

ENTRY LEVEL COMPETENCE OF NURSES BY TYPE OF PROGRAM

By

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ENTRY LEVEL COMPETENCE OF NURSES BY TYPE OF PROGRAM IN
ONE MIDWESTERN STATE

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Controversy has existed among nurses and nurse educators since the inception of associate degree education regarding which type of nursing education should be the accepted standard preparation for entry into nursing practice. The purpose of this descriptive study was to determine whether nursing education program type had an effect on entry level competence. Competence was measured by the pass rate on the National Council Licensure Examination for Registered Nurses (NCLEX-RN[®]). NCLEX-RN[®] is a high-stakes, psychometrically sound and legally defensible examination that all state boards of nursing use to measure entry level competence.

Pass rate data from all nursing graduates in one Midwestern state for a five-year period were analyzed. The scores of graduates from associate degree, diploma and baccalaureate programs were compared to determine whether there were significant differences in pass rates. All data were reported in the aggregate only. No identifying information was associated with individual schools and every effort was extended to guarantee anonymity of schools.

Permission to use aggregate data was obtained from the State Board of Nursing of the state under study. The data were reported as *number passed* and *number failed* for each school. These nominal data required the use of the chi square for statistical purposes. The chi square test for independence determined that there were significant

differences among the three types of programs ($X^2 = 23.521$, $df = 2$, $\rho = .000061334$). Associate degree programs and the diploma program had higher than expected pass rates. The baccalaureate programs had a lower than expected pass rate. The chi square test for Goodness of Fit determined that the Midwestern state under study did not differ significantly from the rest of the nation ($X^2 = 1.353$, $df = 1$, 3983 , $\rho = 0.245$). The pass rate for all programs in the state during the five-year period of study was 88.5%. During the same period of time the national pass rate was 87.9%. Recommendations for further study included determining causal factors for the difference in initial competence and determining whether a difference in continued competence exists in graduates from the three types of programs.

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CHAPTER ONE

Introduction

Statement of the Problem

Controversy exists within the nursing profession concerning entry level nursing educational requirements for licensure as a registered nurse. Lords (1999) described this controversy.

Of the nation's roughly 2.5 million registered nurses, about 65 per cent are graduates of associate-degree programs. For (these graduates), the two-year degree is an inexpensive route to the same license that graduates of four-year programs are eligible for. But officials in associate-degree programs are angered by what they see as attempts to cut off such a path. They accuse their counterparts at four-year institutions of trying to create two classes within the ranks of registered nurses, by labeling all graduates of two-year programs "technical" or "junior" nurses, while calling baccalaureate graduates – who make up about 35 per cent of the nation's registered nurses – "professionals." (p. A55)

Lords (1999) stated that this issue of entry into practice

has been a source of turmoil within the nursing community for more than four decades. In 1952, a doctoral candidate at Teachers College of Columbia University, detailed how two-year nursing programs could benefit the nation and help end a nursing shortage that lingered years after World War II. Mildred L. Montag's dissertation led to the creation of associate-degree programs at seven community colleges around the nation.

Proponents of baccalaureate as entry into practice believe that the RN licensure should be eligible only to those graduates of four-year educational programs. Proponents of associate and diploma education believe that safe, competent practitioners of nursing can be educated in two- or three-year programs of study and should continue to be eligible for RN licensure. (A55-56)

Lords (1999) reported there has been no research or data to support the notion holders of baccalaureate degrees were more competent registered nurses than associate degree graduates.

The closest thing to an objective measure is the profession's standardized entrance exam, the National Council Licensure Examination for Registered Nurses (NCLEX-RN[®]). That measure has not been flattering to graduates of four-year programs, who routinely perform worse on the exam than two-year graduates do. In 1998, for example, 85 per cent of two-year graduates passed the test, compared with 84 per cent of the four-year graduates, according to the National Council of State Boards of Nursing. (A55)

Because graduates of all three programs (diploma, associate and baccalaureate) must pass the same test for licensure, this study was conducted to determine whether program type significantly impacted entry-level competence, as measured by pass rates among the three educational systems within one Midwestern state. The licensing examination has established legal defensibility and is valid and reliable for testing entry-level competence (Schmidt, Yocum & White, 1998; National Council of State Boards of Nursing, 1995; National Council of State Boards of Nursing, 1991).

Purpose of the Study

The purpose of the study was to determine whether type of program had an effect on entry level nursing competence. Pass rate scores on the national licensure exam were used to measure nursing competence for nurses.

Context of the Problem

Prior to the founding of the first nursing school in 1872, nursing was learned through apprenticeships. Early nursing schools were hospital based single diploma-granting institutions. Nursing education within institutions of higher education began

in the early part of the 20th Century. For many years hospital based and institutional nursing education co-existed. During the 1950s, at a time of nurse shortages and community college proliferation, associate degree nursing education was initiated. Graduates of all three varieties of nursing education programs became eligible for the same state licensure, and all graduates continued to take the same nationally administered examination of entry-level competence.

The authority to make decisions regarding nursing regulation has historically occurred at the state level throughout the nation. Each state has had a board of nursing to regulate nursing practice and nursing education. The purpose of boards has been to protect the safety of the public. Nursing education has been regulated to ensure that graduates have been competent to give care safely to the public. To be eligible to practice nursing, a person must have graduated from a state approved school of nursing and have passed a national, high-stakes licensing exam (NCLEX-RN[®]). Identifying nursing program characteristics associated with high pass rates can provide vital information for boards involved in rule promulgation.

Research Questions

1. Is there a significant difference in pass rates among types of nursing programs within one Midwestern state?
2. Is there a significant difference in pass rates between one Midwestern state and the nation?

Delimitations

The scope of the study was limited to the past five years of data from one Midwestern state's schools of nursing. The time period for study was July 1994

through June 1999. The five-year period reflected a long enough time to capture trends within the state, allowed for an adjustment period if any school made a major curriculum change and included the same dependent measurement of competence. In April of 1994 the NCLEX-RN[®] underwent a major change in administration from paper-and-pencil to computerized, adaptive testing; however, during the period of data collection for the study the examination development remained in the same format. A passing standard change was instituted in April of 1998 that affected all candidates simultaneously.

Only first-time writers of the NCLEX-RN[®] were studied. First-time writers were used because the potential for inclusion of multiple examination results from a single candidate may have skewed results. It was assumed that first-time writers best reflected the initial competence ability of new graduates.

Limitations:

The ability to generalize results on the basis of this study was limited. Because the population for the study comes from one Midwestern state's schools of nursing, generalizing to other geographic areas was not appropriate.

The statistical test of significance used was the chi square which has associated limitations. The chi square test has been based on theories of probability that have potential for error. The level of measurement used in the calculation of the test for significance was nominal in nature. Nominal data were limited to frequency of pass scores and frequency of fail scores. The chi square test for significance has been identified as non-parametric. Non-parametric tests are less powerful than parametric tests of significance (Polit & Hungler, 1995).

The state under study had only one diploma school of nursing. Aggregate scores for the diploma cell of the contingency table further limited the study. Although adequate numbers of graduates were obtained for analysis, the scores represent one school.

Significance of the Study

Controversy exists concerning what the entry-level educational requirement should be for nurses. In view of this controversy, it was important to establish whether different nursing education programs produce different pass rates. The Pew Center for the Health Professions summarized the need to study the issue.

The legal authority to provide and be reimbursed for health care services is tied to state statutes generally referred to as practice acts, which establish professional 'scopes of practice.' These practice acts, often different from state to state, are the source of considerable tension among the professions; the resulting 'turf battles' clog legislative agendas across the country. . . . These battles are costly and time-consuming for the professions and for the state legislators involved. The more critical problem, however, is the decision-making process itself which is distorted by campaign contributions, lobbying efforts and political power struggles. In this environment, practice act decisions may not be based on evidence regarding quality of care and the potential impact on health care costs and access. Such decisions (regarding who can competently provide what types of care) demand a more empirical foundation and a less political venue. (Finocchio, et al, 1998, on-line)

Wall (1993) stated that success on licensure examinations has become increasingly important as a learning outcome index. Boards of nursing can benefit from the information derived from this study as they set policy and promulgate rules for regulating nursing education. Such benefits include providing empirical data for decision-making regarding regulation of nursing education and a summarization of the literature related to measurement of initial nursing competence.

List of Terms

Competence

The National Council of State Boards of Nursing defined competence as “the application of the knowledge and the interpersonal, decision-making and psychomotor skills expected for the nurse’s practice role, within the context of public health, welfare and safety” (NCSBN, 1996, on-line). Consumers’ perception of competence in nursing was studied by Mann, et al, (1999). Competence was identified as “the possession of knowledge, attitudes and skills necessary to meet a certain standard of practice” (p.8).

NCLEX-RN®

This acronym represents the National Council Licensure Examination for Registered Nurses in the Computerized Adaptive Testing format. It is a high stakes examination for entry level competence that must meet the standards of being *legally defensible* and *psychometrically sound*.

Associate Degree

Associate degree education is generally two years in duration. At the completion of the program of study the graduate receives an Associate of Science Degree in Nursing, abbreviated ASN or ADN.

Baccalaureate Degree

Baccalaureate degree education generally comprises four years of study. At the completion of the program, the graduate receives a Baccalaureate of Science Degree in Nursing (BSN).

Diploma

Diploma education, in general, takes three years to complete. It is hospital-based and exists outside typical higher education institutions. Diplomas currently are granted in approximately 70 schools in the United States.

Professional Nursing

This term is derived from statutory language and for purposes of this study refers to the scope of practice for registered nurses.

Professional School of Nursing

This term also is derived from statutory language and refers to those schools of nursing whose graduates are eligible for the registered nurse examination.

Scope of Practice

This term refers to the statutory privileges and limitations of a license.

CHAPTER TWO

A Review of Literature

Historical Perspective

Background

Nursing education historically was obtained by apprenticeship. Some of the people engaged in caring for the ill before 1900 were “women of ill repute” (Chitty, 1997). Women without resources were recruited from the streets to assist in providing health care. Some of those women were formerly prostitutes and alcoholics. Others involved in caring for the ill in the 19th Century were women in religious orders. Nursing care was focused on basic needs of individuals such as nutrition, cleanliness and comfort measures. Education for both groups of women was limited or non-existent.

Florence Nightingale opened the first formal school of nursing at St. Thomas Hospital, London, in 1860 (Chitty, 1997). In the United States, the first school opened in 1872 at the New England Hospital for Women and Children. It required one year of study/apprenticeship. The first graduate, Linda Richards, is described as the first “trained” nurse (Ellis, 1995).

Schools of nursing at the turn of the century were quartered in hospitals and were single diploma granting institutions. “In 1880, there were 15; by 1900, 432; by 1909, 1105 hospital-based schools” (Kelly, 1992, p. 27). The first baccalaureate program was established in 1909 at the University of Minnesota under the auspices of the School of Medicine. The program of study was similar to the three-year diploma program structure (Chitty, 1997). In 1919 seven more programs were developed

within institutions of higher education. Growth in number of degree programs was slow due to the proliferation of diploma education and due to “reluctance of universities to accept nursing as an academic discipline” (Chitty, 1997, p. 38). The baccalaureate programs were not as well attended as the diploma schools, but slowly universities and colleges added nursing programs to their curricula (Ellis & Hartley, 1995; Kelly, 1992). Ellis stated the reason for the slow growth of baccalaureate education.

Although the development of baccalaureate education for nurses may not seem like a major step. . .it was not until 1920 that the 19th Amendment to the Constitution of the United States granted women the right to vote. Many individuals considered nursing to be a less than desirable occupation, vocational in its orientation, overshadowed by militaristic and technical aspects, and confined to women. A liberal education, scholarship, and knowledge were thought to be incompatible with the female personality and possibly posed problems for marriage later. The nursing curriculum, with its emphasis on performance of skills rather than the philosophical and theoretical approaches used in the humanities, was not well accepted by universities. Opposition to collegiate education for nurses also came from physicians who argued that nurses would be “overtrained.” (p. 59)

Despite these obstacles to the development and proliferation of nursing education, continual growth was dictated by society’s need for the discipline.

During World War II, the U.S. faced a desperate need for more nurses. This need led to the establishment of a one-year course of study called *practical nursing*. The graduates were expected to be well enough educated to assist registered nurses. Originally the intent was that practical nurses would be a temporary educational product for the duration of the war years. However, even in peace-time practical nurses continued to fill a need, and programs for practical level nursing education

continued to proliferate (Chitty, 1997). Ellis (1995) stated that society had a critical need for people who had some nursing skills, “but, more importantly, who could be prepared quickly” (p. 51).

The success of the practical schools of nursing was followed by the establishment of a new educational program, conceptualized in 1952, the two-year associate degree program for professional nursing. The curriculum was developed with the assumption associate degree graduates could be professional nurses who would work at the bedside in direct care of clients who were diagnosed with commonly occurring ailments with predictable outcomes. Courses required in baccalaureate programs, such as Management and Community Health, were not included in associate program curricula because of time constraints.

These associate programs emerged during the 1950s, when there was an insurgence into the workforce by women, a growth of the community college concept and a nationwide nursing shortage. Associate degree nursing programs flourished because of the disadvantages of the other two types of programs, cost, setting and length of study. The graduates of associate degree programs were eligible for licensure as Registered Nurses according to state requirements. These graduates took the same licensing examination as diploma and baccalaureate program graduates, because the curricula met the same state statutes for licensure (Chitty, 1997; Catalano, 1996; Kelly 1992). One state, North Dakota, made a change in regulations in 1987 that differentiated educational requirements. All other jurisdictions have not stipulated statutory or regulatory differences among the types of nursing education (Ellis & Hartley, 1995).

The establishment of associate degree educational programs answered multiple workforce issues and needs. A problem resulted, however, when employers did not engage these graduates in limited roles, as the educators had intended. Instead, facility administrators allowed and encouraged employment of associate degree graduates in the same functions as diploma and baccalaureate nurses because of availability and need. The sole exception was in community health nursing. There, baccalaureate nurses were selected for employment in preference to graduates of other programs (Lindeman, 1990). The rationale for this was that community health concepts were generally not taught in associate degree programs.

Major Differences

A major difference between BSN, ASN, and Diploma programs has been length of study. In the baccalaureate programs, most degree candidates study at least four years. The first two years of the curricula tend to concentrate heavily on sciences and support courses. The associate programs were designed to be completed in a two-year time span. During these two years, sciences and nursing courses are offered simultaneously. Because this is a difficult program of study, some students in associate programs opt to extend their programs to two and a half or three years of part-time study by taking some sciences first and nursing courses during the later two years. Diploma education has consisted of one to three years of study. The first year tends to include science and support courses but may include contact with clients early in the program (Zerwekh & Claborn, 1997). Students enroll in programs that best meet learning needs, life style choices and resources.

Institutional settings in which the programs are located has been another difference. Baccalaureate programs are offered through four-year institutions of higher education, including universities and liberal arts colleges both large and small. Associate programs are found in universities or four-year colleges, but most are located in community college settings. Because community colleges are located in rural as well as urban areas, associate degree nursing programs are accessible to individuals who typically might not pursue a four-year course of study. Diploma education “takes place in a hospital school of nursing. This type of program may be under the direction of the hospital or incorporated independently” (Zerwekh & Claborn, 1997, p. 85).

These three types of nursing education also exhibit differences in curriculum requirements. Although each has nursing courses, support courses, sciences and general education requirements, the type and sequencing has been different. Regarding nursing courses, each type includes an introductory or fundamentals course and a course that addresses the issues in nursing, as well as a variety of courses that teach about various client problems and how to apply the nursing process. Yet, based on the philosophy of the respective faculties, content within like courses may vary significantly. Many baccalaureate programs focus on health, wellness and prevention as well as illness. Associate degree programs, due to philosophy of the faculty and time constraints, focus as a rule on illness and illness prevention (Deloughery, 1991; Zerwekh & Claborn, 1997; Catalano, 2000). Diploma education has its focus on “early and ongoing opportunity to be in contact with clients and other health care personnel” (Zerwekh & Claborn, 1997, p. 86).

In addition to the nursing courses offered in common with diploma and ASN programs, baccalaureate programs also teach nursing management, nursing research and community nursing. Associate degree programs usually do not teach entire courses on management, research and community due to time constraints. Concepts from those areas tend to be given minimal treatment while being integrated into existing courses. Diploma education includes beginning supervisory or management content.

All three programs require study of selected sciences however, associate degree programs require fewer courses, credits and labs in science. The basic sciences for each include anatomy, physiology, and chemistry. Courses more typically found in baccalaureate programs include pathophysiology, microbiology, chemistry labs, anatomy labs, and nutrition science. The associate student takes all science courses concurrently with the nursing major, while the baccalaureate student takes science courses pre-requisite to nursing courses as well as concurrent sciences. Historically diploma education science courses “did not confer college credit. Students interested in furthering their nursing education would naturally be discouraged by the lack of transferability of the diploma education program” (Zerwekh & Claborn, 1997, p. 85). Graduates “were given a diploma, not an academic degree” (Catalano, 1996, p. 70).

Support courses might include such offerings as psychology, sociology and pharmacology for each type of program. Baccalaureate programs, however, may require specialized courses such as abnormal psychology, epidemiology, and/or statistics.

General education requirements vary among baccalaureate, diploma, and associate programs, depending upon the institutions in which they are housed (Deloughery, 1991; Zerwekh and Claborn, 1997). For instance, in a religiously affiliated school, without regard to whether it houses an associate or baccalaureate program, ethics and theology generally will be required. English, however, commonly is required by each type of program, but courses in history, management, leadership, sociology, mathematics and psychology depend upon the nature of the educational program.

Advantages by Type of Program

Baccalaureate education. The baccalaureate programs' longer courses of study provide advantages. The baccalaureate student can assimilate a wider variety of abstract concepts over a longer period of time than associate and diploma education. Baccalaureate programs also require high level course work in such subjects as research, management, theories and leadership that is limited or non-existent in associate degree programs. The additional educational foundation in the baccalaureate curricula provides the basis for nursing beyond direct care of individuals to include care of families, groups and community.

Graduates of BSN programs, after short periods of time at the staff nurse level, can move into management positions because of clinical and theoretical concepts experienced as undergraduates. Their professional careers have greater opportunity for advancement into leadership positions because of the extra course work completed. BSN graduates have the foundation for advanced study.

BSN students typically are educated in a university setting and enjoy the professional advantages such settings offer, such as residential facilities and access to faculty involved in research. These benefits may be perceived as providing a broader educational experience to undergraduate students. This is important if nurses are expected to interact with a broad spectrum of human conditions. These graduates are prepared to take the national exam for licensure just as graduates of other programs are, but in addition, are prepared to pursue additional education by enrolling in selected graduate schools. According to Chitty (1997), the BSN graduate enjoys the “greatest career mobility of all basic program graduates” because of a wider range of options (p. 40).

Associate education. The advantages of associate degree programs include “accessibility of community colleges, low tuition costs, part-time and evening study opportunities, shorter lengths of programs and graduates’ eligibility to take the licensure examination for Registered Nurses” (Chitty, 1997, p. 41). Acord (1999) stated “these programs (ASN) require a shorter time commitment, are less expensive, often are more convenient, and are usually more user friendly” (p. 135). Some students who choose the two-year program are unable to pursue four years of nursing education. They tend to be older, married and studying part-time (Scwirian, 1984). Coleman (1993) identified that the associate degree program of study was suited well for the admission, retention and graduation of minority students.

Diploma education. The advantages of diploma education in nursing include the amount and intensity of clinical experience and the consequent ease of transition from student to professional role.

Graduates of diploma schools have the greatest amount of clinical experience in a hospital setting. Since there is a close relationship between the nursing school and the hospital, graduates are well prepared to function in that institution; upon graduation, many graduates are employed by that hospital and therefore experience an easier role transition. (Zerwekh & Claborn, 1997, p. 86)

Disadvantages by Type of Programs

Baccalaureate education. One disadvantage of baccalaureate programs is the time commitment students must make to complete the programs: four years for a BSN, versus two-three for an ASN or a diploma. For non-traditional students, this can be a barrier. The cost of four years of study, another disadvantage, is certainly a consideration for some students. The cost difference is directly related to the additional number of credit hours needed for the baccalaureate degree. The associate degree requires approximately 70 –72 semester credits. The baccalaureate degree has between 120 and 130 semester credit hours needed for graduation. The latter programs usually are located in university settings, so distance from home and accessibility also might be factors for some students (Chitty, 1997).

Associate education. One disadvantage to associate degree education is the limited ability to include nursing concepts in programs of study, and some areas of nursing are not taught in these programs because of time constraints. Graduates either have been limited in their career mobility, or, if promoted, unprepared for job requirements at such higher levels as research, management and leadership. Depending on course transferability, articulation into some baccalaureate programs is difficult. Each baccalaureate program defines admission standards for its degree completion program. Associate degree graduates choosing to transfer into a baccalaureate program might find that additional sciences must be taken or nursing

courses may have to be validated through standardized testing (Chitty, 1997; Zerwekh and Claborn, 1997; Deloughery, 1991).

Diploma education. In the past, the major disadvantage of diploma education has been the difficulty for graduates to pursue advanced degrees. Because the educational units in science and nursing were taught without awarding college credit, graduates could not transfer to institutions of higher education. Diploma schools have recently made efforts to correct this disadvantage.

Students interested in furthering their nursing education would naturally be discouraged by the lack of transferability of the diploma education program. Although the majority of current diploma programs are associated with institutions of higher learning where the graduates receive some college credit, they may still not receive college credit for the nursing courses. (Zerwekh & Claborn, 1997, p. 85)

Summary of Historical Perspective

While graduates of all three types of educational programs have been eligible for licensure at the same RN scope of practice, there are significant differences among the preparation curricula. Despite their equivalency for state licensure, programs are not perceived as comparable. The history of how these educational models emerged has a basis in consumer needs. Each has advantages and disadvantages. Because there is not an indisputable advantage of one program over the other, the controversy about whether there should be a consistent, single educational entry standard for professional nursing practice remains.

Philosophical Perspective

Many organizations have developed position papers or distributed opinions on nursing education. The following organizations have published their positions on the issue of educational entry into practice for the registered nurse.

American Nurses' Association

The American Nurses' Association (ANA) has published two positions papers related to educational entry into practice. In 1965, Educational Preparation for Nurse Practitioners and Assistants to Nurses (American Nurses Association, 1965) "created conflict and division within nursing" (Chitty, p.39, 1997). It proffered the position that baccalaureate education should be the minimum level of education for registered nurses. Selected major recommendations were:

1. Education for all those who are licensed to practice nursing should take place in institutions of higher learning.
2. Minimum preparation for beginning professional nursing practice should be the baccalaureate degree in nursing.
3. Minimum preparation for beginning technical nursing practice should be the associate degree in nursing (Chitty, 1997, p. 39).

Further development of the ANA position was published in 1978.

1. By 1985, the minimum preparation for entry into professional nursing practice should be the baccalaureate degree in nursing.
2. Two levels of nursing practice should be identified and a mechanism to devise competencies for the two categories established by 1980.
3. There should be increased accessibility to high-quality career mobility programs that use flexible approaches for individuals seeking academic degrees in nursing (American Nurses Association, 1979).

American Association of Colleges of Nursing (AACN)

This association has taken a position in support of baccalaureate education as minimum preparation for practice as a Registered Nurse. Its statement follows:

Rapidly expanding clinical knowledge and mounting complexities in health care mandate that professional nurses possess educational preparation commensurate with the diversified responsibilities required of them. As health care shifts from hospital-centered, inpatient care to more primary and preventive care throughout the community, the health system requires registered nurses who not only can practice across multiple settings – both within and beyond hospitals – but can function with more independence in clinical decisionmaking, case management, provision of direct bedside care, supervision of unlicensed aides and other support personnel, guiding patients through the maze of health care resources, and educating patients on treatment regimens and adoption of healthy lifestyles. In particular, preparation of the entry-level professional nurse requires a greater orientation to community-based primary health care, and an emphasis on health promotion, maintenance, and cost-effective coordinated care.

Accordingly, the American Association of Colleges of Nursing (AACN) recognizes the Bachelor of Science degree in nursing as the minimum educational requirement for professional nursing practice. (AACN, online, 1996)

National League for Nursing Council of Associate Degree Programs (NLN-CADP)

The stated purpose of this organization is the development, support and evaluation of associate degree programs. This Council is one of four that make up the National League for Nursing. The other councils include diploma, baccalaureate (and higher degree) and practical nursing.

Although in 1982 NLN issued a controversial position paper supporting the baccalaureate degree as minimum preparation for ‘professional’ practice, it has taken a more neutral stance. At the 1987 biennial convention, the membership ‘postponed indefinitely’ resolutions addressing this issue and in 1989 instructed the NLN to put its energies into activities that would promote upward mobility in nursing. (Ellis, 1995, p. 92)

The Council on Associate Degree Programs passed the following resolution on June 8, 1999.

Whereas associate degree graduates

1. Possess a core of nursing knowledge common to all nursing education routes and have continuously demonstrated their competency for safe practice through the national Council Licensure Examination for Registered Nurses (NCLEX-RN) pass rates.
2. And Whereas these nurses provide a stable workforce within the community.
3. And Whereas the reasonable cost and proximity to the community enhances access for a diverse group of applicants.
4. And Whereas Associate Degree Graduates are committed to life-long learning. Many continue on to obtain baccalaureate, masters, and doctoral degrees.
5. And Whereas Associate Degree education has continued to evolve and advance as nursing practice has evolved.

Therefore be it resolved that the:

NLN continue to support all levels of nursing education for their appropriate roles and contributions to the health care system.

Further be it resolved that the NLN commend those organizations that provide funding for nurses to continue their education.

Further be it resolved that all members of the health care community be reminded of the many contributions to health care provided by the registered nurse educated at the associate degree level and the contributions to the well being of clients made by these graduates.

National Organization of Associate Degree Nursing (N-OADN)

As presented in the mission statement of this organization, it:

is the leading advocate for associate degree nursing education practice and promotes collaboration in charting the future of health care education and delivery. N-OADN strives to:

- Maintain eligibility for registered nurse licensure for graduates of associate degree nursing programs.
- Educate students and promote AD nursing programs at community colleges nationwide.
- Provide a forum for discussion of issues impacting AD education and practice.

- Develop partnerships and increase communication with other professional organizations.
- Increase public understanding of the role of the associate degree nurse.
- Participate at national and state levels in the formation of healthcare policy.
- Facilitate legislative action supportive of the goals of N-OADN. (N-OADN, on-line, 1998).

The organization also developed a position statement titled “Position Statement in Support of Associate Degree as Preparation for the Entry-level Registered Nurse.” It stated:

Associate degree nursing (ADN) education provides a dynamic pathway for entry into registered nurse (RN) practice. It offers accessible, affordable, quality instruction to a diverse population. Initiated as a research project in response to societal needs, ADN education is continually evolving to reflect local community needs and current health care trends. ADN graduates are prepared to function in multiple health care settings, including community practice sites. Graduates of ADN programs possess a core of nursing knowledge common to all nursing education routes. They have continuously demonstrated their competency for safe practice through National Council Licensure Examination for Registered Nurses (NCLEX-RN) pass rates. These nurses provide a stable workforce within the community. The majority of ADN graduates are adult learners who are already established as an integral part of the community in which they live. They exhibit a commitment to lifelong learning through continuing education offerings, certification credentialing, and continued formal education. Nurses prepared at the ADN level are caring, competent, and committed health care providers who fill a vital need in local communities. Accordingly, the National Organization for Associate Degree Nursing supports ADN preparation as the entry level into registered nursing (N-OADN, on-line, 1998).

National Council of State Boards of Nursing

The formal position of the National Council of State Boards of Nursing has been to remain neutral on the issue of educational entry into practice. “At an August 1986 meeting, representatives of the state boards voted without debate and opposition to take a formal position of neutrality on changes in nursing education requirements for

entry” (Ellis, 1995, p. 93). A sub-committee of the National Council has developed guidelines, should a state choose to pursue changes in statute regarding entry into practice. Data were collected among the states regarding each state’s position on entry issues.

Pew Health Professions Commission

This commission’s purpose has been “to help health professionals, their organizations, their schools and public policy makers educate and manage a health care workforce that will improve the health of people and their communities” (Gagnola & Stone, p. 2, 1997). The position statements and recommendations developed by the commission address a variety of regulated professions, including nursing. An initial recommendation of the Commission declared that “states should standardize entry-to-practice requirements and limit them to competence assessments for health professions to facilitate the physical and professional mobility of the health professions” (Finocchio, et al, on-line, 1995). Within this recommendation two options for consideration were advocated:

- Recognize alternative pathways in education, previous experience, and combinations of these, to satisfy some entry-to-practice requirements for licensure.
- Eliminate entry-to-practice standards which are not based on the competence, skills, training or knowledge of the profession (Finocchio, et al, 1995, on-line).

A follow up report by the Pew Commission stated that the above recommendation to standardize entry-to-practice requirements was one of three most challenged recommendations (Gagnola & Stone, 1997). “The most challenged policy options were use of standard competency examinations to test minimum competence

for entry-to-practice and use of alternative pathways in education. This option was seen as enforcing the use of the lowest level of competence for entry” (Gragola & Stone, 1997, p. 14).

Summary of Philosophical Perspective

Major nursing organizations have varying opinions on the issue of entry to practice. Depending on the mission and purpose of the organization, opinions may support baccalaureate studies as entry level education for the registered nurse or not. Some organizations choose to remain neutral. There is no consensus among nursing organizations on the issue.

Legal Perspectives

Nursing is regulated as a profession state-by-state. It is a profession that has the potential to harm the consumers of its practice. Because of this possibility, boards of nursing were created by state legislatures to regulate the practice of nursing. The purpose of each board has been to provide for the safety and welfare of its state’s citizens and to protect the public. Legal mechanisms to ensure this protection include state laws, such as the Nurse Practice Act, and administrative rules and regulations. The state which was the focus of this study has such laws and regulations administered through its Department of Health and Human Services.

The Nurse Practice Act states:

The board may adopt, promulgate, and revise, with the approval of the department, such rules and regulations consistent with the Nurse Practice Act as may be necessary to carry the act into effect. All such rules and regulations shall be published and distributed. The board shall:

1. Adopt reasonable and uniform standards for nursing practice and nursing education which are reviewed at least every four years;
Establish rules and regulations for approving and classifying programs

preparing practical and professional nurses, taking into consideration administrative and organizational patterns, the curriculum, students, student services, faculty, and instructional resources and facilities, and provide surveys for each educational program at least every four years or more frequently as deemed necessary; . . .

4. Approve such educational programs as meet the requirement of the act; (Nebraska Code §71-1,132.11)

The state regulations governing professional schools of nursing are specific.

The Regulations Governing the Approval of Nursing Programs, Title 172, Chapter 97

state:

001 Scope and Purpose of Regulations. These regulations are intended to set forth the procedure for defining minimum standards established by the . . . Board of Nursing for approval of registered and practical programs of nursing . . . Specific purposes of the regulations are to define Standards of Nursing Education to:

- 01.01 Assist programs so that graduates of nursing education programs are prepared for safe and effective nursing practice.
- 01.02 Serve as a guide for the development of new nursing education program
- 01.03 Foster the continued improvement of established nursing education programs.
- 01.04 Provide criteria for the evaluation of new and established nursing education programs.
- 01.05 Assure eligibility for admission to the licensure examination for nurses, and to facilitate interstate endorsement of graduates of board-approved nursing education programs. (Nebraska Regulations)

Criteria that post secondary and higher education institutions must meet, according to the regulations, fall into several categories. These are: accreditation of the controlling institution, administration and organization, philosophy, objectives/outcomes, faculty, curriculum, clinical resources, educational resources, students, student services, records, brochure/catalog, and evaluation. Programs must demonstrate that all requirements have been met to obtain approval from the state. No distinction is made

among types of educational programs. All must meet the same regulations for approval from the board.

A checklist of all nursing program regulations can be found in Appendix A, Rules For Approval of Nursing Programs. The checklist has been used by consultants during school or program reviews. The Education Committee of the Board of Nursing has used the checklist to assist in determining whether schools meet the state requirements for providing nursing education. All schools of professional nursing leading to the Registered Nurse credential must meet the same requirements regardless of type of program. Two-year associate programs and three-year diploma programs must meet identical minimum safe competency requirements set forth by the state for four year baccalaureate programs.

Each candidate must meet the same entry-level requirements via the program of study, without regard to the duration or classification of the program. For individual eligibility a person must meet four criteria. These are be of good moral character, pay a fee, graduate from a state approved professional school of nursing and pass the state approved examination (NCLEX-RN[®]).

Related Research

Several studies have used the NCLEX-RN[®] as a research variable. These studies have focused on factors that are predictive of success on the examination. Most of these studies have looked at a single program or characteristics of individuals who have passed the examination. Factors of interest have included ethnic origin, ACT scores on admission, grades within the program of study, standardized test scores,

faculty characteristics, size of institution and age of students (Akers, 1992; Neuman, 1991; Heupel, 1994; Saunders, 1997; Kavel, 1995; Webster, 1991; Parry, 1991).

Graham (1994) completed a study which compared baccalaureate, diploma and associate degree graduates. The purpose of the study was to examine predictors of success and failure on the NCLEX examination, describe programs that have improved NCLEX scores, and discuss curriculum analysis as one strategy for improving NCLEX scores. Variables suggested as predictors for success on NCLEX included high school rank, ACT/SAT scores, grade point averages, course grades, assessment test scores, National League for Nursing achievement scores, and Watson-Glaser Critical Thinking Appraisal scores. Graham found that “the pass rate for New York state first-time candidates from all programs ranged from 72% to 90% from February 1986 through July 1992. The national average range was 84% to 93% during the same period, placing New York state 2 to 14 percentage points behind the national average” (p. 12). For each year of Graham’s study, pass rate scores of first-time candidates in New York were higher for diploma and associate degree graduates than for baccalaureate graduates. No statistical analyses of the differences were identified. Graham summarized the NCLEX test plan, recommending that schools of nursing utilize the test plan and candidate summary profiles to evaluate curricula:

When a large number of graduates are successful on the NCLEX-RN Examination, it usually indicates that the curriculum provided the essential content for entry level practice. While this is not the major focus of the baccalaureate program, it is expected that completion of the program will culminate in success on the NCLEX-RN examination for first-time candidates. (p.15)

Bowling (1989) studied 292 nursing program graduates who took the NCLEX-RN for the first-time between 1986 and 1988. The purpose of the study was to compare fundamental and Advanced Medical Surgical grades between ADN and BSN graduates, establish the relationship between predictor variables (preadmission criteria) and NCLEX-RN scores, and determine the relationship between ADN and BSN predictor variables, the NCLEX-RN score, nursing course GPA and age. When Bowling compared programs, the data showed no significant differences between ADN and BSN Advanced Medical Surgical grades, nursing course GPAs, and age. There was a significant difference between ADN and BSN graduates' Foundation of Nursing grade. The ADN mean grade was 3.35 and the BSN mean grade was 2.87. There was also a significant difference between the ADN graduates' mean NCLEX-RN score (1935.96) and that of the BSN graduates (2023.40).

Byers (1991) described 259 Ohio-educated, first-time candidates who failed NCLEX-RN[®] in February or July 1990. Byers' study found no statistically significant differences among diploma (n = 24), associate (n = 148) and baccalaureate (n = 87) failure rates ($X^2 = 5.79$, $df = 6$, $\rho = .45$). However, when sub-scales of the examination were compared, associate degree candidates failed in the areas of analysis ($X^2 = 10.28$, $df = 4$, $\rho = .04$) and planning ($X^2 = 10.18$, $df = 4$, $\rho = .04$) areas at statistically significant higher rates than the other two groups of candidates.

The Board of Regents of the State University System of Florida commissioned a study of baccalaureate nursing programs (Brown, 1992). Nine schools of nursing were investigated. "The purpose of the review was to evaluate the overall quality and to address specific questions and issues related to nursing and specifically nursing

education as it is delivered in the State University System” (Brown, 1992, p. 16). The study concluded that “the state passage rate in February 1990 for all graduates was 86.4%; the pass rate for the baccalaureate graduates was 81.4%, for the associate degree graduates 86.7%, and for diploma graduates 93.3%” (Brown, 1992, p. 32). No statistical analyses were conducted to determine whether those differences were significant. The sample consisted of nine baccalaureate State University System nursing programs, five private baccalaureate programs, 26 associate degree programs and one diploma program. Demographic profiles of the diploma and baccalaureate students were similar, while that of the associate degree student was very different. “Sixty percent of diploma and baccalaureate students are single, while sixty percent of associate degree students are married. These married students (AD) are older with children. The median age for all newly licensed graduates is 26, while the median age for associate degree graduates is 31 years” (p.27). Recommendations were made which included curricular review and revision for the baccalaureate programs.

Table 2-1

Summary Table of Related Research

Author & Year	Type of Study	Independent Variable(s)	Dependent Variable(s)	Findings
Akers, 1992	Descriptive	Ethnic origin, ACT score, failing nursing course, exit GPA	Score on NCLEX-RN®	Dependent variables predicted success.
Alexander, 1997	Correlation	GPA, scores on National League for Nursing Achievement tests, preadmission criteria	NCLEX-RN®	Strongest indicators of success on NCLEX-RN were found to be SAT verbal scores, grades in nursing courses, NLN Comprehensive Achievement Test.

Barkley, Dufour & Rhodes, 1998	Correlation	NLN scores and grades	NCLEX- RN [®]	Strong correlation between scores on standardized tests (NLN examinations) and grades with performance on NCLEX-RN [®] .
Bowling, 1989	Correlation	Medical Surgical grades, pre- admission criteria, age	NCLEX- RN [®]	Graduates who passed NCLEX-RN in both types of programs had higher scores on aptitude tests, higher GPA in family and mental health nursing courses, and higher overall GPA. No significant differences were found among ADN and BSN medical surgical scores, nursing GPA and age. A difference was found between the two programs scores for fundamentals of nursing. A significant difference was found between ASN and BSN NCLEX-RN scores. BSN had a higher mean score.
Brown, 1992	Descriptive	Type of program	NCLEX-RN pass rates in 1991	Baccalaureate pass rate (n = 14 schools) was 86.4%. ASN pass rate (n = 26) was 86.7%. Diploma pass rate (n = 1) was 93.3%.

Byers, 1991	Correlation	Type of program, financial support of institution, previous nursing experience, age, race, GPA of Ohio educated failed NCLEX candidates (n=259)	Subsections of the NCLEX-RN® test plan	Type of program was related to the subsections of planning and analysis on NCLEX-RN®. No difference among type of program on overall failure rates was found. Previous nursing was related to implementation and physiological integrity. Age was related to health/promotion maintenance and race was related to evaluation.
Coyle-Rogers, 1998	Quasi-experimental	Type of nurse (LPN and 2 nd level ADN student), institution, gender, age previous experience	Adaptive Competency Profile (ACP)	No significant difference in competency acquisition with any variable of study.
Eberhard, 1998	Correlation	Type of baccalaureate program, (traditional and caring model)	NCLEX-RN®, organization climate, self-concept, perceptions of competency.	NCLEX-RN® results were similar for both curriculum models.
Graham, 1994	Descriptive	Type of nursing program	Score on NCLEX-RN	Baccalaureate pass rate lower than associate degree and diploma in New York.
Heupel, 1994	Descriptive	Grades	NCLEX-RN score	Predictors of success were selected theory grades & junior GPA in a selected program.

Kavel, 1995	Descriptive	Selected ASN program & curriculum	Effectiveness of graduates	Graduates, employers & faculty held a positive view of ASN graduates.
Krichbaum, 1991	Descriptive	Teacher effectiveness in clinical setting	Student learning	Important aspects of teacher effectiveness include organizing learning, asking appropriate questions, providing specific and timely feedback and enthusiastic attitude. Baccalaureate sample only.
Landry, 1997	Descriptive	Academic variables, gender, ethnicity	NCLEX-RN [®]	In one baccalaureate program gender, nursing GPA, number of courses repeated, mean educational level of the clinical faculty were significant predictors of NCLEX-RN [®] performance.
Lucas, 1991	Grounded theory *			Programs and accreditators had positive attitudes toward outcomes assessments. Outcomes assessment should focus on achievement of program goals.

Milan, 1997	Correlation	Academic and non-academic variables in ASN programs in Texas	NCLEX-RN [®]	Age, GPA, and National League for Nursing standardized test scores accurately predicted 86.40% of the subjects' pass/fail performance on NCLEX-RN [®] .
Morris, 1998	Multiple Correlation	Pre- and post-curriculum critical thinking scores	GPA, Pre-admission RN examination, NCLEX-RN [®]	No significant difference between pre- & post-measures of critical thinking. Independent measures were related to post-curriculum critical thinking scores. No combination of variables predicted pass/fail on NCLEX.
Neuman, 1991	Correlation	ACT composite, admission GPA, nursing course grades, nonnursing course grades, GPA, & NLN Achievement Test scores	Score on NCLEX-RN	Dependent variables correlated with pass or fail scores.
Parry, 1991	Correlation	Program hours, number of students, number of full time & part time faculty	NCLEX-RN [®]	Inverse relationships found with theory related program hours, number of students enrolled, number of full time faculty to part time faculty. Positive correlation found with student faculty ratio in clinical.

Pistolessi, 1996	Correlation	Type of program, age and experience	Caring behaviors	Age and experience did not have a significant impact on caring behaviors. RN students in traditional programs scored lower on caring than RN students in non-traditional programs or beginning sophomore students.
Rubino, 1998	Correlation	Computerized Nurse Entrance Exam (NET)	NCLEX-RN [®] and ASN graduation	Reading sub score of NET positively correlated with NCLEX-RN.
Saunders, 1997	Descriptive	Type of curricula, traditional or non-traditional	Clinical decision-making & clinical judgment	Non-traditional students scored higher in clinical judgment. Age of student was influencing variable.
Sharer, 1997	Descriptive	Type of outcome assessment	Institutional planning, change and quality improvement	24 Baccalaureate schools in Illinois used academic program review, persistence studies, student self report and nationally standardized tests to measure outcomes.
Siktberg, 1998	Longitudinal, Correlation	Academic preadmission and program variables	NCLEX-RN [®]	Diagnostic Readiness Test and GPA correlated positively with NCLEX-RN [®]
Stevens, 1996	Correlation	Faculty characteristics and program characteristics in West Virginia	NCLEX-RN [®] pass rates	Percent of faculty with a doctorate had a strong negative relationship to pass rate. Number of years teaching was positively correlated to pass rate.

Swenty, 1998	Retro- spective Correlation	ACT scores, GPA, RN exit examination,	GPA in major, NCLEX- RN [®]	ACT best predictor of graduation for 319 ASN students. GPA best predictor of NCLEX-RN [®] .
Webster, 1991	Descriptive	Admission variables, sequence of courses, SAT-M, type of faculty	NCLEX- RN [®]	Admission variables did not affect pass rate. Students completing general studies first did better. Successful candidates had higher SAT-M. Full time and doctoral prepared faculty did not impact pass rate.

* Qualitative studies do not include independent and dependent variables.

Theoretical Foundation

Rogers' theory on the diffusion of innovation defined innovation as

An idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little, so far as human behavior is concerned, whether or not an idea is objectively new as measured by the lapse of time since its first use or discovery. The perceived newness of the idea for the individual determines his or her reaction to it.

Newness in an innovation need not just involve new knowledge. Someone may have known about an innovation for some time but not yet developed a favorable or unfavorable attitude toward it, nor have adopted or rejected it. "Newness" of an innovation may be expressed in terms of knowledge, persuasion, or a decision to adopt. (Rogers, 1995, p. 11)

The unique nature of multiple educational tracks to achieve the same scope of legal practice may be viewed as an innovation. The concept of multiple educational programs to reach the same level of licensure for some proponents of baccalaureate as entry-into-practice meets the definition of newness. Because there has not been consensus among nursing organizations regarding entry-into-practice educational

standards, there remain favorable and unfavorable attitudes toward the concept of multiple educational programs.

According to Rogers, an innovation needs to meet five criteria to be adopted by society. These criteria or characteristics have been selected as the basis of this study.

The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption. Five attributes of innovation are: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. . . . The innovation-decision process is the mental process through which an individual (or other decision-making unit) passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision (Rogers, 1995, p. 36).

“Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes” (Rogers, 1995, p. 15). The original diploma education was supplanted by the addition of baccalaureate studies, because some perceived an advantage in having a collegiate education which included liberal arts and sciences. The two-track system of diploma and baccalaureate education was supplanted by addition of associate education because of the perceived advantages of accessibility, lower cost and shorter duration. Advantages of three different educational programs have been outlined. Baccalaureate education has the advantage of a strong theoretical and scientific base for nursing practice with potential for advanced education and career mobility. Associate degree programs offer the advantages of accessibility, less time and cost feasibility. Intensive supervised clinical experiences have been an advantage to diploma education.

Compatibility is defined as the “degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters” (Rogers, 1995, p. 15-6). Those innovations that are incompatible with society’s values or norms will not be adopted according to the theory. Products of all three programs meet society’s needs for the beginning practitioner of nursing. All graduates must meet the same regulations set forth by the state to obtain a license. Despite differences in cost, time and accessibility of educational programs, use of graduates by employers is compatible with existing values in nursing practice.

“Complexity is the degree to which an innovation is perceived as difficult to understand and use” (Rogers, 1995, p. 16). Complexity determines how rapidly an innovation will be adopted. Knowledgeable faculty members with a commitment to nursing education have developed curricula that meet entry level requirements. Organizing a curriculum in multiple formats that meets society’s needs has not been so complex as to prohibit development of well designed courses of study.

The “degree to which an innovation may be experimented with on a limited basis” is the definition for trialability (p.16). The inclusion of multiple educational nursing program tracks had been tried on a limited basis within the state. Six of the seven associate degree programs in the state were initiated either during the study period or within five years of the start of the study period. The new associate degree programs were further benefited from curricula previously developed in other institutions across the country. Faculty obtained information from schools that already incorporated associate programs.

Observability “is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it” (Rogers, 1995, p. 16). Empirical findings from this study may enhance the observability of the results of incorporating multiple education programs. Statistical analysis of data derived from graduates of all programs would provide clear unbiased results. The application of Rogers’ theory should help clarify whether the Midwestern state should retain multiple educational tracks; thus the research questions were developed.

CHAPTER THREE

Methodology

Design

This descriptive study was designed to answer the questions: Is there a significant difference in graduates' pass rates on the NCLEX-RN[®] examination among types of nursing programs within one Midwestern state? And, is there a significant difference in pass rates between one Midwestern state and the Nation? The descriptive method utilized was *ex post facto*, retrospective. Pass rate data of first-time exam writers for five years (July 1994 - June 1999) from all nursing schools within the one Midwest State were analyzed according to type of program. Programs of nursing study were organized into three categories: associate in nursing degree, diploma in nursing, and baccalaureate in nursing degree. The frequencies of pass and fail scores for each type of program were obtained from the official records of the Board of Nursing in that state. This chapter is set up in the following sequence: population and sample, instrumentation, variables in the study, data collection, and ethical considerations.

Population and Sample

The population identified for this study consisted of graduates from fourteen nursing schools. The sample for this study consisted of 14 nursing schools within one Midwestern state. All programs of study led to initial licensure. Of those fourteen schools, seven offered associate degree programs, one had a diploma program and six were baccalaureate-granting schools.

Instrumentation

National Council Licensure Examination for Registered Nurses (NCLEX-RN[®])

data were used. NCLEX-RN[®] has been a psychometrically sound and legally defensible test used for determining entry-level competence.

As with all testing instruments, the NCLEX must be valid and reliable in order to properly fulfill the purposes for which it is used by boards of nursing. The validity of a licensure examination depends on two key features: (1) it measures competencies required for safe and effective entry-level job performance, and (2) it can distinguish between candidates who do and do not possess these competencies. The first of these features is supported by the linkage of test items to tasks that are actually performed on the job and which are essential to public safety. The linkage is established through a job analysis and test plan. The second feature is supported by a standard setting process which establishes the minimum required level of competence in terms of candidates' performance on test items. The reliability of an examination is judged by its ability to yield consistent results; that is, to consistently pass or fail candidates having the same level of competence. It is the policy of the National Council of State Boards of Nursing to utilize industry standards, such as the current Standards for Educational and Psychological Testing (APA, AERA, NCME, 1985; known as the APA standards) in the preparation of valid, current and legally defensible licensure examinations . . .the content of the NCLEX must reflect the activities that a minimally competent, newly licensed nurse must be able to perform in order to provide clients with safe and effective nursing care (NCSBN, 1995, p.2).

Schmidt, Yocum and White (1998) reported an estimated decision consistency for the NCLEX-RN[®] as $r = .91$. This reliability score for the exam indicated the estimated agreement for pass/fail on candidates' examinations should they repeat the examination.

The development by the National Council of State Boards of Nursing of a psychometrically sound and legally defensible examination was multi-phased. Figure

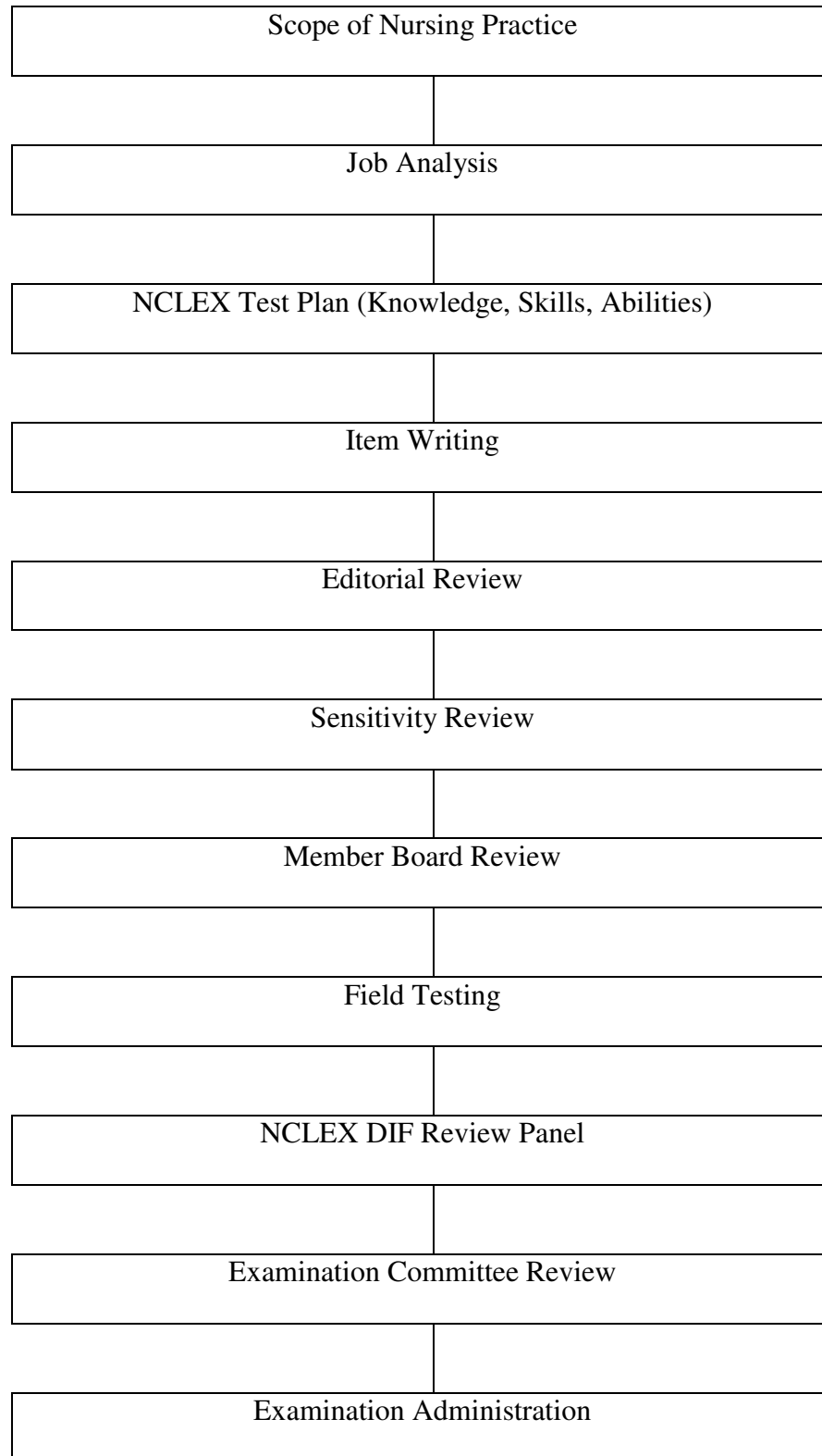
3-1, Development of NCLEX, lists the procedures pursued developing this examination. It was based in the legal standards set forth in all state statutes known as the Nurse Practice Acts, which defined the scope of professional nursing practice. “The National Council considers such laws to define the ‘domain’ which must be represented if the NCLEX is to be a valid instrument for use in assessing the competence of candidates for nurse licensure” (NCSBN, 1995, p.6). Appendix B, The National Council of State Boards of Nursing Detailed Test Plan for NCLEX-RN[®] Examination, contains information regarding the examination candidates took during the study period.

Step two involved a nation-wide job analysis study, as recommended in APA Standards. The method included collecting data from job incumbents. In the Job Analysis study, a stratified random sample of over 3,000 newly licensed nurses were surveyed and queried:

(1) to indicate the frequency with which they perform and how often they delegate performance of each of an extensive list of nursing activities (representative of the domain of nursing practice); (2) to rate the impact, or criticality, of these activities on the maintenance of client safety; and (3) to provide information about the type(s) of setting(s) in which they work, the type(s) of clients with whom they work with, and general demographic information about themselves. (NCSBN, 1995, p.6)

The Job Analysis Study also employed comparisons of characteristics of the population to assure the representativeness of the sample; studies “verifying the validity of data for any individual” (NCSBN, 1995, p.7); factor analysis; content analysis; determination of weight for each of the activities identified; and validation of the test plan. These elements of test development undergo revisions on a regular

Figure 3-1. NCLEX Development



basis to ensure the examination is current (Norman, 1999). A national perspective has been an integral aspect of the development of the examination (Cook, 1999).

The test plan for NCLEX directs for the content of the examination. The test plan is “to provide content guidelines for the distribution of test questions to measure competencies required for safe and effective job performance” (Steele & Wendt, 1997, p. 1). The current percentage of test questions within each category was determined based on the 1996 Job Analysis of Newly Licensed Registered Nurses (Yocum, 1997) and the 1996 Job Analysis Panel of Experts. Categories with corresponding percentages of test questions are:

A. Safe, Effective Care Environment

1. Management of Care (7-13%)
2. Safety and Infection Control (5-11%)

B. Health Promotion and Maintenance

3. Growth and Development Through the Life Span (7-13%)
4. Prevention and Early Detection of Disease (5-11%)

C. C. Psychosocial Integrity

5. Coping and Adaptation (5-11%)
6. Psychosocial Adaptation (5-11%)

D. Physiological Integrity

7. Basic Care and Comfort (7-13%)
8. Pharmacological and Parenteral Therapies (5-11%)
9. Reduction of Risk Potential (12-18%)
10. Physiological Adaptation (12-18%)

Integrated concepts and processes have been included in the test plan. These are nursing process, caring, communication, cultural awareness, documentation, self-care and teaching-learning.

Several panels of experts participated in the development and revision of NCLEX-RN[®]. One panel was comprised of item writers, selected with board of nursing approval. All item writers for NCLEX-RN[®] are registered nurses with nursing master degrees employed in nursing. They must be knowledgeable of entry-level practice and provide documentation of their expertise.

Another panel was made up of item reviewers. Participants were selected for their expertise and diversity. In addition to meeting the same criteria as members of the item writing panel, these individuals also must work “directly with nurses who have entered nursing practice during the past twelve months” (NCSBN, 1995, p.12). This panel reviewed the items that had been written and revised them if necessary.

A third panel consisted of standard setting judges. Nine members were appointed to this panel. The panel must include “at least one member of an ethnic minority group, at least one current practitioner who has been licensed for less than one year . . . and one faculty member who currently supervises basic/undergraduate students in the clinical area” (NCSBN, 1995, p.13). Every three years they reevaluate the passing standard. The process used to establish the standard was based on the criterion-referenced approach.

Editorial review was an on-going process. A fourth panel performed a sensitivity review. This panel scrutinized “potential bias due to culture, gender, and other background factors . . . (to) include effective checks to minimize the potential for bias

in an examination” (NCSBN, 1995, p.14). “Newly written items are statistically analyzed for differential item functioning (DIF) to detect potential item bias” (p.14). Those items that receive a high DIF are referred to the NCLEX DIF Review Panel. Field testing, member board review and examination committee review were also part of the development of NCLEX prior to administration of the exam.

To earn a pass score on NCLEX-RN[®] candidates had to perform at least to the passing standard established by the standard setting process. This standard was set at – 0.4200 logits on the Rasch measurement scale until April 1, 1998. At that time, the standard was raised in response to Job Analysis studies to – 0.3500 logits. Logits were defined by the National Council of State Boards of Nursing.

These statistics are in units, called logits, on the Rasch measurement scale. There is no inherent meaning of the units; they represent an arbitrary scale useful for reporting relative differences. This scale can be used for two purposes: (1) to measure degree of candidate competence (- 2 = low; + 2 = high), and (2) degree of item difficulty (- 2 = easy; + 2 = hard). (Schmidt, Yokum & White, 1998, p. 54)

Table 3-1 provides the psychometric parameters reported for January-December 1998.

Table 3-1

Summary Statistics for First-time U.S. – Educated Candidates Taking NCLEX-RN[®]

Examination January – December 1998

Passing Standard	
January – March 1998	- 0.4200
April – December 1998	- 0.3500
Estimated Decision Consistency	0.91

Variables in the Study

The variables of the study are the *independent variable*, type of educational program, and the *dependent variable*, entry-level competence as measured by NCLEX-RN[®].

Data Collection

Data were collected at the State Board of Nursing office. Scores of graduates from all schools from July 1 of 1994 through June 30th of 1999 were obtained. Reliability of data retrieval was measured by randomly selecting 10% of the cells on the tool used to collect the data, Table 3-2, Pass/Fail Scores All Schools from July 1994 – June 1999. A second observer independently obtained original data for the randomly selected cells. An inter-observer correlation was $r = 1.00$. Inter-observer reliability was obtained by comparing the number of instances when the two researchers agreed on the cell's number and divided by total number of cells. The following formula (Polit & Hungler, p. 352, 1995) expresses this calculation:

$$\frac{\text{Number of Agreements}}{\text{Number of agreements + disagreements}}$$

The data were organized using Table 3-2, Pass/Fail Data from All Schools July 1994 – June 1999. Scores for each school were obtained from the board of nursing. The data consisted of the number of candidates who passed and the number of candidates who failed from among the graduates of each school. Each school was identified as providing an associate degree program, a diploma program or a baccalaureate program.

Table 3-3, Contingency Table of Pass/Fail Scores by Type of Program, was used to collapse data according to type of program. Using this contingency table, the data were analyzed by a chi square analysis. The chi square statistical test is appropriate for non-parametric tests using nominal data. The scores from NCLEX-RN are reported as either pass or fail. Pass/fail categorization is a nominal level of measurement (Munro, 1997; Bainbridge, 1992; Blauman, 1995; Glass & Hopkins, 1996; Mitchell & Jolley, 1996).

Table 3-3

Contingency Table of Pass/Fail Scores by Type of Program

Type of Program	Five year Total # Pass	Five year Total # Fail	Total Number	Percent Pass
Associate	888	75	963	.9221
Diploma	293	27	320	.9156
Baccalaureate	2344	356	2700	.8681

Pass/Fail data were obtained for the nation during the same time period. Table 3-4 shows the data for Midwest State and the Nation in a contingency table.

Table 3-4

Comparison of Midwest State Pass Rate with National Pass Rate

	Five Year Total # Pass	Five Year Total # Fail	Total	Total
Midwest State	3525	458	3983	.885
Nation	393,006	54,03	447,079	.8790

Ethical Considerations

This study received approval from the University of Nebraska Institutional Review Board on November 22, 1999. The study was determined to be in compliance with the Department of Health and Human Services Regulations for the Protection of Human Subjects and was classified as exempt (approval number 99-11-086 EX). Documentation of approval is in Appendix C.

Written permission was sought from the Nebraska Board of Nursing (Appendix C). The Board reviewed the request for data during an open meeting and approved, by consensus, use of the public information about pass rates. The minutes of the September 30, 1999 meeting reflected the Board's action.

The Board members reviewed the written request from Peggy Hawkins to use the public information of pass rates and disciplinary actions as part of her dissertation. With the assurance that the information will be used in a summary format (with individual schools and individual licensees not being identified), even though the information is public, by consensus the board agreed that she could use the information as requested. (Nebraska, 1999, p. 5)

Written documentation of the Board's approval is in Appendix C.

Data were obtained from the State's Department of Health and Human Services. Individual schools were coded to guarantee anonymity. Because only aggregate data were used, no individual licensee was identifiable.

CHAPTER FOUR

Results

The results of the study are presented in this chapter. Included are the demographic information of the programs of study, descriptive statistics, and the inferential statistics associated with the two hypotheses. The hypotheses were a statistical difference existed in pass rates among type of programs and a difference existed between a Midwestern state and the nation's pass rate.

Demographic Information

The sample consisted of fourteen programs of nursing in one Midwestern state. Of these fourteen schools, seven had curricula that led to the associate degree in nursing, six were baccalaureate in nature and one program was a hospital based diploma school of nursing. All schools were fully approved by the Board of Nursing and met the state's regulations for professional schools of nursing. Each program had been approved through a four-year cycle that included a site visit and extensive review within the study period of five years. All programs completed annual reports to the Board of Nursing without substantial recommendations for changes during the study period. Other demographic characteristics of the programs considered are presented in Table 4-1.

Table 4-1

Demographic Characteristics of Sample

School	Type of Program	Type of Institution	Private or Public	Single or Multi-Campus	Urban or Rural Locations	County Size ¹
A	Diploma	Single Diploma Granting	Private	Single	Urban	235,589
B	Associate	Community College	Public	Multi-campus	Both	235,589
C	Associate	Community College	Public	Single	Rural	34,585
D	Associate	Community College	Public	Multi	Rural	33,515
E	Associate	Community College	Public	Multi	Urban	443,794
F	Associate	Community College	Public	Multi	Rural	51,851
G	Associate	Four Year	Private	Multi	Urban	443,794
H	Associate	Four Year	Private	Single	Urban	443,794
I	Baccalaureate	Four Year	Private	Single	Urban	443,794
J	Baccalaureate	Four Year	Public	Multi	Both	443,794

K	Baccalaureate	Four Year	Private	Single	Urban	443,794
L	Baccalaureate	Four Year	Private	Single	Rural	35,333
M	Baccalaureate	Four Year	Private	Single	Urban	235,589
N	Baccalaureate	Four Year	Private	Single	Urban	443,794

(Omaha World Herald, 12/26/1999, p. 10-A)

¹ Main Campus where nursing program offered, 1998 Data

Table 4-1 shows that of the 6 schools located in rural areas, four were associate degree programs and two were baccalaureate institutions. Five public institutions offer associate education. Only one public institution offers baccalaureate nursing, however, it has multiple campuses.

Descriptive Statistics

The scores ranged in percent of pass from a low of 73.6% to a high of 97.8% for the five-year period, and are presented as collapsed data in Table 4-2 (Total Frequency of Pass/Fail Scores and Percent of Pass by School).

The frequency of graduates for each coded school varied from a low of 32 to a high of 1048 for the five-year study period. There were a total of 3983 graduate scores included in the study. The lowest percentage of pass scores, 73.6%, was from by School I, a four-year private baccalaureate institution. School D, a public community college offering the Associate Degree, had the highest pass rate, 97.8%. The average pass rate for the state was 88.5%.

Table 4-2

Total Frequency of Pass/Fail Scores And Percent of Pass by School

School	Number Passed	Number failed	Total Frequency	Percentage of Pass scores ¹
A	293	27	320	0.916
B	149	16	165	0.903
C	107	10	117	0.915
D	91	2	93	0.978
E	129	7	136	0.949
F	164	8	172	0.953
G	30	2	32	0.938
H	218	30	248	0.879
I	334	120	454	0.736
J	967	117	1084	0.892
K	314	46	360	0.872
L	76	18	94	0.809
M	100	9	109	0.917

N	553	46	599	0.923
All Schools	3525	458	3983	0.885

¹ Pass rate percentage round to nearest 1/100th

Data, collapsed into a contingency table according to type of program, are presented in Table 4-3.

Table 4-3

Data Collapsed by Type of Program

Type of Program	Number Passed	Number	Total Frequency	Percent
		Failed		Passed
Associate	888	75	963	0.922
Diploma	293	27	320	0.916
Baccalaureate	2344	356	2700	0.868

The collapsed data by type of program shows that students (n = 963) from associate degree programs had the highest pass rate (92.2%). The diploma school had 320 graduates with a pass rate of 91.6%. The baccalaureate schools had many more graduates (n = 2700), but a lower pass rate of 86.8%.

To determine whether that Midwest State varied appreciably from the rest of the nation, statistics were compiled from other jurisdictions within the United States.

Those data are shown in Table 4-4, Comparison of Midwest State with National Statistics July, 1994 – June 1999.

Table 4-4

Comparison of Midwest State with National Statistics July, 1994 to June, 1999

	Number Passed	Number Failed	Total Frequency	Percent Passed
Nation	393,006	54,073	447,079	0.879
Midwest State	3525	458	3983	0.885

The national pass rate for the study period was 87.9% and the state's pass rate was 88.5%. The nation overall had 447,079 candidates for the examination. Of those candidates, 3,983 came from the Midwest State studied.

Inferential Statistics

Hypothesis One

The first research question was: Is there a significant difference in pass rates among types of nursing programs within one Midwestern state? The null hypothesis that no difference would be found was tested using the chi square test of independence for significance (DeAyala, 1999). This particular form of the chi square test was appropriate because the scores were independent of one another. A contingency table of observed and expected frequencies was developed from the data obtained from pass rate scores. Expected frequencies were calculated based on

percent of total candidates. Table 4-5, Contingency Table of Observed and Expected Frequencies by Type of Program, shows actual numbers for each program type and an expected frequency based on percent of total.

In Table 4-5 actual pass rates are grouped by type of program. The associate schools had a combined pass rate of 92.2%. Diploma and baccalaureate programs had pass rates of 91.6% and 86.8% respectively, but it bears remembering there was just one Diploma granting institution. A calculation of expected pass rate based on the state's overall pass rate is shown for each program. If each type of program had an 88.5% pass rate, associate schools would have had 852 pass, diploma would have had 283 pass and baccalaureate would have had 2390 pass. Calculation of expected frequency is necessary for the use of X^2 .

Interpretation of the statistical test was that a significant difference existed among the types of programs ($X^2 = 23.521$, $df = 2$, $\rho = .000061334$). The associate degree programs had fewer failing than expected. They had 75 fail writers, compared to an expected fail rate of 110. The diploma program also had fewer failing than expected. The observed score for failing was 27. The expected score was 36. The baccalaureate programs had more candidates fail than expected. During the period of the study 356 baccalaureate candidates failed the examination. The expected score based on percentage of candidates would have been expected to be 310. The differences among the programs were greater than can be explained by chance alone. The probability of scores such as these were calculated at the .000061334 level of significance, well below the selected level of $\rho < 0.05$. Therefore the null hypothesis,

that no difference existed, was rejected. The research hypothesis, that a difference does exist among types of programs, was retained.

Table 4-5

Contingency Table of Observed and Expected Frequencies by Type of Program

Type of Program	Passed	Failed	Total
Associate	888	75	963
Observed	(92.20%)	(7.80%)	
Associate	852.266	110.734	
Expected	(88.5%)	(11.5%)	
Diploma	293	27	320
Observed	(91.60%)	(8.4%)	
Diploma	283.204	36.796	
Expected	(88.5%)	(11.5%)	
Baccalaureate	2344	356	2700
Observed	(86.8%)	(13.2%)	
Baccalaureate	2389.531	310.469	
Expected	(88.5%)	(11.5%)	

Hypothesis Two

The second research question was: Is there a significant difference in pass rates between one Midwestern state and the Nation? The null hypothesis stated that no difference existed between the state and the rest of the Nation's pass rate. The chi

square goodness of fit test was used for determining statistical significance. This particular test was appropriate since the Midwestern state's score was included as part of the total national score. The state's position is important to know in comparison to the rest of nation so determination of whether the state's pass rate was skewed or typical of candidates taking the examination. The null hypothesis stated that no difference existed between Midwest State's pass rate and the Nation's pass rate. The nation's pass rate shown in Table 4-4, Comparison of Midwest State with National Statistics July, 1994 to June, 1999, was 87.9%. This hypothesis can be depicted by the schematic included in Table 4-6.

Table 4-6

Expression of Null Hypothesis for Research Question Two.

Ho: Midwest State's pass rate = National Pass Rate

Midwest State's Pass Rate	Midwest State's Fail Rate
Equivalent	Equivalent
87.9%	12.1%

The Midwest State had the following observed frequencies for the period of time under study:

Table 4-7

Observed frequencies of Midwest State

Pass Test	Fail Test
3525	458

Based on the Nation's distribution of pass/fail rates a calculation of the expected frequencies was made and presented in Table 4-8.

Table 4-8

Expected Frequencies of Midwest State's

Pass Test	Fail Test
3501.057	481.943

Using the observed and expected frequencies in the Chi square Goodness of Fit determination was made that no difference existed between the Midwest State and the Nation ($X^2 = 1.353$, $df (1, 3983)$, $p = 0.245$). The null hypothesis, that no difference in pass rate existed between the Midwest State and the Nation, was retained. The probability of obtaining the difference in scores was 24 times out 100. Therefore, no statistically significant difference existed between Midwest State and the Nation.

CHAPTER FIVE

Discussion and Summary

This chapter is set up to address the following topics: conclusions, discussion, generalizations, application to theory, relationship to theory, directions for future research, implications, and summary.

Conclusions

The results of this study supported its primary hypothesis: educational program type affected pass rates on NCLEX-RN[®]. In the Midwest State, there was a statistically significant difference in pass rates among associate degree, diploma and baccalaureate programs of nursing. The five-year period of study in the Midwest state revealed that candidates from the associate degree and diploma programs of nursing had statistically significant higher pass rates than did candidates from the baccalaureate schools of nursing. No statistical difference between state and national pass rates were found during the study period.

Discussion

The findings allow for suggesting several topics for consideration. These included limitations, generalizability, application to theory, and relationship to literature.

Limitations

One limitation of this study was the narrow geographic area selected for study. Only one state's candidates were examined. Demographic characteristics, such as age, gender and ethnicity of this state's candidates were not controlled, and no

assumption of representativeness of the sample to other states or jurisdictions can be made.

The period of study was limited to five years. The results of the study cannot be applied to other time periods or to predicting future comparisons within the state or among its programs. The intent of the study was to examine only the time period selected and to report the findings. An explanatory determination was beyond the scope of this study, but certainly should be entertained as a direction for future study.

The sample included a program type with only one school represented in the aggregate data. There were adequate numbers of candidates in the diploma cell to analyze the data, but because the number was small, there was potential for skewed results.

Using an examination to measure competence can be viewed as another concern. Study limitations are associated with psychometric measures, one of which is the variable of competence. Unknown measurement errors can occur when data are gathered by way of multiple choice questioning. Despite progress in the area of test development meant to increase exactness of measurement, error can nevertheless occur. Validity has been established by expert panels. Reliability has been measured ($r = .91$) (Schmidt, Yokum & White, 1998) for consistency. This score means there is a possibility that 8 times out of 100 a candidate might achieve a different score if the test were retaken.

Generalizations

Generalization of these findings is limited due to the narrow geographic area and selected time period of the study. Only one state's statistics were used for a selected

time period. Because of these delimitations, the findings supported applying the results only to the selected Midwest State during the time frame of the study period.

Application to Theory

Rogers' (1995) theory on the diffusion of innovation stated that before an innovation can be adopted the following five criteria must be met: relative advantage, compatibility, complexity, trialability and observability. The innovation of providing multiple educational tracks that lead to licensure met these criteria.

Multiple advantages to each type of nurse preparation program were identified. Baccalaureate educational advantages included thorough scientific and theoretical foundations within the program of study. Advantages of the associate degree programs included accessibility, duration and cost. Intensively supervised clinical experiences were identified as diploma advantages. Each program has distinct advantages which when combined form a larger advantage, options for students. Multiple educational tracks facilitate different learning styles and student needs. Tagliareni (1999) stated

Integral to this (nursing education) is the changing student in higher education. During the 1980s and 1990s, the lion's share of growth in college enrollment came from students who might be described as nontraditional: older, working, attending part time. Fewer than 4 percent of college bound students have the capacity to pay full tuition, and the fastest growing populations in the country, minority groups, have the least ability to pay.

One of the critical issues facing our profession today is the underrepresentation of minority nurses – only 10 percent of practicing nurses come from minority populations. To provide access for a changing student population – to provide hope and opportunity for the emerging majority – nursing must champion and preserve our multiple entry-point system. (p. 15)

The second criterion Rogers (1995) identified was compatibility. The three types of nurse preparation programs have co-existed since the 1950s. The Midwest State has promulgated regulations, and each educational program has complied with those regulations. The simultaneous existence of multiple educational programs, although controversial, has continued to be compatible with society's needs to provide nurses in greater numbers than might be yielded from a single program type.

The third criteria of complexity has been described as the degree "to which an innovation is perceived as difficult to understand and use" (Rogers, 1995, p. 16). The simultaneous existence of multiple nursing curricula has proved so sufficiently complex an innovation as to require an element of time to ascertain its advantages and disadvantages. Perhaps complexity has led to the controversy on the entry into practice issue because of the difficulty for educators and the public to understand the benefits such a system allows.

A period of time over which an innovation has been implemented, identified as trialability, is required in Rogers' (1995) theory. The Midwest State has accommodated multiple educational tracks for over twenty-five years, a suitable trial duration for determining whether nursing education should continue in the multiple track format. The study selected 5 of those 25 years to test the last criterion, observability.

Observability was Rogers' final consideration (1995). The statistical analysis conducted within this study was the observed result. The findings were that associate and diploma graduates had pass rates significantly higher than baccalaureate graduates.

Relationship to Literature

The study supported the findings of Graham (1994). In that study, completed in New York during a different time period, associate degree graduates passed NCLEX-RN[®] at higher rates than did baccalaureate graduates. Graham (1994) did not investigate diploma programs. It is notable that the results from this study, using a substantially smaller number of subjects, were consistent with Graham's work.

The findings of Byer (1991) were not supported. Byer found that there was no statistically significant difference among associate degree, diploma and baccalaureate candidate failure rates in Ohio during 1990. Byer's study consisted of a smaller number of first-time writers, diploma (n=24), associate (n = 148) and baccalaureate (n = 87), was conducted only during a one-year time span, and the NCLEX-RN[®] examination has undergone a major change in administration between the two studies. These differences make it difficult to directly compare the two studies, however the two study's findings appear contradictory.

Bowling's (1989) study (n = 292) found higher mean scores on a different version of NCLEX-RN[®] for BSN graduates than for ADN graduates but did not report on whether there was a difference in pass rates between ADN and BSN candidates for NCLEX-RN[®]. The current NCLEX-RN[®] examination only reports scores as either *pass* or *fail*, so no direct comparison can be made with the Bowling study. Even though a direct comparison is limited, contradictory findings is noteworthy.

Brown's (1992) study of Florida nursing programs reported the percentage of pass was higher for diploma and associate programs than for baccalaureate programs,

although no analyses were conducted to determine if the difference was statistically significant. Those results are similar to the findings from Graham (1994) and the current study. Interestingly, the Florida investigation, like Graham's in New York, included a reasonably large subject population.

Other studies that used the NCLEX-RN[®] examination as the dependent measure focused on student characteristics associated with high pass rates, such as GPA, ACT scores and specific course grades. One recommendation allowable from this study is to investigate whether there are individual characteristics of graduates from the three types of programs that determine why such differences exist. Brown's (1992) study in Florida found specific demographic characteristics of individual students that suggested the need to investigate type of student within each type of program. Older, married students were more commonly found in associate degree programs than in diploma or baccalaureate programs. It is beyond the scope of this study to postulate on variables such as motivation and maturity, but consideration of so-called soft factors might prove rewarding, particularly when coupled to issues like geographic location and access to financial incentives.

Directions for Future Research

The findings from this study support several areas for future research. One is that replicating the study in a wider geographic range and in multiple jurisdictions would provide a more representative sample of schools. Other states interested in determining whether type of nursing education program has an effect on NCLEX-RN[®] pass rates are urged to replicate this study. The controversy surrounding nursing educational standards for initial licensure exists in states other than the one studied.

Replicated studies might help resolve the debate over nursing education across the United States. Boards of nursing in other states may find the information helpful.

A large, multi-state, representative sample from across the nation would enable generalization of this study's findings. Larger samples that were randomly selected likely would increase the ability of regulators and boards of nursing to make decisions confidently concerning nursing education. There is a fiscal implication involved with acquiring such information. Speculations in that arena are beyond the scope of this study but the financial and economic considerations for students as well as institutions need to be explored critically. Juxtaposed to the monetary concerns is the issue of clinical competence and continued professional development of each nursing program graduate. Despite the claimed validity for the NCLEX-RN[®] it is important to consider indices of professional knowledge application in varying clinical settings and with a range of presentations. It needs to be recognized that efforts to further improve quality criteria need to be a high priority.

One variable related to *initial* competence is *continued* competence. This study merely investigated competence by type of program for first-time writers of NCLEX-RN[®] following graduation. The continued competence of nurses throughout their careers is relevant to the issue addressed by the study. Disciplinary actions against nurses may be one way to measure continued competence. Carruth and Booth (1999) investigated disciplinary actions of nurses (n = 249) in Louisiana from 1991 to 1995. Of the disciplined nurses, 103 were associate degree (41.3%). A chi-square analysis revealed that nurses whose highest level of education was an associate degree were disproportionately more likely to be disciplined ($\chi^2_{(1)} 12.9, p = .001$) than nurses

prepared at the baccalaureate level. The study did not differentiate between discipline enacted for practice related problems and chemical dependency related problems. This finding leads to the following research question: Does nursing program type have an effect on the continuing competence of registered nurses?

The final recommendation made at this time is to investigate whether factors other than type of program might account for the significant findings. Inherent differences, such as maturity or motivation, among graduates or faculty members associated with various program types that might account for the findings in the study is important to learn.

Based upon the findings from this investigation the following recommendations were developed.

1. Repeated measures in other jurisdictions
2. Larger representative samples from varied geographical areas throughout the nation
3. Explore student and institutional financial and economic considerations
4. Investigation of closely related variable, continued competence, by type of program
5. Determining causal factors, other than type of program, that may be responsible for the results of the study

Implications

Pollok, (1999) stated the following in support of multiple educational programs for nursing.

Without the walls and towers of artificial separation and isolation, nursing education and nursing practice can offer students and

consumers hope for a seamless continuum of professional health education that, indeed, can change the world of health care delivery in our time. The elitist notion that “my way is better than yours” comes crumbling down from its perch on the high tower. Opening of educational opportunities for a diverse population of men and women can transform our integration into the mainstream of our country’s health care needs. We can make a significantly improved difference in the health status of the populations we serve.

Our nation was founded on the democratic principle of pluralism, with respect for one another. As we let go of the towers and move to interdisciplinary planning within and across professions, recognizing and appreciating the differences and commonalities, may we also let go of past biases in education and move with confidence on a stronger, progressive, innovative foundation for professional practice in the next century. . . Education without self-imposed barriers can lead the way.

Tagliareni (1999) summarized the issue of entry into practice as:

What would nursing education look like with strong and buoyant bridges among the levels of education? For certain, there would be no certainty, which is unsettling. . . but building a cohesive nursing community that respects and honors multiple entry points requires a willingness by all of us to accept ambiguity, to wade through the murky waters of untested assumptions and territorial pecking orders to reach a common ground. This is a tall order for the new millennium, and, quite frankly, it’s not for everyone. Nursing education . . . has a contentious history. Championing diversity and valuing multiple perspectives has not been at the core of nursing’s voice. Yet this position is the only sure way to build the new continuum of education and practice.

. . . Dr. Helen Grace applauded the multiple entry points of nursing’s educational system and called for nurse educators to speak with one voice about our complex educational structure. (p. 15-16)

Demand for qualified, competent nurses remains prominent within the Midwestern State studied. The issue of whether nursing educational program types warrant differential regulation was not an issue of this study, but evidence from the NCLEX-RN® certainly provides food for thought, especially when put beside cost factors and market demand. At this time it can be said that each educational program

type has advantages and disadvantages that warrant continuation of multiple educational tracks. Observed results indicated that initial competence by associate and diploma first-time writers exceeded the licensure pass rate of baccalaureate first-time writers in one Midwestern state and should continue to be offered. On the other hand baccalaureate nurses generally have considerably greater opportunities for developmental and upward mobility. Whether such benefits are due to their educational preparation is not known at this time. What is known is that to blatantly ignore the differences in pass rates by graduates of the three program types seems foolhardy.

Summary

Controversy has existed among nurses and nurse educators regarding which type of nursing education should be the accepted standard preparation for entry into nursing practice. The purpose of this descriptive study was to determine whether nursing education program type had an effect on entry level nursing competence in one Midwestern State between July of 1994 and June 1999. Competence was measured by the pass rate on the National Council Licensure Examination for Registered Nurses (NCLEX-RN[®]). NCLEX-RN[®] is a high-stakes, psychometrically sound and legally defensible examination that all state boards of nursing use to measure entry level nursing competence.

Two research questions were presented: 1.) Is there a statistically significant difference in pass rates among types of nursing programs within one Midwestern State? (Types of programs were diploma, associate and baccalaureate.) 2.) Is there a

statistically significant difference in pass rates between one Midwestern State and the Nation?

Data were obtained with permission from the State Board of Nursing after the State granted permission and after the University of Nebraska Institutional Review Board approved the study. Data comprised frequency of pass/fail scores for each school during the five-year period. All data were reported in the aggregate only. No identifying information was associated with individual schools, and every effort was extended to guarantee anonymity of schools.

Pass rates of graduates from associate, diploma and baccalaureate programs were compared. Contingency tables were developed from the collapsed data. The candidates ($n = 963$) from the associate degree programs had an overall pass rate of 92.2%. Diploma graduates ($n = 320$) had an overall pass rate of 91.56%. Baccalaureate graduates ($n = 2700$) had an overall pass rate of 86.81%. The first null hypothesis, that no difference existed among the types of programs, was rejected ($X^2 = 23.521$, $df = 2$, $\rho = .000061334$). The findings led to the conclusion a difference existed in pass rates among types of program.

To determine whether the Midwest State's scores were typical or skewed, when compared to the Nation, data were compared. The state ($n = 3983$) had a combined pass rate for the five year period of 88.5%. The Nation's pass rate for the same period was 87.9% ($n = 447,079$). Using Chi Square Goodness of Fit, determination was made that no statistically significant difference existed between the Midwest State and the Nation ($X^2 = 1.353$, $df (1, 3983)$, $\rho = 0.245$).

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APPENDIX A

RULES FOR APPROVAL OF NURSING PROGRAMS