must begin to consider cooperation.

The finding that 62.9% of research programs enrolled 20 or fewer FTE students is a tangible discussion point that illustrates this need. The overhead of operating a doctoral program is significant. At the very least, the school of nursing will find its institutional overhead raised to support areas such as the Institutional Review Board. There will need to be administrative and support staff time devoted to marketing, recruitment, enrollment, retention, and educational enhancement activities. Even if an institution is willing to underwrite these expenses, there is the continuing issue that students need to be exposed to a variety of senior faculty active in research. If one considers that many schools, especially those that are privately funded, have found that a ratio of at least 8 FTE students to every 1 FTE faculty is needed for financial viability, only 2.5 FTE faculty would be provided in a doctoral program of 20 FTE students. If these faculty were continually funded at the 40% level (an ideal achieved in very few programs), it would allow the program to recruit another 1 FTE doctoral faculty, which still yields relatively few senior researchers. In the programs that reported fewer than 20 FTE students, the task of ensuring broad exposure becomes impossible.

**Re-examine the relationship of the roles of doctoral nursing research graduates and the program’s objectives and content.** The 1996 National Sample Survey (NSS) of registered nurses reported that there were approximately 7695 nurses who held some type of nursing doctorate and 8771 nurses holding other doctoral degrees. The average percent of time in which they functioned in various roles was 42.8% in teaching, 25.5% in
administration, 10.2% in direct patient care, 9.5% in research, 7.2% in consultation, and 4.6% in supervision. Among doctoral-degree holders, 34% indicated that their primary educational focus at the doctoral level was research, with 37.5% reporting it was education and the remainder scattered among other activities (eg, public health, clinical practice, administration). These 2 findings indicate that even among those who report research was a primary focus of their degree, very few spend much, if any, time, in research. For example, if all of the 34% of nurses who reported a focus on research in their doctoral education spent half of their work activity time on research and all other doctorally prepared nurses spent no time on research (a very unlikely assumption), the percent of overall doctoral time spent on research would be 17%, not the reported 9.5%. Producing researchers who do not do research is costly in a world in which there are so many legitimate places that resources could be expended.

Finding out the root causes for this relatively low level of research involvement is imperative. The usual explanation that there is insufficient funding of research cannot be passively accepted. To what extent do these research graduates wish to do research? People who are motivated to pursue a study make their opportunities. To what extent are these research graduates prepared to study questions for which society wants answers? If the argument is made that society does not appreciate the questions we study, what is the level of preparation of these research graduates to present nursing’s case?

The median age of the nursing doctoral graduate has not declined; in 1997 it was 45.7. On the basis of the experience of many schools, these graduates already have extensive teaching experience and enroll in research doctoral programs because it is an employer requirement for their continuance as undergraduate or graduate clinical faculty. Most do not intend to devote substantial time after graduation in research. Reviewing educator career-related requirements at the graduate level may lead to improvements in nursing education at all levels. It has been almost 20 years since most masters programs in nursing deleted education tracks. Although today’s students may have acquired educational skills through employment, there is no assurance that these students have had coursework in teaching or as expert-guided educational practicum.

The data from this survey indicate that almost all doctoral education in nursing is research career-oriented, yet the majority of the graduates are likely to spend most of their time on other activities, especially administration and education. If one assumes these other activities are needed, an examination of the continued justification for the current relatively low level of requirements in these areas is needed. Adding to this need for nursing’s educational leadership to reach some collective agreement on potential changes is the likelihood that a considerable portion of the 37.5% of doctorally prepared nurses who reported in the NSS that their doctoral education was aimed at education are approaching retirement. Before the advent of research doctoral programs in the late 1970s and 1980s, the educational doctorate was the most common degree among nurses holding doctorates. Changes in program requirements or the types of degree foci offered are only 2 of the many options that might be considered.

Leadership

The adoption of these 5 recommendations is dependent on our willingness to challenge the status quo and place our responsibilities to the public over that of individual institutional resistance. In our profession’s relatively brief 30 years of experience in doctoral education at more than just a few institutions, we have experimented with numerous goals for doctoral education, a variety of titles, and very different ways to help students achieve these goals. Adopting the recommendations does not mean experimentation should stop but does signify that we leaders pay at least as much attention to public concerns as to fostering new approaches. Meeting the responsibility of preparing professionals whose skill sets meet the public’s needs must be our primary concern. Doing so in ways in which these professionals have the advantage of public “name brand” recognition is what we owe our students.

REFERENCES