Clinical decision-making and clinical judgment outcomes by nursing students in traditional or nontraditional curricula

Dinah Jo Saunders

College of William & Mary - School of Education

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Clinical Decision-Making and Clinical Judgment
Outcomes by Nursing Students in Traditional or Nontraditional Curricula

A Dissertation
Presented to
The Faculty of the School of Education
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
Dinah Jo Saunders
August 1997
Clinical Decision-Making and Clinical Judgment Outcomes by Nursing Students in Traditional or Nontraditional Curricula

by

Dinah Jo Saunders

Approved August 1997 by

George Bass, PhD
Chairperson of Doctoral Committee

Roger Ries, PhD

Roger Baldwin, PhD

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DEDICATION

This Dissertation is lovingly dedicated to

the memory of my parents,

Jo and Johnnie Saunders
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Clinical Decision Making and Clinical Judgment by Nursing Students in Traditional or Nontraditional Curricula

ABSTRACT

The purpose of this study was to investigate the claim that nursing students in nontraditional curricula achieve program outcomes consistent with nursing students in traditional generic curricula. Clinical decision making and clinical judgment are essential components of critical thinking in nursing. Self-perception as a decision-maker was measured by the Clinical Decision Making in Nursing Scale (CDMNS) and clinical judgment was measured by the Clinical Judgment in Nursing Series #1: Emergencies in Adult Client Care Test (CJS:EACC).

Participants were recruited from three regional universities. One curricular group consisted of a generic (traditional) BSN group. One nontraditional curricular design was RN-BSN Completion programs designed for RN’s to return for degree completion. The second nontraditional curricular group represented an Accelerated BSN program designed for adult learners with a previous baccalaureate degree to achieve a career change to nursing.

No significant outcome differences in self-perception as a clinical decision-maker as measured by mean scores on the CDMNS or in the decision making process as measured by subscale scores on the CDMNS were found between Traditional and nontraditional student groups. The hypotheses that there
would be no differences in either self-perception as a decision maker or the decision making process were supported.

A significant difference was found between group scores related to clinical judgment as measured by the CJS:EACC. The nontraditional curricular groups, primarily adult learners, achieved higher scores than the generic group. The attributes of age, work experience, self-directedness, and readiness to learn may have influenced the adult learner’s ability to achieve, through nontraditional program structures, at the same level or higher as traditional students. Age was an influencing variable on CJS:EACC scores. The instrument measures nursing assessment and intervention related to adult medical/surgical clients. The hypothesis that there would be no difference in clinical judgment could not be supported.

Interview responses representative of each curricular group were consistent with previous studies of the goals, barriers, learning needs, and characteristics of the adult learner.
Clinical Decision Making and Clinical Judgment Outcomes by Nursing Students in Traditional or Nontraditional Curricula

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CHAPTER 1
INTRODUCTION

Health care issues related to accessibility and quality are a serious topic for consumers, providers, and educators. Nursing education, as preparation for professional practice, must respond to these concerns. Nurses are an integral part of the health care delivery system and current and future practitioners must be able to meet emergent health care needs. Nurses must be able to accurately assess client needs, prioritize problems, establish expected client outcomes, plan and implement comprehensive nursing interventions, evaluate client responses, and modify expected outcomes and/or interventions as needed. Clinical judgment or decision-making is the cornerstone of this process and nursing education is the first step by which the practitioner develops professional clinical judgment.

The initial trend is that of the increasing enrollment of adult students. The mean age of graduates from nursing programs is 29.8 years (American Journal of Nursing, 1994). Seidel and Sauter (1990) cite the generic adult student and the returning registered nurse student seeking a Bachelor of Science in Nursing degree (BSN) as being prominent classifications of nontraditional students enrolled in nursing education. This trend of an expanding adult student population is confirmed by a report in The Chronicle of Higher Education (1994) based on
1992 data from the United States Census Bureau. The report identified that for the Fall 1992 semester, the age group of 18 - 24 years comprised 84% of full time and 31.8% of part time enrollments in four year undergraduate programs. The age group of 25 - 39 years comprised 11.1% of full time and 46.6% of part time enrollments in four year undergraduate programs. Kasworm (1990) reports that approximately 40% of the undergraduate student population consists of adult students who are 25 years or older. Most of these students are enrolled in traditional programs of study, even though many educators assume that these students "participate predominantly in specialized or age - separated academic programs" (p.346) and that such programs best meet the needs of adult students.

A second trend in nursing education is the development and implementation of nontraditional curricular tracks leading to a Bachelor of Science in Nursing. Two major nontraditional educational routes are the RN-BSN Completion programs and the Accelerated BSN programs. There are currently approximately four hundred and thirty-three schools offering a generic (four year) BSN program, and one hundred and thirty-seven schools offering a RN-BSN Completion program designed specifically for the returning Registered Nurse student (NLN, 1994). Between 1960 and 1983 eleven Accelerated BSN programs
were established, although only eight were still in existence by the end of the 1983 academic year (Slavinsky, Diers, & Dixon, 1982). Wu and Connelly (1992) report that half of the then current fifteen accelerated BSN programs were established between the years of 1987 and 1991. The American Association of Colleges of Nursing (AACN) reports that as of 1992 there were fifty-two schools with accelerated BSN curricular tracks for non-nurse college graduates/second career students and that an additional twelve programs would soon be implemented (American Journal of Nursing, 1993). The dramatic growth of these program offerings attest to the presence of a significant applicant pool, satisfactory outcomes associated with the program goals, and the willingness of nurse educators to embrace nontraditional educational pathways.

that of Registered Nurse was ranked third in growth expectation. This increased demand is and will continue to be based on needs generated by an aging population, technological advances in health care, and the expansion of outpatient care modalities. In addition to an actual need for an overall increase in numbers, the Bureau of Labor recommends that nurses be prepared by advanced education and degrees. Thus, the Accelerated BSN and RN-BSN educational concept may act as a conduit for needed advanced practitioners, as most advanced degree programs require a BSN for entry. Although the percentage of enrollments in baccalaureate programs continues to be less than for enrollments in associate degree programs it is projected that the proportion of BSN graduates will increase by 2020 (Fagin & Lynaugh, 1992; U.S. Department of Health and Human Services, 1991; Winer, 1996).

In addition to degree verification and grade point average requisites, Accelerated BSN programs typically have prescribed prerequisite course work which is intended to provide the foundation for practice-specific preparation. The areas of communication skills, math, foreign language, computer science, physiological science, humanities, and the social sciences are included in the prerequisites (Feldman & Jordet, 1989; Laverdier, 1973).

The Accelerated BSN program under study offers three tracks. One track,
a thirteen-month full time weekday program for college graduates holding a Baccalaureate or higher degree and meeting program prerequisites was instituted in January 1991 and graduated the fourth class in June 1996. The second curricular track, a part time eighteen month evening and weekend program, was instituted in January 1995 and graduated the first class in August 1996. A third track, encompassing either of the above schedule designs, was implemented in June of 1994 for Licensed Practical Nurses (LPN's) to earn a Bachelor of Science in Nursing degree. The candidates must have earned a minimum of sixty credit hours inclusive of selected prerequisites. The LPN - BSN program had its fourth graduate in August 1996.

Bachelor of Science in Nursing completion programs of study (RN-BSN Completion) were initiated, one in 1980 as part of a pilot study, as career mobility programs for Registered Nurses holding an Associate of Science Degree in Nursing or a Diploma in Nursing who desired to earn a Bachelor of Science in Nursing without having to enter a generic baccalaureate program. One RN-BSN Completion program under study has produced hundreds of graduates over the last fifteen years. RN-BSN Completion programs generally encompass two semesters of study requiring University - mandated core courses for a baccalaureate degree and support courses for professional practice. These
requisites include such areas of study as foreign language, economics, statistics, pathophysiology, chemistry, humanities, and history. Nursing courses encompassing community health, research, leadership and management, bioethics, multiculturalism, nursing theory, and health assessment are examples of courses which comprise the final two semesters of RN-BSN Completion programs of study. These courses are designed to expand upon the student's basic nursing education and enlarge their perspective of the role of the nurse.

A comparison of the basic plan of program design for RN-BSN Completion and Accelerated BSN programs reveals the commonalities and differences of the two programs (Figure I). Each share the expected incoming competencies secondary to life experiences, educational experiences which support and facilitate the role development of "generalist" practitioner status, and expected outcomes (program completion competencies). Health assessment, leadership and management, the research process, nursing theory, cultural diversity, ethical issues within the profession, group dynamics, and professionalism are prominent instructional areas common to students in all three types of programs which will be represented in the study.

Clinical judgment/decision-making in nursing, as a component of profession-related critical thinking, is the third trend to be explored. Many nurse
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Accelerated BSN Program

| Undergraduate Degree | Basic Nursing Technical Core |
| Life Experiences | BSN Degree |
| Nursing Generalist Enhancement |

First Career

Figure 1. A Comparison of Nontraditional Program Designs

Authors cite the need for a focus on critical thinking and clinical judgment skills for nursing education and practice (Tanner, Padrick, & Westfall, 1987; Jones & Brown, 1991; Fagin & Lynaugh, 1992; Sanford, Genrich, & Nowatny, 1992;
Kataoka-Yahiro & Sayler, 1994; McDonald, 1995). The National League for Nursing (NLN), the primary accrediting agency for nursing education, has identified critical thinking as an essential outcome for baccalaureate graduates. In addition, the NLN incorporates the inclusion of critical thinking skills in the curriculum as being a specific criterion for accreditation (Brown, & Sorrell, 1993; Heaslip, 1994; Miller & Malcolm, 1990). Nurse educators are encouraged to emphasize the development of critical thinking skills, predominately that of clinical judgment, in nursing students as a response to the increasing complexity of health care needs. Excellence in clinical judgment is identified as a critical performance expectation for the practice of professional nursing (Ford & Profetto-McGrath, 1994; Johnson, 1995; Perry, 1985; Schank, 1990).

**Theoretical Rationale**

The theoretical framework of this study is derived from the principles of andragogy as developed by Malcolm Knowles (1970, 1978, 1984) and the developmental process of nursing practice as presented by Patricia Benner (1984). The concept of andragogy is founded in the philosophy that there are maturational differences inherent in the learning process. Benner (1984), in writing about the development of professional expertise, presents the process as being experientially and chronologically sequential.
The term andragogy and its foundational principles were presented to the American educational community by Malcolm Knowles in 1968 following his introduction to the term by Yugoslavian colleagues. This concept mirrored his long interest in the who's, what's, why's, and how's of the adult learner. Knowles (1970, 1978) delineates the development of concepts and principles of adult learning through citing works and ideas developed in the preceding decades. However, Knowles states that these concepts and principles did not provide an integrated and unifying theoretical framework for adult learning. The focus of andragogy, meaning the teaching of adult learners, is based on crucial assumptions about adults as learners. The assumptions of andragogy which distinguishes it from the educational framework of pedagogy are changes in self-concept, the role of experience, readiness to learn, and orientation to learning (Knowles, 1970, 1978). As defined by the concepts of andragogy, the achievement of self-directedness is the distinguishing psychological factor of adulthood. Thus, with this "adult" perspective, the individual's self-concept emerges from one of dependency to one of personal control, self-direction, and independence (Knowles, 1970, 1978).

Self-directedness is predicated on the idea of autonomy. An awareness of alternatives, personal power, and individuality are given as descriptors of
autonomy (Brookfield, 1986). Spanard (1990), in writing about reentry, retention, and degree achievement of adult students, compared selected characteristics of adult students who chose either a traditional or a nontraditional educational program. Adult learners enrolled in nontraditional programs were higher on autonomy and thinking introversion as measured by the Omnibus Personality Inventory. In writing about staff development for nurses, Abruzzese (1996) reinforces the self-directedness of adult learners by encouraging staff development educators to recognize that adult learners will demonstrate responsibility and accountability for their own learning.

Students in the RN-BSN Completion and the Accelerated BSN programs are required to participate in the design of several of their own learning experiences. For example, a student must identify and develop a topic for nursing research, formulate personal goals and strategies for operationalization of leadership and management content, and plan nursing strategies in community settings. The RN-BSN Completion student may choose to develop a course of independent study, to fulfill the nursing elective requirement, in an area of special interest. Other students, being already licensed as an R.N., may choose to participate in rural health programs, frequently focused on the needs of migrant workers, during which time they perform independently of direct faculty
supervision.

The second assumption upon which andragogy is based is that of the role of experience. An adult has a repository of life experiences which serve as an infrastructure for subsequent learning (Knowles, 1978). The individual's past experiences in all facets of life influence subsequent perceptions, interpretations, and responses. These, in turn, impact upon the individual's internalization of additional experiences and events. The description of experience as a foundation upon which the individual can relate new learning is supported by the concept of "lateral transfer" expressed by Gagne (Taba, 1962; Ausbel, Novak, & Hanesian, 1978). Skills such as organizational ability, relevancy discrimination, time management, and alternative exploration are derived from experience. Lateral transfer is the designation for the application of the previously learned skills to a new environment or knowledge set. Lateral transfer is identified as a valuable parameter and it can be promoted through the application of generalizations and underlying principles within the educational process (Brooks & Sheperd, 1990).

For the individual, experience allows refinement of previously held ideas and notions through encounters with practical situations that add nuances to subsequent situations (Benner, 1982, 1984).

This concept of lateral transfer is especially pertinent to the curriculum of
the Accelerated BSN program. Students entering the program are expected to bring organizational, time management, leadership, and interpersonal skills developed through experience in their previous careers. These transferred skills are envisioned as assisting the Accelerated BSN student in meeting the challenges of an intense program of study and application.

Readiness to learn is the third assumption underlying andragogy. For the adult learner, readiness to learn is an internal response to anticipated or actual changes in their developmental phase or their role responsibilities (Knowles, 1978; Cross, 1990). Readiness to learn is represented as an action state in the individual derived from the integration of maturation/development and learning needs related to the roles the individual encompasses or aspires to encompass. "Teachable moments" arise from this integration of developmental process and readiness to learn (Knowles, 1970, 1978).

As stated above, readiness to learn encompasses the developmental characteristics of the student and the learning needs of the developing role. Each of the nontraditional curricula has been designed to accommodate adult motivation, learning needs and self-directedness. In the RN-BSN Completion program, learning experiences have been designed to complement and expand, rather than to repeat, the achievements of their basic programs of study. This
enables the student to develop the professional skills of leadership, management, needs assessment for individuals and groups, the appreciation for and utilization of nursing research, and the role of client educator. In the Accelerated BSN program, course sequencing, pace, and content selection were chosen to function as an extension of self-directedness and lateral transfer.

The final assumption of andragogy relates to orientation to learning. The adult learner is characterized as having a "problem-centered" approach to learning. This approach demands that learning be focused on life situations rather than on narrowly prescribed subject content. This "problem-centered" orientation to learning allows for immediacy of application of learning, which supports the reference time frame of adult learners (Knowles, 1970, 1978; Abruzzese, 1996).

All course work in the Accelerated BSN program and the RN-BSN Completion program is focused toward immediate application through clinical learning experiences in a variety of client settings and through a variety of nursing roles. In Community Health Nursing, the RN-BSN Completion student interacts with clients of all ages who are exhibiting acute or chronic health care needs. These "clients" may be individuals, families, groups, or communities. Assessing, planning, implementing, and evaluating the nursing care dictated by these client situations demands the immediate application of integrated nursing skills. An
additional example in the Accelerated BSN program is the immediate application in
the acute care clinical setting of the health assessment skills and basic nursing skills
presented in the initial sequence of the curriculum. Such application requires
immediate application of conceptual and "hands-on" skills for the assessment,
planning, implementation, and evaluation of comprehensive client care.

Benner (1984) describes the professional developmental process for
nursing practice. The descriptors of staging from novice to an expert practitioner
are widely accepted and cited in nursing literature as being a valid framework or
construct relevant to professional development (del Bueno, 1983; Field, 1987;
Cognitive ability, rather than psychomotor skills, is the distinguishing characteristic
of professional nursing (Yataoka-Yahiro & Saylor, 1994), yet the educational
focus is often on technology rather than on the development of clinical judgment
undertook to describe the developmental process for clinical expertise in nursing.
She identified five tiers of development: novice, advanced beginner, competent,
proficient, and expert. Integrated within these developmental tiers are three
distinctive foundations for performance: (1) the progression from using abstract
principles as a foundation of practice to the use of past explicit experience as a
standard. (2) the practitioner's perception of the situation becomes more
discriminating related to information relevancy, and (3) transformation of the
practitioner from a position of detached observation to one of participation. Thus,
Benner sought to "present the limits of formal rules and call attention to the
discretionary judgment used in actual clinical situations (p. xix)."

Benner conducted interviews with twenty-one pairs of nurses with each
pair consisting of a beginning practitioner and an acknowledged expert. An expert
is described as a practitioner who has the ability, based on both concrete
knowledge and situational experience, to focus solely on pertinent aspects of the
client situation and to accurately intervene. This accuracy is described as being
intuitive in nature, rather than based on narrow interpretations of context-free rules
or maxims. Each member of the pair described her perception of an actual client
situation in which each had been involved. The descriptions were then compared
and contrasted in terms of data identification, data significance, client
manifestations, interventions, and client outcomes. Through this response analysis
of multiple client situations, Benner was able to develop performance
characteristics and general teaching/learning needs for practitioners at different
levels. In addition, Benner interviewed fifty-one nurses, identified by supervisors
as being expert practitioners, to further identify clinical judgment at the expert
Benner and Wubel (1982) affirm that clinical judgment is experience-based and incorporates both clinical practice and systematic study.

As cited above, five levels of practice were identified by Benner (1982, 1984). The novice level is characterized by decisions derived on the basis of context-free rules. Because the novice lacks specific situational experience, judgment must be based on textbook exemplars, i.e., if $x$ then $y$. There is no experiential basis for contextual integration. Advanced Beginners are able to exhibit marginal performance. They have encountered sufficient real client situations to be able to identify, or to recognize when prompted by a mentor, significant elements of recurring client situations. As with the novice, the advanced beginner has to focus on remembering rules rather than on assessing and prioritizing. The Competent practitioner is identified as the third developmental level. A practitioner at this level is able to formulate an efficient and organized plan of client care derived from the application of abstractions and analysis. In the fourth stage, the Proficient practitioner understands client situations as a whole, rather than as a conglomerate of distinct aspects, within context unique to each client. The proficient practitioner is able to recognize deviations from the expected course of events. The Expert practitioner, the fifth level of development, has an extensive experiential basis for judgment. Such a practitioner "has an intuitive
grasp of each situation and zeroes in on the accurate region of the problem without
wasteful consideration of a large range of unfruitful, alternative diagnoses and
solutions (Benner. 1984, p. 32).”

In-hospital and community-based experiences with actual clients are
essential for student development of cognitive and psycho-motor skills. Clinical or
patient care assignments, with the support and guidance of an expert mentor or
instructor, are designed to provide the student with learning and practice
experiences which will enable the student to progress in the provision of client
care. It is expected that, initially, the generic and the Accelerated BSN student
will perform at the novice level, as neither would have the technical skills nor the
nursing knowledge base to do otherwise. RN-BSN Completion students, because
of previous nursing education and professionally-related work experience, would
be expected to have different educational needs and would be expected to perform
at the competency level.

**Statement of the Problem**

The purpose of this study was to explore selected aspects of critical
thinking by students enrolled in either a generic or a nontraditional curricular
track leading to a Bachelor of Science in Nursing degree. Critical thinking was
approached in two ways. Clinical judgment related to the adult medical-surgical
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discipline. The program may be completed on a full time or part time basis. The term is synonymous with "Second Degree program."

**Critical Thinking:** An analysis of a situation, phenomenon, question, or problem and subsequent generation of a hypothesis or conclusion which integrates all available information and can be convincingly justified (Alfero-LeFevre, 1995).

**Clinical Judgment:** Critical thinking in the clinical area involving decision making about discrimination in data assessment, the formulation of conclusions relative to the data, and the development of intervention strategies (Alfero-LeFevre, 1995).

**Technical nurse:** A graduate of a two-year Associate of Science degree program or a three year hospital-based Diploma program. Such graduates are eligible for licensure as a registered nurse.

**Professional nurse:** A graduate of a four year collegiate BSN program. Such graduates are eligible for licensure as a registered nurse.

**Traditional BSN:** A 4-year/ eight semester program of study inclusive of general education and professional education courses. The term is synonymous with **generic programs**.

**Design of the Study**

The format of the proposed study involved two aspects of clinical
judgment. The first was the assessment of the student's self perception of clinical decision making behaviors using The Clinical Decision Making in Nursing Scale (CDMNS) developed by Jenkins (1985). The second aspect was the assessment of student performance on a pencil and paper test of clinical judgment related to emergencies in medical/surgical nursing of the adult client. The test presents hypothetical questions requiring client data assessment, discrimination of relevant versus irrelevant client data, the determination of client needs, and formulation of appropriate nursing interventions (Center for Nursing Education and Testing, 1995). In addition, interviews were conducted with randomly selected volunteer student participants to elicit perspectives on how traditional and nontraditional programs of study address the needs of adult learners.

The study involved students in traditional and nontraditional curricular programs, each of which leads to a Baccalaureate of Science Degree in Nursing. One participant group consisted of primarily traditional-aged students in generic BSN programs with instrument administration at the end of their final course specific to acute medical/surgical care of the adult client. The other two participant groups consisted of primarily adult learners enrolled in either an Accelerated BSN or RN-BSN Completion program of study. For the Accelerated BSN group, instrument administration occurred at the completion of their final
class specific to the medical/surgical care of the adult client. RN-BSN Completion programs are designed to build upon the student’s previous knowledge base and competencies as evidenced by having met the standards for R.N. licensure. Therefore, the RN-BSN Completion curriculum does not contain any further course work specific to competencies in obstetrical, pediatric, or medical/surgical nursing. The practice focus is that of the client as an “aggregate”, i.e. a group or community. The RN-BSN Completion participants completed the instrument when they had completed all non-nursing course requirements and were enrolled in the terminal nursing courses for the curriculum.

**Significance of the Study**

The significance of this study to nursing education is that it evaluates the degree to which students enrolled in emerging and innovative BSN curricula, i.e., Accelerated BSN or a RN-BSN Completion curriculum, meet the outcome expectation of clinical judgment related to professional practice as compared to students enrolled in a generic program of study. McDonald (1995) notes that there is no research available comparing students in traditional BSN programs to students in Accelerated BSN programs. Additionally, there is no research comparing two nontraditional student groups, namely, RN-BSN Completion and Accelerated BSN students. Accelerated BSN programs of study...
are predicated upon assumptions about adult learners in areas of motivation, ability, and transfer of knowledge and skills. To date, there are no studies of Accelerated BSN students which explore these assumptions.

Mills, Becker, Sampel, and Pohlma (1992) state that nurse educators should be very interested in student outcomes related to accelerated educational programs. Student outcomes, as measured by standardized tests such as those offered through the National League for Nursing (NLN), provide the educator with student performance data related to comparative norms. However, the program classifications on these tests only discriminate between diploma, associate, and baccalaureate participants, not differing BSN curricular tracks. There is no reported information related to an assessment of any outcome differences between generic and nontraditional BSN scores. In most programs, the test relating to community health nursing and a baccalaureate comprehensive test would be the only shared testing areas for score comparisons. Community health nursing is generally placed as the terminal nursing area presented as it demands a comprehensive knowledge base and a degree of autonomy. Community health nursing clinical experiences do not always involve on-site instructor supervision, occur outside of the structured in-hospital environment, and expose the student to the broadest spectrum of client situations they have yet encountered. Tests related
to basic care, adult medical-surgical nursing, obstetrical nursing, nursing of children, psychiatric nursing, and pharmacology would either have been completed prior to the entry point of the RN-BSN Completion curriculum or would have been sequenced throughout the generic program. These tests focus on two areas pertinent to student evaluation. The first area is that of comparative performance related to basic knowledge, comprehension, and application of standard curricular content. The second area of focus is that of assisting the student, and faculty, in identifying areas of deficiency. The NLN tests are not designed to measure clinical judgment. Success on the National Licensure Exam (N-CLEX) denotes achievement of minimal proficiency, not professional critical thinking. Students in RN-BSN Completion programs, already licensed, do not take the licensure exam upon graduation.

Therefore, in the presence of nontraditional curricular tracks, there is a need to assess the outcomes of nontraditional models of nursing education, especially in view of the anticipated need for professional nurses and the increasing complexities of nursing practice and health care. Tanner and Lindeman (1987), in a study to identify and prioritize crucial research questions relative to nursing education, determined that the development of problem solving skills/critical thinking was a priority for nursing education.
A survey performed by the Virginia Hospital Association questioned whether new graduates are perceived to have expected competencies (Wallace, 1993). All nursing school administrators felt graduates possessed expected competencies. Fifty-three percent of nurse executives in hospital agencies felt that new graduates did not meet all expected competencies. The nurse administrators recommended that nursing education incorporate an increased emphasis on organization, time management, leadership, and problem-solving skills. Each of these designated outcome competencies are either supportive of the development of clinical judgment or are directly embedded in the process of clinical judgment. These delineated competencies are among those competencies that are expected of adult learners in nontraditional nursing curricula and are expected to serve as a foundation for achieving the outcomes of the programs.

**Limitations of the Study**

The limitations of this study are:

1. The use of convenience samples;
2. The limited number of participants in each curricular grouping; and
3. Unanticipated student variables may have emerged related to the self-selection of participation in the different curricular programs.

The use of samples of convenience and sample size were limitations of this
proposed study. The use of such sampling technique and small participant numbers limit the ability to generalize the results of the study to larger and perhaps more heterogeneous populations. In addition, the self-selection of the different programs by the students themselves may covertly represent unanticipated influencing variables. Some students in RN-BSN programs may already have a degree in another field, but chose to enter nursing through the A.D./Diploma/RN-BSN Completion pathway due to the lack of alternatives at that time. The influence of past experience may present as a limitation. The RN-BSN Completion group participants have a very varied background in terms of years and type of nursing experience prior to program entry and participation. Some of the Accelerated BSN group participants, and certainly those entering through the LPN-BSN pathway, have previous health-related career or educational experience. Previous Accelerated BSN students have had career and educational experience in the fields of respiratory therapy, sports medicine, and emergency assistance. Finally, the use of specific selected client situations is a limitation in that only a small portion of student performance possibilities will be sampled. Again, these limitations restrict the ability to generalize study results.

**Assumptions of the Study**

This study was developed to provide data validating a major assumption regarding the development and implementation of nontraditional nursing programs
designed for adult learners. The assumption is that adult learners in nontraditional baccalaureate programs for nursing can meet the educational outcome expectations in a shorter and more intense program of study to the same degree as students in generic baccalaureate programs in nursing.

It was also assumed that while there are many influences on an individual's ability to develop clinical judgment, developmental stages (age) and experience are vital components of this outcome. Additionally, it was assumed that participation in the study was voluntary and that participants responded accurately and to his or her best ability.
CHAPTER 2

REVIEW OF THE LITERATURE

This chapter presents a review of the literature related to the adult learner, nontraditional students and corresponding programs of study in nursing, critical thinking, and clinical judgment in nursing. Motivation, participation triggers, entry and retention barriers, and characteristics of participants have been the primary areas of research interest related to adult learners. The majority of studies related to critical thinking by nurses/nursing students have focused on relating general critical thinking ability, type of educational program, and selected personal characteristics. In terms of clinical judgment, the major areas of investigation have been the decision-making process, self-perception related to decision-making, and decision-making outcomes. Studies investigating clinical judgment and types of nursing educational programs have revealed a lack of consistency in measured outcomes.

The Adult Learner

Assumptions about adult learners are pertinent to program design and student participation in the nontraditional programs under study. The major characteristics of adult learners were identified and incorporated into program design and implementation. These considerations focused on the assumptions of...
andragogy (Knowles, 1970), how they related to the decision to return to school (Cross, 1984) and the types of learning experiences needed. In surveying research about adult learners, Houle (1963), Brookfield (1986), Boshier and Collins (1985), and Cross (1981) found that investigation of participants’ motivation was the most prevalent topic studied. The rationale for this motivational focus is recognition of the “almost universal desire to tailor program content and processes to the needs, motives and interests of learners” (Boshier & Collins, 1985, 113) while continuing to provide individuals with the skills needed in the workplace. The development of programs to meet these needs and interests leads to the concept of educational choice for the adult learner. The presence of such educational alternatives is critically related to participation motivation and action (Wlodkowski, 1991). These conclusions are congruent with the development of nontraditional educational programs, namely, the RN-BSN Completion program and the Accelerated BSN program.

**Participation Motivation of Adult Learners**

Through interviews with twenty-two adult learners, Houle (1963) identified three motivational typologies. The first classification was that of goal-oriented motivation in which learning activities were engaged to meet specific objectives. The second typology was that of activity-oriented motivation in which
or context (i.e. primarily social contacts). Learning-orientation, the final classification, represents those who participate purely for the sake of continued learning (Boshier, 1971; Houle, 1973).

The Education Participation Scale (EPS) was developed from Houle's motivational typologies of adult learners and is reportedly the most frequently used instrument for investigating such motivations (Boshier 1971, 1977; Lethbridge, 1989). A study to enlarge on EPS results as reported by Boshier was conducted by Morstain and Smart (1977). The purpose of the study was to provide educational motivational profiles of adult learners which would enable institutions of higher learning to develop programs and policies more responsive to student needs. Using a 9-point Likert-type scale in association with the EPS, students (N = 626) at a large northeastern college were surveyed. Five distinct typological frameworks of motivations to seek further education were identified using NORMIX cluster analysis procedures. Group I (N = 324) respondents were described as having no particularly high scores on the EPS. It was projected that, like many traditional aged students, these adults did not have a clear purpose or goal for attending college. Group II (N = 55) respondents showed highest EPS scores on social relationships and slightly higher than mean scores on social welfare, and cognitive interest. It was suggested that this could be translated into curricular offerings...
focused on humanitarian or service interests and that teaching/learning strategies would best involve group or team projects. Respondents in the Group III category (N = 35) had the highest scores on the escape/stimulation EPS items, high scores on cognitive interests, and low scores on external expectation and career advancement. These learners were characterized as having a personal stimulation focus as motivation for learning. These learners are described as likely being responsive to seminar, field visit, and performance offerings. Group IV respondents (N = 155) exhibited the highest score on external expectation, a high score on career advancement, and the lowest score on cognitive interest. Curricular offerings directly related to career development are presented as being relevant for this group. Group V respondents (N = 57) manifested high scores on social relationships and escape/stimulation and above the mean score on the remaining parameters. These results are interpreted as showing a motivational need among adult learners in career, social, and intellectual development.

Wolfgang and Dowling (1981) surveyed undergraduate students to determine if there were motivational differences for undergraduate enrollment between adult and traditional aged students. Using the Education Participation Scale developed by Boshier, they surveyed 325 students selected by random stratified (age) sampling. Adult students scored significantly higher on the
motivational factors of cognitive interest (pursuing knowledge for its own sake). Adult students, as compared to traditional aged students, responded that the formation of social relationships and meeting the expectations of others were not important motivators for college enrollment. The authors conclude that such responses indicate that adult students are more self-directed and learning-focused than traditional-aged undergraduates. These conclusions are consistent with the assumptions about adult learners as presented by Knowles (1970). They relate their findings as having importance to administrative, curricular, and teaching considerations for adult learners.

Root (1991) cites eight studies, inclusive of the above citations, which used the EPS instrument to assess and categorize adult motivation related to educational endeavors. No definitive critique of the instrument was offered by any of the authors cited, but half of the studies reported modifying the EPS instrument. The modifications involved item omission, response scale modification, or the addition of items. Since investigators reported different outcomes in terms of motivational classifications and rankings by adult learners, one may speculate as to the impact of such instrument modifications upon response results.

The study by Morstain and Smart (1977) concluded that career
advancement was the second largest motivational factor for adult learners. Fotos (1987), using a modified version of the EPS surveyed 57 RN-BSN Completion students regarding their motivation to continue their nursing education. Seventy-seven percent identified reasons of professional goals and career advancement as the impetus for their return to higher education.

Adults, when deciding to participate in an educational process, set goals, assess personal interests, seek information, and evaluate the cost/benefit ratio (Tough, 1979). These categorizations are consistent with the Chain of Response Model for Understanding Participation in Adult Learning Activities (COR) developed by Cross (1984). One means of investigating motivational/participation characteristics of adult students selecting a study program as preparation for a career change is the application of elements from the COR model as formulated by Cross. Self-evaluation and attitudes about previous educational experiences and life transitions are elements of the COR model that incorporate the interrelationship of developmental and motivational characteristics.

Cross (1984) views self-evaluation of one's abilities as the starting point of an adult's decision to enter an educational process. Kersten, Bakewell, and Meyer (1991) identify a concept labeled self-efficacy expectation. This term is defined as one's belief about his/her ability to succeed at a specific task. A positive self-belief
is presented as a motivating factor in exploring personal opportunities. This view supports Cross's (1974) variable of self-evaluation as being pivotal to the decision-making process for educational participation. No direct application of the COR Model has been noted in other sources. Wlodkowski (1991) cites Cross when discussing the decision making process and influencing factors relative to the adult student inclusive of the importance of past educational experiences and achievement, the effect of barriers, the value attached to goals, and self-evaluation.

Attitudes about education are determined by the individual through their perceptions of their own experiences and the experiences of others (Cross, 1984). The relationship between self-evaluation and one's attitude about education leads an individual to the next component of the COR Model, that of goal expectancy. Goal expectancy is described as having elements of self-esteem, valuing, and responsiveness. This element of self-esteem corresponds to results from a survey of rural RN-BSN Completion students using a modified EPS (Lethbridge, 1989). The survey of these rural participants revealed that associated status and prestige were both newly identified and significant motivational factors. Lethbridge conjectured that such an orientation may have been due to the fact that having a college degree, particularly for nurses, is outside of the norm. Self-esteem is
important to the level and extent to which one identifies and pursues goals. The identification of goals and the assessment of one's ability to achieve such goals is directly influenced by the outcomes of the individual's self-evaluation. The variables of attitude about education and the valuing of the identified goals are determinants of efforts that the individual makes to pursue the goals. Also, the individual must determine if the educational plans will be responsive to the individual's needs in facilitating goal achievement. Therefore, the Chain of Response Model is a representation of variables and relationships that would influence an adult's decision to return to school to prepare for a career change.

In studying participation triggers for adult learners, Aslanian (1989) found that 60 percent of the one thousand interview participants in a nationwide study identified career transition as the reason for entering an educational program. In this instance, career transition corresponded to changing jobs, adapting to new expectations within the current job, or career advancement. Family and leisure triggers distantly ranked second as motivational triggers for entry. By incorporating several triggers into the category of "life transitions", Aslanian concluded that this information could aid in predicting learning needs and the time frame needed for such provision.

In a study of "triggers" or motivational factors for adults to enroll in
collegiate studies. Sewall (1982) investigated identified barriers to enrollment, personal/career goals, and other demographic variables. He found essentially identical responses for both adult groups: those who expressed an interest in entering college and acted upon that interest, and those who expressed an interest but had not acted. Sewell developed a questionnaire to survey demographic variables, catalyst events (triggers) for participation, and educational goals. Adult, degree seeking students (N = 1025) enrolled on six campuses of a midwestern University system were surveyed. Of results related to triggers, 65 percent cited development of a new career as the reason for entry.

**Motivation and Participation by Nursing Students**

Registered Nurses engaged in continuing education (N=843) were surveyed using a modified Education Participation Scale (EPS) with a 10 point Likert-type response scale. Gaining professional knowledge, betterment of social welfare skills, and professional advancement were, respectively, the response categories revealing the highest mean scores. Maintaining a current professional knowledge base, new learning, learning for the sake of learning, personal intellectual satisfaction, and interaction with colleagues were subsets of the Professional Knowledge category. Social Welfare Skills incorporated a variety of community and citizenship-focused goals. The Professional Advancement
category incorporated aspects of status, competition, and acceptance by colleagues (Fotos, 1987; Lethbridge, 1989; & Root, 1991).

Registered Nurse students in BSN programs, living in rural areas of a New England state, were surveyed by mail (N=253) using the modification of the EPS as employed by O’Connor (Lethbridge, 1989). Professional Advancement, knowledge, and enhanced social welfare skills were revealed as having the greatest impact upon the decision to return to school to earn a BSN degree. Lethbridge, in citing a 1982 study of urban students conducted by Carmody, revealed an unanticipated result related to rural R.N. participants. The rural R.N. participants attached a greater importance to the achievement of status or prestige as an outcome of having a BSN than had the urban participants in the earlier study. However, this valuing of associated prestige or status did not rank as a significant factor in the decision to return to school.

Fotos (1987) a surveyed fifty-seven RN’s returning to complete the BSN degree. Using a 5 point Likert scale with a modified EPS instrument, participant responses were categorized into seven motivational orientations. A mean score of 3 or above for a given motivational category was considered significant. Three of the motivational categories revealed significant findings of acquisition of credentials (4.35), professional knowledge (4.18), and professional advancement.
In written statements, 21 of 55 respondents identified an increase in professional abilities as their primary motivation for returning to school. Fotos concludes that professional advancement is the primary motivation for RN’s to continue study.

A study of educational goals, using the Educational Experience Inventory, revealed differences between generic and RN-BSN Completion students (King, 1988). Ninety-three percent of the generic students identified achieving RN status as their primary goal. Fifty-nine percent of the RN-BSN Completion students identified a primary goal of achieving a Master of Science in Nursing degree (MSN) or as a pathway to becoming a nurse educator. These results supported the outcomes of an earlier study (King, 1986) inclusive of educational goals of generic and RN-BSN Completion students.

King (1986, 1988) used the Washington University Sentence Completion test to evaluate ego development staging. This instrument is a 36 open-ended item questionnaire developed by Loevinger, Wessler, and Redmore and is designed to assess ego development. In both studies King found that generic students, in relation to developmental level or stage, were oriented toward initiating a career and entering adulthood. The RN-BSN Completion students were oriented toward career advancement and appraising life choices.
A survey of students (N = 24) enrolled in an Accelerated BSN program revealed that all respondents expressed a career-focused goal orientation for entry into the program (Saunders, 1994). The elements of the COR model (Cross, 1984) served as a guide for eliciting student responses about how they arrived at the decision to enter an Accelerated BSN program. Trigger events for participation included current job dissatisfaction, pursuit of a long-time interest in nursing, program structure, and needing a sense of personal fulfillment. A sense of confidence, previous study in a health-related field, and previous completion of prerequisites were identified as the primary ways in which previous educational experience influenced the decision to enter the program. Self-evaluation related to program entry included the assessment of the degree of personal, family and/or financial sacrifice entailed; the perception of one’s ability to perform as a nurse; and one’s ability to handle stress.

These responses in terms of triggers, implications of previous learning experiences, and self-evaluation correspond to previous documentation regarding adult learners. The responses also correspond to recent documentation related to students in Accelerated BSN programs. Long-term personal interest, fulfillment in a caring profession, program structure, job availability, and opportunities for career advancement have been cited in previous studies (Feldman & Jordet, 1989).
Wu & Connelly, 1992) as variables which influenced the decision to enter an
Accelerated BSN program of study.

Program Evolution in Nursing Education

Educational pathways for entry into practice as a “nurse” have a history
which has resulted in a great deal of preparatory diversity. There are currently
three major educational preparations for eligibility to become licensed as a
Registered Nurse: a hospital-based Diploma program, an Associate of Science in
Nursing degree, and a Baccalaureate of Science in nursing degree. Each of these
educational pathways identify overriding program outcomes in terms of application
such behaviors as application of the nursing process, synthesis of knowledge from
the natural and behavioral sciences, and personal development. In addition, each
program type expects the ability to make sound and safe clinical judgments
regarding the nursing management of clients throughout the lifespan and in a
variety of healthcare settings.

Currently, the Associate degree pathway offers the greatest number of
programs and provides the greatest number of graduates. Many of the few
remaining diploma programs have become allied with educational institutions and
offer an Associate degree component with the diploma. Associate degree
programs began in 1982 and were designed to provide “technical” nurses to
perform routine nursing tasks under the supervision of "professional" (BSN) nurses (Seidel, 1990; Chitty, 1993).

Even though the first BSN program in the U.S. was established in 1906, it was not until 1965 that the American Nurses Association presented a position paper calling for the BSN degree to be the recognized minimal preparation for "professional" nursing. The philosophy underlying the placement of nursing education in the university setting includes strengthening nursing’s position as a profession and fostering the student’s development of diverse thinking, cultural awareness and a more expansive personal socialization (Chitty, 1993).

RN -BSN Completion programs emerged from dual demands. One demand was that of an increasing need for nurses with the knowledge base deemed to be provided by a baccalaureate level education. The second source of demand was from Diploma and Associate Degree graduates desiring a pathway to a BSN degree via a program of study which recognized previous educational achievement (Seidel, 1990; Chitty, 1993). The majority of participants in RN-BSN Completion programs, as well as Accelerated BSN programs, have been adult women. This emergence of the adult learner in nursing education, the professional education of women at the collegiate level, and the rise of specially designed educational programs all integrated to underpin the description of
“nontraditional” education in nursing.

The educational approach of an Accelerated BSN curriculum can serve to increase the number of individuals prepared at the professional level of practice in a relatively short time. Although much shorter in time frame, the assumption underlying this curricular approach is that the student transfers experiences (educational, career, and life) which, when coupled with selected prerequisites, will enable the achievement of appropriate professional competencies in a shorter time of study.

The process of nontraditional professional program development for adult learners can be integrated with COR principles and the assumptions of andragogy (Table 1). Assessment is a primary step in both program development and in participation decision making. The individual's beliefs about personal abilities and the determined value attached to previous educational experiences act as a foundation for reentry into the educational arena. The initial phase of program development was the assessment of needs of the profession (need for nurses) and determination of the participant pool (availability of potential students). Thus assessment is the initial action by the potential student and by educators involved in program development.

Table 1
curriculum prerequisites, content sequencing, planned learning experiences, expectation of lateral transfer from previous learning and work experiences, and outcome expectations. Readiness to learn is impacted by life transitions and goal expectancy. In considering readiness to learn as a parameter in program development, recruitment potential must be considered in terms of academic readiness of the applicant (prerequisites) and personal readiness (life transitions, goal expectancy). Orientation to learning incorporates the components of information gathering, the identification of barriers to entry and/or retention, and the identification of opportunities unique to the program being considered. Program development addresses readiness to learn through the program structure (time, place, and credit for previous learning/life experience) and participant orientation to learning incorporates the components of information gathering, i.e., the recruitment focus.

**Critical Thinking and Selected Student Characteristics**

Accelerating change and increasing complexity, interwoven elements of contemporary society, are major demands which necessitate the development of critical thinking skills. Even a cursory examination of recent events and projected trends reveals the rapid advance in communication and industrial technologies, workplace alternatives, product and service development to meet changing individual and societal needs, and the expanding definition of our concept of
community. Each of these elements combines to create an atmosphere of rapid change in a complex human environment. In terms of choosing and maintaining a career, change and complexity are significant factors. Currently, individuals may expect to change careers from four to seven times in their work life. Additionally, with knowledge obsolescence given a six-year time frame, reeducation or training becomes a necessity (Paul, 1993).

These elements are inherent in the program outcomes under study. Students in the Accelerated BSN program are pursuing a career change and are preparing to enter a profession in which change is dominant and performance expectations are crucial. Students in the RN-BSN Completion program are engaged in expanding basic competencies and in developing professional leadership and management skills within that same arena of change and complexity. Paul (1993) states that workers are expected to have attributes beyond reliability, a positive attitude, and the mindset to follow directions. A worker is now "asked to use judgment and make decisions" (Paul, 1993, p. 5). The assumption that critical thinking ability is highly transferrable from one setting to another (Ausebel, Novak, & Hanesian, 1978; Paul, 1993) is a fundamental premise in the development and implementation of accelerated curricula in nursing. Students in the Accelerated BSN program, previously successful in the academic world and in the workplace, are expected to transfer their critical thinking skills
from one setting to another. Students in the RN-BSN Completion program, by virtue of their basic education and their nursing work experience, are expected to bring critical thinking skills which will promote professional development. These transferable critical thinking skills incorporate abilities in goal or purpose identification, discrimination of significant information, information organization, prioritization, recognition and exploration of alternatives, and the determination of outcomes or conclusions. For students in both curricular tracks, this transfer of experience-based skill is inherent in the assumptions of andragogy, namely, self-concept, the role of experience, readiness to learn, and orientation to learning (Knowles. 1978).

General critical thinking ability has been most often measured through the use of Watson-Glasser Critical Thinking Appraisal (WGCTA) (Adams, et. al., 1996) This eighty item forced choice instrument consists of five subsets measuring inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments. Two equivalent forms of the test allow for the use of a test/retest format. The authors report that the WGCTA test manual gave the established reliability by split-half coefficient as ranging from .69 - .89 and the test/retest reliability as .73. Between 1977 and 1994 approximately twenty studies of critical thinking by “nurses” used the WGCTA. Nursing students were the subjects of sixteen of the studies. The California Critical Thinking Skills Test, cited as being
used in twelve studies between 1991 and 1994, is the second most frequently used instrument to measure critical thinking ability. However, only two of the twelve studies cited had nursing students as the test subjects.

Tiessen (1987) studied 150 students in a generic BSN program to address the question of which selected variables had the strongest correlation with critical thinking abilities. The independent variables were 1) verbal SAT scores, 2) quantitative SAT scores, 3) GPA, 4) age, 5) undergraduate credit hours in natural science, 6) undergraduate credit hours in behavioral/social science, 7) undergraduate credit hours in humanities, and 8) undergraduate credit hours in nursing. Critical thinking was measured through the use of the WGCTA. The quantitative SAT score, credit hours in humanities, and GPA were found to be the three variables which demonstrated the closest positive correlation with critical thinking by demonstrating a multiple R of .38, .304, and .076 respectively.

The results of Tiessen’s (1987) study, in relation to knowledge (SAT score, GPA, specified academic credit hours) as predictors of critical thinking (clinical judgment ability), have implications for the Accelerated BSN program. SAT scores are generally unavailable for applicants to the Accelerated BSN and RN-BSN Completion programs. However, in the programs under study, the following requirements pertain to either admission to or completion of the program of study. The Accelerated BSN has admission prerequisites of 6 credit hours in
the Humanities, a GPA of 2.8 in the sciences, and a cumulative GPA of 2.5 on a 4.0 scale. The RN-BSN Completion program incorporates 3 credit hours in the humanities and requires an entry GPA of 2.0 on a 4.0 scale. The greater requisite in humanities credit hours for the Accelerated BSN program was designed to facilitate the transfer of 81 - 85 credit hours into the program and thus meet credit hour standards for degree completion. In addition, because of the intense nature of the program, a greater entry GPA level, particularly in the sciences, was considered to represent greater readiness and ability on the part of the student applicant.

A study of forty-one RN-BSN Completion students examined the relationship between critical thinking, creativity, clinical performance, and achievement (Sullivan, 1987). The purpose of the study was to determine the effect of upper level baccalaureate professional education on these selected variables. The study was implemented in a pretest/post-test format at the initiation and completion of the program of study. Critical thinking was measured through the use of the WGCTA. Creativity was measured through the use of the Torrence Test of Creative Thinking (TTCT). For the TTCT, content validity has been established, reliability coefficients range from .60 -.93, construct validity coefficients of correlation range from .49 -.51, and predictive validity is present at greater than the .01 level (Sullivan, 1987). Borg and Gall (1989) describe
predictive validity as "the degree to which the predictions made by a test are confirmed by the later behavior of the subjects" (p. 252). It is unclear as to what exactly was the expected performance outcome and what was the predictor: critical thinking/clinical performance abilities as predictors of creativity, or vice versa. The TTCT consists of written responses to seven scenarios. Content analysis, performed by the test publisher, is focused on the areas of verbal fluency, verbal flexibility, and verbal originality. Verbal fluency relates to the individual’s ability to generate a large number of ideas with words. Verbal flexibility relates to the individual’s ability to generate an array of focal ideas using multiple strategies. Verbal originality relates to the ability to generate novel ideas.

Nursing performance was evaluated by use of the forty-seven item Stewart Evaluation of Nursing Scale (Sullivan, 1987). Using a nursing process model, participants were rated on specified practice behaviors via a five point Likert-type scale. Reliability correlation coefficients range from .71 to .84 and alpha coefficients range from .90 to .98. A trained rater observed a nurse for a 2 hour period and evaluated the participant according to the specifics of the 47 items. Each participant was evaluated at the beginning and end of their program of study by two raters. Entry and exit GPA, critical thinking scores, and creativity were found to have a positive correlation.

Study results revealed that there was no difference shown in critical
thinking ability between program initiation and completion (Sullivan, 1987).

Clinical performance scores showed significant gains (from 3.13 to 3.92), as did GPA (3.16 to 3.33) and verbal flexibility (46 to 49) scores. Overall creativity scores showed a decline (114 to 107). The author expressed the greatest surprise that, in relation to the establishment of required course work in critical thinking, general critical thinking scores did not change. No explanation was offered in relation to this unexpected study result. Studies in critical thinking were accomplished through courses in statistics, math, research methodology, and logic. Perhaps this quantitative/scientific study focus does not have direct transfer to the WGCTA structure.

An interesting note regarding Sullivan’s study (1987), in terms of returning RN-BSN Completion students, and perhaps Accelerated BSN students, was the finding that a longer time frame from basic program completion to entry into a RN-BSN Completion program equated to a higher entry score on critical thinking. This supports the premise that experience impacts upon critical thinking ability and that, based upon their own experiential records, adult learners in Accelerated BSN and RN-BSN Completion programs will bring greater critical thinking skills associated with life and career experiences.

Senior students in one of the three types of traditional programs leading to licensure (AD, Diploma, BSN) or in a RN-BSN Completion program participated

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in a study to examine the relationship between professionalism and critical thinking ability (Brooks & Sheperd, 1992). Critical thinking was measured by use of the WGCTA. Accompanying norms revealed that college juniors and seniors cohorts (either BSN or RN-BSN Completion students) had mean scores of 61.1 - 61.3 points. Nursing students in the AD and Diploma programs had mean scores of 50.0 - 51.3, respectively.

The Health Care Professional Attitude Inventory (HCPAI) was used to measure professionalism. The concept of professionalism (a personal variable and an expected outcome of experience) was approached through constructs identified in an earlier work by Dumont. The six constructs are consumer control, indifference to credentialism, compassion for the needs of the client and the public, a superordinate purpose, critical attitudes, and impatience with the rate of social change. The instrument has 36 items with responses based on a seven point Likert - type scale, allowing for a range of -108 points to a +108 points for individual response results. Pilot testing with medical and nursing students revealed a reliability coefficient of 0.79 and 0.72 respectively. Content validity was established by a literature search and then by expert review of the subsequent inventory items. Concurrent and construct validity were established by piloting the inventory on twelve health care professionals whose responses were then compared to independent evaluations made of the behaviors of the twelve
participants in relation to the constructs.

Fifty subjects for each of the four represented program types, selected by convenience, participated in the study. The mean ages for students in Associate degree, Diploma, generic BSN, and RN-BSN Completion programs were 31.7 years, 21.4 years, 22.7 years, and 30.7 years respectively. The Pearson Product-Moment Correlation was used for data analysis. The RN-BSN Completion students had the highest mean scores (26.4) on professionalism and the second highest mean score (61.1) on critical thinking. The next highest score on professionalism was a mean of 19.9 for the generic BSN students, who showed the highest mean score (6.3) on critical thinking. The RN-BSN Completion respondents, the generic BSN respondents, and the Associate degree respondents showed a low to moderate positive correlation of professionalism and critical thinking. When correlated with the variable of age, a low positive correlation of age, critical thinking, and professionalism was found in the RN-BSN Completion group. No such correlation was found for the similarly aged respondents in the Associate degree group. Eighty percent of the respondents in the RN-BSN Completion group had a minimum of 3 years of licensed (R.N.) work experience.

For the RN-BSN Completion group, the combination of life experience and work experience could have been determining factors in both professional and critical thinking behaviors. This outcome addresses the concept of lateral transfer.
and the value of past experience to critical thinking ability., assumptions inherent in
the development of RN-BSN Completion and Accelerated BSN curricula. The
RN- BSN Completion students , by virtue of their age and their work experience,
had the most to bring to their educational program in terms of lateral transfer of
critical thinking ability and professional behaviors. This lateral transfer enabled
them to perform at essentially the same level as generic BSN students, and
superior to that of AD and Diploma students , who were younger, presumably had
fewer life experiences, and had no record of significant work experience.

Pardue (1987) implemented a study of practicing nurses with varying
educational preparation. The purpose of the study was to determine if there were
differences in critical thinking ability and clinical decision-making ability between
diploma, Associate, generic Baccalaureate, and Master's prepared nurses. The
stratified random sample was drawn from two large urban health care agencies.
Master's level participants were identified as to their basic nursing education, i.e.,
a generic Baccalaureate degree. Critical thinking was measured through the use of
the WGCTA. A clinical decision-making instrument was developed for the study.

Part A of the instrument related to the nurse's self-report of the frequency
of decision-making. The decision-making situations utilized were developed
through the application of identified domains of nursing practice: helping,
educating, assessing, management of changing situations, implementing actions,
evaluating the quality of care, organizational skills, and consulting. Part B of the instrument investigated perceived difficulties with decision-making. Part C investigated factors which influence decision-making and Part D contained demographic data. A panel of nurse experts reported face and content validity of the instrument, the Decision-Making Questionnaire (DMQ).

Data analysis revealed that there was a significant difference in critical thinking ability between the groups and that Baccalaureate and Master’s prepared nurses showed higher critical thinking ability (Pardue, 1987). There was no significant difference between the groups related to frequency of decision-making, perceived difficulty with decision-making, or influencing variables on decision-making. Each group ranked knowledge and experience as the two primary variables which influenced their decision-making. On the demographic data form, the majority of participants rated themselves as having superior decision-making skills. This raises the question as to whether or not Diploma and Associate degree graduates greatly correlate further professional education with increased critical thinking ability and clinical decision-making skills.

The impact on critical thinking and clinical decision-making by RN’s participating in a career ladder program at an acute care setting was studied by Bechtel, Smith, Printz, and Gronseth (1993). Critical thinking was measured by the WGCTA and clinical decision making was measured by the Clinical Decision
Making in Nursing Scale (CDMNS). Forty-six RN's with an average of over 15 years of practice participated in the study. Using descriptors developed by Benner (1984), eighty percent of the participants rated themselves as being at either a "proficient" or "expert" level of clinical practice. It was hypothesized that nurses with higher career ladder program ranking would score higher in terms of critical thinking and clinical decision making (Bechtel, et.al., 1993).

Results, by ANOVA, revealed that there was no significant difference in critical thinking scores as measured by the WGCTA (F=1.062) or clinical decision-making as measured by the CDMNS (F=.0385) in relation to educational background or experience. Likewise, by multiple regression, no relationship was found between years of experience (r²=.19), education (r²=.14), practice area specialty (r²=.23) and scores on the WGCTA or the CDMNS in relation to career ladder position. The authors concluded that the outcomes may reflect that there may be questionable transference of specific professional capabilities to general problem solving ability (Bechtel, et.al., 1993).

Clinical Judgment and Program Outcomes

Three factors identified as the primary determinants of decision-making (clinical judgment) in nursing are knowledge, experience, and personal variability (Hamers, Abu-Saad, & Halfens, 1994). Critical thinking in nursing students has been studied by many researchers. Overriding questions have related to 1) the
general critical thinking abilities of nursing students in relation to selected variables, 2) the comparison of critical thinking and/or clinical judgment by nursing students in different curricular tracks, and 3) the comparison of critical thinking and/or clinical judgment between nursing students and practicing nurses. Clinical judgment has been approached by a variety of performance assessments, self-report instruments, tests, and video simulations. As the following literature review will reveal, there has been little consistency in either methodology or outcome approach (cognitive, psychomotor, affective).

The relationship between problem-solving skills (clinical judgment or decision-making) and educational preparation was studied by Frederickson and Mayer (1977) in an effort to determine if a difference really existed between the practice levels of technical nurse students (Associate degree) and professional nurse students (Baccalaureate degree). Problem solving ability was measured through the use of three out of a series of five silent patient scenario films developed in 1968 by Veronick and entitled The Clinical Judgment Series. Five nurse experts provided solutions to the film sequences as an evaluation basis for student responses. Twenty-eight students representing five Baccalaureate programs and twenty-seven students representing three Associate degree programs participated in the study. All participants were in the final semester of their respective programs. General critical thinking ability was measured by the use of
an unidentified 100 item test described as “standardized” with generalized content unrelated to any specific discipline. No further information regarding validity or reliability of the instruments was given. After viewing the films, each participant gave a verbal description of their thoughts during the film. The verbal responses were recorded on tape. Each response tape was analyzed for content, rationale for given responses, and identification of the general steps or approach used in the problem-solving process. The primary steps of the problem-solving process were expected to be 1) problem identification, 2) data collection, 3) generation of solution, and 4) evaluation of the solution outcome. A t-test was used to analyze the responses on the standardized test of general critical thinking ability between Associate degree and Baccalaureate degree students. An ANOVA was used to explore the relationship between the student’s performance on the films and the type of program currently attended. No specific information was given as to how film responses and critical thinking test results were compared.

In terms of problem-solving process, it was found that the majority in all programs did not use all four of the identified steps. The steps were used in random order and evaluation was the most frequent step omitted (Frederickson & Mayer, 1977). For the process of problem-solving, no significant differences were ported between program types. Baccalaureate students scored significantly higher on general critical thinking ability. The authors note the transfer discrepancy
between general critical thinking ability and profession-related problem solving by the Baccalaureate students. Therefore, it is uncertain “if” or “how” traditional BSN nursing education (type of program) impacts on critical thinking and problem-solving (clinical judgment) and the differentiation of practice between technical and professional nursing.

Another study of the relationship between clinical judgment and educational preparation was conducted using twelve video client simulations (del Bueno, 1983). The videos were professionally produced as part of a regional competency-based education project involving nine hospitals. Video content was based on expert identification of adult acute health problems which a nurse with reasonable clinical judgment could manage or intervene appropriately. Model answers for each scenario were developed. Ninety volunteer participants were drawn from eight hospital in three states. Of the participants, eighty-five were R.N.'s and five were Baccalaureate nursing students working in an LPN capacity. The RN participants were graduates of Diploma, AD, or BSN programs and had varying amounts of nursing practice experience. Participants viewed a sample video and then viewed an additional five client scenario videos. After viewing, the participants gave written responses to three questions focused on prioritization of client problems, planning appropriate nursing interventions, and providing an appropriate rational for the given intervention.
Eight (27.5%) of the Baccalaureate nurses, of whom seven were experienced, had a 100% correct response. Six (15.3%) of the Associate degree nurses, of whom three were experienced, had a 100% correct response rate. One (5.8%) Diploma nurse, experienced, had a 100% correct response rate. An analysis of responses revealed greater difficulty in identifying covert client problems. Also, there was a persistent discrepancy between being able to identify a client problem and planning appropriate nursing interventions. The study concluded that educational level and experience have a positive impact on clinical judgment, but no conclusions were reached as to which was the more influential variable (del Bueno, 1983).

del Bueno (1990) conducted a similar study with a larger sample size, increased geographic representation, and a revised set of 22 video taped client vignettes. The results of this study were not consistent with conclusions generated from the 1983 study. Experienced nurses were found to give a greater total number of acceptable responses, i.e., problem identification, planning intervention, and provision of an appropriate rationale for the intervention, than inexperienced nurses. The largest difference between groups corresponded to the ability to give an appropriate rationale for a nursing intervention with the inexperienced Baccalaureate nurses having the overall highest response rate for the correct rationale. Associate degree nurses gave the largest number of correct
planned interventions among the R.N. participants. However, this study included a Licensed Practical Nurse (LPN) group, and it was found that inexperienced LPN’s had the greatest overall correct intervention response rate of any of the groups. The author speculated that this finding may have been secondary to changes in LPN curricula or be due to the fact that many of the LPN’s were also BSN students.

del Bueno concluded that the assumption about collective behavior (clinical judgment) based on credentials (educational program and clinical experience) were not supported by the study. This outcome was consistent with “the well known sociological principle that the existence of greater differences within rather than between groups appears to be as relevant to ... clinical judgment ability as to other variables “ (1990, p. 294).

Brooks and Sheperd (1990) investigated the relationship of general critical thinking and clinical decision-making by students in Associate degree, Diploma, generic Baccalaureate, and RN-BSN Completion curricular tracks. Critical thinking was measured by the WGCTA. Clinical decision-making was measured by the Nursing Performance Simulation Instrument (NPSI). Content validity was established by a two step expert review. The instrument was piloted by fifty nurse practitioners (an advanced study Masters level degree which prepares the individual for specialized and independent practice). A test-retest reliability of
0.63 was established in this sample. The instrument consists of four simulations in which students must make decisions regarding data accuracy, prioritization, action discrimination, and appropriate referrals. Demographic analysis revealed that the participants from the generic Baccalaureate and the Diploma programs tended to be in their early twenties, participants from the Associate degree and RN-BSN Completion programs were described as being older, but no specific age data were given.

An overall weak but significant positive relationship between performance on the WGCTA and the NPSI was revealed by an $R = .249$ (Brooks & Sheperd, 1990). The mean WGCTA scores for generic Baccalaureate (61.3) and RN-BSN Completion (61.1) students were significantly higher than those of Associate degree (50.0) and Diploma students (51.3). The RN-BSN Completion students scored significantly higher at a mean of 38.0 on the NPSI than did the students in the other three programs, with their mean scores ranging from 32.2 to 32.3. A previous study by Grover of senior generic Baccalaureate students ($N = 190$) had revealed a mean score of 35.8 on the NPSI. The authors expressed concern that it did not appear that higher performance in general critical thinking transferred to higher scores on clinical decision-making. The generic Baccalaureate students had the highest score on the WGCTA (61.3) but tied with Associate degree students in having the lowest score (32.2) on the NPSI.
The clinical judgment ability of new graduates in a hospital orientation program was measured to assess whether or not they met minimal expected competencies in clinical judgment (Sanford, Genrich, & Nowotny, 1992). Of the 116 participants, 112 had graduated from nursing school within the previous year. The participants viewed four video presentations, selected from those used in one of the earlier del Bueno studies, and then answered four questions about the client situation portrayed in the video. The first three questions were the same as those used by del Bueno in her 1983 study. The fourth question called for the identification of nursing actions which could have prevented the client problem. Model answers had previously been established and scoring was done on a Likert-type scale with “0” being a totally incorrect answer and “2” being a totally acceptable answer. A score of 80% or higher corresponded to an evaluation of clinical competency.

The scores for the participants ranged from 3% to 93%, with 65.7% being the mean score. Eighty percent of the participants failed to meet the expected minimal competency standard (Sanford, Genrich, & Nowotny, 1992). From the description of the participants, it is unclear as to their licensure status. As the study was conducted over a six month period, some may have been hired as an RN applicant and others may have successfully completed the licensure exam. Data analysis did not reveal any performance difference related to the type of basic
nursing education program completed. Indeed, if the reader speculates that all had completed the licensure exam, the reader could conclude that there is no correlation between clinical judgment and success on the national exam for practice licensure.

An assessment of the process of making clinical judgments and of clinical judgment ability by experienced R.N.'s and senior nursing students was conducted in a hospital setting using real clients (Itano, 1989). The R.N. participants were selected for participation in the study subsequent to being identified by three clinical nurse specialists as being highly skilled in making clinical judgments (HSJM's/Highly Skilled Judgment Makers). The senior Baccalaureate nursing students were selected by convenience sampling. The first part of the study, involving actual nurse/patient interaction, consisted of the nurse's beginning-of-shift assessment of the client after reviewing the patient's order sheet and receiving a change of shift report. This assessment is an expected standard of care and therefore poses no threat to the client. As the nurse assessed the client, a data collector observed the process for nonverbal cues and actions. Verbal interaction was concurrently being audio taped. The assessment was rated by three nursing faculty. Interrater reliability was .55 with a .40 to .71 correlation among the raters. The total scores of the subjects as given by the raters were reviewed and consistency was found within the subject outliers as judged by the use of both
mean and median scores. Rating was done by quantifying and then classifying the cues reported from the assessment process. The clinical judgment process was evaluated by a 28 item instrument based on the Carnevali model and developed for the study. Each item response was ranked on a 5 point Likert-type scale which ranged from “novice” to “expert”.

The HSJM’s identified significantly more client cues than did the senior nursing students, with a per-interview average of 39.8 and 28.3 respectively (Itano, 1989). No report was given as to results from analysis of the clinical judgment process instrument other than a statement relating to judgment as being a developmental process.

Feldman and Jordet (1989) developed a profile of Accelerated BSN students over a four year period of program operation. Characteristics surveyed were age, gender, ethnicity, marital status, the number of dependents, prerequisite completion status at the time of application, the type of degree held, the reason for choosing nursing, areas of interest (nursing specialty), and career goals. The mean age was 26.51 years, 91.8% female, 15% were of a foreign ethnic background, 21% were married, and 85% had completed all prerequisites prior to application to the program. The previous degrees held were varied and included medicine, biology, philosophy, business, psychology, political science, and health education. The reasons given for choosing nursing as a second career included greater
interpersonal contact, participating in a caring profession, job availability, working hours and conditions, salary, benefits from previous education and experience, and opportunity for professional growth. The N-CLEX pass rate of 100% was reported for the first three graduating classes with all students having a 3.14 GPA or greater upon program completion.

Mills, Becker, Sampel, and Pohlman (1992) identified predictive variables among Accelerated BSN students for N-CLEX success. Using data collected over a nine year period, they examined N-CLEX success and the variables of nursing course GPA, preadmission standardized test scores, high school ranking, completion of preadmission criteria. Data analysis by Logistic Regression revealed that cumulative GPA, transfer GPA, and a personal history of being educated in the United States were the three variables most correlated with N-CLEX success.

McDonald (1995) used GPA and a self-report instrument of nursing behaviors to evaluate the performance of generic Baccalaureate (N = 29) students and students enrolled in an Accelerated BSN program (N = 27). The author stresses the importance of evaluating the outcomes of newer models of nursing education and cites a lack of such information in the literature. Nursing performance was measured through GPA evaluation and the Six-Dimension Scale of Nursing Performance. This instrument classifies nursing performance into 52
observable behaviors. The participant self-reports as to the frequency a behavior is performed, the performance quality, and how well prepared the individual felt for the behavior performance. Generic students were tested at the end of their second year of study and again in their senior year. The Accelerated BSN students were tested after their initial 8 months in the program and at graduation six months later.

The t-test analysis of GPA revealed no significant difference between the groups. Individual scores on student reporting of how well a behavior was performed ranged from 42 to 168 points (MacDonald, 1995). The mean pretest score for the generic BSN group was 127 points and for the Accelerated BSN group it was 145 points. The mean post-test scores were 141 and 146 respectively. The Accelerated BSN group rated the quality of their preparation significantly higher at both the pretest and post-test than did the generic students.

In addition to the official evaluation by GPA and the Six-D Scale of Nursing Performance, the authors reported a 90% N-Clex pass rate for the Accelerated BSN graduates and a 70% n-CLEX pass rate for the generic BSN graduates. The results of this study suggests that neither GPA nor self-perception of nursing performance are significant predictors of N-CLEX success.

Graduates of the Accelerated BSN program involved in this study have achieved the following N-CLEX pass rates: 1992 = 100%; 1993 = 94%; 1994 = 91%; and 1995 = 95% (National Council for Licensure Examination for Registered
Nurses, 1992; 1993; 1994; 1995). All of these pass rates have been above the national average, inclusive of graduates from all types of basic nursing education programs, for first time test candidates. No formal comparison of entry GPA, cumulative GPA, type of degree held, etc., has been performed.

Summary

Studies of adult learners by Aslanian (1989), Morstain and Smart (1977), and Sewall (1982) all reveal career transition or advancement as the primary "trigger" for participation in further educational activities. Adult learners engaged in either RN-BSN Completion or Accelerated BSN programs of study reveal the same career advancement orientation toward reentry into the educational arena (Fotos, 1987; King, 1986; Lethbridge, 1989; Root, 1991; Saunders 1994). Theses findings are consistent with participation motivations as identified by Houle (1963) and Cross (1984). In addition, BSN level education became recognized as the preparation for professional nursing (Chitty, 1993). Thus the demand for BSN preparation avenues became more important to the nurse educated at the Diploma or Associate level and to the profession itself.

Nursing educators responded to both the demand for career advancement pathways and the demand for RN’s with a baccalaureate education. Nontraditional education programs were designed to meet the needs of adult learners entering into BSN level nursing programs either to expand previous
nursing programs or to initiate such educational programs. RN-BSN Completion and Accelerated BSN programs of study have been the primary nontraditional programs designed to meet the needs of the learner, the profession, and the health care consumer.

Studies of general critical thinking by nursing students have had mixed results. Most studies have examined the relationship between general critical thinking, types of nursing programs, or selected student behaviors such as creativity, professionalism, GPA. Tiessen (1987) found a correlation between general critical thinking, GPA, and humanities education. Both RN-BSN Completion and Accelerated BSN students have a greater number of credit hours in the humanities than do diploma or A.D. students.

Sullivan (1987) found no gain in critical thinking, using the WGCTA, between program entry and completion by RN-BSN Completion students. However, a positive correlation was found between entry WGCTA score and a greater time between basic program completion and entry into an RN-BSN Completion program. This could equate the students having had a greater time for personal development and life experience, both of which should impact on critical thinking ability and lateral transfer.

Evaluation of educational outcomes is always critical for any program of study. Critical thinking/clinical judgment has been identified as an essential
outcome of BSN education. The current complexities of health care needs and the expanding role of the nurse underpin the importance of these outcomes. Studies of general critical thinking have revealed a variety of outcomes related to students enrolled in, and graduates of, varying types of nursing programs.

A positive correlation between educational level, experience, and clinical judgment has been found among students in various nursing education programs, with BSN level education generally showing the greatest correlation (Pardue, 1977; del Bueno, 1983; Sullivan, 1987; Brooks & Sheperd, 1990). RN-BSN students were found to score higher in general critical thinking and clinical decision making than students in other types of basic nursing education programs. N-CLEX success has thus far been the primary outcome focus related to Accelerated BSN students, revealing a pass rate above the national norm (Feldman & Jordet, 1989; MacDonald, 1995).

Nursing research related to general critical thinking, selected student behaviors, types of programs, decision making, and clinical judgment presents a spectrum of results with no definitive conclusions related to correlations among the variables. This lack of conclusive results should perhaps be expected in relation to the diversity of the studies. Study participants vary in age, experience, type of program attended, and academic ability, etc. Study instruments vary in content and form. This researcher has concluded, from a review of the literature,
that nursing students exhibit critical thinking ability, decision making skills, and clinical judgment with no overwhelming differences related to age, experience or type of nursing program attended.
CHAPTER 3
PROCEDURES

This chapter describes the procedures that were used for data collection. The purpose of this study was to investigate clinical judgment outcomes and self-perception as a clinical decision-maker by nursing students in nontraditional programs as compared to students in traditional programs. A description of the sample, setting, instrumentation, and data collection procedure is presented.

Population and Sample

The target population for this study was all students in Generic, RN-BSN Completion programs, and Accelerated BSN programs in nursing. There is no information in the professional literature which would lead one to conclude that there were significant regional differences in student populations which could bias the accessible population for this study. The accessible population was students in five educational programs leading to a Baccalaureate of Science Degree in Nursing. The five programs are offered by three universities sharing a common geographical region. The first participants (Group A) were students enrolled in a generic or traditional baccalaureate program of study in nursing. The second group of participants (Group B) were primarily adult students enrolled in an RN-
BSN-Completion program of study. The third group of participants (Group C), also primarily adults, were those enrolled in an Accelerated BSN program of study. Participation was voluntary and utilized the technique of sampling by convenience. Convenience sampling entails the use of the most readily available individuals as participants. A generally recognized problem with this method of sampling is that of bias as the available participants may not be representative of the population in terms of the variable(s) being investigated (Polit & Hungler, 1993).

The students comprising the accessible population have several characteristics that are generally considered to be consistent with the target population. The students are primarily urban residents and the involved institutions are urban universities. This is especially relevant for nursing education in that a rural environment would not provide a comprehensive access to health care agencies as sites for nursing instruction. Additionally, the majority of the students do work or have work experience. This is consistent with the emergence of an overall older student population which does not follow an on-campus residency lifestyle. Finally, reflective of the overall increase in the number of students enrolled in higher education, many of the students at the involved universities are first generation college students (Polifko-Harris, 1997; Jones,
Results from a survey of college and university administrators (The Chronicle of Higher Education, 1994) reveals their expectation that enrollment will continue to increase, the number of weekend and evening students will increase, and the number of first time freshmen enrollments will increase. Therefore, the trends evident at the involved universities are a part of nationally recognized trends. Therefore, it would be reasonable to presume that the accessible population characteristics of student age, concurrent employment, urban residence, and first generation enrollment in higher education are consistent with the target population.

Students at three university settings were identified as an accessible population and were solicited for this study. Each university setting, approximately within a fifteen mile radius of each other, is in a separate urban location but they each share a regional geographic description. Each university has commuter and residential students. The student body at each university includes individuals drawn from local, regional, state, national, and international populations. Group A participants were recruited from both a private Historically Black College or University (HBCU) and a regional state-supported university. Group B participants were recruited from a regional state-supported HBCU and a regional state-supported university. Group C participants were recruited from a
regional state-supported HBCU. The nursing programs at each university, with the exception of the newly established generic program at the regional state-supported university, are fully accredited by the National League for Nursing (NLN). Such accreditation denotes that the nursing programs meet nationally recognized curricular, faculty, and facility standards. The newly established, and thus, unaccredited program will seek NLN accreditation within the next academic year.

All student participants were voluntarily recruited for the study. Five were randomly selected from the participants representing each curricular group to take part in interview sessions. There were numerous interview volunteers for selection in the RN-BSN Completion group. However, in the Generic BSN group, there were only eight volunteers for the five randomly selected interview positions. In the Accelerated BSN group only five participants volunteered to be interviewed, thus each volunteer was interviewed.

**Instrumentation**

Two published instruments were used to measure clinical decision making and clinical judgment: the Clinical Judgment Series #1: Emergencies in Adult Client Care (CJS/EACC), and The Clinical Decision Making in Nursing Scale (CDMNS). Interview questions, designed by the researcher, were used to gather participant perceptions regarding continuity between programs of study and
recognized characteristics of adult learners as identified by Knowles (1974). The characteristics include self-concept, readiness to learn, orientation to learning, and the role of experience. In addition, a participant data form was utilized to collect demographic data inclusive of age, gender, type of program attending, educational background, and work experience (Appendices A, B, and C).

Clinical Judgment Series #1: Emergencies in Adult Client Care

The CJS/EACC is a sixty-item four alternative forced-choice questionnaire developed by the Center for Nursing Education and Testing, Inc (C-NET). The instrument is the first of a proposed series of instruments designed to measure clinical judgment in areas of nursing practice. An instrument for pediatric nursing is currently in development and will be the second in the series (Garbin & Gothler, 1996). Suggestions for test use include the assessment of the strengths and weaknesses of new employees, evaluation of the competencies of practicing staff, and the determination of learning needs for agency cross-training programs (Center for Nursing Education and Testing, Inc., 1995). As senior nursing students are soon to be new employees, the use of this instrument is appropriate for this study. The CJS/EACC is designed to measure the ability to "recognize potentially dangerous situations and to intervene appropriately" (Center for Nursing Education and Testing, Inc., 1995).
The CJS/EACC is divided into two subtests of 30 items each. Subtest A relates to recognition of emergency situations, and subtest B relates to interventions in emergency situations. The test was developed in response to a recognized need for an instrument which would assess recognition and intervention abilities related to emergency situations that may potentially affect adult clients experiencing either medically (illness) or surgically-related alterations in health status (Center for Nursing Education and Testing, Inc., 1995). Recognition corresponds to client status assessment and client outcome evaluation; intervention corresponds to planning and implementing nursing measures. Therefore, the test blueprint incorporates the nursing process, which is currently the most widespread and comprehensive model for nursing practice.

The test blueprint was developed by C-NET staff who specialized in medical-surgical nursing and 100 test items were then generated. Answers and rationale were validated by professional texts. Content validity and item accuracy were established through examination by eighteen staff development experts. Subsequent to the expert commentary, item modifications were completed and a 100 item test was piloted by administration to 229 medical-surgical nurses from 19 acute care hospital located in 16 states. The final 60 item test was developed from this pilot study. The Kuder-Richardson 20 reliability was 0.72, the mean score
was 42, the standard deviation was 6.3, and the standard error of measurement was 3.29 (Center for Nursing Education and Testing, Inc., 1995).

Garbin and Zimbler (1996) report that no analysis has been performed to determine construct or criterion-related (empirical) validity. Construct validity is the extent to which scores can be determined by specified explanatory constructs in a behavioral theory. Criterion-related validity is the study of the relationship between instrument scores and an identified independent, external variable. Predictive validity is a type of criterion-related validity in which the score on one instrument can be used to generalize to or predict the score (performance level) on another instrument (Mehrens & Lehmann, 1978). This study may contribute to the development of construct validity for the instruments by investigating participant clinical judgment demonstration and self-perception as a decision-maker in relation to established constructs descriptive of the adult learner. Associated constructs of the adult learner are self-directed learning, readiness to learn, the desire for application immediacy, and lateral transfer (Knowles, 1970). Criterion-related validity may be investigated by studying the instrument score relationships, i.e., the relationship between clinical judgment and self-perception as a decision-maker by the adult learner (adult students in nontraditional BSN programs).
The Clinical Decision Making in Nursing Scale

The CDMNS is a 40 item questionnaire with a five point Likert-type response scale. The instrument is designed to assess self-perceptions related to clinical decision making. Jenkins (1985) asserts that adult developmental status and life experiences impact an individual’s self-perception. This overall self-perception will be reflected in how the individual perceives his or her decision making capabilities and processes.

The CDMNS, using subscale categories, assesses four criteria of decision making: searching for options; appraising the desired objectives and their attached value; evaluating outcomes; and searching for and incorporating new information. These subscales, were derived from a study of situational stresses and decision-making patterns conducted by Janis and Mann in which seven criteria for ideal decision making were identified. Jenkins, in developing the CDMNS, combined three criteria which related to risks/benefits and two criteria related to data acquisition (Jenkins, 1985, 1988).

Subscale A, for example, addresses the search for alternatives and options. Jenkins (1985) maintains that the individual’s action in this aspect of decision making is defined by the complexity of the situation and the individual’s past experience with similar situations. Jenkins, in citing work by Etzioni and Young,
states that “responses to situations occur in habitual patterns ... nurses draw on their own past experiences” (p. 224). Items 1, 3, and 27 reflect these elements of situational complexity and the individual’s past experience.

1. If the clinical decision is vital and there is time, I conduct a thorough search for alternatives.

3. The situational factors at the time determine the number of options that I explore before making a decision.

27. I select options that I have used successfully in similar situations in the past.

Values clarification and respect for cultural diversity are important concepts in professional nursing and are addressed by Subscale B of the CDMNS. Nursing is not a judgmental process and respect for the uniqueness of the individual is held in high regard. The following items reflect this position:

2. When a person is ill, his or her cultural values and beliefs are secondary to the implementation of health services.

40. The client’s values have to be consistent with my own in order for me to make a good decision.

Just as with education and students, outcomes are a primary concern for clients and nurses. When making decisions relative to client care, there may be
associated costs/benefits or consequences. Decision making in regards to a course of action must keep a focus on evaluating potential outcomes. The following instrument items, from Subscale C of the CDMNS, are examples of such evaluative orientations:

17. *When examining consequences of options I might choose, I generally think through "If I did this, then ...".*

25. *My past experiences have little to do with how actively I look at risks and benefits for decisions about clients.*

Subscale D relates to the search and assimilation of information. Client needs are ever changing and consequently, decisions about client care must be revised accordingly. The following items relate to continued client assessment relative to new data:

4. *Looking for new information in making a decision is more trouble than its worth.*

5. *I use books or professional literature to look up things I don't understand.*

When examining these subscale exemplars, one can recognize elements of a decision making process. In the development of this instrument, Jenkins (1985) recognized three interacting elements which influence the decision making process.
First, each individual will have his or her own perception of the self as a decision maker. Secondly, nursing curricula have many shared commonalities in content and clinical application experiences. Thirdly, each student will have his or her own perceptions related to the content and application opportunities. Therefore, the CDMNS was developed to assess the decision making process of nursing students and identify commonalities, patterns, or differences related to student level (i.e., sophomore, senior).

Three pathways were utilized to establish content validity. The initial items were developed from a literature review of normative decision-making and decision-making in nursing. The preliminary instrument was then examined for congruity and clarity. Lastly, a panel of nurse experts evaluated each item in terms of appropriateness, representativeness, logic, and degree of item independence. Subsequent to these evaluative measures, twenty-three items were removed from the instrument. Reliability was evaluated by a pilot administration of a 44 item instrument to 250 nursing students. Using Chronbach's alpha, a reliability of 0.79 was determined. The four items with the lowest coefficients were deleted, and a forty item instrument with a reliability coefficient of 0.83 was established (Jenkins, 1988). Higher scores on the CDMNS (range 40 - 200) indicate a higher degree of self-perception as a decision-maker (Bechtel, Smith, Printz, & Gronseth, 1993).
Construct validity and criterion-related validity have not been established, by evidence of formal report, for either the CJS/EACC or the CDMNS. Construct validity is the extent to which outcomes can be explained by specified elements of behavioral theory. The relationship between instrument scores and any independent variable is defined as criterion-related validity (Mehrens & Lehman, 1978). Evidence of the construct validity of the CJS/EACC may be revealed through this proposed study. It is anticipated that clinical judgment scores will be positively related to constructs which are descriptive of the adult learner, namely, readiness to learn, immediacy of application, self-directedness, and lateral transfer or experience (Knowles, 1970, 1978). Criterion-related validity of the CDMNS may be revealed by examining the relationship between clinical judgment outcomes and self-perception as a decision-maker in a professional situation.

**Interview Questions**

The interview questions were developed by this researcher. The questions were derived from assumptions about adult learners (Knowles, 1974) and the Chain of Response Model (COR) of Adult Participation (Cross, 1984). The COR Model describes the process by which adults make the decision to re-engage in an educational endeavor. The interview questions are as follows:
1. When deciding on what program of study to choose for nursing, what characteristics of your chosen program did you feel would best meet your needs?

2. How have you been able to incorporate your previous educational experience into your current program of study?

3. How have you been able to incorporate your previous work experience into your current program of study?

4. Describe opportunities you have had to apply what you have learned in the classroom in the clinical setting. How do you feel these opportunities meet your learning needs?

5. In what way does your program of learning allow you to be self-directed or independent in your learning?

6. What do you think are characteristics of your program of learning that meet your needs as an adult learner?

Questions 1, 2, and 3 reflect elements of the COR Model. The model includes elements related to assessing participation barriers, gaining program information, evaluating program benefits, reflection about previous educational experiences, and assessing the impact of life transitions. These considerations are consistent with Knowles' (1974) view of self-concept as it relates to the adult learner: the accuracy of such assessments and evaluations would be influenced by
the self-directedness or personal autonomy of the individual, their ability to evaluate their life experiences, and their readiness to learn.

Questions 2 and 3 address the concept of experience as delineated by Knowles (1974). It is generally assumed that adult learners will bring previous work and educational experiences with them into the new learning situation which will impact on their current learning needs and processes. Question 4 addresses the assumption that adults have a problem-centered orientation to learning which leads to a desire for immediacy of application.

**Statistical Hypotheses**

The hypotheses, as presented in Chapter 1, relate to the assessment of common programmatic outcomes by students in traditional or nontraditional programs of study. The outcomes selected for this study focus on clinical decision making and clinical judgment.

1. Adult learners in nontraditional BSN curricular programs will demonstrate the same degree of clinical judgment related to specific medical/surgical client situations, as measured by the Clinical Judgment in Nursing Series #1: Emergencies in Adult Client Care, as will students in traditional generic BSN curricular programs.

2. Adult learners in nontraditional BSN curricular programs will exhibit
the same degree of self-perception as a decision-maker, as measured by the Clinical Decision Making in Nursing Scale, as will students in traditional generic BSN curricular programs.

3. Adult learners in nontraditional BSN curricular programs will exhibit the same process of decision making, as measured by subscales of the Clinical Decision Making in Nursing Scale, as will students in traditional generic BSN curricular programs.

**Experimental Design**

Explanation of the study, consent completion, instrument administration, and interviewing of participants at the state-supported university and the private HBCU were performed by the researcher. These activities with participants at the state-supported HBCU were performed by an experienced advanced practice nurse educator not associated with the institution. This delegated research assistant was familiarized with the intent and process of the study and received instruction as to explanation of the study, consent completion, instrument administration, and interviewing. As the CJS/EACC is a content-specific instrument, it was not reviewed by this researcher prior to administration. This eliminated bias, as the researcher was the primary medical/surgical nursing instructor for Group C participants. This same policy was applied for instructors...
to the Group A participants. This prevented targeting instruction to instrument content. Although Group B participants were not enrolled in medical/surgical nursing course work, the instrument also remained unavailable to involved instructors to avoid accidental bias.

Data collection was conducted during the later part of the semester prior to graduation for the participants. All participants had completed study topics in adult medical-surgical nursing, which was the topic focus of one of the instruments used. Data collection was composed of three elements, administration of the Clinical decision Making in nursing Scale, administration of the Clinical Judgment Series #1: Emergencies in Adult Client Care instrument, and an interview session.

Data collection was completed for all participant groups but one in a single session. The researcher and students met in a classroom setting. The students were given a written and verbal description of the purpose and methodology of the study (Appendix D). Each student wishing to participate then completed a form giving informed consent (Appendix E) and a participant data form giving information as to age, gender, educational background, current educational program, and work experience (Appendix C).

The interview format provided respondents with the opportunity to formulate individual responses to open-ended questions. This allowed for the
expression of one's own thoughts regarding his/her educational process and position as an adult learner within a specific educational pathway. The questions reflected issues about barriers to and facilitators of program selection, the transfer of previous educational and work experience outcomes, the application of new learning, and opportunities to manifest the expectation of self-directedness as a part of adult development.

Participants consenting to being selected for an interview were randomly selected by the researcher and were notified by posting the individual’s participant number. Those selected approached the researcher when ready for the interview. As each participant, other than on the consent form, was identified only by a participant number, anonymity was provided. A research assistant, an advanced practice nurse with teaching and research experience, conducted data collection with students/participants attending the University which employs the primary researcher. This avoided any sense of obligation, pressure, or conflict of interest on the part of the students/participants.

In each setting, interviews were conducted in either a private classroom area or lounge area adjacent to the classroom used for instrument completion. Interviews were tape recorded and then transcribed by a professional typist (Appendix F). Due to time constraints, one group of generic students completed
the process in two sessions one week apart. During the first session, participation was determined and the CDMNS was administered. During the second session the CJS:EACC was administered and interviews were obtained. It took approximately fifteen minutes to explain the study, obtain informed consent, and complete the data form. Per established guidelines, twenty minutes were allowed for completion of the CDMNS and sixty minutes for completion of the CJS:EACC instruments. The instruments were distributed simultaneously and participants were allowed to proceed at their own pace. Time information was provided by the researcher when fifteen and five minutes total remained. Most participants completed the CDMNS in ten minutes and the CJS:EACC in fifty minutes. Each individual interview session lasted approximately five to seven minutes.

**Ethical Considerations**

This study posed no risk to participants. Participation was totally voluntary and anonymity was preserved. Individual responses were identified according to curricular track grouping only. Each participant was required to give informed consent (Appendices D and E) prior to participation. The informed consent contained information regarding the purpose of the study, guarantee of anonymity, potential risks of participation, the right to refuse or withdraw from participation without penalty, and access to study outcomes. Refreshments were
served at the completion of the sessions or at a subsequent class meeting.

Analysis

This study was developed in order to verify the major assumption underlying nontraditional nursing education programs designed for adult learners. The assumption is that adult students in nontraditional baccalaureate educational programs for professional nursing can meet the educational outcome expectations in a shorter and more intense program of study to the same degree as students in generic baccalaureate programs.

It is also assumed that while there are many influences on an individual's ability to develop clinical judgment, developmental stages and experience are vital components of this outcome. Additionally, it is assumed that participation in the study will be voluntary and that such participant will respond accurately and to their best ability.

The data collected corresponds in form to standard quantitative data formats. Use of a Likert-type response scale to measure self-perception as a decision-maker allowed respondents to attach a progressive degree of action to responses. In contrast, responses to the clinical judgment instrument were structured, finite, and required an all or-nothing commitment to the selected response. The statistical test of ANOVA was used to evaluate the results of the
CDMNS and the CJS:EACC instrument administrations to determine if any significant differences occurred between the group means. Multiple regression was used to determine if age or experience were significant variables related to instrument scores.

Content analysis was used to analyze interview results. Each interview was transcribed and reviewed. Substantive statements and expressed thoughts relative to each question were identified for each interview participant. The identified interview elements were then reviewed for response similarity by the participants in each curricular grouping. The group responses were then analyzed for response similarity or pattern between curricular groups. All group responses were then analyzed in relation to assumptions about adult learners (Knowles, 1970, 1978).
CHAPTER 4
ANALYSIS OF RESULTS

The purpose of this study was to investigate the assumption that students in generic and nontraditional programs of study manifest equivalent outcomes in terms of clinical decision-making and clinical judgment. Nontraditional programs have curricular structures, distinct from generic programs, which are founded in assumptions about the adult learner related to age, experience, and lateral transfer.

In keeping with the focus of this study on the adult learner, different curricular designs, and clinical judgment, several hypotheses were proposed relative to the integration of these elements. The following section presents data regarding clinical decision-making and clinical judgment outcomes.

Results of Hypotheses

Hypothesis 1

Adult learners in nontraditional BSN curricular programs will demonstrate the same degree of clinical judgment related to specific medical/surgical client situations, as measured by the Clinical Judgment in Nursing Series #1: Emergencies in Adult Client Care, as will students in traditional generic BSN curricular programs.

Table 2 presents a descriptive summary of the CJS:EACC outcomes.
Please Note

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a significant difference with $F = 3.71$ and $F = 4.34$ respectively. Hypothesis 1 is rejected at the $p = .01$ level of significance. There was a significant difference in CJS:EACC scores between the traditional and at least one nontraditional curricular group.

Table 3

Analysis of Variance for CJS:EACC Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>437.8857</td>
<td>2</td>
<td>218.9429</td>
<td>5.1998</td>
<td>.0080</td>
</tr>
<tr>
<td>Within</td>
<td>2821.100</td>
<td>67</td>
<td>42.1060</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3258.9857</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Descriptive statistics of age distribution of all study participants revealed a significant difference ($F = 8.53$) between the ages represented in the groups (see Table 4). One participant who did not provide age data on the Student Participant Data Form was eliminated from this analysis. In the Generic group, 65% ($n=40$) of the participants were traditional-aged students. The RN-BSN Completion group and the Accelerated BSN group, respectively, had 19% ($n=5$) and 6% ($n=1$) participants within the traditional age range.

Upon finding a significant difference in CJS:EACC scores between the curricular groups, a question arose as to what variables might be involved in
influencing the difference. Multiple regressions were performed to determine if
either the length of work experience or the age of the participant were influencing
variables on CJS:EACC scores. In addition, Pearson correlations were performed
to determine the extent of any relationship between age or experience and
CJS:EACC scores.

Analysis by multiple regression revealed moderate to low correlations
between CJS:EACC scores, age, and experience (see Table 5). Multiple

Table 4

Age Distribution by Participant Group

<table>
<thead>
<tr>
<th></th>
<th>Generic</th>
<th>RN-BSN</th>
<th>Accel BSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>40</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>Range</td>
<td>21 - 39</td>
<td>21 - 46</td>
<td>23 - 37</td>
</tr>
<tr>
<td>Mean</td>
<td>26</td>
<td>31.8</td>
<td>29.4</td>
</tr>
<tr>
<td>S. D</td>
<td>5.4</td>
<td>6.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

D.F. = 2/78 F Ratio = 8.53

regression was performed on four participant classifications. Participants that did
not provide data on both age and experience were excluded from the analysis. The
four classifications were: all participants in the study, all adult aged participants,
RN-BSN Completion participants, and Accelerated BSN participants. In multiple
regression for each of the four classifications, age was found to be a significant
influencing variable while experience was found to have a negative influencing relationship to CJS:EACC scores. A Pearson correlation revealed a moderate correlation for age and experience in relation to CJS:EACC scores. The correlation coefficient for all participants (N = 70) and RN-BSN Completion participants (N = 25) for the relationship between age and CJS:EACC scores was .30 with p = .01 and .36 with p = .074, respectively. The correlation coefficient for all participants and RN-BSN Completion participants for the relationship between experience and CJS:EACC scores was .30 with p = .01 and .32 with p = .108, respectively. Pearson correlations with the Accelerated BSN group (N = 15) for the relationship between age, experience and CJS:EACC scores revealed a negative correlation for both age and experience with neither being statistically significant. Age revealed a correlation coefficient of -.021 with p = .94 and experience revealed a correlation coefficient of -.245 with p = .377.

Experience (see Table 5) was not found to be a significant variable for CJS:EACC outcomes. For all participants, for all adult participants, and for adults in each nontraditional curricular group, a negative correlation was found between years of work experience and CJS:EACC scores. The results of this multiple regression analysis must be questioned due to incomplete data being provided on the Student Participant Data Form (Appendix C).
Table 5

**Multiple Regression of CJS-EACC Mean Scores, Age, and Experience**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Sig t</th>
<th>Adult</th>
<th>Sig t</th>
<th>A-RN</th>
<th>Sig t</th>
<th>A-Acc</th>
<th>Sig t</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>.47</td>
<td>.49</td>
<td>.40</td>
<td>.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>3.24</td>
<td>.0020</td>
<td>3.04</td>
<td>.0046</td>
<td>1.42</td>
<td>.17</td>
<td>.72</td>
<td>.48</td>
</tr>
<tr>
<td>Exp</td>
<td>-1.22</td>
<td>.2251</td>
<td>-1.22</td>
<td>.2285</td>
<td>-.66</td>
<td>.51</td>
<td>-1.3</td>
<td>.21</td>
</tr>
</tbody>
</table>

All = All participants  
Adult = All adult aged participants  
A-RN = Adult RN-BSN Completion participants  
A-Acc = Adult Accelerated BSN Participants  
Exp = Experience

In summarizing data from this form, it became obvious that some participants had misunderstood the form and/or the accompanying verbal directions. Twenty-one of the 81 participants provided no information related to work experience. In the Generic group, 48% of the participants provided no information related to work experience. With an age range of 21 - 35 years for those Generic program participants who provided no employment history, it is doubtful that the representation is accurate. Five of the forty-one participants in the Generic group, with ages ranging from 21 - 24 years, reported "0" work experience. That is
conceivable, though unexpected, for that age range. Two participants in the RN-BSN Completion group, ages 31 and 35 years, provided no information related to work experience. Again, it is unlikely that a participant of either age would have no employment experience. Five RN-BSN participants reported "0" years of work experience, a response is also judged to be inaccurate as three of the respondents were 32 years of age. All of the Accelerated BSN participants proved information related to employment. However, as with the other groups, this information is suspect because the corresponding participant ages were 25, 26, 32, and 32 years.

In light of presumed data deficiencies, participants providing no employment data were not included in the multiple regression concerning work experience and CJS:EACC outcomes. Therefore, due to presumed reporting deficits, the relationship of work experience and CJS:EACC outcomes cannot be fully evaluated.

**Hypothesis 2**

Adult learners in nontraditional BSN curricular programs will exhibit the same degree of self-perception as a decision-maker, as measured by the Clinical Decision Making in Nursing Scale, as will students in traditional generic BSN curricular programs.

The CDMNS (Appendix B) was developed to measure nursing students
self-perception as decision makers (Jenkins, 1985). The initial use of the instrument was to make this evaluation of students at different stages in a generic BSN program. Analysis of the CDMNS provides an overall score ranging from 40 to 200 points. Higher-end scores represent a positive perception of oneself as a decision maker (Jenkins, 1988).

In this study, the CDMNS was used to evaluate self-perception as decision makers by nursing students in differing nursing curricula formats. Table 6 provides descriptive statistics relative to CDMNS outcomes on the total score and the subscales. The mean total score for the Generic, RN-BSN Completion, and Accelerated BSN curricular groups were 149.6, 152.0, and 152.6 respectively out of a possible 200 points.

The ANOVA of CDMNS total scores for each curricular group revealed no significant difference (F = .5710) with p = .5673 in total CDMNS scores.

Table 6

Descriptive Statistics of CDMNS Scores by Participant Group

<table>
<thead>
<tr>
<th>Source</th>
<th>T</th>
<th>SD</th>
<th>sA</th>
<th>SD</th>
<th>sB</th>
<th>SD</th>
<th>sC</th>
<th>SD</th>
<th>sD</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>149</td>
<td>12</td>
<td>36</td>
<td>3</td>
<td>39</td>
<td>4</td>
<td>36</td>
<td>3</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>RN-BSN</td>
<td>152</td>
<td>11</td>
<td>37</td>
<td>3</td>
<td>39</td>
<td>3</td>
<td>38</td>
<td>4</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>Accel</td>
<td>152</td>
<td>9</td>
<td>37</td>
<td>2</td>
<td>38</td>
<td>3</td>
<td>37</td>
<td>3</td>
<td>39</td>
<td>3</td>
</tr>
</tbody>
</table>

T = total score, sA, B, C, D = subscales A, B, C, D

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between the participant groups (see Table 7).

Hypothesis 2 cannot be rejected. Therefore the conclusion that students in the three curricular groups exhibit equivalent outcomes in self perception as a decision maker is supported.

Table 7

<table>
<thead>
<tr>
<th>ANOVA of CDMNS Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>Between</td>
</tr>
<tr>
<td>Within</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Further analysis by multiple regression revealed that neither age nor experience were influencing variables on the CDMNS total scores for the curricular groups. A multiple regression for all participants revealed a multiple R of .07 and an r^2 of .005 for the influence of age or experience. The calculated t for both age and experience showed a negative relationship with CDMNS mean scores for participants of all ages, all adult RN-BSN Completion participants, and all adult Accelerated BSN participants. The multiple regression involving all adult aged participants and CDMNS mean score also showed a negative relationship for the influence of age. The only positive relationship, albeit weak, between
experience and CDMNS mean score was found with the adult aged participant group. A multiple regression involving only adult participants revealed a multiple R of .24 and an $r^2$ of .06 for the influence of age or experience (see Table 8).

Table 8

<table>
<thead>
<tr>
<th>Multiple Regression Of CDMNS Mean Scores, Age, and Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sig</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>Age $t$</td>
</tr>
<tr>
<td>Exp $t$</td>
</tr>
</tbody>
</table>

All = All participants
Adult = all adult participants
A-Rn = Adult RN-BSN Completion participants
A-Acc = adult Accelerated BSN participants
Exp = experience

Hypothesis 3

Adult learners in nontraditional BSN curricular programs will exhibit the same process of decision making, as measured by the subscales of the Clinical Decision Making in Nursing Scale, as will students in traditional generic BSN curricular programs.

There are four subscales which further delineate the decision
making process. Subscale A evaluates the individual's search for alternatives and options. Subscale B evaluates the individual's canvassing of objectives and values. Subscale C investigates the individual's evaluation and reevaluation of consequences. Subscale D evaluates the individual's search for information and assimilation of new information (Jenkins, 1997). Table 9 provides descriptive statistics of the curricular group outcomes on the CDMNS subscales. As with the total CDMNS outcome scores, no significant difference was found between the curricular groups related to subscale performance. Therefore, Hypothesis 3 cannot be rejected. With the exception of subscale A, this outcome is consistent with the initial results recorded by Jenkins (1985). In that initial comparison study, students at the senior level were found to have significantly higher subscale A scores than students at the junior level. All participants in this current study were seniors, therefore there would be no basis for program level differences.

Summary of Hypotheses Results

In terms of self-perception as a clinical decision-maker, no differences were revealed between the curricular groups in total instrument scores or in subscale scores. Multiple regression involving all participants, regardless of age, revealed that neither age nor experience were influencing variable on CDMNS
### Table 9

**ANOVA of CDMNS Subscale Scores**

<table>
<thead>
<tr>
<th>Sub</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>10</td>
<td>2</td>
<td>5.49</td>
<td>.4455</td>
<td>.6421</td>
</tr>
<tr>
<td>Within</td>
<td>974</td>
<td>79</td>
<td>12.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>985</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub B</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>17</td>
<td>2</td>
<td>8.60</td>
<td>.5029</td>
<td>.6067</td>
</tr>
<tr>
<td>Within</td>
<td>1352</td>
<td>79</td>
<td>17.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1369</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub C</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>57</td>
<td>2</td>
<td>28.5</td>
<td>1.8671</td>
<td>.1613</td>
</tr>
<tr>
<td>Within</td>
<td>1205</td>
<td>79</td>
<td>15.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1262</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub D</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>64</td>
<td>2</td>
<td>32.0</td>
<td>2.0388</td>
<td>.1370</td>
</tr>
<tr>
<td>Within</td>
<td>1240</td>
<td>79</td>
<td>15.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1304</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sub A, B, C, D = Subscales A, B, C, D
scores. A multiple regression involving only the adult aged participants also revealed that age and experience were not influencing variables on instrument outcomes.

An ANOVA showed a significant difference in clinical judgment scores on the CJS:EACC among the three curricular groups. The RN-BSN Completion group had the higher CJS:EACC total and subscores. Age was found to be an influencing variable on that instrument. A multiple regression of CJS:EACC total scores of participants in each of the curricular groups revealed that age was an influencing variable on CJS:EACC outcomes and that length of work experience was not an influencing variable on outcomes.

A primary factor associated with data collection that must be addressed is that of the sample size for each grouping of participant categories (see Table 10). Fewer students than expected participated in the data collection process. The participation rate on the CDMNS for the Generic group was 83.6% of the available students. For the RN-BSN Completion group, the participation rate was 81.2% of the available students. For the Accelerated BSN group, the participation rate was 68.1% of the available students. The participation rate for the Accelerated BSN group on the CJS:EACC instrument remained constant. The CJS:EACC participation rate for the RN-BSN Completion group fell to 78.1% and
the generic participation rate on the instrument fell to 61.2%.

Table 10

Participation Rates by Program Type and Instrument

<table>
<thead>
<tr>
<th></th>
<th>Generic</th>
<th>RN-BSN</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDMNS</td>
<td>83.6% (N=41)</td>
<td>81.2% (N=26)</td>
<td>68.1% (N=15)</td>
</tr>
<tr>
<td>CJS:EACC</td>
<td>61.2% (N=30)</td>
<td>78.1% (N=25)</td>
<td>68.1% (N=15)</td>
</tr>
</tbody>
</table>

Two common constraints were voiced by students and faculty. The first constraint was that of finding open blocks of time to meet with the students, solicit participation, and complete instrument administration. The second constraint emerged relative to other class-related activities and assignments for the students. Several RN-BSN Completion and Accelerated BSN students were unable to choose to participate due to prior clinical commitments. Other students, in each classification and at each institution, indicated a desire to participate but felt that their time should be invested in completion of classroom or clinical assignments.

Table 10 depicts the participation rate for available students in each type of program in relation to the two paper and pencil instruments. Again, owing to voiced concerns by students over time management, note that the participation rates for the Generic and RN-BSN Completion participants showed a decline from the shorter instrument (30 minutes allowed) to the longer instrument (60 minutes...
Interviews

Interviews were conducted to elicit student responses as to how these assumptions about adult learners were integrated into their own educational process. The volunteer interview participants were not obviously biased in terms of age, gender, or aptitude from the sample pool. The interview results were consistent with previous research related to the adult learner and program choice, the role of previous educational achievement, and the role of previous work experience (Knowles, 1970; Morstain & Smart, 1977; Wolfgang & Dowling, 1981; Cross, 1984). A full transcript of each interview may be found in Appendix F. The following interview excerpts are provided to highlight what the respondents considered important for themselves and their programs in relation to adult learners.

Question 1: When deciding on what program of study to choose for nursing, what characteristics of your chosen program did you feel would best meet your needs?

Three of the five respondents in a generic program identified achieving a BSN degree as the reason for their choice of program. One stated that the program was chosen because she had not been accepted by other programs. One
respondent identified her rationale for the choice as "personal reasons" and offered no elaboration. In addition to the desire to graduate with a BSN degree, one respondent also identified program location and program reputation as important considerations in her program choice.

RN-BSN Completion respondents gave a more varied set of responses. The primary considerations given by each of the five respondents were financial considerations, program quality, program structure allowing for licensure and employment as an RN prior to BSN degree completion, class schedule within the program, and the acceptance of previous credits.

Three of the five Accelerated BSN respondents identified program length as the primary consideration. The two additional considerations identified were program quality and the availability of assistance at convenient times.

**Question 2:** How have you been able to incorporate your previous educational experience into your current program of study?

Of the respondents in a generic program, two identified time management skills as the primary incorporation of their previous educational experience into their current program of study. One respondent identified a science background in Biology and Chemistry as the primary residual benefit. Another identified a humanities background as providing the way for expanding her horizons in being
able to appreciate the perspectives of others. The final generic program respondent stated that she had no previous educational experience.

Respondents from RN-BSN Completion programs identified the primary benefits of previous educational experience as: building upon previous study (Anatomy and Physiology, Associate degree); the acceptance of previous credits; and goal setting and problem-solving skills. One respondent stated that she had no other educational experience.

Two respondents in the Accelerated BSN program had degrees in psychology. They identified previously learned communication skills as their primary benefit from this prior educational experience. Two respondents identified content they had learned by being involved in an allied health field of study (biology, physical therapy, and medical corpsman in the armed forces) as providing helpful educational benefits. One respondent identified the previous development of test-taking skills as being beneficial.

**Question 3:** How have you been able to incorporate your previous work experience into your current program of study?

The generic program respondents gave a variety of responses to this question. One stated that since she had no previous nursing jobs, she had no contributory work experience. One respondent, an Emergency Medical technician
(EMT) turned the question around in responding and stated that nursing school helped make more sense of the job. Another respondent, working in a medical finances position, stated that work gave her a greater understanding of the cost of health care today. Another respondent identified people skills as a beneficial transfer from previous employment. Time management skills were identified by another respondent as a valued transfer.

Two RN-BSN respondents stated that their work experience had enabled them to be more confident. One, working as an RN felt that the work experience made clinical activities easier and that increased the self confidence level. Another respondent, citing work as a GED tutor, stated that self confidence was enhanced by that activity. Two respondents, one in a management position and another with military experience, stated that their job experiences had made leadership and management content in the classroom easier to master.

One Accelerated BSN respondent stated that there was no difference between work and educational influences. Another stated that previous work in a health related field having a wellness perspective had proved to be a beneficial transfer. The remainder of the respondents identified either the ability to work under stress, communication skills, or the ability to ‘take and follow directions’ as beneficial transfers from work experience.
Question 4: Describe opportunities you have had to apply what you have learned in the classroom in the clinical setting. How do you feel these opportunities meet your learning needs?

Two respondents in the Generic group replied that the clinical setting brought it all together. A third respondent stated that there had been inadequate opportunity to apply classroom instruction to the clinical setting and that she felt deficient in clinical skills. However, she did feel that clinical experience enabled her to see nursing “in action”. Conversely, another respondent replied that everything learned has applied in the clinical setting and that her learning needs were being met. One respondent identified the opportunity to participate in team work and the delegation process as being an important classroom/clinical transfer.

One RN-BSN respondent identified the opportunity to practice in the community health setting as being an important transfer. Community Health Nursing has traditionally been a part of BSN curricula rather than AD and Diploma curricula. She further stated that this experience had prompted her to consider entering that area of nursing in her career. Another respondent stated that the transfer of classroom knowledge to the clinical setting has enabled him to practice with confidence in any setting. Two respondents gave replies focused on the leadership and management aspect of nursing, but related the impact to their work.
position rather than to their role as a nursing student in a clinical laboratory setting. One stated that classroom knowledge had enabled her to begin assuming the role of change agent in her workplace. The other respondent revealed that classroom instruction had been helpful in her workplace position with issues related to employment and performance evaluation. Finally, one respondent stated that the classroom instructor, in telling students what to expect in reality and giving information not in the test, made a positive impact on the clinical experience.

Four of the respondents in the Accelerated BSN curriculum felt that there was definitely opportunity to apply classroom instruction in the clinical setting. Response statements included such comments as: “things I learned in the classroom are exactly the things that I applied . . . . taking care of every single client I pulled something I learned in the classroom and had to apply it”, “All those things I took from the classroom and I was able to teach the person”, and “the same information that was gone over we have actually received in the clinical setting”. One respondent spoke in terms of being able to establish a therapeutic relationship with clients. In the course of the interview, two respondents identified that there were deficits concerning practical experience. They also realized that not everything could be covered due to the fact that the program is fast paced and that some experiences “you do not really learn ... until you get right
there”.

**Question 5:** In what ways does your program of learning allow you to be self-directed or independent in your learning?

All of the respondents in the Generic BSN group identified being self-directed as both an expectation within the program and a benefit of the program. The respondents stated that by necessity and personal choice they were self-directed in time management, use of additional learning resources, independent study, and identification of personal learning needs. One respondent felt that this inclusion of expectations of being self-directed allowed for a degree of autonomy and independence within the clinical relationship with the instructor.

As with the Generic program respondents, all of the RN-BSN Completion program respondents stated that being self-directed was a key expectation within the program. **Study strategies, being responsible for meeting the objectives, designing some of your own learning experiences, having to be self-reliant, and using additional learning resources** were some of the ways that the respondents identified as incorporating the concept of being self-directed.

**Question 6:** What do you think are characteristics of your program that meet your needs as an adult learner?

Two respondents in the generic group **did not feel** that their needs as adult
learners were being met. One voiced concerns that there was no flexibility in relation to family responsibilities and needs that the student might have. The other respondent felt that students were not treated as adults in that there was no respect shown for age, previous work experience, or previous educational experience.

One respondent noted that the program structure provided for a certain amount of independence and that it was recognized that there was more than one correct way to accomplish something. Another respondent stated that she had learned how to be prepared and had learned how to think about what she was doing.

One respondent in the RN-BSN Completion group stated that there had been no difference in teaching from one program level to another. She stated that even with student ages ranging from the early twenty's into the fifties there was no difference in teaching strategies...everyone did the same thing. One respondent stated that learning to cope with the program and adjust to stressors she developed the personal motivation to keep current within the profession and to continue learning. Another stated that being an RN already brought about the assumption of having a certain level of professionalism, and that acting on this assumption was beneficial because it reinforced that she had the same abilities as others in the class.

This respondent also felt that students were given the opportunity to share past experiences with one another and to learn from one another. One respondent
appreciated the opportunity to be self-directed and independent. Two of the respondents cited flexibility as being an important program characteristic for the adult learner. Flexibility referred not only to scheduling but also to the responsiveness of the faculty to student expression of learning needs. The respondent reported that in response to student input a course had been developed which eliminated the 'been there, done that' content and provided for more advanced study.

Two Accelerated BSN respondents indicated that they felt the structure of the program allowed them to be independent. Another respondent felt that the time frame of the program was primary in meeting his learning needs. Another aspect of the time element was allowing flexibility in terms of prioritizing assignments and activities. One respondent felt that the faculty had been respectful and had valued student's previous experience. One respondent made what this researcher feels is a perceptive statement: “rather than meeting my needs, I think being an adult learner is a requirement for this type of program”.

Summary of Interviews

Interview participants from the curricular groups gave a variety of responses to the interview questions, but some commonalities did emerge. Program structure and program quality were the two primary program
characteristics identified as deciding factors for program choice. Traditional program respondents identified entering a BSN degree program as the primary deciding factor (n = 3). Program quality and university location were the other two main considerations given for program choice. Nontraditional program respondents identified program length (n = 3), program schedule (n = 3), and program quality (n = 2) as the primary determinants for program selection. The Accelerated students focused on program length and the RN-BSN students focused on program scheduling.

Although many specific topics, content areas, or adjunct skills were identified as useful outcomes of previous educational experiences, using past educational experience as a broad foundation for continued learning was the major way in which previous learning was incorporated into current learning efforts. Application of content from previous science courses was the most frequent subject-specific response from both the traditional and nontraditional program interview participants. Time management and forming an awareness of others’ perspectives were identified as important transfers by two students in traditional programs. Test taking skills and management skill were identified as important transfers by two students in nontraditional programs.

Communication/interactive skills, a sense of confidence, and coping skills
were identified as valued transfers from the workplace to current educational efforts. Experience in dealing with and interacting with people were identified by two traditional program students as being particularly useful to bring into a nursing education program. One nontraditional program student identified communication skills as an important transfer and two nontraditional program students identified coping skills and stress management as a valued transfer. In describing coping skills, the respondents included aspects of dealing with the public and supervisors, which by definition is inclusive of communication skills. Not surprisingly, two respondents from a nontraditional curriculum identified their major transfer as having an increased sense of confidence in the classroom and the clinical area.

Many specific examples were given regarding applying classroom instruction to the practice setting. The most consistent theme was being able to experience the “reality” of instruction when interacting with actual clients. Seeing “theory in action” was a response given by participants in both the traditional and nontraditional groupings. Learning about and becoming involved in teamwork and delegation was identified as an important application transfer by a traditional program student. Likewise, a nontraditional program student identified aspects of leadership and management as an important transfer. Leadership and management in the acute care setting is currently confronting issues of delegation and staffing.
patterns associated with nursing care delivery frameworks (i.e., primary care vs. a task specific team approach).

The majority of respondents felt their learning needs were being met. Both a traditional program student and a nontraditional program student (Accelerated BSN) felt that there had been inadequate clinical experience to incorporate what had been learned in the classroom. RN-BSN respondents did not identify any specific deficits related to the opportunity to meet their learning needs.

Being independent and self-directed was a prevalent valued personal position expressed throughout the interviews. Having the opportunity to have input into class or clinical planning, identification of learning objectives, flexibility in the structure of the learning experiences, and the recognition of personal or group learning needs were identified as important ways in which participants could be self-directed. Participants in both curricular groups recognized that being self-directed was both a necessity for success in the program and an outcome of the program. Independent study was specifically identified by two traditional program students as being necessary for covering expected content. Seven of the nontraditional program students identified independent study as a primary way in which they were self-directed. Independent study encompassed CAI, library research, internet research, audio-visual tutorials, and required readings in sources.
other than the class text.

Having previous educational experience recognized as valuable, having independence, and having flexibility within the program and/or course structure were identified as major ways in which the programs of study met the needs of adult learners. Two of the traditional program respondents felt that their needs were not being met. One cited a lack of respect for age, previous learning, or work experience. The other cited a lack of flexibility in scheduling. Students in generic programs represent a broad spectrum of learning needs related to diversity in age and experience. It may well be that this is simply a manifestation of some frustration that an older and experienced student may experience in a traditionally structured and presented curricula. Of the nontraditional program participants, three respondents felt that their needs were not being met. One cited disappointment that some previous course work was not deemed equivalent for awarding transfer credit. Two stated that all the teaching was the same and no differences in style or format were in place for adult learners. On the positive side, eight nontraditional group and one traditional group respondent revealed an appreciation for the degree of independence and autonomy that was permitted, especially in the clinical area.

Although some criticisms were expressed by students in generic (2 out of
5 respondents) and nontraditional (3 out of 10 respondents) programs of study, overall the responses were consistent between traditional and nontraditional group participants. Respect, flexibility, and opportunities to be self-directed were themes that emerged throughout the interview sessions. In responses to the question on how opportunity was provided to apply classroom content to the clinical setting, some students gave specific examples of interactions with clients which illustrated decision making and clinical judgment. These examples included synthesizing class content and applying in a real life situation, making decisions about client education needs and planning interventions, and delegating appropriately to assistive personnel. Although not all students could give specific examples, all did respond positively in terms of being able to use their judgment and knowledge base when interacting with clients.
CHAPTER 5
CONCLUSIONS

The purpose of this study was to determine if students in nontraditional nursing curricula had program outcomes equivalent to students in traditional generic nursing curricula. One outcome measure evaluated was students self-perception as a clinical decision-maker using the Clinical Decision Making in Nursing Scale (CDMNS) as developed by Jenkins (1985). The second outcome measure was that of clinical judgment through the use of the Clinical Judgment Series #1: Emergencies in Adult Client Care Test (Center for Nursing Education and Testing, 1995).

Review of Study Foundation

Decision-making and clinical judgment are elements of professionally oriented critical thinking. As such, clinical judgment is not only an expected programmatic outcome. It is included in accreditation criteria and is, most importantly, an expectation of the health care consumer. The role of the professional nurse is expanding from the acute care (hospital) setting to home and community settings. This expanded workplace requires practitioners who can act more independently and can be accountable for client related decisions. In addition to role expansion, client acuity and health care needs have become more complex.
More care and convalescence is occurring in the home and an aging population presents greater needs in the management of chronic health problems. The integration of all of these health care related variables serves to give credence to the need for evaluation of equivalent outcomes of differing nursing curricula.

Nontraditional nursing curricula have been developed in response to nursing shortages, the anticipated increased demand for baccalaureate prepared nurses, and the educational needs of actual and prospective learners. These curricula have been based on assumptions about age, experience, self-directedness, and readiness to learn regarding adult learners (Knowles, 1974; Cross, 1984). The nontraditional curricula have expectations regarding transfer of previous knowledge related to life experience, previous study, and/or previous work experience. In addition, there are expectations regarding learner accountability, motivation, and autonomy.

In both RN-BSN Completion and Accelerated BSN curricula, courses and learning experiences are designed to utilize the expectations of lateral transfer, autonomy, and accountability. Because students in RN-BSN Completion programs are already licensed as R.N.'s, they are provided with clinical experiences that allow them to function independently and they are accountable for
designing some of their own learning experiences. When studying leadership styles and management roles, for example, students are expected to work with faculty in selecting a clinical site and contracting with a nurse mentor. Depending on the site selected, the student may approach leadership and management learning experiences from a nursing unit focus or from an administration focus. If placed in a nursing unit setting, the student is then able to apply course objectives related to roles of the nurse in terms of unit management, delegation, and coordination of client care. If placed in a nursing administration setting, the student is able to interact with a nurse administrator and gain a “corporate” perspective. The students then evaluate and share their experiences at scheduled interval, thus broadening insights among themselves.

The RN-BSN Completion students also have the opportunity to be independent, self-directed, and accountable in their nursing elective course experience. The student is able to identify an area of interest, formulate learning goals, and contract with the agency and personnel involved in designing an independent project. Such learning experiences may include:

1. Implementation of their research study designed in a previous course;
2. Designing a clinical experience in an area of special interest, i.e., an emergency department, a homeless shelter, a critical care unit, a geriatric...
3. Identifying a work-related issue and developing (and sometimes implementing) a plan of action.

Accelerated BSN students are not licensed, of course, and therefore more direct faculty supervision in clinical settings is both needed and required by law. Consequently, these students do not have the same degree of autonomy in designing and implementing non-classroom learning experiences. However, the classroom can provide opportunities to foster these student characteristics. Adult learners appreciate having their work and educational experience recognized and valued. In a medical/surgical nursing class, for example, a peer resource pool can be established. Students with expertise in a certain area can act as a resource for other students, both in and out of the classroom. A student with a degree in early childhood education can act as a resource person when studying developmental stages and discussing anticipatory guidance for parents. A student with a degree in sports medicine can be an in-class resource related to musculoskeletal dysfunction. A student who has a degree in psychology and has worked in counseling can be a resource person related to the grieving process, substance abuse, coping strategies, or stress management, etc. A student who is a respiratory therapist would certainly have expertise to share with his/her peers, as would a student who is an
Emergency Medical Technician (EMT). Faculty attuned to the skills and expertise of such students have the opportunity to really enrich classroom discussions and promote an interactive atmosphere for learning.

Another example of providing for self-directed learning can involve the use of adjunct learning resources. An adult learner can identify his/her own learning needs and is experienced enough to know what teaching strategies are personally most effective. Provision for this individuality can be made by giving the student choices of assigned learning activities. For example, students can identify topics in which they feel they need additional instruction and can then choose from a variety of teaching/learning options to meet the needs. Such options might include CAI, interactive video, video reviews, programmed learning packets, reading assignments, or skills practice. This allows for the student and teacher to individualize instruction and supports the position that there is always more than one prescribed route to an outcome.

The above examples just serve to illustrate how lateral transfer, flexibility, and autonomy can be incorporated into instruction and course design. Seidel and Sauter (1990) report that nontraditional students are discovery learners and recommends that learning strategies should provide opportunities for exploration rather than mere reception of information. She further recommends that teaching
strategies utilize student experience and skills and that this experience be shared to
enrich the learning environment for the total student group. Of course these
elements should not be totally absent in instructional programs for traditional-age
students, but these elements can be more prominent in instruction with adult
learners bringing experience, skill, and maturity to the learning environment.

In an effort to assess how adult learners perceived themselves in relation to
their respective programs, interviews were conducted with five volunteer
respondents from each curricular group. The interview questions (see Appendix
F) were derived from constructs developed by Knowles (1974) and Cross (1984)
in describing the characteristics and needs of adult learners.

Results

No statistical difference was found between the three curricular groups in
self-perception as a decision maker. Each of the curricular groups scored between
149 and 152 out of a possible 200 points on the CDMNS. This degree of self-
perception as a decision-maker indicates a comprehensive approach to the
decision-making process on the part of the participants. As no norms or set
standards for acceptable scores are given by Jenkins (1985) when reporting initial
evaluation of instrument use, no quantitative comparison can be made with the
results of this study. This analysis supports the second hypothesis that there is no
difference in self-perception as a decision-maker between participants in the Generic, RN-BSN Completion, and Accelerated BSN curricula. Not having any entry data on the participants' self-perception as decision-makers, no judgment can be made regarding any changes during the course of the program of study. It can only be said that the nontraditional program outcomes are equivalent to generic program outcomes.

The four subscales of the CDMNS, representing specific elements of the decision making process, also revealed no difference between the curricular groups. Subscale A is comprised of items relating to the search for alternatives and options. Subscale B items are focused on canvassing of objectives and values. Subscale C incorporates the evaluation and reevaluation of consequences. Subscale D items are directed toward the search for information and unbiased assimilation of new information (Jenkins, 1997). As with the results of this study, Jenkins (1985) found that age and work experience had no influence on the instrument outcomes.

All of the participants had nearly completed baccalaureate level programs in which decision making regarding client care is an element of both classroom and clinical learning experiences. Each had equivalent outcomes. Therefore, there must be some commonality in what is taught regarding decision-making in the
clinical setting based on standards of nursing practice.

Analysis of outcomes on the CJS:EACC did reveal a significant difference between the curricular groups. The two nontraditional curricular groups exhibited higher scores on the CJS:EACC than did the generic group. This is a directional outcome indicating that the non-traditional curricular groups exceeded an outcome equivalency relationship with the traditional curricular group. Therefore hypothesis 1 was rejected, as there was a difference in the instrument outcomes.

Multiple regression revealed that work experience was not a significant factor relative to the CJS:EACC outcomes. Additional analysis by Pearson correlations did reveal a low positive correlation for CJS:EACC scores, age, and experience for all study participants as a group and for RN-BSN Completion participants as a group. This discrepancy in the influencing relationship with work experience may be due to the low degree of the negative correlation found with experience in the multiple regressions for these groups. For the Accelerated BSN group, a Pearson correlation revealed a negative relationship for both age and experience in relation to CJS:EACC scores. This could be related to the fact that the mean age of the Accelerated participants was relatively young in relation to past groups (33.4 years) as reported by Saunders (1994). In addition, unlike RN-BSN Completion students who, if currently working, are working in a health
related position, the Accelerated program participants have a diverse experiential background unrelated to health care.

The validity of the influence of experience on CJS:EACC scores was compromised due to the fact that a number of participants gave no information regarding work history on their respective data forms and some listed "0" years of work experience. It is doubtful that participants in their late twenties or early thirties would not have had any work experience. This result, in the absence of a complete data base, would seem to conflict with established assumptions regarding adult learners relative to lateral transfer and work experience (Knowles, 1974).

Unlike work experience, age was found to be a significant variable related to CJS:EACC outcomes. Adult learners manifested significantly higher scores on the instrument than did traditional age participants. Multiple regression analysis was performed from four different perspectives: all participants, all adult participants, all adult RN-BSN Completion participants, and all adult Accelerated BSN participants. Age, in relation to performance on the CJS:EACC was found to be a significant variable for each of the above groups. This could represent a consistency with Knowles' (1974) assumptions about adult learners in terms of the value of life experience, lateral transfer, application of knowledge, readiness to learn, and self-directedness. Adults, by virtue of developmental level and
maturity, are assumed to have had life experiences which impact on behaviors and
decisions, to be more independent or self-directed, to be goal-oriented, and to
value the immediate application of knowledge. Therefore, these characteristics of
adult learners may have been a foundation for the difference in CJS:EACC scores
between the participant groups in relation to the identified influencing variable of
participant age.

It should be noted that the mean group scores (34, 36, 39) on the
CJS:EACC test did not approach the mean score norm (42) established during
instrument development and piloting (C-NET, 1995). The instrument was piloted
on practicing nurses. In each curricular group participants did have experience in
the workplace, although the extent, duration, and type of work experience was
unclear. This experience could have been non-health related work experience.
Health related work experience for non-RN’s could have involved ancillary
positions such as corpsman, patient care assistant, Emergency Medical
Technician, medical records processor, Licensed Practical Nurse, etc. As one may
assume that the nurses with whom the instrument was piloted were not all
practicing at the “advanced beginner” level or below, it would be expected that
their mean score would be greater than the mean scores of graduating students
(Benner, 1984).
The interview results clearly reflect the themes inherent in the assumptions of andragogy presented by Knowles (1974) and the COR Model of Adult Participation presented by Cross (1984). These themes encompass self-directedness, the role of past experience, application of learning, readiness to learn, goals, barriers, and attitudes about education.

Being self-directed was seen by participants in all curricular groups as being an integral expectation within the program of study. Time management skills, use of external resources, being involved in planning learning experiences, and just having to “do it on your own” were comments associated with the concept of being self-directed.

Interestingly, the Accelerated BSN respondents did not express the same degree of self-directedness as did respondents from the other two programs. Comments alluded to the tight structure or sequencing of the program relative to the pace as inhibiting the ability to really be self-directed in the investigation of content topics or learning activities. The overall feeling of this researcher is that independent learning was seen as a by-product of the program pace rather than as a strategy to meet the learning needs of the adult student. Knowles defines adulthood “as the point at which an individual achieves a self-concept of essential self-direction ... when he finds himself in a situation in which he is not allowed to
be self-directing, he experiences ... tension” (1978, p. 56). Several respondents, inclusive of all of the program designs, spoke of not being treated as an adult, and not being able to be as independent, autonomous, or self-directing as anticipated.

The interviews of the Accelerated BSN participants were conducted prior to the Preceptor clinical experience in which the students practice with a nurse mentor in an area of clinical interest. The student is responsible for determining his/her own learning objectives, planning strategies to meet those objectives, scheduling the clinical experience times within a given framework, and evaluating his/her own achievement. Thus the Preceptor experience may enhance the sense of being self directed.

The interview respondents were not always able to differentiate between educational and work experience, but all expressed positive transfer to current learning. Several respondents stated that they felt they had been shown respect relative to their past educational and/or work experiences. These responses support Knowles' assertion that “experience provides a broadening base to which to relate new learning “ and that an individual, as he matures “he increasingly defines who he is by his experience” (1978, p. 56).

Knowles (1978) asserts that the adult learner has a perspective of immediacy of application. The opportunity to apply classroom content directly in
the clinical setting was recognized and valued by the interview respondents. Goal setting, self-evaluation, the assessment of past educational experiences, and barriers to participation by adult learners were identified by Cross (1984) in relation to participation decisions. Many interview respondents reflected these elements. Some respondents spoke of goal achievement related to the BSN degree, others spoke of receiving credit for past courses. Program quality, location, cost, and structure were considerations of the participants when choosing a program of study. An element which could have been a barrier for one student could well have been a facilitating factor for another.

This researcher feels that the student interviews and personal teaching experience with adult learners have served to identify and reinforce many pertinent issues for curriculum design, learning objectives, teaching/learning strategies, and outcome evaluation. Curriculum design must meet the needs of the profession, the needs of the learner, and the mission of the university. It has become widely accepted that an educated person is more than someone who can recite facts and maxims. An educated person can synthesize, problem-solve, and make judgments. For nursing, this means that the professional nurse is one who can independently use facts of disease process, physiologic science, psychology, and social science to recognize client needs, determine appropriate client outcomes, plan and implement
appropriate interventions, and evaluate client responses.

Perceptive faculty recognize that nontraditional students, by virtue of maturation and experience, approach nursing education with needs and expectations related to autonomy, recognition of abilities, and expediency. This researcher, through experience with three different nontraditional programs, believes that these needs and expectations have been recognized and incorporated into curricular design to an appreciable degree. In assessing curricular structure and content, it is evident that efforts have been made to avoid content duplication and making assignments just for the sake of making assignments. The faculty have recognized that not all students must have the same learning experiences presented in the exact same way in order to meet learning objectives. Formal and informal independent study has been encouraged as a method of both providing pertinent learning experiences and self-directed learning.

Valuing the utilization of instructional technology was the most consistent element found when talking to students and faculty and in investigating the instructional elements of the nontraditional programs. Although not often mentioned directly in the student interviews, students with whom this researcher spoke informally all lauded the use of information technology within their program of study. Students and faculty each verbalized the emerging importance of
Internet access for independent research and content augmentation. One RN-BSN Completion program was especially attuned to having the students use the Internet as a study resource. The students and faculty also used e-mail for communicating about assignments, clinical preparation, and evaluation of student work. These technological applications to instruction, communication, and evaluation were certainly receptive to student characteristics in terms of self-directedness, autonomy, flexibility, time management, and immediacy of application.

This researcher can only assume that the combination of motivated adult learners and curricular structures that focus on program outcomes and learner needs rather than a historical commitment to the way nursing education has always been done is having the desired results. Program enrollments are being maintained, participants express satisfaction with their learning experiences, and there are successful outcomes in terms of licensure.

**Implications**

This study has served to support the assumption that student outcomes of decision making and clinical judgment with nontraditional nursing curricula are, at the least, commensurate with outcomes of traditional curricular tracks. Therefore, nontraditional curricula are a valid means of educating baccalaureate prepared nurses to meet current and projected health care needs. The argument that the
nontraditional curricular participants may have performed as well or better than traditional curricular participants by virtue of having a stronger academic background may have some merit. Usually, RN-BSN Completion students verify admission eligibility by having completed a diploma or A.D. curriculum and by having received licensure. Accelerated BSN students usually have had to meet more rigorous admission requirements than for traditional program admission. Also, RN-BSN and Accelerated BSN may have a positive sense of achievement and ability associated with degree or program completion that is generally not a part of the life of a student in a traditional program.

Interview results verify that prospective students are concerned with the quality of the program of study to which they apply. This study supports the position that innovative and nontraditional programs possess these expected and desired standards of professional preparation. This verification serves to strengthen the recruitment potential of these programs.

Interview responses serve as an instructive reminder of the importance of integrating needs and values of adult learners into program design and teaching strategies. Analysis of what the respondents felt was important to say supports the assumptions about what is indeed valuable and pertinent for the adult learner. The adult learner wants to know that past learning and work experiences are
recognized and have attached value. They appreciate the opportunity to share these experiences with faculty and other students. This makes them an active part of the instructional process. Therefore, the strategies of learning through discussion, case studies, and simulations allows the opportunity for transferring previously gained insights and skills to a new situation.

Flexibility, broadly interpreted, was another interview response that has implications for program structure and implementation. Flexible schedules and recognition that adults often have family and career obligations that impact on time management should be recognized as variables for the student when learning experiences are being planned. In addition, respondents appreciated faculty that recognized that there was more than one way to meet a learning objective or accomplish an assignment. This has implications for course requirements and prescribed assignments. Most respondents expressed satisfaction and a feeling of accomplishment in being involved in determining some of the learning objectives and related learning activities. However, two respondents did not perceive any teaching/learning strategies specifically in place to meet the needs of adult learners. One respondent stated that all the students had the same learning experiences, regardless of age and experience. This reinforces the position that instruction and evaluation, whenever feasible, needs to be individualized in relation
to course objectives, student experience, and individual learning styles.

Identifying and prioritizing client needs, setting outcome goals with the client, designing a plan of care with the client, and evaluating client outcomes involves decision making by the nurse. The CDMNS, or similar instrument, could be used as a guide for the student in recognizing the elements of effective decision making. It serves as a guide, especially for the novice, as to valuing alternatives approaches, establishing a comprehensive client data base, and judging the cost/benefit ratio of expected outcomes. In addition, the CDMNS could be used to evaluate the development of the self as a decision maker from program entry (novice level) to program completion (advanced beginner level).

Clinical judgment competency is an essential expected outcome for all professional nursing education programs. The CJS:EACC could be used as a means of identifying strengths and deficits in individual learners. Students more comfortable with self-directed learning could complete, score, and review the CJS:EACC test independently. Students more comfortable with faculty-led learning experiences could do the same in conjunction with faculty guidance. The CJS:EACC results could then act as a learning review guide for the student preparing for programmatic comprehensive exams or for the N-CLEX. CJS:EACC items could provide an excellent basis for discussion of expected vs. unexpected
client outcomes when teaching specific medical/surgical content. These applications would be most pertinent for students in Generic or Accelerated programs of study in that those students are preparing for licensure. Students in RN-BSN completion programs could use the instrument as a review resource for professional development in adult medical/surgical nursing. In terms of programmatic application, the CJS:EACC content could be used as a basis for assessing program inclusion of content identified as being essential for professional practice.

**Recommendations for Future Research**

The intent of this study was to examine the assumption that adult learners in nontraditional nursing curricula manifest clinical decision making self-perception, clinical decision making processes, and clinical judgment outcomes equivalent to outcomes of students in traditional generic nursing curricula. Data analysis from the study indicates that clinical decision making outcomes are equivalent and that clinical judgment outcomes of nontraditional programs exceed the outcomes of traditional programs. These results should be interpreted cautiously until replication with a greater number of participants, a wider variety of nontraditional program structures, and a greater national distribution of participants has been accomplished.
predicated on assumptions about adult learners: self-directedness, lateral transfer of experiential learning, readiness to learn, motivation, accessibility, and orientation to learning. An additional assumption was that adult learners in these nontraditional programs would exhibit programmatic outcome behaviors consistent with those of students in traditional generic curricula. Decision making and clinical judgment are expected outcomes common to all nursing curricula. The purpose of this study was to corroborate the assumption about outcomes for student in different curricular structures. In addition, this study sought to gain insight into how students viewed themselves as adult learners and how their programs of study responded to assumptions about adult learners.

Self-perception as a clinical decision maker and the process of decision making outcomes were each consistent between students in traditional and nontraditional curricula. Student age and work experience were not found to be influencing variables on clinical decision making. Students in nontraditional curricula, primarily adult learners, did have outcomes in clinical judgment relative to the adult medical/surgical client significantly greater than students in traditional curricula. Age was found to be a significant variable in clinical judgment outcomes for adult learners in nontraditional curricula. Students reported that they felt their needs as adult learners were being met within their curricular structures.
Appendix A

Clinical Judgment Series #1: Emergencies in Adult Client Care Test

and Accompanying Instructions
INSTRUCTIONS

Read the entire question before selecting your answer from among those offered. Remember that each question has only one correct answer. After you decide on your answer, circle the number of that answer in the test booklet. An example is shown below.

1. The capital of Massachusetts is
   1. Boston.
   2. Worcester.

For this question, the correct answer is "Boston" or Option 1. A circle around the number 1 has been made. If you wish to change your answer to a question, erase the first mark completely.

Since you will not be penalized for guessing, it is to your advantage to answer every question even if you are not sure of an answer. Do not spend too much time on any question. If you cannot answer a question, go on to the next one. Return to unanswered questions if time permits.

There are 60 questions in this test. Your score will be the total number of questions that you answer correctly.

You will have one hour to complete the test.

DO NOT TURN THE PAGE UNTIL TOLD TO DO SO
1. A client, who was admitted to the hospital with lung cancer, suddenly develops symptoms of superior vena cava syndrome. Which of these actions should be taken?

1. Keep the client in an upright position.
2. Collect a sputum specimen for culture from the client.
3. Obtain an order for pain medication for the client.
4. Check the client's Babinski reflexes.

2. A client has severe hypoglycemia. Immediate intervention is essential because the client is at risk for developing

1. renal insufficiency.
2. tetany.
3. seizures.
4. liver damage.

3. An elderly client, who has been receiving an intravenous infusion of Ringer's lactate solution at a rate of 80 ml/hr, suddenly complains of difficulty in breathing. Which of these actions should be taken first?

1. Determine if the client is having a side effect from a prescribed medication.
2. Reduce the rate of flow of the intravenous infusion.
3. Change the Ringer's lactate solution to 5% dextrose in water.
4. Check the results of the client's previous blood gas studies.

4. A client, who has had a head injury, is being observed for early signs and symptoms of increased intracranial pressure. Which of these findings would indicate the early onset of increased intracranial pressure?

1. A decrease in the client's blood pressure.
2. A narrowing of the client's pulse pressure.
3. The client becomes restless.
4. The client complains of tinnitus.
5. A client fell out of bed and is lying on the floor. After being assessed, it is suspected that the client has a fractured right hip. While waiting to move the client, which of these actions should be taken in relation to the affected extremity?

1. Place it in anatomical position.
2. Elevate it.
3. Apply manual traction to it.
4. Keep it in the position it has assumed.

6. A client is being monitored and the following rhythm strip is obtained:

This strip indicates the presence of

1. atrial fibrillation.
2. atrial tachycardia.
3. ventricular fibrillation.
4. ventricular tachycardia.

7. A client, who is in the hospital, has a spontaneous epistaxis. Which of these measures should be included in the client's care initially?

1. Place moistened cotton balls into the client's nares.
2. Place a small ice cap over the client's nares.
3. Have the client press the nares together for 5-10 minutes.
4. Have the client place his head so that his nares are at the level of his knees.

8. A client, who develops septic shock while hospitalized, is at risk for developing

1. encephalitis.
2. peritonitis.
3. lupus erythematosus.
4. disseminated intravascular coagulopathy.

9. A client has sustained a fractured arm as well as multiple internal injuries. On the fourth day of hospitalization, he has pain in his affected arm that is not relieved by analgesics. To determine if he is experiencing compartment syndrome, he should be assessed for

1. a temperature elevation.
2. the ability to move the fingers on the affected arm.
3. the presence of deep tendon reflex in the affected arm.
4. a decrease in blood pressure.
10. A client, who had cataract surgery four hours ago, complains of severe pain in the affected eye. The action taken should be based on the understanding that severe pain after cataract surgery is an

1. expected outcome.
2. indication of a low pain threshold.
3. indication that assessments for infection need to be made.
4. indication of a complication.

11. A client, who has had a myocardial infarction, has the following electrocardiography reading:

Which of these actions should be taken?

1. Call the physician.
2. Continue to monitor the client.
3. Check the placement of the leads.
4. Determine if the client has an order for an antidysrhythmic drug.

12. A client, who was admitted with a diagnosis of myocardial infarction several days ago, has the following rhythm strip:

Which of these statements is accurate?

1. Since this reading indicates premature ventricular contractions, the physician should be notified immediately.
2. Since this reading indicates ventricular fibrillation, a code should be called.
3. Since this reading indicates paroxysmal atrial tachycardia, assess the client for other signs of excessive caffeine intake.
4. Since this reading indicates sinus bradycardia, determine how much digitalis the client has received in the last 12 hours.
A client who has had a craniotomy says, "My nose seems to be running." Clear fluid is noted to be draining from the client's left nostril. Which of these actions should be taken?

1. Find out if the client has any allergies.
2. Explain that the drainage is expected after this type of surgery.
3. Check the client for other signs of an upper respiratory infection.
4. Test the fluid for glucose.

A client's laboratory results indicate the presence of respiratory alkalosis. Which of these actions should be taken immediately?

1. Have the client breathe into a paper bag.
2. Administer oxygen at 2 L/min to the client.
3. Encourage the client to take frequent, short breaths.
4. Instruct the client to cough and deep breathe.

A client has an allergic reaction to the radiopaque dye that was administered during an intravenous pyelogram (IVP). The client will likely display which of these symptoms?

1. Salty taste in the mouth.
2. Pain over the kidney area.
3. Flushing.

A client is found on the floor of the bathroom having a generalized motor seizure. In addition to protecting the client, which of these actions should be taken during the seizure?

1. Remind the client that the episode will be over in a minute or two.
2. Loosen the client's constrictive clothing.
3. Assess the client's vital signs.
4. Place a padded tongue blade between the client's teeth.

A client has status asthmaticus that is accompanied by severe wheezing. Suddenly the wheezing stops. This change may be an indication of

1. improvement.
2. subcutaneous emphysema.
3. a pneumothorax.
4. impending respiratory failure.
A client, who is being treated for a peptic ulcer, has been complaining of pain. Suddenly the client says that the pain is much worse and is referred to his right shoulder. This type of pain may indicate

1. an allergic reaction to the drugs used for treatment of the peptic ulcer.
2. an involvement of the gallbladder.
3. inadequate analgesia.
4. a perforation of the peptic ulcer.

A client is receiving packed red blood cells. All of the following observations are made of the transfusion. Which one requires immediate intervention?

1. A 19-gauge needle is in place.
2. The transfusion is being given in the dorsum of the hand.
3. A solution of 5% dextrose in water is infusing with the packed red blood cells.
4. A Y-type administration set is being used for the transfusion.

A postoperative client develops renal failure. He has an external arteriovenous shunt inserted into his forearm for hemodialysis treatments. When he is returned to his room after one of his treatments, the shunt accidentally becomes separated and blood flows out. Which of these actions should be taken?

1. Put a bulldog clamp on each one of the shunt's cannulas.
2. Apply a tourniquet above the shunt site.
3. Place a shunt adaptor over the shunt.
4. Gently remove the shunt from the forearm.

A client, who has insulin-dependent diabetes mellitus (Type 1), says, "I feel weak and jittery." Which of these actions should be taken initially?

1. Determine when the peak action of the insulin the client received occurs.
2. Give the client orange juice.
3. Check the client's blood pressure and pulse.
4. Find out when the client last ate.
22. When entering a client's room, it is noted that a client has slit her wrists. In addition to caring for the wounds, it is essential that the
   1. reason for the client's actions be determined.
   2. client's family be notified.
   3. client be placed on suicide precautions.
   4. client not be permitted to have visitors.

23. A client's laboratory report indicates that he has received an overdose of heparin sodium. Which of these drugs should be readily available because it is the antidote for heparin sodium?
   1. Protamine sulfate.
   2. Vitamin K₁ (Synkayvite).
   3. Calcium gluconate (Kalcinate).
   4. Iron dextran (Imferon).

24. A newly-admitted client, who has been taking monoamine oxidase (MAO) inhibitors, reports having eaten cheese at a wine and cheese party just prior to admission. The client is at risk for the development of
   1. oculogyric crisis.
   2. hypertensive crisis.
   3. hepatic coma.
   4. diabetic coma.

25. A client in myxedema coma should be treated with
   1. epinephrine hydrochloride (Adrenalin Chloride).
   2. caffeine and sodium benzoate.
   3. insulin therapy (Regular Insulin).
   4. thyroid hormone replacement.

26. A client has bronchial asthma. The client's respiratory rate rises and his breath sounds are inaudible. The client is in imminent danger of developing which of these conditions?
   1. Pneumonia.
   2. Metabolic alkalosis.
   3. Pneumothorax.
   4. Asphyxia.

27. Shortly after a client has an abdominal paracentesis, the client complains of lightheadness and the client's blood pressure begins to drop. In addition to notifying the physician, which of these actions should be taken?
   1. Check that the client is flat in bed.
   2. Determine if the client has a widening pulse pressure.
   3. Check the client's potassium level.
   4. Determine the amount of fluid present on the dressing over the drainage site.
28. A client, who has chronic obstructive pulmonary disease (COPD), is receiving oxygen via nasal cannula. The client becomes confused and drowsy. Which of these questions should be considered?

1. Is the client receiving too much oxygen?
2. Is the client receiving too little oxygen?
3. Is the oxygen being properly humidified?
4. Is the route of administration for the oxygen appropriate?

30. The results of a client’s arterial blood gas study indicate that the pH and partial pressure of oxygen (\(\text{PaO}_2\)) are decreased and that the partial pressure of carbon dioxide (\(\text{PaCO}_2\)) is increased. The client is experiencing

1. metabolic acidosis.
2. metabolic alkalosis.
3. respiratory acidosis.
4. respiratory alkalosis.

31. An elderly client has depressed respirations as a result of an overdose of morphine sulfate. Which of these actions should be taken?

1. Encourage the client to breathe through the mouth.
2. Obtain an order for naloxone hydrochloride (Narcan).
3. Prepare for the insertion of a tracheostomy tube.
4. Place the client in a high-Fowler’s position.

1. congestive heart failure.
2. cardiac tamponade.
3. an allergic reaction to the implant.
32. A hospitalized client, with a history of angina, has chest pain. The client takes a nitroglycerin tablet and the pain is not relieved. The client takes another tablet, and after 5 minutes, the pain is still not relieved. Which of these actions should be taken next?

1. Arrange to draw blood for cardiac enzyme studies.
2. Prepare to administer streptokinase (Streptase) to the client.
3. Have the client take another nitroglycerin tablet.
4. Obtain an order for morphine sulphate.

An elderly client, who is on a cardiac monitor, complains of fatigue, anorexia and nausea. The monitor shows flat T waves and ST-segment depressions. Which of these questions should be considered?

1. Is the client experiencing chest pain, which radiates down the arm?
2. Is the client hyperkalemic?
3. Is the specific gravity of the client's urine increasing?
4. Is the client experiencing digitalis toxicity?

34. A client, who has had a suprapubic prostatectomy, is returned to his room from the postanesthesia unit. He has a continuous bladder irrigation system, and traction is applied to his urethral catheter. An hour later, the color of his drainage becomes dark red. Which of these actions should be taken?

1. Release the traction on the catheter.
2. Increase the rate of flow of the bladder irrigation.
3. Determine if the client is receiving phenazopyridine hydrochloride (Pyridium).
4. Document the finding as normal.

35. A client, who has had a prostatectomy, complains of severe bladder spasms. The client has a three-way urethral catheter in place. Which of these actions should be taken immediately?

1. Check the patency of the drainage system.
2. Milk the tubing of the drainage system.
3. See if the client has an order for an antispasmodic drug.
4. Determine if the client's urinary output for the last four hours has been adequate.
36. A client is in hypertensive crisis. Which of these drugs should be available for intravenous administration?
   1. Lidocaine hydrochloride (Xylocaine).
   2. Nitroprusside sodium (Nitropress).
   3. Dexamethasone (Decadron).
   4. Diazepam (Valium).

7. A client, who has had surgery and has an intravenous infusion in place, develops symptoms of hypovolemic shock due to hemorrhage. Packed red blood cells have been ordered and surgery has been scheduled. While waiting for the packed red blood cells to be delivered, which of these actions is it essential to take first?
   1. Prepare to administer dopamine hydrochloride (Intropin).
   2. Increase the rate of flow of the intravenous fluids.
   3. Attach the client to a cardiac monitor.
   4. Place the client in a position with the head lower than the chest.

38. A client has cesium 137 placed in her uterus for treatment of uterine cancer. While caring for the client, the cesium applicator is found in her bed. Which of these actions should be taken?
   1. Discard the applicator down the toilet, with three flushes.
   2. Discard the applicator in an isolation bag.
   3. Use sterile, gloved hands to reinsert the applicator into the uterus.
   4. Use long forceps to place the applicator in a lead-lined container.

39. Following a subtotal thyroidectomy, a client develops a positive Chvostek's sign. Which of these actions should be taken?
   1. Prepare to insert an endotracheal tube.
   2. Prepare to administer calcium gluconate (Kalcinate).
   3. Check the client's ability to speak.
   4. Check the client's gag reflex.
40. A client has an intravenous infusion through a central line in place. After having the intravenous tubing changed, the client develops an air embolus. Which of these symptoms is the client likely to have?

1. Chest pain that radiates down the left arm.
2. A sudden drop in blood pressure, with an increase in pulse rate.
3. Flushing of the face, with mottling of the extremities.
4. Distention of the neck veins, accompanied by throbbing.

41. A client develops severe sinus bradycardia. Which of these drugs would likely be administered?

1. Lidocaine hydrochloride (Xylocaine).
2. Propranolol hydrochloride (Inderal).
3. Quinidine sulfate (Quinora).
4. Atropine sulfate.

42. A client is dyspneic, anxious, and restless. An anaphylactic reaction is suspected. Which of these actions is it essential to take first?

1. Show the client how to do pursed-lip breathing.
2. Attach the client to a cardiac monitor.
3. Prepare to administer epinephrine hydrochloride (Adrenalin Chloride) to the client.
4. Monitor the client's respirations q 5 minutes.

43. A client is being treated for peritonitis. The client's serum sodium, potassium, creatinine, and urea nitrogen have become elevated. Given these data, it would be most important to obtain the answer to which of these questions?

1. Is the client hemorrhaging?
2. What is the client's urinary output?
3. What is the client's white blood cell count?
4. Is the client's infection becoming more localized?
44. A client’s central venous pressure (CVP) is being monitored. The most recent reading of the CVP indicates that it is elevated. Because of this finding, the client may be at risk for developing

1. hypovolemic shock.
2. hypermagnesemia.
3. pulmonary edema.
4. a myocardial infarction.

45. A colleague, who suspects that she is about six weeks’ pregnant, complains of severe abdominal pain that radiates to her shoulder, nausea, and dizziness. In addition, she faints. These symptoms might indicate that she has

1. a hydatidiform mole.
2. an abruptio placentae.
3. an ectopic pregnancy.
4. a placenta previa.

46. A client, who has bleeding esophageal varices, is being treated with an esophagogastric balloon tamponade (Sengstaken-Blakemore) tube. The client begins to have respiratory difficulty. This difficulty is likely due to

1. overdistention of the stomach.
2. displacement of the tube.
3. necrosis of the lining of the esophagus.
4. an allergic reaction to the tube.

47. An accident has occurred in a client’s room that has resulted in glass going into the client’s eye. Prior to the physician seeing the client, which of these actions should be taken?

1. No attempt should be made to remove the glass from the affected eye.
2. A pressure dressing should be applied to the affected eye.
3. The affected eye should be irrigated with copious amounts of sterile fluid.
4. The exact location of the glass in the affected eye should be determined.

48. A client has just been admitted for treatment of malignant hypertension. The client says, “I can’t see.” The response the client should be based on the understanding that

1. severe hypertension usually causes glaucoma.
2. severe anxiety may be manifested as conversion symptoms such as blindness.
3. hypertensive encephalopathy may cause transient blindness.
4. complaints of blindness usually are manifestations of an aura prior to seizure.
A client, who has insulin dependent diabetes mellitus (Type 1), is in bed and cannot be aroused. The client has a fruity odor to the breath. Which of these actions should be taken initially?

1. Do a blood glucose test.
2. Prepare to administer Regular Insulin intravenously.
3. Prepare to administer 50% glucose in water.
4. Assess the client's response to noxious stimuli.

A client has a hip and full right-leg cast applied. When her toe nails are assessed for capillary refill, it is noted that the refill time is five seconds. Which of these actions should be taken initially?

1. Put the casted leg slightly lower than the heart.
2. Document the findings in the chart.
3. Petal the edges of the cast.
4. Determine if the cast is constrictive.

A client is very anxious and has been hyperventilating. If interventions are not taken, this client is likely to develop which of these conditions first?

1. Metabolic alkalosis.
3. Respiratory alkalosis.
4. Respiratory acidosis.

A client, who is being treated for multiple fractures, is observed for signs of a fat embolus, which include:

1. petechiae on the chest.
2. a positive Homans's sign.
3. yellow sclerae.
4. an elevated blood urea nitrogen.

A client with a spinal cord injury at the level of the sixth cervical vertebra has his vital signs taken. The client's blood pressure, which has been within normal range, suddenly becomes markedly elevated. He complains of a severe headache, nasal stuffiness, and blurred vision. He is diaphoretic and has an indwelling urinary catheter in place.

Given these findings, it would be most important to determine if the

1. client has essential hypertension.
2. client's medication orders were changed recently.
3. client's intake of sodium has increased recently.
4. client's catheter is patent.
54. A client is found using matches to burn his forearm. The first action to be taken should be based upon which of these understandings?

1. Application of cold compresses will halt the tissue damage.
2. Application of a lubricating ointment will prevent blistering.
3. Appropriate, immediate treatment depends on the depth of the involved area.
4. The type of appropriate, immediate treatment depends on the source of the injury.

55. A client complains of lower back pain. When palpating the abdomen, a prominent pulsation in the upper abdomen slightly to the left of the midline is found. Based on these findings, the client likely has

1. an abdominal infection.
2. a ruptured spleen.
3. an abdominal aneurysm.
4. kidney stones.

56. A client has an intravenous infusion, which contains 40 mEq of potassium chloride. It is noted that the client's infusion has run in too rapidly. Which of these actions is it necessary to take?

1. Take the client's blood pressure.
2. Prepare to administer calcium gluconate to the client.
3. Insert an indwelling urethral catheter into the client.
4. Place the client on a cardiac monitor.

57. A client, who has her jaws wired, begins to vomit. Which of these actions should be taken?

1. Cut the wires.
2. Give the client an emesis basin.
3. Suction the client's oropharynx.
4. Attempt to stretch the wires.

58. A client is in status epilepticus. In addition to administering antiepileptic drugs, the client will need to have

1. oxygen administered.
2. external stimuli removed.
3. the long bones of the arms and legs splinted.
4. an assessment for the presence of meningitis.
59. A client has taken an overdose of a tricyclic antidepressant. The client should be observed for the development of

1. hypertension.
2. hyperventilation.
3. seizures.
4. polyuria.

60. A client, who is receiving heparin sodium, has a partial thromboplastin time (PTT) four times the control. In view of this finding, which of these actions should be taken?

1. Compare this result with previous ones.
2. Institute seizure precautions.
3. Check the specific gravity of the client's urine.
4. Monitor the client for signs of bleeding.

THIS IS THE END OF THE TEST.

Report of Scores

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>Subscore A</th>
<th>Subscore B</th>
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<tr>
<td>Percent correct</td>
<td>%</td>
<td>%</td>
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</table>
Summary statistics were calculated for the final form of the test and are presented in Table 1. With respect to the total test, the mean score of the norms group was 42, with a standard deviation of 6.3. The average difficulty level of the total test was 0.71. The KR$_{20}$ reliability was 0.72 and the standard error of measurement was 3.29.

The test questions are evenly divided into two subtests with 30 items each. Subtest A, Recognition of Emergency Situations, was slightly more difficult (0.68) than Subtest B, Interventions in Emergency Situations (0.74).

**TABLE 1**

Summary Statistics For Emergencies in Adult Client Care

\[ N=229 \]

<table>
<thead>
<tr>
<th>Statistic</th>
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<tr>
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*Subscore A - Recognition of Emergency Situations  
*Subscore B - Interventions in Emergency Situations

**DEFINITIONS OF STATISTICAL TERMS**

**Difficulty level** - A numerical value that describes how easy or hard the test (or subtest) was for the group of examinees. The value is obtained by dividing the mean (average) score of the test by the number of items in the test to obtain the proportion (or percentage) of questions answered correctly. The closer the value gets to 1.00 (or 100%), the easier the test.

**Mean** - The average number of questions answered correctly by the group, or the sum of a set of scores divided by the number of scores.
Norms - A measure that tells how an examinee performed with respect to the group with which the examinee is being compared. The norms allow one to compare the performance of similar groups or individuals.

Norms group - The group on which norms are based. The norms group for this test was a national sample of 229 practicing registered nurses who participated in the experimental study.

Reliability - Refers to the degree of consistency or dependability of a measurement instrument. The KR20, a measure of the internal consistency of the test, is one way to determine a test's reliability. Reliability is expressed as a coefficient ranging from 0 to 1.00. The closer the coefficient is to 1.00, the higher is the reliability or consistency of the instrument.

Standard deviation - A statistical measure of the dispersion, or scatter, of scores around the mean of a distribution. The larger the standard deviation, the greater the differences among members of a group.

Standard error of measurement (SEM) - A statistic that indicates the amount of variation or spread in the measurement errors of a test. Reliability theory assumes that every test has some measurement error or inconsistency. The smaller the SEM, the less error in the test.

In order to score the test, it is advisable to use a red and a black pencil. Check each examinee's circled answers using the Scoring Key. When there is an answer that is incorrect, note which subscore it is listed under. If it is listed under Subscore A, indicate that the answer is wrong using the red pencil. If it is listed under Subscore B, indicate that the answer is wrong using the black pencil.

When you have scored the entire 60-question test, fill in the box on the last page of the each booklet (illustrated in this Manual on page 5). Subtract all the red-marked questions (Subscore A) from 30 and place the result in the cell under Subscore A and across from Number correct. Then subtract all the black-marked questions (Subscore B) from 30 and place the result in the cell under Subscore B and across from Number correct. To obtain the examinee's total score, add the numbers in both cells. To calculate the percent correct for the total test, divide the number correct by 60 and move the decimal point two places to the right. To calculate the percent correct for each subtest, divide the number correct by 30 and move the decimal points two places to the right.

Fill in your name and the date in the spaces provided on the front page of the test booklet to indicate that you scored the test. The person who reviews the test with the examinee should also place his or her name and the date in the appropriate spaces on the front of the test booklet.
In the sample report given below, the examinee answered 15 questions correctly (50%) in Subtest A and answered 24 questions correctly (80%) in Subtest B. The examinee's total score was 39 or 65% correct for the total test.

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>Subscore A</th>
<th>Subscore B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of questions</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Number correct</td>
<td>39</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>Percent correct</td>
<td>65%</td>
<td>50%</td>
<td>80%</td>
</tr>
</tbody>
</table>

INTERPRETING TEST RESULTS

It is particularly important that you review the test as a whole as well as each individual question. You can then determine if there are any questions that are not applicable in your particular situation. Once you have done this, you are ready to look at the examinee's results. You may want to look at the means of the norms group for the test as a whole and each of the subscores to determine how the examinee's results compare to the norms group.

In discussing the results of the test with the examinee, it is important to point out the questions that the examinee failed to answer correctly and to discuss the rationale for the correct answer as a first step in the remediation process.

When the test has been administered to a group of examinees, you may wish to see if there is a pattern of correct and incorrect responses. If you notice that many examinees have answered a specific question incorrectly, discuss the rationale for the correct answer with them. You may then want to consider other methods of remediation for the group.
1. **Key: 1**
Superior vena cava syndrome is usually caused by compression of the superior vena cava, which may be due to a neoplasm or enlarged lymph nodes. This can result in markedly impaired venous drainage of the head and neck. Clinical manifestations of superior vena cava syndrome include difficulty in breathing. Clients may even become fearful of suffocating. Nursing care includes measures to facilitate breathing by positioning.

2. **Key: 3**
When severe hypoglycemia is present, the client is at risk for developing convulsions and having brain damage.

3. **Key: 2**
Elderly clients and infants are particularly prone to develop fluid overload when receiving intravenous fluids. Fluid overload can lead to pulmonary edema, whose symptoms include respiratory distress.

4. **Key: 3**
The early signs and symptoms of increased intracranial pressure include a change in the level of consciousness, such as restlessness or lethargy. Alterations in vital signs are late signs and include increased blood pressure, decreased pulse and respiratory rates, and a widening of the pulse pressure.

5. **Key: 4**
When a client falls and a fractured hip is suspected, it is best to leave the client's affected extremity in the position it has assumed. The client should be observed and not left alone until help arrives.

6. **Key: 3**
Ventricular fibrillation, the rapid, ineffective quivering of the ventricles, causes a non-specific or non-recognizable pattern of QRS complexes.

7. **Key: 3**
When a client has a nosebleed, the initial treatment may include applying direct pressure at the site and having the client sitting upright, with the head tilted forward to prevent aspiration.

8. **Key: 4**
As septic shock develops, various abnormalities of coagulation such as disseminated intravascular coagulopathy are frequently observed.

9. **Key: 2**
In addition to unremitting pain, symptoms of compartment syndrome include edema, inability to move toes or fingers, and poor capillary refill response.

10. **Key: 4**
Following cataract surgery, the expectation is that very little pain will be present. If severe pain is present in the early postoperative period, this may be due to increased intraocular pressure from hemorrhage or other complications.

11. **Key: 2**
The reading is normal. Therefore, continuing to monitor the client is the appropriate action.
12. Key: 1
Premature ventricular contractions (PVCs) are the result of increased automaticity of the ventricular muscle cells. PVCs are a serious development when they (a) occur frequently, (b) occur in pairs or triplets, (c) fall on the T-wave, or (d) are multifocal. A physician should be contacted immediately so that an antidysrhythmic drug can be prescribed and administered.

13. Key: 4
One complication that can occur after a craniotomy is leakage of spinal fluid, which is clear and contains glucose. The leaking spinal fluid is generally secreted from the nose or ears. To rule out the possibility that the drainage is mucus, which does not contain glucose, the fluid should be tested for glucose. A Dextrostix is generally used for that purpose.

14. Key: 1
In respiratory alkalosis, the problem is a low level of carbon dioxide (PaCO₂) and bicarbonate (HCO₃⁻) and a high pH. The client usually is hyperventilating and "blowing off" carbon dioxide. The PaO₂ is normal. By breathing into a closed system, the client's PaCO₂ should become normal.

15. Key: 3
An allergic reaction to the dye used when an IVP is done may cause symptoms, which include respiratory distress, diaphoresis, urticaria, and instability of vital signs.

16. Key: 2
Actions to take during a seizure include loosening constrictive clothing, protecting the client from harm, and not placing anything in the client's mouth.

17. Key: 4
There is no correlation between the severity of the status asthmaticus attack and the amount of wheezing. With greater obstruction, wheezing may disappear, which is frequently a sign of impending respiratory failure.

18. Key: 4
Signs and symptoms of a perforated peptic ulcer include pain, which may be referred to the shoulders—especially the right shoulder. The referred pain is due to irritation of the phrenic nerve in the diaphragm.

19. Key: 1
When there is an accidental separation of the shunt, bulldog clamps are used to clamp each side of the catheter in order to avoid excessive blood loss.

20. Key: 3
To help red blood cells infuse, normal saline (usually 50-100 ml) may be infused at the same time. A dextrose solution is never infused with blood because the dextrose would cause the red blood cells to hemolyze.

21. Key: 2
Symptoms of mild hypoglycemia include weakness, jitteriness, sweating, hunger, etc. If these symptoms occur, a source of simple sugar should be given orally. Then other assessments can be made.

22. Key: 3
All clients who have harmed themselves should be considered suicidal and precautions, such as one-to-one observation, must be instituted.

23. Key: 1
The antidote for heparin sodium is protamine sulfate.
24. Key: 2
Clients are advised specifically not to eat cheese or drink alcohol beverages when taking MAO inhibitors. When these substances are ingested, they can cause the client to have a hypertensive crisis.

25. Key: 4
Myxedema coma or severe hypothyroidism is a medical emergency, and administration of a thyroid hormone is essential immediately.

26. Key: 4
When a client has a rising respiratory rate and there is no air movement and, therefore, no breath sounds, ventilatory failure can occur. Ventilatory failure can lead to asphyxia.

27. Key: 1
If too much fluid is removed too rapidly during an abdominal paracentesis, the client may develop hypovolemic shock. The client should be placed flat in bed to encourage adequate perfusion to the brain, and the client should be rehydrated.

28. Key: 1
When clients with COPD receive too much oxygen the stimulus to breathe is reduced, which can lead to carbon dioxide narcosis. Symptoms of carbon dioxide narcosis include confusion, drowsiness, and finally coma.

29. Key: 2
Narcan (an opiate antagonist) is used to alleviate the respiratory depression that is associated with an overdose of an opiate.

30. Key: 3
Respiratory acidosis is a clinical condition in which the pH is less than 7.35 and the PaCO₂ is greater than normal. There is an elevated bicarbonate level also.

31. Key: 2
Cardiac tamponade is a compression of the heart as a result of fluid within the pericardial sac. When a pacemaker is inserted, the heart or great vessels may be perforated and result in cardiac tamponade. Pulsus paradoxus, a condition in which the systolic blood pressure drops and fluctuates with respirations, is a cardinal symptom.

32. Key: 3
A client may take up to three nitroglycerin tablets in a 15 minute period before other conditions, such as an acute myocardial infarction or severe coronary insufficiency, are suspected.

33. Key: 4
Digitalis toxicity is present when changes in the EKG readings show flat T waves and ST-segment depression, which are indicative of hypokalemia. The client generally complains of fatigue, anorexia, nausea, vomiting, and muscle weakness. Elderly clients are particularly at risk for this condition.

34. Key: 2
When the urine of a client who has had a suprapubic prostatectomy turns dark red, it is an indication that bleeding is present. Increasing the rate of flow of the saline solution in the bladder irrigation may stop the bleeding.

35. Key: 1
If the drainage system of the urethral catheter is kinked or obstructed, there is likely to be a back-up of the urine into the bladder, which causes spasms.

36. Key: 2
An antihypertensive drug such as Nitropress is needed to lower the blood pressure.
37. Key: 2
The primary objectives in the treatment of hypovolemic shock due to hemorrhage are to stop the bleeding and increase the circulating fluid volume. These actions will prevent circulatory collapse and death.

38. Key: 4
Because cesium 137 emits gamma rays, safety precautions must be observed to minimize exposure of persons coming in contact with the client. If dislodgment occurs, long forceps should be used to transfer the radiation source to a lead-lined container. The radiation source should never be touched with bare or gloved hands or flushed down the toilet.

39. Key: 2
One complication of a subtotal thyroidectomy is tetany, which is caused by the inadvertent removal of the parathyroid glands. Tetany is detected by a positive Chvostek's sign and requires the immediate administration of a calcium salt, such as calcium gluconate or calcium chloride, intravenously.

40. Key: 2
As air enters the circulatory system, the client may begin to go into shock and display symptoms, such as hypotension, tachycardia, cyanosis, and loss of consciousness.

41. Key: 4
In severe sinus bradycardia, atropine sulfate is used to block vagal stimulation, which allows a normal rate to occur.

42. Key: 3
When an anaphylactic reaction is suspected, it is essential to administer a sympathomimetic drug to counteract the reaction. The restlessness and anxiety are due to hypoxemia. Therefore, the client should be given oxygen and placed in a position that maximizes the ability to breathe.

43. Key: 2
In peritonitis, hypovolemia occurs because massive amounts of fluid and electrolytes move from the intestinal lumen into the peritoneal cavity and deplete the vascular space. This, in turn, decreases renal perfusion, which puts the client at risk for acute renal failure. Acute renal failure would be evidenced by elevated serum sodium, potassium, creatinine, and urea nitrogen as well as oliguria or anuria.

44. Key: 3
Because a client's central venous pressure (CVP) indicates the ability of the right side of the heart to manage a fluid load, it is often used as a guide for fluid replacement. Lowered CVP readings indicate hypovolemia, while elevated ones indicate hypervolemia or poor cardiac contractility. When hypervolemia exists, the client is at risk for developing pulmonary edema.

45. Key: 3
An ectopic pregnancy exists when the fertilized ovum begins to develop outside of the uterus. If the fertilized ovum is in the fallopian tube, it may cause the tube to rupture. Bleeding usually occurs, which causes signs of shock as well as a rigid abdomen.

46. Key: 2
When a client has an esophagogastric balloon tamponade tube in place, the client must be monitored closely to prevent accidental displacement of the tube and subsequent airway obstruction.

47. Key: 1
Because of the nature of the injury to the eye, it should be left alone until the physician arrives.
48. **Key: 3**
In malignant hypertension, the client has a severe blood pressure elevation and may have hypertensive encephalopathy, which may cause the client to have visual disturbances such as transient blindness.

49. **Key: 1**
When a client has symptoms of hyperglycemia, such as a fruity odor to the breath and impending coma, regular insulin should be administered intravenously.

50. **Key: 4**
A normal capillary refill time is 1-2 seconds. When there is a longer capillary refill time, poor perfusion exists, which may be caused by a cast which is too tight. If the cast is not adjusted, tissue damage may occur.

51. **Key: 3**
The most common cause of respiratory alkalosis, when no underlying disease is present, is hyperventilation.

52. **Key: 1**
Signs and symptoms of a fat embolus include petechiae on the chest, anterior axillary folds, conjunctival sacs, and buccal membranes. Other manifestations are pallor, respiratory symptoms (e.g., cough, dyspnea, and increased respiratory rate), and changes in the level of consciousness.

53. **Key: 4**
This client is displaying symptoms of autonomic hyperreflexia or dysreflexia, and the cause needs to be determined. Causes may include a plugged or kinked urinary catheter.

54. **Key: 1**
Cooling of the skin and tissue that has been burned stops the burning process and hence, further tissue damage.

55. **Key: 3**
The most common symptoms of an abdominal aneurysm are low back pain and a pulsating mass in the abdomen. There is generally no fever. A pulsating mass does not occur with a ruptured spleen or kidney stones.

56. **Key: 4**
Potassium chloride, when given rapidly and in large doses intravenously, can cause cardiac dysrhythmias.

57. **Key: 1**
When a client who has wired jaws begins to vomit, the wires must be cut to avoid aspiration of the vomitus.

58. **Key: 1**
The goal of treatment for a client in status epilepticus is to stop the seizures as a way of ensuring cerebral oxygenation.

59. **Key: 3**
Clients who have acute poisoning caused by tricyclic antidepressants are likely to have a brief period of excitement and restlessness followed by seizures and coma. These clients generally have depressed respirations, hypoxia, hypotension, and may have urinary retention.

60. **Key: 4**
A normal partial thromboplastin time (PTT) is $1\frac{1}{2}$-2 times the control. If the PTT is higher than normal, the client is at risk for hemorrhage.
Appendix B

Clinical Decision Making in Nursing Scale

and Accompanying Instructions
This study was designed to measure students' perceptions of clinical decision making in one baccalaureate nursing program and sought to determine whether differences existed in decision making among groups across academic levels.

The Clinical Decision Making in Nursing Scale (CDMNS) developed for the study contains 40 items about decision process and generates one total and four subscale scores. A panel of nurse experts established content validity. Chronbach's reliability procedures produced an alpha of 0.83. A stratified sample of 41 seniors, 43 juniors, and 27 sophomores (n=111) was used.

Hypotheses were that differences existed in scores between levels as students progressed through the program. Analysis of variance with Scheffé multiple comparison procedures tested group differences at a probability level of .05. No statistically significant differences were found for total and three subscale scores, but there was a significant difference for the Search for Alternatives or...
Options subscale (F=5.45, df=2/108, p< .01). Neither age nor full time work experience had any effect on scores. Factor analysis produced 14 factors of which three accounted for 72.3 percent of variance.

Results showed that students perceived themselves similarly as clinical decision makers at each academic level. Findings were consistent with other decision making research about students.

Further studies are recommended to replicate the CDMNS with other groups, test the CDMNS with other measures, and assess the nature and general characteristics of clinical decision making. The CDMNS has potential usefulness as a teaching tool and a source of data for the evaluation of decision making.

**Directions for the Clinical Decision Making in Nursing Scale**

For each of the following statements, think of your behavior while caring for clients. Answer on the basis of what you are doing now in the clinical setting.

There are no "right" or "wrong" answers. What is important is your assessment of how you ordinarily operate as a decision maker in the clinical setting. None of the statements cover emergency situations.

Statements are listed beginning on the following page. Use the answer sheet provided. Do not dwell on responses. Circle the answer that comes closest to the way you ordinarily behave.
Answer all items. About twenty minutes should be required to complete this exercise, but if it must be taken from the classroom, a 24 hour time limit will be imposed for its return.

Scale for the CDMNS

Circle whether you would likely behave in the described way:

A - Always - What you consistently do every time.

F - Frequently - What you usually do most of the time.

O - Occasionally - What you sometimes do on occasion.

S - Seldom - What you rarely do.

N - Never - What you never do at any time.

Sample statement I mentally list options before making a decision.

Key: A  F  0  S  N

The circle around response F means that you usually mentally list options before making a decision.
Clinical Decision Making in Nursing Scale

Note: Be sure you respond in terms of what you are doing in the clinical setting at the present time.

1. If the clinical decision is vital and there is time, I conduct a thorough search for alternatives.

2. When a person is ill, his or her cultural values and beliefs are secondary to the implementation of health services.

3. The situational factors at the time determine the number of options that I explore before making a decision.

4. Looking for new information in making a decision is more trouble than it's worth.

5. I use books or professional literature to look up things I don't understand.

6. A random approach for looking at options works best for me.

7. Brainstorming is a method I use when thinking of ideas for options.

8. I go out of my way to get as much information as possible to make decisions.
9. I assist clients in exercising their rights to make decisions about their own care.

10. When my values conflict with those of the client, I am objective enough to handle the decision making required for the situation.

11. I listen to or consider expert advice or judgment, even though it may not be the choice I would make.

12. I solve a problem or make a decision without consulting anyone, using information available to me at the time.

13. I don't always take time to examine all the possible consequences of a decision I must make.

14. I consider the future welfare of the family when I make a clinical decision which involves the individual.

15. I have little time or energy available to search for information.

16. I mentally list options before making a decision.

17. When examining consequences of options I might choose, I generally think through "If I did this, then . . .

18. I consider even the remotest consequences before making a choice.
19. Consensus among my peer group is important to me in making a decision.
20. I include clients as sources of information.
21. I consider what my peers will say when I think about possible choices I could make.
22. If an instructor recommends an option to a clinical decision making situation, I adopt it rather than searching for other options.
23. If a benefit is really great, I will favor it without looking at all the risks.
24. I search for new information randomly.
25. My past experiences have little to do with how actively I look at risks and benefits for decisions about clients.
26. When examining consequences of options I might choose, I am aware of the positive outcomes for my client.
27. I select options that I have used successfully in similar circumstances in the past.
28. If the risks are serious enough to cause problems, I reject the option.
29. I write out a list of positive and negative consequences when I
am evaluating an important clinical
decision.

30. I do not ask my peers to suggest options for my clinical
decisions.

31. My professional values are inconsistent with my personal
values.

32. My finding of alternatives seems to be largely a matter of luck.

33. In the clinical setting I keep in mind the course objectives for
the day's experience.

34. The risks and benefits are the farthest thing from my mind
when I have to make a decision.

35. When I have a clinical decision to make, I consider the
institutional priorities and standards.

36. I involve others in my decision making only if the situation
calls for it.

37. In my search for options, I include even those that might be
thought of as "far out" or non-feasible.

38. Finding out about the client's objectives is a regular part of
my clinical decision making.
39. I examine the risks and benefits only for consequences that have serious implications.

40. The client's values have to be consistent with my own, in order for me to make a good decision.

Thank you for being a participant in this study. Do you have any ideas about decision making in nursing that were not covered by the scale that you would like to share? You can speak to specific items or give any general comments you would like. Feel free to use this last page or the back of the answer sheet.
Clinical Decision Making in Nursing Scale (CDMNS)

Information Sheet

The following is important information to use when scoring the CDMNS and arranging for statistical analysis.

I. These 22 items are rated as positive and use the frequency anchors Always (5) to Never (1):

1, 3, 5, 7, 8, 9, 10, 11, 13, 16, 17, 18, 20, 26, 27, 28, 29, 33, 35, 36, 37, 38

All other items are rated as negative and use frequency anchors from Always (1) to Never (5).

II. Subscales are composed of the following items:

Subscale A: Search for Alternatives and Options

1, 3, 6, 7, 16, 22, 27, 30, 32, 37

Subscale B: Canvassing of Objectives and Values

2, 9, 10, 14, 21, 31, 33, 35, 38, 40

Subscale C: Evaluation and Reevaluation of Consequences

13, 17, 18, 23, 25, 26, 28, 29, 34, 39

Subscale D: Search for Information and Unbiased Assimilation of New Information

4, 5, 8, 11, 12, 15, 19, 20, 24, 36

I hope this information is helpful as you work with the CDMNS. Thank you for your interest.

Helen M. Jenkins
Appendix C

Student Participant Data Form
STUDENT PARTICIPANT DATA FORM

All Participants: Please Complete the following items.

Age: ______ Gender: Female ___ Male ___

Previous/Current Work Experience: LPN ____ (Y/N)
Ancillary Nursing ____ (Y/N)
(Patient Care Partner, etc.)
RN ____ (Y/N)

Years Employed: ______

Anticipated date of Graduation: __________________________

RN-BSN Participants: Please Complete the Following Items

Years of work experience as an R.N.: ____

Basic Nursing Education Program: Diploma: ____
A.D.: ____

Accelerated BSN Participants: Please Complete the Following Items

Previous Degree: B.S./B.A.: ____
M.S./M.A.: ____

Previous Career: ________________________________________

Years of Work Experience in Previous Career: ____
Appendix D

Explanation of Study Form
EXPLANATION OF STUDY FORM

The purposes of this study are to investigate clinical judgment related to the adult medical/surgical client and self-perception related to clinical judgment among nursing students in differing curricular programs leading to a Baccalaureate of Science Degree in Nursing. One instrument to be administered, over a 20 minute period, will be a 40 item self-report questionnaire related to the process of making clinical judgments. The second instrument to be administered, over a 60 minute period, will be a sixty item multiple choice test related to unexpected client outcomes for adult clients experiencing common medical/surgical health alterations. Students may volunteer to participate in an interview session.

Each solicited participant shall remain anonymous, may decline to participate without expectation of any consequence, may withdraw from participation at any time during the study without expectation of consequence, and may decline to answer any specific question or provide specified data without expectation of consequence. Including instruction time, it is estimated that the entire time for participation will be approximately 2 hours. Refreshments will be served at the completion of the session.

A copy of the results of the study will be available upon request.
Appendix E

Informed Consent Participation Form
INFORMED CONSENT PARTICIPATION FORM

I have read the Explanation of the Study and agree to participate in the study entitled *A Study of Clinical Judgment Self-Perception and Clinical Judgment Outcomes by Nursing Students in a Traditional or Nontraditional Curriculum*. I understand that participation is voluntary and that I may withdraw from study participation, without penalty or consequence, at any time. I understand that anonymity will be preserved.

___ I also consent to possibly being randomly selected for participation in an interview session.

Participant Signature: _________________________________________
Participant Name (printed): ____________________________________
Researcher Signature: _________________________________________
Date: ________________________

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Appendix F

Interview Questions and Responses
GENERIC PROGRAM INTERVIEWS

QUESTION 1

Question 1: When deciding on what program of study to choose for nursing, what characteristics of your chosen program did you feel would best meet your needs?

Participant 1: "I wanted a program that would offer me a BSN, already having a BA in science related field I wanted to keep my options open so I could go into Nurse Practitioner and eventually a Ph.D program."

Participant 2: "When I decided to come to this school it was just for personal reasons, and I really didn't look at the curriculum for study, but what I found that I did like about it is that they look at the person holistically as a Bio-psycho-social cultural-political being. And that's what I like about it, the holistic care."

Participant 3: "I wanted to choose a program that would be quick. Which is why I applied to ___ and ___, and I didn't get into either program, and this was my last result and I got in here."

Participant 4: "When I first started looking into the program I wanted a BSN. First I was looking into the Military and they required a BSN graduate versus a diploma, and that was one of the items that really motivated me to go get a BSN versus going to a diploma or anything else. When I started looking
into graduate school I said I may as well get it over with and not have to go back
to school for a while. That was my reasoning."

Participant 5: "Location was a big factor, and also the reputation that ___
has as a good college. I came here to get a bachelor's degree so I was not
going to choose any other program, diploma or associates or anything like that.
I was going to go get my bachelors. That's why I chose this program.

GENERIC PROGRAM INTERVIEW

QUESTION 2

Question 2: How have you been able to incorporate your
previous educational experience into your current
program of study?

Participant 1: "My Previous educational experience was a bachelor of
Arts in Biology with a minor in Chemistry and a lot of emphasis on Foreign
Language. I have been able to incorporate all of my Sciences into my Nursing
Education as well as using my Foreign Language from time to time with various
clients."

Participant 2: "Previous as in college?"

Interviewer: "Yes, if you have had any experience."

Participant 2: "No, I don't have any."

Participant 3: "It has helped put a lot, When I came to ___ I already had
good study habits, so I didn't have to struggle with learning how to study. I had
already learned how to manage my time into study."

Participant 4: "Yes, here at ___we are required to take a lot of
humanity courses, like sociology and all the Medical Ethics. It actually
expanded my horizons in the outlook of how to act around people and take their
perspective instead of just putting my own personal values in them."

Participant 5: "Well, my previous educational experience has taught me
that I had to learn how to really manage my time well related now that I am in
the nursing program. Managing your time and it also taught me that nursing
requires more study time. So what I have learned previously in school I can
relate here and arrange what I have done before to make it work for nursing."

GENERIC PROGRAM INTERVIEWS

QUESTION 3

Question 3: How have you been able to incorporate your
previous work experience into your current
program of study?

Participant 1: "Time management has been a big benefit that I have
been able to use from previous work experience in my current education along
with people management skills."

Participant 2: "No, I have not worked in the medical field before."

Interviewer: "Did you work in any other work?" "Anything that you did
there, did that translate over into nursing and maybe helped you a little?"

Participant 2: "I was in the Military so not really other than just working with people."

Interviewer: "OK, so people skills."

Participant 2: "Yes."

Participant 3: "I am a firefighter in Chesapeake and a EMT so when I am on the Ambulance the nursing school comes together and it makes more sense now."

Participant 4: "The only thing I have on hands would be a volunteer job in Williamsburg Community Hospital in the financial department, that gave me an ideal of what kind of insurance and how it was filed. What insurance was available, what kind of applicants were there. I got to see the charts and the cost. (What a Med Surg visit would cost for one patient's stay for seven days)."

Participant 5: "I have not had any jobs related to nursing per se. I have not really had a job per se, so I do not have work experience."

**GENERIC PROGRAM INTERVIEWS**

**QUESTION 4**

Question 4: Describe opportunities you have had to apply what you have learned in the classroom in the clinical setting. How do you feel these opportunities meet your learning needs?
Participant 1: "Clinically I have been able to see a lot of the theory in action. I have only been able to do some techniques. I don't feel that I have been given adequate opportunity to use what I have learned in the classroom in the clinical setting. So I would say that my learning needs have not been met to the fullest, and that I am deficient in clinical skills area."

Participant 2: "As far as Psychiatric nursing, I feel like I have been able to use that in everyday life, like understanding people and knowing that when people do things it is for a reason, and just trying to understand things and looking at people. I guess like if somebody makes me upset or something I try to look at the whole situation of what's going on. And I really like that. But as far as opportunities, I feel like my last semester of classes has allowed me to bring all of my information together. I can start looking at systems in the person like how one system effect another system instead of looking at things separately."

Participant 3: "Finally my senior year all began to come together, throughout each semester I couldn't quite figure out why we were doing certain things or what was the rationale, but is all finally coming together. To know what is actually going wrong, the disease process or whatever it is. I understand it is a lot better."

Participant 4: "Since beginning my assessment classes, everything that I have learned has applied in the clinical settings. I learn more, it is a reality when you are in the clinical setting, but they teach us the basic items and with
that we go from there and also with the help of my preceptor or clinical instructor."

Participant 5: "I have learned team work and that team work is very important. When you hear about it in the classroom it is not as real as when you go out there and you realize that you are part of the team. I feel that these opportunities have helped me, have matched my learning needs. I can't think of any specific things that has happened right now, but I have learned that definitely team work, like delegation, they teach us about delegation a lot... in the classroom...being able to delegate. At first I found myself very uncomfortable doing that because I felt as a nursing student people would look at me like who do she think she is. But that definitely is important to be able to do as a nurse or as a RSVN or whatever so I have been able to work on it. And it has been very useful."

**GENERIC PROGRAM INTERVIEWS**

**QUESTION 5**

**Question 5:** In what way does your program of learning allow you to be self-directed or independent in your learning?

Participant 1: "Most of the learning that takes place is outside of the classroom for us. A lot of independent study sessions, utilization of our auto-tutorial lab, so that we are able to listen to tapes and read references that the
instructors have left for us, as well as listening to taped lectures and reviewing our notes over again."

Participant 2: "My last instructor has instilled in me that you really have to know your information, and I like that because now I have a desire to go back and learn all the things that I was supposed to have learned before. And to really know it, because it is so many things you can tell just if you know your information, that if you didn't know it; like certain values and laboratory test and things like that, that if you do not know then it doesn't have a significant value if you look at it. Just to be able to help my patients."

Participant 3: "It gives you a lot, just from the time restraints, the instructors can't possibly go over everything. You actually have to go out and get it (more information). You can't just know your notes. You have to go beyond that. You definitely will not succeed here if you just do that."

Participant 4: "It lets me step back and evaluate myself a little bit, and lends me a kind of autonomy as a student and also with guidance from the instructor. It also made me independent to make myself look for literature that is available and I know it is available so it kind of motivates me to help myself increase my confidence, expand my horizons and my learning."

Participant 5: "In many ways we have to set our own time to study. If we do not have class, that time is to be used to do research that you have to do for that class. You do it at your own time, but it allows you for a lot of
independent studying and a lot or research on your own. We would go begin
different clinical settings, all the different areas you get to also know and learn
about the different systems and how different hospitals work. That is
independent. You are learning on your own. And how the program is set up, it
is meant for you to somehow find out on your own.”

GENERIC PROGRAM INTERVIEWS

QUESTION 6

Question 6: What do you think are characteristics of your
program of learning that meet your needs as an
adult learner?

Participant 1: “I would say that there are not many characteristics at this
particular program that meet my needs as an adult learner. We are frequently
treated as 18 year-old, we are not given respect that we should be given
regardless of our age, previous work experience, and our previous educational
background. I think that this particular program needs to do a lot of work in
improving the ability to teach or to diverse population of students with varying
educational backgrounds: age/experiences.”

Participant 2: “They teach you how to do the skills, but they show you
that if you have a patient then you need to be prepared for it. To know your
medications, like to look them up and to know what they are, what are the side-
effects, and things like that. I think that is good because that is something that
you need to carry with you. You do not just look at the doctor’s orders, you
have to know what is going on, know what you are doing, and how it is going to
effect the patient. You are more of an advocate for your patient. They teach
you to think about what you are doing."

Interviewer: "Anything else you would like to add."

Participant 2: "No."

Interviewer: "Thank you so much."

Participant 3: "I don't think they really did. I don't know about ___ or
any of the other schools, but ___ , it has no lead way for you to be an adult
student because they don't want to hear that you child is sick or if it is last
minute and you have to come this evening for this, it is mandatory and they do
not realize that you have a family (husband and children) they are not too
flexible with that.

Interviewer: "Anything else you like to add."

Participant 3: "No, that's about it."

Interviewer: "Thank you so much."

Participant 4: "The courses that I have taken will guide me and help me
to find out the kind of nurse I will be. For example: My transition course, we are
learning about the managerial aspects of the floor. It gave me an overview and
other alternatives that I can apply as a manager and not just one."

Interviewer: "Anything else you like to add."
Participant 4: "No."

Interviewer: "Thank you.

Participant 5: "As I said the different clinical locations allow you to have a wider variety of experience. Meeting different people. And as an adult learner it is not as structured so you can go about it independently, the best way that you can learn as an adult learner. It is not like, this is the way you do it and that is it. It is open for everybody. Also, the preceptorship program allows you to be independent because even though you are working with somebody it allows you to work on your assertive mast, on your skills as an independent clinician. I like that a lot.

Interviewer: "Anything else you like to add."

Participant 5: "No, that's about it."

Interviewer: "Ok, Thank you very much."

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 1

Question 1: When deciding on what program of study to choose for nursing, what characteristics of your chosen program did you feel would best meet your needs?

Participant 1: "Financial, As in tuition cost."

Participant 2: "When deciding on what program of study to choose for
nursing I have always heard about the quality of nurses that ___ produces. I understood that it was easy (I was told that it was easy to get in and hard to get out, but that's not true, it is hard to get in and very hard to get out). And I chose the study because of its' reputation. I wanted a good foundation of nursing studies."

Participant 3: "At ___ we had the ADN program first, and I felt that I would like to get my NCLEX past and over with prior to finishing up my BSN because I am Navy and going on to get my Commissioning, that way I did not have a problem getting to my next duty station (that was one of the issues) and probably the other issue would be that the clinical experiences when I looked at the way things were outlined, clinical experiences were all together for the actual RN portion versus some of the other schools. I looked at how they are spread out over the 4 years and there could be big gaps. I prefer getting that all at once."

Participant 4: "Mostly because I worked full time I looked at the type of scheduling of classes. This program met my needs because they offered more of the classes in the evening that was conducive to my work schedule. Also, a lot of the nursing part was done on line, so that helped quite a bit with some of the classes. That was convenient for me."

Participant 5: "Because I have children, because I work full time I needed a program that would work within my limitations. I have had some
college background so I wanted those credits to be considered. And I wanted to be close to where I live. So taking my previous credits was very important and being close to where I live.

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 2

Question 2: How have you been able to incorporate your previous educational experience into your current program of study?

Participant 1: "Well, I already have a degree in nursing, so this is just an additional degree in building a knowledge. I have an Associate Degree, this is a BSN completion."

Participant 2: "My previous educational experience was high school. The only other experience that I have had besides nursing was military experience and I did not attend any school in the military, I was a Seaman and I only learned basic ship work: painting, scraping, and chipping. I guess what I have learned here I have just started from raw knowledge and built on that. I did not use any other educational experiences."

Participant 3: "Well, the U.S. Navy is very big on leadership, so I have been able to apply a lot of leadership and supervisory information that I got from the navy as well as the time management skills, I have taken a lot of Business classes, so when it comes to leadership supervision, that kind of thing I have
had kind of an up on that one. I have helped other instructors previously to ever being at ___ conduct some research, not real heavy but supportive, and doing some of the running so I knew something about that. And from there I would just have to say that knowing how to study."

Participant 4: "Anatomy and Physiology, and Microbiology came in very handy because it gave me basic knowledge going into this program. I had been out of school for quite a while. I graduated back in 1983, so it sort of gave me basic knowledge, especially when we got into physical assessment. I found it came in very handy then, more so than any other time."

Participant 5: "I had been in an AD program 21 years ago and they did take the credits from that. Throughout the 21 years I would have a course now and again and they did accept the credits from that and I thought that was very liberal of them. They seem to really be interested in my succeeding and getting my BSN.

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 3

Question 3: How have you been able to incorporate your previous work experience into your current program of study?

Participant 1: "I am currently working as a RN so it makes the clinicals much easier and I am much more confident in the clinical aspect of this..."
Participant 2: "Ok, My previous work experience was helpful, I was a GED tutor. I helped veterans, Military veterans who was trying to obtain a GED and that has given me the motivation, the focus, and the confidence to succeed in nursing. It has helped with my motivation, and being considered a tutor counselor."

Participant 3: "I'm used to showing for work a little bit early, being prepared and getting myself calmed down ready to do what I have to do. Mental preparation, whether it is clinical, whether it is sitting in class, whether it is taking test. Setting goals short-term, long-term goals and making milestones and getting there. I would like to say I always did that, but for the most part I kind of had that thing in progress and that helped a lot when it came to papers, exams, comp exams, that kind of thing. The other thing would be high stress situations. I was an electrician in the Navy and I would be standing watch and you would have drills on causalities all the time or things like there is a fire in the engine room. You have to think fast, you have to use your problem solving skills immediately, and it helped a lot. Just being able to cope with situations that were uncomfortable, but getting out of them using your head, knowing that you have the ability to get through this. And sometimes when things seems very bleak in nursing school that was the only thing that help me get through, was knowing that I will live, I will go on and I think that was probably the most
beneficial."

Participant 4: "Work experience, I have not been able to use very much. Basically I work in a clinic and we see adult primary care patients, chronic and acute diseases. As far as knowing disease processes, it helps with classes, especially in the clinical areas. When you are doing clinicals you have more knowledge of disease processes from your work, but other than that it has not really had much influence."

Participant 5: "A lot of the study that I am in now in school has been Leadership and Management oriented and I am in management and I have been for 3 years and I have been able to correlate a lot or what I have been learning the past couple of semesters into what I do with my job.

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 4

Question 4: Describe opportunities you have had to apply what you have learned in the classroom in the clinical setting. How do you feel these opportunities meet your learning needs?

Participant 1: "There is a difference in what you learn in the bachelors degree program than what you learn in the associate degree program. For example: the Community Health aspect is not taught in the Associate degree so that is a new learning experience for me. And that may even be a different
Participant 2: "I have learned so much. Nursing teaches you how to care for people. And what I have learned in the classroom and have implemented in the clinical settings. I have learned everything pretty much. Seventy percent of what I have learned I have tried to take that knowledge and use it in the clinical setting and apply it. And thanks to the good foundation that ___ has given me that has also built my confidence. I feel that I can work at any Institution, any type of hospital setting, or any medical setting that requires a skilled nurse to perform any kind of duties I have that confidence thanks to ___. That is what they have instilled in me, and what I have learned in the classroom setting."

Participant 3: "The instructors were very good about explaining things like NG tube insertions, (this is what the client would experience and because this is what they would experience you need to expect this so you can do these things to help alleviate some of the discomfort and so forth, like NG tube insertions, the burning, the swallowing, give them a sip of something to drink). That happened to help me out a lot in three specific clinical settings. I had a lot of trouble getting my first NG tubes in. It took the third one to finally get it. And the idea of explaining what we would expect. I have never worked with sick people, I have had sick family members, but never been in a clinical setting and a lot of times you would say like a burn patient, they sent pictures around in
class to show us what it like, but until I saw the edema the first 72 hours and how horrible that looks and how it is not even human. Personally for me being told what to expect helped almost as much or more than what they told me about the diseases process and stuff that I could have gotten out of books, was the human aspect and how they dealt with certain situations, personal experiences, and I think that helped me a lot."

Participant 4: "I used quite a few of my experiences from work, from school in the work setting. It gives you a deeper understanding of theory (more so) nursing theory, which I did not get a lot of in the Associate Degree program. The BSN program has given me more that I can use at work, like in different situations as far as putting into place changes in the work force. We just finish doing a book using the Dreyfus model. Benner, Patricia Benner's book, and that has been a great help to me in the work experience as far as helping me to know what stage different people are working at, how they are operating mentally and it helps me to be able to assist them more in moving them into the next stage, or even helping them where they are. Sometimes especially in training new employees you get frustrated because you do not think they are where they should be at the time that they should be, but that has really helped me a lot. It has decreased my stress and frustration because it helps me to know where they are operating, how they are operating and I can calm down and focus on where they are. And I am better able to help them in that area."
Participant 5: "I enjoyed a great deal of the case management class that I have had. That had a lot of management and leadership, and I have been able to apply that to some employee issues and some performance evaluations issues that I have had to deal with. And it has been good."

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 5

Question 5: In what way does your program of learning allow you to be self-directed or independent in your learning?

Participant 1: "I think the clinical aspect of the BSN program allows me to be more self directed because the instructors do not follow you around like they do on a lower level nursing course, so you are definitely out there more independent and using your judgement more on a BSN."

Participant 2: "Well, knowledge is power and ___'s program of nursing teaches you ways to study, and they bombard you with so much information that you cannot help but to apply it and learn it. And like I have said before ___ has given me the confidence in being independent and feeling that I can practice in any type of setting, any type of nursing setting."

Participant 3: "Well, they give us the syllabus, they give us the reading assignment, they put out information, they will tell you occasionally what areas they like to emphasize within the reading. But it is really up to you to do that
reading, because they are not going to cover every little thing they are going to have on that test, they give you the objective, and it is your job to go out and answer those objectives fully and completely. It is also your responsibility when you do your clinical prep form to do them fully and completely. They are going to go through to make sure you have certain basics, but certain people require more than others, and if you need more preparation it is encouraged that you do that. The other thing is that at the BSN area they would give you other books that you can go to for additional learning. (Dr. ___ is a big one. You take from here, you take from there, you take from there, not one reference is going to teach you all you need to know, so go out there and dig. I like that part about instructors saying that these are some other resources that I found useful in the information that I am about to give you. That way if I want to learn more, get more developed into that it is nice to be able to have those resources, somebody recommends it, because usually there are a lot of icky books out there that you spend a fortune on and can not use."

Participant 4: "The clinical aspect as far as the RN-BSN program is very self directed, because you do not have any instructors there, you basically do your own, you are setting up your own clinical experiences gearing it towards the objectives that you need to meet and you have to be able to prove that you have met those objectives through your clinical logs which you are doing on line, so it is very self directed and independent. It is up to you to meet those
objectives. No one is standing over you saying you have to do this and you have to do that. I guess that is one area that work plays a part in because you are independent at work and you are more self directed in your work program, it just rolls right over into the clinical area of school. And that is just one part of adult learning, being more self directed and independent."

Participant 5: "We are given a list of readings and no one stands up and makes you read it. You are all out on your own. You are given the tools with which to do what you have to do and a lot of it is up to you, to do it your self. You are guided.

RN-BSN COMPLETION PROGRAM INTERVIEWS

QUESTION 6

Question 6: What do you think are characteristics of your program of learning that meet your needs as an adult learner?

Participant 1: "I do not think there is any. I get both the ADN program and the BSN program as a adult learner so to speak. I do not think there is a lot of difference in the teaching, as far as the teaching aspects go from the ADN to the BSN. I do not think there is any difference in what I learn in the Associate degree program and the bachelors degree that address adult learning needs."

Interviewer: "Could you identify any for this time now?"

Participant 1: "I don't think there are any because of the difference in
ages in the whole program. There is 21 year old and then there are people that are in their 50's and we all do the same stuff and we are required to do the same work. There is no difference in the teaching to accommodate adult learners."

Participant 2: "Learning here after being shocked for the first two semesters, you have to incorporate some type of learning skills internally and you adjust, you adapt to stressors, and coping mechanisms. The courses that are being offered, Research definitely has helped me a lot. It has also tapped into teaching me motivation to go out and find new material, and that you have to keep up with the current nursing practices in order to be a functional nurse and research teaches you philosophy and to continue your education as far as you can take it. And that is what I have gotten from this program, to go on and be all that you can be. Do not stop here just keep learning and growing as a nurse or if you want to go back to Med school and become a doctor like myself, or if you want to get your Master's or whatever. I am just working for opportunity, that is it."

Participant 3: "I like the idea, I guess I would say two things, one is from ADN to the end of this program, to the completion here everything is built on this layered structured program. For a while they were letting people take things out of order. I am glad they have stopped, because really there is a lot of logic to how they start out. 150 is bed making, hazards of immobility, basic
nutrition, basic health illness. 16C, the next step, goes into this is a sick patient, and they go over some broader illnesses, but nothing really supper intense. 275 you have sick people, more intense neuro, orthopedics, they are not usually life threatening in and of themselves. There might be some crisis there, but it is not a long term really indepth illness that is going to end up in death. 285 That is where you are going to hit the CHF, that is where you are going to hit the diabetes mellitus really heavy. And I like that progression, the easy flowing you develop and the intensity even of how fast they put the information to you is very gradually developed. The BSN program, that is where they no longer nurture. It is gone, Mom and Dad have left you. It's kind of neat because it has helped develop my confidence in my professional ability. Here I have my RN or my license and I am not working yet, but they are assuming that I have the same qualities as everyone else in my class, you know in the sense of professionalism, which is good because I do; It is just sometimes I have to be reminded that I have that ability to go out and search for the other resources. As an adult learner they allow us to bring in what information we have from our past life (our life experiences) into it, so it is not just strictly lecture, at least most instructors are not strictly lecture, they allow you to bring in. Because a lot of people here have been LPN's, they have been Nurse's Aids, they have family members who have been sick and they have cared for, and that additional information, I think it makes it more believable, more personal, and just makes it
easier for me to get the idea (Oh! I heard about this, you know somebody told me that they saw this happen). I like the post conferences after our clinicals, that way if I did not get to see this, I can at least hear it from that person, what took place and it gives me maybe some inspiration to go out and look up more information or to look towards the clinical experience that might occur in. It helps stimulate more knowledge.”

Participant 4: “Well, that is one of them. You have independence, and self direction. You are able to apply that to yourself, you are able to set up your own schedules as far as clinicals are concerned (as much as possible). You have difficulty sometimes with different preceptors because of their scheduling, but the majority of the times you can pretty work around your schedule and be self directed. You know you have to meet certain deadlines, but there is a lot of flexibility there because you can sort of schedule (well, I want to do this, this week, I want to do that, that week) as long as you meet the deadline. It is not like the pressure to do this by this date, this by that date. You know, it is more flexible, much more flexible.”

Interviewer: “Anything else you would like to add?”

Participant 4: “No. I have enjoyed this. This is the first interview that I have ever done, so I am really interested in your findings. We had a research course not too long ago, so I learned a little bit about the research technique. So it is interesting to be even a part of a study.”
Interviewer: "To see it come to life."

Participant 4: "Yes. Come to life"

Participant 5: "I think they are flexible. I can give you a specific example. Last semester, several of us RN's, older RN's, were complaining about taking of the usual clinical courses, Med-Surg., type thing and stating that been there, done that. One of the Professors did some brain storming and came up with this advance topics class which has really met our needs. I think much better than the old Med-Surg type of clinical."

Interviewer: "Is there anything else you would like to add?"

Participant 5: "No. It has been fun."

Interviewer: "Thank you."

ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 1

Question 1: When deciding on what program of study to choose for nursing, what characteristics of your chosen program did you feel would best meet your needs?

Participant 1: "Well, a little selfishly it was the degree that could get me graduated by my 35th birthday, which is under the Military instruction I am currently following right now. It was quick and that was the need that I needed at that time. I had to meet that."
Participant 2: "I think you are referring to the amount of time. The first thing I think of is how much time it will take to finish the program. And that was a consideration since I do have a family and I have a previous degree. I needed to spend as little time as possible out of the work force not making money, while I was in school. So that was considered."

Participant 3: "The length of the program was important to me, and the time of admission was also important. The Multicultural aspect was an unexpected bonus before I started applying."

Participant 4: "That help is available at convenient times as far as teachers being available. Other things were getting responses from your test and quizzes as soon as possible."

Participant 5: "Basically I wanted one that would enable me to learn. You know, to get as much out of the program. Because when I set to take my Boards I do not want to be throwing my hands up in the air basically."

ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 2

Question 2: How have you been able to incorporate your previous educational experience into your current program of study?

Participant 1: "My previous educational experience. That is a hard one. When you say previous educational exactly what are you talking about?"
Interviewer: "Anything educational."

Participant 1: "Well, the testing is great because I am used to Military tests and they are all multiple choice so for me that has been really an easy way to go. I definitely like the multiple choice. Other than that I really could not think of one."

Participant 2: "My previous experience was working with people in the psychiatric setting, so the psychiatric rotation was not very difficult for me. Also, just dealing with people in a variety of situations. Just listening, listening to their needs, how they would express pain, giving them the same positive regard I would give anyone."

Participant 3: "When I got my BA I took a lot of Biology based courses, also I have been trained for physical therapy assistant so that helped a lot with more of the A and P, the body mechanics of it, the musculoskeletal system functions, and applying that to the nursing interventions that don't often take quite as much of that into account."

Participant 4: "I have taken Psychology, I have a BS in Psychology and a lot of it came into play with nursing during interactions between clients and also teachers."

Participant 5: "Well, coming from the Military background, I was somewhat of a Corpsman working with Medical issues already, therefore I was able to corporate that into my program of study because I was familiar with a lot
ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 3

Question 3: How have you been able to incorporate your previous work experience into your current program of study?

Participant 1: "I came from a very, very high stress environment. I have been in the Navy for 15 years, and my job is like, got to do it, got to do it now, got to think this absolute second. So working under pressure works very well for me. That is probably it right there. Just trying to time manage."

Participant 2: "Educational, first one was educational. I kind of mixed these two up I guess (questions).

Interviewer: "So do you feel that the answer you gave to No. 2 was more related to work experience?"

Participant 2: "Yeah, probably, but I did study behavior and Anatomy and all those other things before but it was just with recreation and wellness perspective and now this first thing I guess I kind of mixed No. 2 and No. 3 up with the work experience."

Participant 3: "Communication. I have established some techniques for that. Discipline, knowing how to organize, get things done in a timely manner."

Participant 4: "I think being able to take instruction well and to follow
Participant 5: "I think that is the one I just answered."

Interviewer: "Is there any difference between the work or between your education that you want to make a comment about?"

Participant 5: "No. Not really."

Interviewer: "OK."

ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 4

Question 4: Describe opportunities you have had to apply what you have learned in the classroom in the clinical setting. How do you feel these opportunities meet your learning needs?

Participant 1: "We had our clinicals of course, working at the different hospitals. Ninety-nine, point nine percent of the time the things I learned in the classroom are exactly the things that I applied. There were some areas that are lacking, some of the practical experiences, you do not really learn those until you get right there and get hands on. If we had more of the equipment here to deal with then (you know that is the biggest problem, you go in and you are unfamiliar with the equipment) that throws a wrench into the entire gear. Kind of, you know, messes you up there for a minute. Otherwise, pretty much taking care of every single client I pulled something I learned in the classroom and had
to apply it."

Participant 2: "One of the things we did on one of the Med-Surg. floors, I had a patient that had congestive heart failure. I can recall talking about when this woman's heart, the function of it would go down, what kind of physiological effects it would have on her body, and clubbing of fingernails and activities. All those things that I took from the classroom and I was able to teach the person. Also, when we had lecture in Chest tubes and a little bit later went into the clinical setting and we could actually see what the chest was or review how it was working."

Participant 3: "I would say most of the reinforcement I have had in clinical setting or the classroom learning has been in the med-Surg. The actual hands on skills. Some of the other areas that we have studied have been at a very fast pace, and the clinical opportunities are not quite as expansive, they are more limited as far as what we are actually exposed to."

Participant 4: "Interacting with clients, getting them to tell you what is really wrong with them. Getting that therapeutic relationship with the client, it was interesting to see how well the clients did respond to your interaction with them."

Participant 5: "Well, basically, the opportunities that I have had. We were able to go over information and then the same information that was gone over we have actually received in the clinical settings, therefore it prepared us
for the clinical settings

ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 5

Question 5: In what way does your program of learning allow you to be self-directed or independent in your learning?

Participant 1: "Being it is a Second degree, you kind of fly by the seat of your pants sometimes and you get a lot of information thrown at you all at one time. It just forces you to find someway to absorb all that material and I have learned different techniques on how I can do that, just trying to cram all this in at once. Self directed or independent in my learning. "Here are the chapters, read them, go for it" so we did."

Participant 2: "To me, I do not really think it has been a self directed or independent learning situation, compared to what I have done before. I felt like there was a certain amount of data that I had to digest, certain amount of things I had to know to pass a test which would mean I would pass and then I would be allowed to take the State Boards. Self directed, I have studied a lot, it seems like. I guess I really don't see the question, this to me was a very highly structured program compared to what I have done before."

Participant 3: "There is not enough time to have a real flexible schedule."
The only thing that I am self directed or independent in really is the way I process the information I take in from the classroom, as far as the way I choose to study on my time."

Participant 4: "I can't think of any right now. I guess if I had a question on what I was doing in clinical or in class, I took it upon myself, if I did not go to the teacher to look it up."

Participant 5: "Basically, being in the Second degree program, I believe that it is very much independent learning, because we get the information so fast that we do not have time to really ingest it. A lot of the information that we need to know we basically do it ourselves because it is so much, there is so little time that the instructors do not have the time allotted to teach all the information so they basically skim the surface and we have to do everything else."

ACCELERATED BSN PROGRAM INTERVIEWS

QUESTION 6

Question 6: What do you think are characteristics of your program of learning that meet your needs as an adult learner?

Participant 1: "Well, I do like having a little bit of autonomy rather than being completely led by the hand and spoon fed, it gives you an opportunity to think and it facilitates critical thinking which is something you really need, that I have noticed in the nursing arena. If nothing else it definitely forces you to think
quick on your feet, so I like that.”

Interviewer: “OK. Thank you.

Participant 2: “My needs as an adult learner is that I think that so far (and I am at the end of this program almost) we do not spend much time messing around, I just do not have time for that. Things are pretty well coordinated. And I am pretty serious about this. I might be eluding the question. I am not sure what you are asking exactly what characteristics, could you define that?”

Interviewer: "Just different characteristics of this program. The primary focus here is your needs as an adult learner within this program."

Participant 2: “My needs as an adult learner, well I mean, I think I have had respect from the instructors when I have a question. I think my previous experience has been taken into consideration (you know, met with respect) I do not feel as though when I have had to ask a question I am not being belittled. I felt relatively comfortable asking anything, whether it is minor or something that had been covered and I just did not grasp it. I guess that would be the math calculations. Overall, I think my needs have been met from this program. It has been to the point. I have had things to do and those things were being done.”

Participant 3: "It requires a lot of self discipline and motivation, and rather than meeting my needs, I think being an adult learner is a requirement for
this type of program. The classes have given or the instructors have given the freedom to be a little bit more flexible in certain areas, for example, when another class has some priority. Just respect for my time and allowing me to manage my time as I see fit."

Participant 4: "As far as getting it done in one year, that was great. I think not a good characteristic was not being able to accept a similar class or instruction that we had to take during this program of learning. That did not help me out as far as being an adult learner."

Participant 5: "Maybe the fact that it helps me to be a little bit more independent, because I do not just rely on the information that I get in the classroom. I do my own reading and research."

Interviewer: "OK. Thank you very much."
Appendix G

Institutional Review Board Approvals and Related Correspondence
March 10, 1997

Dr. George M. Bass, Jr
The School of Education
The College of William & Mary
Post Office Box 8795
Williamsburg, Virginia 23187-8795

Dear Dr. Bass:

This communication is a formal follow-up to our phone conversation granting approval of Professor Dinah Saunders' request to conduct dissertation research at Norfolk State University. All of the committee approvals were granted as I had predicted. Therefore, we expect that Professor Saunders will follow data collection procedures that are consistent with the research design section of the dissertation proposal. In addition, the Office of Institutional Research and Planning must be provided with:

1. a copy of the approved dissertation proposal (complete)
2. a formal request by the dissertation chair (complete)
3. evidence of a signed permission form for each subject (student) who participates in this study
4. evidence of data collection using the blinded procedures articulated in the dissertation proposal and
5. a copy of the completed approved dissertation for our archives.

If we can be of any further assistance, do not fail to contact the Office of Institutional Research and Planning.

Professionally yours,

Dr. Harold L. Aubrey, ASA
Director of Assessment

CC: Professor Dinah Saunders
    Professor Candace Rodgers

Phone 804-683-8679  Fax 804-683-2057  E-mail H_Aubrey @VGER.NSU.EDU

An Affirmative Action/Equal Opportunity University
Memorandum

DATE: MARCH 10, 1997

TO: Dinah Sanders Ed.S., R.N.

FROM: Mark Gray, Ph.D., Chairman

RE: APPROVAL OF RESEARCH PROPOSAL

CC: Review Board Members

This memo is to inform you that the review board for the protection of human subjects has approved the research methods outlined in Dissertation proposal submitted by Ms. Sanders. So our records may be complete please send us the voluntary consent form that will be signed by the participants. Also be advised that any changes to the methods should also be reviewed by this committee.
INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL FORM

Title of Proposed Research: A Proposal for the Study of Clinical Judgment Self-Perception and Clinical Judgment Outcomes by Students in a Traditional or Non-Traditional Curriculum

Department(s): Council of Education, College of William & Mary

Date Approved: 3/27/97

The investigator has certified that the potential risk is outweighed by the expected benefits and adequate steps have been taken to assure the protection of human subjects.

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A written review on the involvement of human subjects in this research is required at the times given below. No changes can be made in this research activity without prior written approval by IRB. All unanticipated risks to human subjects should be reported immediately to the Chairperson of the IRB.

Frequency of Required Review: Annual

Comments: An expedited review of the project was conducted and approved.
February 3, 1997

Dinah Saunders, Assistant Professor
Department of Nursing
Norfolk State University
2401 Corprew Avenue
Norfolk, VA 23504

Dear Ms. Saunders:

C-NET is happy to grant you permission to photocopy the test, "Clinical Judgment: Emergencies in Adult Client Care," so that you may include it as an appendix, as needed in written reports associated with your doctoral research.

We look forward to seeing the results of your study, and wish you success in your program.

Sincerely yours,

Margery Garbin, PhD, RN
President
Dear Dinah:

Thank you for your letter of November 23, 1996 requesting information about the Clinical Decision Making in Nursing Scale (CDMNS). I give permission for you to use the CDMNS in your project if you so desire. I am including with this letter an abstract and a copy of the scale along with the letter I send to persons requesting its use. Please note the conditions of use in the last paragraph.

If you decide that the CDMNS is appropriate for your use and when you plan on using it, please let me know so that I can send the directions for scoring. I hope that you will be able to provide some conclusions from the data you collect because I am interested in establishing norms for various groups. Information on group scores, and item and factor analyses would be particularly helpful.

I apologize for the delay in sending the materials and hope this was not an inconvenience for your study. Please let me know how things are going from time to time. Good luck in your research.

Thanks very much for the self-addressed envelope; few researchers do that. I look forward to hearing from you.

Sincerely,

Helen M. Jenkins, PhD, RN
Associate Professor

Enclosures
Dear Dr. Jenkins:

Data collection using the CDMNS is going well and should be completed later this week. I have been surprised at how enjoyable this portion of the dissertation process has been..... I sure hope that enjoyment continues! Per your letter of November 9, 1996, I am writing to request the directions for scoring the CDMNS. If all goes as planned, I should have information for you by early summer.

Thank you for your permission to use the CDMNS instrument and thank you for your words of encouragement.

Sincerely,

Dinah Saunders EdS, RN
Doctoral Candidate
School of Education
The College of William and Mary
Appendix H

ANOVA, Multiple Regression, and Pearson Correlation Results
**ONE WAY**

Variable: CDT
By Variable: GROUP

### Analysis of Variance

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## ONE WAY

**Variable**  
CDA  
**By Variable**  
GROUP

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One Way Analysis of Variance

Variable: CDB
By Variable: GROUP

Analysis of Variance

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Variable CDC
By Variable GROUP

Analysis of Variance

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Variable CDD
By Variable GROUP

Analysis of Variance

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Levene Test for Homogeneity of Variances

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**Variable:** CJST  
**By Variable:** GROUP

#### Analysis of Variance

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#### Group Information

<table>
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<tr>
<th>Group</th>
<th>Count</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
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<tbody>
<tr>
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<tr>
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#### GROUP MINIMUM MAXIMUM

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#### Levene Test for Homogeneity of Variances

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<thead>
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<th>2-tail Sig.</th>
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**ONE WAY**

Variable CJSA

By Variable GROUP

Analysis of Variance

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<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
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<tbody>
<tr>
<td>Between Groups</td>
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<td>Within Groups</td>
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<td>15.3357</td>
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Group Count Mean Standard Deviation Standard Error 95 Pct Conf Int for Mean

generic 30 16.4000 .7009 .6757 15.0181 TO 17.7819
rn 25 19.0400 4.4952 .8990 17.1845 TO 20.8955
accel 15 16.3333 3.2219 .8319 14.5491 TO 18.1176
Total 70 17.3286 4.0673 .4861 16.3588 TO 18.2984

GROUP MINIMUM MAXIMUM

generic 9.0000 26.0000
rn 9.0000 27.0000
accel 9.0000 22.0000
TOTAL 9.0000 27.0000

Levene Test for Homogeneity of Variances

<table>
<thead>
<tr>
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--- ONE WAY ---

**Variable** CJSB  
**By Variable** GROUP

### Analysis of Variance

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<th>Prob.</th>
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**GROUP**

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**Total** 8.0000 28.0000

Levene Test for Homogeneity of Variances

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Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CDT

Block Number 1. Method: Enter  AGE  EXP

Variable(s) Entered on Step Number
1..  EXP
2..  AGE

Multiple R  .07112
R Square  .00506
Adjusted R Square  -.03048
Standard Error  10.95888

Analysis of Variance

<table>
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<tr>
<th>Source</th>
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<th>Mean Square</th>
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<tr>
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<td>6725.43752</td>
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F =  .14234  Signif F =  .8676

---------------------------------- Variables in the Equation ----------------------------------

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<th>Beta</th>
<th>T</th>
<th>Sig T</th>
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<tbody>
<tr>
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<td>.343930</td>
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End Block Number 1  All requested variables entered.
* * * MULTIPLE REGRESSION * * *

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable.. CDADULT
Block Number 1.  Method: Enter  AGE   EXP

Variable(s) Entered on Step Number
  1..  EXP
  2..  AGE

Multiple R  .24957
R Square    .06229
Adjusted R Square .00546
Standard Error  10.78125

Analysis of Variance

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>Sum of Squares</th>
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<tbody>
<tr>
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<td>127.39453</td>
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<td>3835.76650</td>
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F = 1.09601  Signif F = .3461

------------------- Variables in the Equation -------------------

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<tr>
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<th>Beta</th>
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<tr>
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End Block Number 1  All requested variables entered.
**MULTIPLE REGRESSION**

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CD

Block Number 1. Method: Enter  RNAGE  RNEXP

Variable(s) Entered on Step Number
1..  RNEXP
2..  RNAGE

Multiple R  .25696
R Square  .06603
Adjusted R Square  -.02737
Standard Error  12.05093

Analysis of Variance

<table>
<thead>
<tr>
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<th>DF</th>
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<tr>
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F = .70694  Signif F = .5051

------------- Variables in the Equation -------------

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<th>Beta</th>
<th>T</th>
<th>Sig T</th>
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<tr>
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End Block Number 1  All requested variables entered.
**MULTIPLE REGRESSION**

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable.. CDACCEL

Block Number 1.  Method: Enter AGE EXP

Variable(s) Entered on Step Number
1..  EXP
2..  AGE

Multiple R  .61830
R Square  .38229
Adjusted R Square  .27934
Standard Error 8.02663

Analysis of Variance

<table>
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<tr>
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<th>DF</th>
<th>Sum of Squares</th>
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F = 3.71334  Signif F = .0556

------------------- Variables in the Equation -------------------

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End Block Number 1  All requested variables entered.
MULTIPLE REGRESSION

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CJS

Block Number 1. Method: Enter  AGE  EXP

Variable(s) Entered on Step Number
  1..  EXP
  2..  AGE

Multiple R  .47786
R Square  .22835
Adjusted R Square  .19923
Standard Error  6.18345

Analysis of Variance

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F =  7.84181  Signif F = .0010

------------------------ Variables in the Equation ------------------------

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End Block Number 1  All requested variables entered.
Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable.. CJSTADUL

Block Number 1. Method: Enter AGE EXP

Variable(s) Entered on Step Number
1.. EXP
2.. AGE

Multiple R .49516
R Square .24518
Adjusted R Square .19943
Standard Error 6.39685

Analysis of Variance

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F = 5.35955  Signif F = .0096

------------------------ Variables in the Equation ------------------------

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End Block Number 1  All requested variables entered.
MULTIPLE REGRESSION

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CJS
Block Number 1.  Method: Enter  RNAGE  RNEXP

Variable(s) Entered on Step Number
  1..  RNEXP
  2..  RNAGE

Multiple R  .40702
R Square  .16566
Adjusted R Square  .08223
Standard Error  7.38636

Analysis of Variance

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\[ F = 1.98559 \]  Signif F = .1635

------------------------ Variables in the Equation ------------------------

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End Block Number 1  All requested variables entered.
**MULTIPLE REGRESSION**

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CJS

Block Number 1. Method: Enter  AGE  EXP

Variable(s) Entered on Step Number
1..  EXP
2..  AGE

Multiple R  .11266
R Square  .01269
Adjusted R Square  -.11072
Standard Error  6.20838

Analysis of Variance

<table>
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<th>Mean Square</th>
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F  =  .10284  Signif F  =  .9029

-------------------------- Variables in the Equation --------------------------

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<th>Variable</th>
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<th>Beta</th>
<th>T</th>
<th>Sig T</th>
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<tbody>
<tr>
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End Block Number  1  All requested variables entered.
MULTIPLE REGRESSION

Listwise Deletion of Missing Data

Equation Number 1  Dependent Variable..  CJSAACET.
Block Number 1. Method: Enter  AGE  EXP

Variable(s) Entered on Step Number
1..  EXP
2..  AGE

Multiple R  .35786
R Square  .12806
Adjusted R Square  -.01726
Standard Error  5.76207

Analysis of Variance

<table>
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<tr>
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<th>DF</th>
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<th>Mean Square</th>
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<tbody>
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F =  .88123  Signif F =  .4395

---------------------- Variables in the Equation ----------------------

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<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Sig T</th>
</tr>
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<tbody>
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End Block Number  1  All requested variables entered.
### Correlation Coefficients

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<td>.3035</td>
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</table>

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed
01 Jul 97 SPSS for MS WINDOWS Release 6.1

--- Correlation Coefficients ---

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(Coefficient / (Cases) / 2-tailed Significance)

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(Coefficient / (Cases) / 2-tailed Significance)

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RN population grows to 2.2 million; Nurses age a bit but work more.


Reproductive Service No. ED 216 154).


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