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Characteristics of Nursing Doctoral Programs in the United States

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NURSING DOCTORATES are a relatively new phenomena in the health sciences with the greatest growth occurring in the past 2 decades of the past century. In 1960, there were only 4 doctoral programs in nursing but the number increased to 30 by 1984 and to 48 in 1989 (Rickelman & Brown, 1989). Currently, there are 75 nursing doctoral programs or collaborative groups offering the research (PhD), education (EdD), or clinical doctorate (DNS/DNSc and ND) located in 81 colleges or universities in the United States. This expansive growth of doctoral education, coupled with the rapidly increasing knowledge base in the discipline of nursing, suggests the need for a systematic examination of doctoral education programs. With the demand for doctorally prepared nurses expected to increase dramatically (Hodges, Satkowski, & Ganchorre, 1998), new programs should offer unique and innovative programs of study and not simply duplicate existing nursing doctoral education programs.

Although growth in the number of doctoral nursing programs must continue to meet the increasing demands of an educated and health conscious society such growth should occur in an orderly progression that balances the educational needs of the profession with available resources. Curricula trends and outcomes should be reviewed, especially regarding the different types of degrees and programs, because the roles of doctorally prepared faculty have changed with the advent of increased research, teaching, and service opportunities.

Ultimately, the rapid proliferation of programs, coupled with an absence of degree-specific accreditation, raises serious pedagogical questions. These questions and issues have been previously addressed (Blancett, 1989; Grace, 1989), but recent information is necessary to accurately reflect the essence of doctoral programs and assist with the allocation of scarce financial and human resources. Ultimately, the knowledge gained from such information could provide an effective framework for facilitating the development of new programs of study. This information is also a necessity for the student and future nurse scientist. Jones and Lutz (1999) addressed the importance of finding a "good fit" between the student and a doctoral program to enhance satisfaction, avoid role conflict and disillusionment, and promote satisfaction with research and other learning opportunities. Thus, establishing both common and distinguishing characteristics of doctoral programs may lead to a greater understanding of the roles and obligations of educators who will prepare nurses to assume greater responsibilities and leadership in the future.

This project was undertaken to assess the status of doctoral programs in the United States. The purpose was to collect information related to curricula, admission and progression criteria, focus of study, and distance education offerings, and to compare programs based on several variables. This study will be beneficial for: (1) faculty who are planning new

doctoral programs in nursing; (2) faculty who currently teach at doctoral programs and might be interested in program revision; and (3) potential students who would like information on options for obtaining a doctorate in nursing.

Review of the Literature

Although Starck, Duffy, & Vogler (1993) and Christman (1998) suggested a need for doctoral faculty to be clinically proficient within the rapidly changing American health care system, the primary responsibility of graduates after the attainment of the doctorate in nursing remains nursing education. Despite this, there is a conspicuous absence of the teaching role of doctorally prepared nurses in the literature. Indeed, a research focus remains the primary component of most nursing doctorate programs in the United States.

Downs (1989) conducted the first overall review of doctoral programs in the United States comparing PhD and DNS programs with regard to curricula, research, and clinical requirements. Although differences in clinical and research course allocation was found between clinical and research doctorates, the wide variety of programs yielded too much conflicting data to make any concrete or definitive statement.

In another study conducted in the late 1980s, Ziemer et al. (1991) reported on curricular elements common to doctoral programs at that time. They found that the components of research designs, methods, and techniques of analysis and theory construction were covered by all of the programs that participated in their study. Theory construction was also a component of the curriculum in almost all of the programs. Student research opportunities were available in only two thirds of the programs whereas social, ethical, and political issues were components in slightly more than half. Data management, tools/technology, and existing substantive nursing knowledge comprised 45 per cent and 41 per cent of doctoral programs, respectively.

In another article reporting on a survey of 39 doctoral programs in nursing, Ziemer et al. (1992) described the most common curricular requirements. The courses and the percentage of doctoral programs with the stated requirement were: nursing theory (100 per cent), research (100 per cent), quantitative analysis (85 per cent), philosophy (74 per cent), and issues in nursing (67 per cent). The investigators listed the mean number of credit hours for courses as theory (6 credits), research (7.9 credits), quantitative analysis (7.4 credits), philosophy (4.7 credits), issues (4.6 credits), qualitative methods (3.5 credits), computer skills development (2.8 credits), research with faculty (10.0 credits), clinical (11.0 credits), role development (9.4 credits), statistics (6.4 credits), cognates/electives (10.6 credits), and dissertation/dissertation seminar (17.7 credits). Thirty-five of the 39 programs (89.7 per cent) reported some type of qualifying/comprehensive examination and 5 of the 39 programs (12 per cent) had a foreign language competency requirement.

To address concerns over the proliferation of doctoral programs in the early 1990s, the American Association of Colleges of Nursing (AACN) (1993) reported that essential doctoral program components included faculty quality, student characteristics, and expectations of students and faculty. Common curricula essentials for quality doctoral programs were: (1) history, philosophy, and nursing knowledge; (2) substantive nursing knowledge; (3) theory construction; (4) social, ethical, and political issues related to nursing; (5) research designs, methods, and analysis; (6) data management, tools, and technology; and (7) research opportunities.

A number of issues have been raised questioning the focus of doctoral programs. Meleis (1992) expressed concern that doctoral programs focused too much on research, theory, and statistics rather than substantive areas of knowledge unique to nursing. Christman (1998) concurred, stating that many PhD programs are weak in clinical methods and that research methodology is the “centerpiece” of the curriculum.

Ketefian (1993) argued that the majority of doctoral curricula concentrate on process courses (research methods, statistics, theory development, philosophy of science, and so forth) rather than nursing content. Furthermore, it is noted that students have been guided in the selection of cognate courses from other disciplines that, in effect, have become the substantive component of their program of study. This supports the ideas of Starck, Duffy, & Vogler (1993) who advocated change to emphasize practice-focused doctoral curricula to produce senior clinicians and expert practitioners.

Finally, Gosnell and Biordi (1999) reported on a survey to compare resource distribution of nursing programs based on the Carnegie classification of the university. They found that Research I institutions had more tenured faculty and Research II institutions had the fewest faculty and most students. The Research I institutions emphasized development, computers, and statistical support more than other programs and

TABLE 1. Survey Respondents by Geographic Location

Location of Nursing Program	States	Number of Programs in Sample	Total Number of Programs in Area
North Eastern United States	Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island	11	18
Mid-Atlantic/South East United States	District of Columbia, Florida, Georgia, Maryland, Virginia	10	16
North Central United States	Illinois, Iowa, Michigan, Minnesota, Missouri, Ohio	10	17
South Central United States	Arkansas, Kansas, Mississippi, Tennessee, Texas	10	16
Western United States	Arizona, California, Colorado, Oregon, Washington	7	8

subsequently spent more resources on students than did other programs.

Instrument

A researcher-developed questionnaire was used to ascertain (1) demographic information on the school, (2) characteristics of students enrolled in the doctoral program, (3) admission requirements, (4) distance education offerings, (5) curriculum content, and (6) qualifying examination criteria. Open-ended questions allowed the participants to describe program evaluation methods and the unique characteristics of their respective institutions.

Sample and Method

The sample consisted of all of the doctoral programs identified by AACN (1998). In the summer of 1999, there were 70 nursing programs located in 78 schools of nursing. Several states had more than 1 program (e.g., Texas Tech and the University of Texas at San Antonio; University of Massachusetts at Boston, Amherst, and Lowell; Medical University of South Carolina and University of South Carolina) that are joint or collaborative programs granting a single degree.

The dean of each of the 78 listed schools was sent a survey packet with a cover letter explaining the purpose of the survey, a survey form, and a self-addressed stamped envelope for return of the questionnaire. After 6 weeks, a follow-up contact was made via e-mail. Of the 78 doctoral nursing programs in the United States, 48 returned the survey form for a response rate of 62 per cent. The overwhelming majority (n = 44) offered the PhD, 4 offered a DNS/DNSc/DSN, and 2 offered an ND. One program offered the PhD and a DNSc, 1 program offered a DNSc and ND, and 1 program offered a PhD and ND.

Schools were coded by geographic locality and by the Carnegie Research Classification (Higher Education Directory, 1998). The results were entered into a data file using SPSS-PC (SPSS, Inc., 233 S. Wacker Dr., Chicago, IL 60606). A confidence level of 0.05 was predetermined.

Findings

Demographic Characteristics

The reported data was analyzed by researcher-defined geographic areas and are presented in Table 1. Thirty-seven states and the District of Columbia currently have nursing doctoral programs. States without doctoral programs in nursing include Alaska, Delaware, Idaho, Maine, Montana, Nevada, New Hampshire, North Dakota, Oklahoma, South Dakota, Vermont, West Virginia, and Wyoming. The majority of the responding nursing programs were located east of the Mississippi river.

Consistent with the literature, the sample revealed the comparative youth of doctoral programs in the United States. More established programs tended to have a greater number of students, enrolled more full-time students, and graduated more students each year (Table 2). The average length of time of all doctoral nursing programs that have been in existence is 12.8 years, with the oldest program in the sample admitting their first group of students in 1934 and the newest program admitting their initial class in the fall of 2000. The length of time programs have been in operation were characterized as less than 10 years (n = 18, 38 per cent), 10 to 19 years (n = 19, 40 per cent), and greater than 20 years (n = 11, 22 per cent).

Characteristics of Doctoral Students

TABLE 2. Student Variables by Age of Program

Student Variables	Programs <10 Years	Programs 11-19 Years	Programs 20+ Years
Number of students per year	5.75	6.94	10.50
Number of students enrolled	19.69	40.47	63.67
Number of full-time students	7.69	16.87	38.36
Number of graduates per year	2.50	6.67	6.72
Total number of graduates	2.47	64.12	126.11

TABLE 3. Information on Doctoral Students

Student Variable	Range Across Programs	Median	Mean (SD)
Students admitted per year	0-20*	7	7.46 (3.2)
Total number of students enrolled	0-93*	35	39.27 (24.0)
Number of full-time students	0-90*	12.5	19.0 (21.98)
Number of part-time students	0-71*	18	19.24 (14.6)
Number of graduates per year	0-23*	5	6.60 (5.4)
Total number of graduates	0-470*	28	55.17 (94.0)
Estimated age of doctoral students	32-45	40	39.9 (3.5)

Abbreviation: SD, standard deviation.
*Does not include ND students.

Doctoral student characteristics from the sample are presented in Table 3. The range of responses is quite variable leading to the large SD. For example, the total number of graduates from the programs range from none (a new program) to 470 (University of Texas at Austin). Most schools have relatively small numbers of students with slightly more students enrolling than graduating each year. Part-time students tend to outnumber full-time students, although some institutions only allow full-time study.

Admission Requirements

Admission requirements were remarkably consistent across programs. Table 4 shows that two thirds of the programs require a BSN and a MSN, current licensure as a registered nurse, letters of recommendation, proof of ability to perform scholarly work, and an interview. Mean graduate record examination (GRE) scores on verbal/quantitative ranged from 900 to 1,250 with a mean of 1,000, or 1,350 to 1,800 with a mean of 1,500 on the combined GRE. The average minimum GPA was 3.2 (SD = 0.23). Additional admission criteria mentioned by at least 1 respondent included: (1) commitment to take at least 2 courses per semester, (2) TOFEL for international students, (3) a prerequisite statistics course, (4) evidence of professional activities, (5) English competency (in-house assessment), and (6) resume/vitae.

TABLE 4. Admissions Requirements

Requirement for Admission	Percentage Requiring Admission
Degree from accredited nursing program	89.4
Master's degree in nursing	66.0
Accept students directly from BSN program	51.1
Nonnurses	8.5
GRE	80.4
Ability to perform scholarly work	83.0
Current nursing license	80.9
Interview	72.3
Letters of recommendation	89.4
Goal/purpose statement	55.5

Distance Education Options

Offering courses via videoconferencing is the most prevalent form of distance education with 27 per cent of all programs offering at least 1 course through this route. Nineteen per cent offered at least 1 course via the Internet, 2 programs offer courses by videotape, and 1 program offers courses via satellite. Several programs reported that a number of master's level courses are offered via distance education and students may take these as electives. Four respondents reported that some cognate courses were available through distance education.

Curriculum

Table 5 identifies the doctoral nursing courses and the respective credit hours. The average number of research credit hours was 16.7 with 8.2 hours in nursing science/philosophy and nursing theory. The programs require an average of 9 credit hours of cognates. The most commonly reported areas for study outside of the discipline of nursing were physiology, psychology, sociology, ethics, and anthropology (each mentioned by more than 5 respondents); philosophy, and public health/epidemiology (4 respondents), and statistics (3 respondents).

Dissertation

Dissertation hours were surprisingly variable. Seven respondents did not provide a total number of credit hours for dissertation, but for the remaining 41 programs the hours allocated for dissertation ranged between 1 and 30. The mean number of credit hours was 13.3 (SD = 7.31) and the most common response was 12 credit hours, which was required by 16 programs (39 per cent). Eleven programs (27 per cent) reported requiring less than 12 hours; 6 (15 per cent) required 13 to 19 hours, and 8 (20 per cent) required 20+ hours of dissertation credit hours.

Other Requirements

Two additional program requirements were noted. Two of the programs had a language requirement and

TABLE 5. Doctoral Program Courses and Credit Hours

Course Content	Percentage of All Programs Requiring 2+ Hours	Median Number of Credit Hours	Mean Number of Credit Hours (SD)
Nursing science/philosophy of nursing	89.4	3	2.96 (1.46)
Theory construction/theory development	79.7	3	2.57 (1.58)
Theory analysis/theory evaluation	57.4	3	1.85 (2.01)
Advanced nursing research	51.0	2	2.00 (1.70)
Research methodology	68.0	3	2.64 (2.1)
Qualitative research design	85.1	3	3.00 (1.74)
Quantitative research design	85.1	3	2.83 (1.40)
Statistics/advanced statistics/multivariate statistics	93.6	6	5.28 (2.89)
Instrumentation and measurement	51.1	3	1.95 (2.06)
Research practicum	62.7	1	2.18 (2.53)
Clinical practice (excluding research)	11.6	0	0.81 (2.67)
Specialization content (area of study)	55.3	3	4.68 (5.23)
Health care delivery systems	14.9	0	0.48 (1.03)
Health policy (social, ethical, and political issues)	46.8	1	1.48 (1.56)
Information systems/informatics	14.9	0	0.41 (1.02)
Grantsmanship/grant writing	36.1	0	1.08 (1.49)
Health promotion/health behaviors	17.0	0	0.68 (1.77)
Administration/management	8.5	0	0.43 (1.50)
Nursing education/curriculum and instruction	14.9	0	0.77 (1.97)
Faculty role/academia	17.1	0	0.60 (1.11)
Cognates	91.5	9	8.96 (4.67)

Abbreviation: SD, standard deviation.

45 (93.75 per cent) had a comprehensive or qualifying examination requirement.

Program Comparisons

Four factors were examined to analyze differences among programs: Carnegie Classification, length of time the program has been in operation, location of the program, and degree awarded. Analysis of variance (ANOVA) was performed to detect differences pertaining to student variables, admissions criteria, and curricula. Tukey post hoc testing was used to detect significant differences.

Comparisons by Carnegie Classification

Of the 48 programs that responded to the survey, 18 (38 per cent) were Research I institutions, 15 (31 per cent) were in health science centers/medical centers; 4 (8 per cent) were in Research II institutions; and 11 (23 per cent) were in Doctoral I or Doctoral II institutions. No differences were found in curricula, student variables, or admission requirements. Significant differences were found in distant education offerings because programs located within medical centers were more likely to use the Internet in the delivery of courses than either Doctoral I or II institutions ($P = .018$), Research II institutions ($P = .004$), and Research I institutions ($P = .030$). Programs in medical centers were also significantly more likely to use videoconferencing than Research I institutions ($P = .012$) or Doctoral I or II institutions ($P = .003$).

Comparison by Length of Time Program is in Existence

For analysis, the programs were sorted into 3 groups by the date students were first admitted. Not surprisingly, older programs had significantly more students, more graduates, and more full-time students than did newer programs. The mean number of credit hours for health policy was the only significant curriculum difference based on the age of the program. Doctoral nursing programs that were more than 20 years old had an average of 0.21 hours (SD = 0.50) of health policy credits compared with programs that are less than 10 years old (1.88, SD = 1.65) and those 10 to 18 years (1.94, SD = 1.51). There were no other significant differences based on the age of the program, differences in distance education options, or admissions criteria.

Comparison by Degree Awarded

There were a few significant differences based on the degree awarded. DNS, DSN, and DNSc programs were more likely to require a license to practice in the state where the program was located ($P = .002$) and more likely to require an interview ($P = .000$) than PhD programs.

Consistent with observations made in the literature, there were only 3 significant differences between PhD and DNS, DSN, DNSc and programs in curricula.

First, the research practicum was significantly ($P = .000$) more common in PhD programs. DNS, DSN, or DNSc programs required an average of 0.25 hours of research practicum compared with 2.4 hours for PhD programs. Second, total research hours were also significantly different ($P = .009$) because PhD programs required 17.3 hours of research and DNS, DSN, or DNSc programs required an average of 10 hours. Third, nonresearch clinical course hours were significantly different ($P = .000$) with DNS, DSN, or DNSc programs requiring an average of 5.25 course hours of clinical compared with 0.40 hours of clinical for PhD programs.

Comparison by Location

There were 2 significant differences noted between programs based on location. First, programs in the west enroll significantly more students per year ($P = .04$) than programs in the south central part of the country. Second, doctoral nursing programs in the northeast United States require an average of 3.36 hours of advanced statistics and programs located in the north central portion of the United States require 6.8 hours of statistics ($P = .01$).

Other Findings

Currently, 75 individual schools or collaborative groups offer doctoral degrees in nursing. These programs are located in 81 different colleges or universities. Of these, 66 programs (88 per cent) offer the PhD, 9 (12 per cent) offer the DNS, DSN, or DNSc, 1 (1 per cent) offers the EdD, and 3 (4 per cent) offer the ND (percentages are greater than 100 because 1 program offers both a PhD and a DNSc; 2 programs offer a PhD and an ND, and 1 program offers a DNS and an ND).

Table 6 provides a comprehensive list of the doctoral programs in nursing and includes the location of the program, website address of the parent institution, type of degree awarded, year the program began, and specialty area or focus area for research where known.

Discussion

This national survey suggests that doctoral programs in nursing are quite similar with regard to admission criteria, curricula, and the use of distance education, which supports the findings of Hudacek and Carpenter (1998) who found that students perceived similarities among program types. Very few differences were noted based on a number of criteria including geographic location, degree granted, Carnegie classification, or age of the program. Although similarities in programs may be valuable in assuring consistency between programs and standardization within doctoral nursing education, such similarities may also inhibit innovative thought processes and curtail the growth of new opportunities in research and teaching.

Criteria for program admissions tend to be consistent. Generally, programs mandate a degree from an accredited nursing program and a master's degree in nursing. A GRE is usually necessary, with either a score of 1,000 on the combined verbal and quantitative or 1,500 on verbal/quantitative/analytic. A grade point average (GPA) of 3.2, an interview, evidence of an ability to perform scholarly work, a current nursing license, and letters of recommendation were also typically required.

Consistent with previous reports in the literature, curricula are fairly standard. Expected differences were noted based on degree granted, with DNS, DSN, and DNSc programs much more likely to have clinical components and less likely to have a research practicum than PhD programs. Otherwise, differences were notably minor. Based on survey findings, a typical program might include: nursing science/philosophy (3 hours), theory construction/analysis (4 hours), advanced research/methods (5 hours), qualitative research design (3 hours), quantitative research design (3 hours), statistics (6 hours), instrumentation and measurement (3 hours), research practicum (2 hours), specialization content (5 hours), health policy and health systems (1 hour), cognates (9 hours), and dissertation (12 hours).

An interesting and somewhat unexpected finding occurred when reviewing the data by type of degree because fairly dramatic changes have occurred with regard to the types of degrees awarded. According to Rickelman and Brown (1989), in the late 1980s, 27 per cent of the doctoral programs were DNS, DSN, or DNSc programs. That percentage is now 12 per cent. This reduction is caused primarily by 2 factors. Of the 25 programs that began in the 1990s, only 3 (Yale, Columbia, and the University of Texas-Houston) award the clinical degree. Additionally, during that time several programs moved from granting a DNS, DSN, or DNSc degree to granting a PhD (University of Alabama-Birmingham, Indiana University, and UCLA). Additionally, 2 other schools that offered both options (University of Pennsylvania and Univer-

TABLE 6. Doctoral Programs in the United States

Location of Program and Website	Degrees Offered	Year Established	Areas of Research Focus (Where Available)
University of Alabama-Birmingham *www.uab.edu*	PhD	1999	Health status and function of individuals, families, and communities
University of Arizona (Tucson) *www.arizona.edu*	PhD	1976	Community-based interventions; health systems; chronic and disabling conditions
University of Arkansas for Medical Sciences (Little Rock) *www.uams.edu*	PhD	1997	Research
University of California-Los Angeles *www.ucla.edu*	PhD	1986	Clinical nursing research-Biobehavioral studies that relate to health promotion and disease prevention; health systems research
University of California-San Francisco *www.ucsf.edu*	PhD	1964	Based on faculty research interests
University of San Diego *www.acusd.edu*	PhD	1985	Social, political, and ethical issues in global health care
University of Colorado Health Sciences Center (Denver) *www.uchsc.edu*	PhD, ND	1978	Human experience of health/illness/healing; environmental context of health and illness; human/technology interface; cost-effective/quality outcomes
University of Connecticut (Storrs) *www.uconn.edu*	PhD	1994	Nursing research, philosophy, and theory
Yale University (New Haven) *www.yale.edu*	DNSc	1994	Human responses to chronic illness across the life span; family and social factors in primary care; health services delivery and policy
Catholic University of America (District of Columbia) *www.cua.edu*	DNSc	1967	Health care systems; patient outcomes; clinical problems
Barry University (Miami Shores, FL) *www.barry.edu*	PhD	1996	Executive role; professorial role; research role
University of Florida (Gainesville, FL) *www.ufl.edu*	PhD	1984	Women's health; aging and health; family models
University of Miami *www.miami.edu*	PhD	1985	Qualitative and quantitative clinical research within a transcultural nursing perspective
University of South Florida (Tampa) *www.usf.edu*	PhD	1997	Quality of life/end of life; children/families/communities; health services research/policy
Emory University (Atlanta) *www.emory.edu*	PhD	1999	Integration of nursing science and ethics; health policy and health outcomes research
Georgia State University (Atlanta) *www.gsu.edu*	PhD	1986	Family nursing; community nursing and nursing education
Medical College of Georgia (Augusta) *www.mcg.edu*	PhD	1987	Health care across the life span
University of Hawaii at Manoa *www.hawaii.edu*	PhD	1998	Culturally appropriate clinical scholarship; faculty preparation for nursing programs with culturally diverse student populations
Loyola University of Chicago *www.luc.edu*	PhD	1989	Contribute to the body of nursing knowledge in order to improve the health of society
Rush University (Chicago) *www.rush.edu*	DNSc,ND	1975	
University of Illinois-Chicago *www.uic.edu*	PhD	1975	
Indiana University (Indianapolis) *www.iupui.edu*	PhD	1978	Acute and chronic health problems; environments for health; family health adaptation; health promotion
University of Iowa (Iowa City) *www.uiowa.edu*	PhD	1988	Nursing administration; gerontology nursing; family nursing (in development)
University of Kansas (Kansas City) *www.kumc.edu*	PhD	1983	Health behaviors; nursing systems; acute and chronic illness
University of Kentucky (Lexington) *www.uky.edu*	PhD	1986	Developing and testing midrange theories; clinical research
Louisiana State University Medical Center (New Orleans) *www.lsumc.edu*	DNS	1986	

TABLE 6. (Continued)

Location of Program and Website	Degrees Offered	Year Established	Areas of Research Focus (Where Available)
Johns Hopkins University (Baltimore) *www.jhu.edu*	PhD	1995	Molecular genetics; physiology and exercise physiology; violence; oncology; hypertension; pain
University of Maryland (Baltimore) *www.umd.edu*	PhD	1979	
Boston College *www.bc.edu*	PhD	1988	Human responses; clinical judgment (diagnostic, ethic, therapeutic)
University of Massachusetts (Amherst) (Worcester) (Boston) *www.umass.edu* *www.ummed.edu* *www.umb.edu*	PhD	1994	Clinical research (adolescent health, cardiac care, diabetes care, empowerment, human response to health and illness, therapeutic touch, and violence)
University of Massachusetts (Lowell) *www.uml.edu*	PhD	1996	Health promotion
University of Michigan (Ann Arbor) *www.umich.edu*	PhD	1975	Biobehavior; nursing systems/administration; women's health
Wayne State University (Detroit) *www.wayne.edu*	PhD	1975	Self-Care & Care giving; Urban Health; Clinical Therapeutics; Behavior in Health and Illness
University of Minnesota (Minneapolis) *www.umn.edu*	PhD	1983	Health-related behaviors; human responses to environmental and life process events; phenomenon of health; organization and delivery of nursing knowledge; organization and delivery of nursing care
University of Mississippi Medical Center (Jackson) *www.umsmed.edu*	PhD	1997	Biological/physiological track; human experiences in health care
Saint Louis University *www.slu.edu*	PhD	1990	
University of Missouri at Columbia, Kansas City, St. Louis *www.missouri.edu* *www.umkc.edu* *www.umsl.edu*	PhD	1994	Nursing interventions and nursing outcomes; primary prevention; health care systems, health promotion and protection; health restoration and support
University of Nebraska Medical Center (Omaha) *www.unmc.edu*	PhD	1989	
Rutgers, The State University of New Jersey (Newark) *www.rutgers.edu*	PhD	1990	Health promotion; living with chronic conditions
Adelphi University (Garden City, NY) *www.adlephi.edu*	PhD	1981 (no longer admitting students)	Broad areas of study—primarily qualitative research
Columbia University (New York) *www.columbia.edu*	DNSc	1993	Clinical nursing research and leadership; health policy and health services research
New York University *www.nyu.edu*	PhD	1934	Research, theory, and development in nursing science
SUNY (Buffalo) *www.buffalo.edu*	DNS	1987	Clinical nursing research
Teacher's College, Columbia University (New York) *www.columbia.edu*	EdD	1933	Professorial role (nurse educator); self-care; rehabilitation; violence; addictions; child/adolescent health
University of Rochester *www.rochester.edu*	PhD	1978	
University of North Carolina (Chapel Hill) *www.unc.edu*	PhD	1988	Responses to health and illness; prevention and management of chronic health problems in vulnerable people
Case Western Reserve (Cleveland) *www.cwru.edu*	PhD, ND	1972	
Kent State University (Kent, OH) *www.kent.edu*	PhD	Approval, Fall 2000	Women's health; chronic illness, stress and coping; gerontology
Ohio State University (Columbus) *www.osu.edu*	PhD	1985	
University of Cincinnati Medical Center *www.uc.edu*	PhD	1990	

TABLE 6. (Continued)

Location of Program and Website	Degrees Offered	Year Established	Areas of Research Focus (Where Available)
Oregon Health Sciences University (Portland) *www.ohsu.edu*	PhD	1985	Gerontological nursing; families in health, illness, and transitions
Duquesne University (Pittsburgh) *www.duq.edu*	PhD	1994	
University of Pennsylvania (Philadelphia) *www.upenn.edu*	PhD	1979	Clinical research; health care policy; historical research
University of Pittsburgh *www.pitt.edu*	PhD	1954	
Widener University (Chester) *www.widener.edu*	DNSc	1984	Educational leadership
University of Rhode Island (Kingston) *www.uri.edu*	PhD	1985	Client/client-nurse/practice domains
University of South Carolina (Columbia); Medical University of South Carolina (Charleston) *www.sc.edu* *www.musc.edu*	PhD	1986 (added MUSC in 1994)	
University of Tennessee-Knoxville *www.utk.edu*	PhD	1989	Management of complex systems; health policy
University of Tennessee-Memphis *www.utmem.edu*	PhD DNSc	1988 (PhD)	
Vanderbilt University (Nashville) *www.vanderbilt.edu*	PhD	1993	Response to health and illness across the life span
Texas Tech University (Lubbock) *www.ttuhsc.edu*	PhD	1991	Clinical research
Texas Woman's University (Denton, Houston) *www.twu.edu*	PhD	1971	Women's health
University of Texas at Austin *www.utexas.edu*	PhD	1974	Parent-child; adult health; mental health; nursing systems; community health
University of Texas Health Science Center at Houston *www.uth.tmc.edu*	DSN	1996	
University of Texas Health Science Center at San Antonio *www.uthscsa.edu*	PhD	1991	Clinical nurse scientist; outcomes research and nursing interventions
University of Texas Medical Branch at Galveston *www.utmb.edu*	PhD	1997	Health practices in nursing
University of Utah (Salt Lake City) *www.utah.edu*	PhD	1977	
George Mason University (Fairfax) *www.gum.edu*	PhD	1986	Executive management (education or service); health policy; health care ethics
Virginia Commonwealth University (Richmond) *www.vcu.edu*	PhD	1986	Human health and illness; nursing systems; biology of health and illness
University of Virginia (Charlottesville) *www.virginia.edu*	PhD	1982	
University of Washington (Seattle) *www.u.washington.edu*	PhD	1978	Human health ecology
University of Wisconsin-Madison *www.wisc.edu*	PhD	1982	Individual/family health promotion; illness prevention and management of impaired health; clinical outcomes
University of Wisconsin-Milwaukee *www.uwm.edu*	PhD	1984	Specialization within the program is focused on a particular area of nursing and the context within which it occurs
Hampton University			Preparation of nurse scholars and researchers to advance scientific knowledge and influence the development of effective health care policies and practices
Southern University			Delete. Program not approved.

Sources: Completed Survey forms; AACN (1998) Institutions Offering Doctoral Programs in Nursing and Degrees Conferred; School/college of nursing website 10/99.

sity of California-San Francisco) dropped their professional degree programs.

The trend toward increasing emphasis on the PhD was supported. In reporting on the impression of doctoral students, Carpenter and Hudacek (1996) stated, "nursing's struggle for credibility among other academics and health care professionals seems to direct the path that leads toward the doctoral degree—and that path is clearly toward the PhD in nursing" (p. 45). Later, Hudacek and Carpenter (1998) stated that students in all types of doctoral programs believed their curriculum prepared them to conduct research. Additionally, students perceived the PhD as preparing the student for a research career whereas the EdD and DNS students perceived their role preparation as educators and clinicians. Finally, the lack of course offerings with an educational focus in most programs is clearly worth noting, given that the majority of doctorally prepared faculty assume teaching positions.

The purpose of the cognate within doctoral programs needs to be reviewed because these courses often serve as the only substantive content area. The lack of nursing content in some programs is conspicuous and has been previously addressed by Meleis (1988, 1992), Christman (1998), and Ketefian (1993). Historically, the specialized content has been offered at the master's level, but the knowledge base in nursing science and research has grown exponentially in the past decade. This content should be included as part of doctoral study rather than relying on knowledge transferred from other disciplines into nursing. Doctoral curriculum committees should examine the role of cognates and redefine their inclusion after a systematic review of nursing science.

Summary and Conclusions

Possible reasons for the similarity of nursing doctoral programs include the foundational faculty connections to many of the earliest programs (e.g., NYU; Teacher's College, Columbia; University of Pittsburgh; University of California-San Francisco; Texas Woman's University). This logic supports the earlier work of Snyder-Halpern (1986) who found more similarities than differences among the various doctoral programs in nursing. Additionally, students also perceive little difference in personal and professional growth, available support systems, or role preparation within the 3 types of programs. However, the PhD is alleged among students to place more emphasis on conducting research (Hudacek & Carpenter, 1998).

There appears to be an increasing movement away from the DNS, DSN, DNSc and programs that may warrant renewed examination from a national perspective. The multiple avenues for entry into practice (e.g., BSN, ADN, diploma) have resulted in confusion toward professional nursing, and the similarity in programs between the PhD and the clinical degree may exacerbate an already confused public.

There is a cogent argument to place less emphasis on process courses (i.e., theory construction, research methods, statistics) and more emphasis on nursing issues and nursing science. Given the current emphasis at baccalaureate degree programs in hiring doctorally prepared faculty to teach, perhaps there should be more options to incorporate nursing education concepts into the program of study. Because so many of these schools expect faculty to emphasize quality teaching over grant writing and research, including curriculum and instruction, educational theories, and role of the faculty would meet the needs of many students. In this study, only Emory University reported required content in nursing education.

Doctoral education in nursing has grown dramatically in the past 2 decades and this growth has had a vital impact on the educational and research processes. Given the continued demand for doctorally prepared faculty, clinicians, and administrators, these programs should continue to ensure an infrastructure that will promote the health and well being of the public. Doctoral education programs are now available in most states and the findings of this study suggest curriculum content is very similar across programs. Prospective doctoral students would be wise to search for a faculty mentor or for a program that specializes in their area of research interest because there are so few differences in course offerings among doctoral programs.

References

American Association of Colleges of Nursing. (1998). *Institutions offering doctoral programs in nursing and degrees conferred*. Washington, DC: AACN.

American Association of Colleges of Nursing. (1993). *Indicators of Quality in Doctoral Programs in Nursing.* Washington, DC: AACN.

Blancett, S. S. (1989). Defining doctoral education. *Nurse Educator, 14,* 3.

Carpenter, D. R., & Hudacek, S. (1996). *On doctoral education in nursing: The voice of the student* (Publication No. 14-6703). New York: NLN Press.

Christman, L. (1998). Who is a nurse? *Image: Journal of Nursing Scholarship, 30,* 211-214.

Downs, F. S. (1989). Differences between the professional doctorate and the academic/research doctorate. *Journal of Professional Nursing, 5,* 261-265.

Gosnell, D. J., & Biordi, D. L. (1999). Personnel resource distribution for nursing programs in Carnegie-classified Research I and II and Doctoral I institutions. *Journal of Professional Nursing, 15,* 44-51.

Grace, H. K. (1989). Issues in doctoral education in nursing. *Journal of Professional Nursing, 5,* 266-270.

Higher Education Directory-1998. Falls Church, VA: Higher Education Publications, Inc.

Hodges, L. C., Satkowski, T. C., & Ganchorre, C. (1998). Career opportunities for doctoral-prepared nurses. *MedSurg Nursing, 7,* 114-120.

Hudacek, S., & Carpenter, D. R. (1998). Student perceptions of nurse doctorates: Similarities and differences. *Journal of Professional Nursing, 14,* 14-21.

Jones, K. D., & Lutz, K. F. (1999). Selecting doctoral programs in nursing: Resources for students and faculty. *Journal of Professional Nursing, 15,* 245-252.

Ketefian, S. (1993). Essentials of doctoral education: Organization of program around knowledge areas. *Journal of Professional Nursing, 9,* 255-261.

Meleis, A. I. (1992). On the way to scholarship: From master's to doctorate. *Journal of Professional Nursing, 8,* 328-334.

Meleis, A. I. (1988). Doctoral education in nursing: Its present and its future. *Journal of Professional Nursing, 4,* 436-446.

Rickelman, B. L., & Brown, B. J. (1989). The race for resources: Who can, who does, and who should obtain them? In S. E. Hart (Ed.), *Doctoral education in nursing: History, process and outcome* (Publication No. 15-2238). New York: NLN.

Snyder-Halpern, R. (1986). Doctoral programs in nursing: An examination of curriculum similarities and differences. *Journal of Nursing Education, 25,* 358-365.

Starck, P. L., Duffy, M. E., & Vogler, R. (1993). Developing a nursing doctorate for the 21st century. *Journal of Professional Nursing, 9,* 212-219.

Ziemer, M. M., Fitzpatrick, M. L., Valiga, T., Manfredi, C., & Brown, J. (1991). Curricula of doctoral programs in nursing. In M. Garbin (Ed.), *Assessing educational outcomes: Third national conference on measurement and evaluation in nursing* (Publication No. 15-2447). New York: NLN.

Ziemer, M. M., Brown, J., Fitzpatrick, M. L., Manfredi, C., O'Leary, J., & Valiga, M. M. (1992). Doctoral programs in nursing: Philosophy, curricula, and program requirements. *Journal of Professional Nursing, 8,* 56-62.