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A Comparison of Critical Thinking Ability and Clinical Judgement Skills in Associate and Baccalaureate Senior Nursing Students

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A COMPARISON OF CRITICAL THINKING ABILITY AND CLINICAL JUDGEMENT
SKILLS IN ASSOCIATE AND BACCALAUREATE SENIOR NURSING STUDENTS

By

Debra L. Sietsema

A THESIS

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degree of

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ABSTRACT

A COMPARISON OF CRITICAL THINKING ABILITY AND CLINICAL JUDGEMENT SKILLS IN ASSOCIATE AND BACCALAUREATE SENIOR NURSING STUDENTS

By

Debra L. Sietsema

The purpose of this descriptive, correlational study was to compare the critical thinking and clinical judgement skills of senior nursing students at two educational levels. A convenience sample of 34 students in the Midwest was obtained during the spring semester before graduation ($n = 19$ baccalaureate, $n = 15$ associate). The framework for the study was decision theory. Critical thinking ability was measured by the Watson Glaser Critical Thinking Appraisal. Clinical judgement was determined by the ability to recognize cues, provide nursing diagnosis, interventions and corresponding rationale after viewing five video vignettes produced by Performance Management Services. Demographic data was obtained to determine if there were any relationships with either critical thinking or clinical judgement ability. Findings of t-tests indicated that there was no difference in critical thinking ability or clinical judgement skills between baccalaureate and associate senior nursing students. Using Pearson's r correlation coefficient, a positive correlation was found between critical thinking ability and clinical judgement. A positive correlation was also found between grade point average and critical thinking ability as well as clinical judgement. A larger sample as well as a longitudinal and qualitative study may provide more predictive and generalizable data.

DEDICATION

This study is dedicated to my husband, Mark, who provides steadfast love, genuine caring, encouragement, understanding and support.

ACKNOWLEDGMENTS

A project of this magnitude could not have been completed without the support and assistance of many people. The author acknowledges gratitude to the following:

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CHAPTER 1

INTRODUCTION

A crucial skill for nursing professionals is critical thinking: knowing how to think, apply, analyze, synthesize and evaluate. Pardue (1987) states that the key component of nursing practice, regardless of practice site, is the nurse's ability to make decisions regarding nursing care. Specifically, the crucial factor is the nurse's ability to think critically for processing information and making decisions for nursing interventions.

Critical thinking and clinical judgement skills are important for nurses in the present nursing arena. Nurses need to master critical thinking and clinical judgement skills to be able to deliver safe, effective and efficient client care in today's complex health care system. Safe and effective nursing care is essential for both the client's well-being and the organization's potential liability. A nurse's critical thinking can affect health promotion, prevention of complications, avoidance of hospitalization or decreased length of hospitalization and even make a difference in life or death. The expanding role of the nurse has brought about greater responsibility and accountability. There is an explosion of health related knowledge and a rapidly increasing amount of technology and specialization that has an effect on nursing practice. Rising costs of health care are evident within strong economic constraints. With greater emphasis on home health care and outpatient care, the clients

who remain in health care institutions often require a higher level of care and have highly complex problems. These complicated problems and needs may lead the nurse to make decisions affecting life or death. In addition, there are greater moral and ethical issues that must be faced in relation to scientific advances, such as life sustaining measures, genetics and organ transplants. It is evident that each of these factors support the need for keen critical thinking skills that have become an expected behavior of professional nurses.

The nursing process is a framework from which nurses practice and a framework for instruction in clinical decision making. In this problem solving process, the nurse collects data utilizing both inductive and deductive reasoning, makes hypotheses or inferential nursing diagnoses, and plans, implements and evaluates client care. The mental processes needed to successfully implement the nursing process are analogous to the mental processes defined as decision making. Making decisions is a routine part of nurses' practice. Critical thinking about each phase and dimension of decision making is needed to arrive at decisions that are valid, sound and useful. To choose an intervention or course of action is to make a decision. To choose one course of action means to eliminate others. Nursing decisions, as a result of critical thinking, followed by action or inaction, will affect the health status of a client.

The basis for making clinical judgements regarding patient care needs is assessment of cues and interpretation of findings to derive diagnosis. These are followed by decisions of which interventions to initiate to affect the most optimal outcome. The graduate nurse must

learn to identify and interpret cues based on limited experiences.

In the absence of previous experience, decision making may be delayed, be inappropriate or, at the very least, result in decisions which are only partially correct (Thiele, Baldwin, Hyde, Sloan, & Strandquist, 1986).

Clinical judgement is an important dimension of nurses' practice. It is embodied within the definition of nursing by the American Nurses' Association (ANA), "the diagnosis and treatment of human responses to actual or potential health problems" (1980, p. 9). The ANA Social Policy Statement further identifies the four characteristics of nursing as "phenomena, theory application, nursing action, and evaluation of effects of action in relation to phenomena" (1980, p. 9). To carry out these characteristics of nursing effectively, astute critical thinking and clinical judgement skills are imperative.

Furthermore, most educational programs for nurses have a goal to enhance students' cognitive abilities and clinical judgement skills. Critical thinking as a specific, required criterion is included by the National League for Nursing (NLN) for the accreditation of baccalaureate programs (BSN). The criterion states that "this outcome reflects students' skills in reasoning, analysis, research or decision making relevant to the discipline of nursing" (NLN, 1991a, p. 26). For the first time, NLN has included critical thinking as a competency of a graduate from an associate degree (ADN) program within the role as provider of care (NLN, 1990). Critical thinking is emphasized to a greater extent as an outcome for BSN graduates. Therefore, a higher degree of skill in critical thinking and decision

making would be expected of the BSN graduate. In an era of educational accountability, all areas of higher education must examine and justify curricula in terms of producing graduates who can think critically and make appropriate decisions.

Many write about the need for developing critical thinking skills among student nurses or practicing professional nurses. However, research assessing or measuring the impact of nursing education on the development of critical thinking skills is sparse (Miller and Malcolm, 1990).

Problem Statement

Nurse educators, especially at the baccalaureate level, are being criticized for not teaching skills that nurses need to make judgements and solve problems effectively (Lowdermilk & Fishel, 1991). The traditional lecture method of teaching and use of multiple choice tests are not the most effective means of teaching and evaluating critical thinking (McKeachie, 1986). Pond, Bradshaw and Turner (1991) state that many students who receive classroom lectures cannot relate that knowledge to clinical practice. In nursing programs today, students often have limited contact with clients experiencing various health problems and may have few opportunities to make decisions about their care. Abbreviated clinical time schedules and lack of suitable sites for clinical experiences can prevent students from being able to encounter some client care needs or problems and/or be able to problem solve within the context of that problem. The increasing emphasis to revitalize the liberal arts component in baccalaureate programs leads to a concern that education may focus on the transmission of information

rather than developing the critical thinking process.

As a result, health care institutions may be faced with hiring graduates who are not confident or possibly not competent in the complex process of clinical judgement. With varied abilities, development of competence is difficult and time consuming within an arena where budget and time constraints are vital issues. Since nurses must make the right decisions, del Bueno (1990) concludes the validation or verification of critical thinking ability and clinical judgement skills is highly desirable, even if difficult to accomplish. Agencies have an urgent need to assist a new graduate to become fully functional as an effective decision maker within a short period of time in a cost effective manner. At the present time, health care institutions and state nurse practice acts hold registered nurses (RNs) to the same clinical expectations and degree of responsibility and accountability regardless of the educational preparation. Yet, controversy exists over which level of preparation should be the standard and provide the appropriate level of preparation for entry as a registered nurse into the nursing profession. The discrepancy of expectations in education and service provides a need to determine if differing skills exist. Therefore, both academic and service agencies have concerns and interests about the level of critical thinking and clinical judgement skills of graduating nurses.

Aims/Purpose

The purpose of this study was to compare the critical thinking ability and clinical judgement skills of senior nursing students at two educational preparation levels. The results of this study may

have implications for teaching critical thinking and clinical judgement at different educational levels. The results may also have implications for expectations in the beginning nursing employment positions, orientation and continuing education needs. The results may also provide further data for differentiating levels of nursing and entry into practice. Because of the importance to the profession, education and to service, this study will add to the body of knowledge concerning differences among senior nursing students at two levels of nursing education for critical thinking ability and clinical judgement skills.

CHAPTER 2

REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

Review of Literature: Strengths and Weaknesses

The literature review for this study was conducted using the concepts of critical thinking, clinical judgement and decision making. Few studies of critical thinking and clinical judgement processes used by nurses were identified. This deficit in research is attributed to the difficulty in measuring the critical thinking and/or the clinical judgement process. There is also a relatively recent emphasis on critical thinking in nursing.

del Bueno (1990) completed an analysis of a convenience sample of 563 newly hired or transferring staff nurses within ten acute care hospitals across the United States using the Performance Based Development System (PBDS) for staff nurses. PBDS is a comprehensive performance evaluation and development program, often used to effectively manage human resources and determine learning needs in the hospital environment. Clinical judgement skills were validated in patient care settings following the assessment of learning needs. Clinical judgement was measured by the responses to videotaped patient situations. (See the instruments section of this document for the reliability and validity of the use of the videotaped patient situations.) The researcher concluded that "greater differences within rather than between groups appears to be relevant to nurses' clinical judgement ability" (p. 294). del Bueno states, "none of the

data allowed definitive conclusions regarding relationships among nurses' education, experience and their ability to make clinical judgements" (p. 293). The largest difference of 9% between diploma and associate degree (ADN) graduates occurred in the ability to provide acceptable rationales for each intervention. ADNs however, had 7% more acceptable intervention responses than diploma nurses and 5% more acceptable intervention responses than baccalaureate graduates. ADNs had the largest percentage of acceptable intervention responses (65%), and baccalaureate degree graduate nurses (BSNs) had the largest percentage of acceptable rationales (64%). The content analysis does not provide a means to determine any specific breakdown of the clinical judgement process. Although specific guidelines are provided for the administration of the PBDS assessment components, multiple administrators may have lead to inconsistency. Other potential competing variables or relationships are not discussed. The study is strengthened by building on a previous study with congruent results (del Bueno, 1983).

Similar results were found by Sanford, Genrich, and Nowotny (1992). They studied clinical judgement abilities between recent BSN and non-BSN graduates. The sample consisted of all nurses recently hired by a large metropolitan teaching hospital over a 20 month period ($N = 116$). Of the total sample, 111 nurses were recent graduates ($n = 37$ ADNs and $n = 74$ BSNs). The same PBDS videotaped situations were used in this study as del Bueno (1990) used. The clinical judgement responses were rated by these investigators from 0 to 2, with 0 indicating a completely wrong response, 1 a partially acceptable response and 2 indicating a completely acceptable

response. Total points for all vignettes were calculated. Competency in clinical judgement required a minimum overall score of 80% correct. The results showed that 60% of the nurses scored less than 70% on the clinical judgement scale. Eighty percent of the subjects failed to achieve the acceptable level (80%) set by the researchers. Sanford, Genrich and Nowotny (1992) found that there was no difference in clinical judgement in newly hired BSN and non-BSN graduates. They state that the t-test was used to determine differences between BSN and non-BSN graduates. However, no specific statistical data is given except ADN \bar{M} = 0.684 and SD = 0.1675 and BSN \bar{M} = 0.640 and SD = 0.1723. Clinical judgement components were defined in this study as the ability to identify specific patient problems, specify the nursing interventions in order of priority, identify the rationale for each stated intervention and identify preventive actions that could have eliminated or minimized patient risk. Even though each of these components are expected in the responses, the results are reported as a total score and not each component separately. Therefore, one can not conclude which of the clinical judgement component results were more consistently acceptable. The researchers do not explain how they determined that the total clinical judgement score of 80% was competent.

Kostbade-Hughes and Young (1992) examined the stability of clinical decisions of 101 medical-surgical nurses. A random sample of 101 paid, volunteer, medical-surgical nurses, stratified by educational preparation, was drawn from three public teaching hospitals in the same large, midwestern city. Subjects completed the Decision Analytic Questionnaire (DAQ) and a demographic inventory.

The authors indicate that validity and reliability of the DAQ was established by previous researchers. The results showed that 55 of the subjects made stable clinical decisions. No significant relationship between type of basic nursing education program and decision making stability existed ($\chi^2 = 0.113$, $p = .990$). Variables of country in which basic education was obtained, experience, clinical unit and hospital setting were considered. Since this was a convenience sample, generalizability may be limited.

Pardue (1987) studied decision making skills and critical thinking ability among 100 ADN, Diploma, and BSN nurses and 60 Master of Science in Nursing (MSN) nurses from a large southwestern university teaching system. The two research instruments used for data collection were the Watson Glaser Critical Thinking Appraisal (WGCTA) and a decision making tool developed for Pardue's study. The mean scores measured by the (WGCTA) for the nurses increased by educational level (ADN $M = 52$, diploma $M = 56$, BSN $M = 61$, and MSN $M = 64$). An analysis of variance indicated that there was a significant difference in critical thinking ability among ADN, diploma, BSN and MSN nurses, $F = 7.20$, $p < .001$. The Scheffe post hoc comparison test was used following the significant ANOVA. Results revealed that the individual groups of BSN and MSN nurses did have significantly higher critical thinking scores than either of the ADN or diploma nurses, $p < .05$. ANOVA was also used to test self-reported frequency of making decisions and perceived difficulty in making decisions. There was no significant difference in the overall self-reported frequency of making decision among the four groups, $F = 1.95$, $p < .125$. Results also indicated that there was no overall

mean difference among the four groups for perceived difficulty in making decisions, $F = 1.38$, $p < .25$. The groups were asked to rank the perceived factors which influenced decision making. Each group ranked experience and knowledge as the first and second most important factors in influencing decision making. Yet, statistical interpretation from the decision making tool revealed that number of years of clinical experience was not a discriminating variable related to decision making among the four groups. No significant difference was found when years of experience was cross-tabulated with frequency in making decisions, $\chi^2 = 3.12$, $p < .53$, and also when compared to perceived difficulty in making decisions, $\chi^2 = 5.02$, $p < .29$. Acceptable initial validity and reliability were established by the developers for the newly constructed instrument used for decision making. The instrument used self-report which did not allow for clarification. It also required self-perceptions, rather than observations. Stratified random sampling was used to select the ADN, diploma and BSN nurses. All MSN nurses were selected for participation. A more true representation occurred with the MSN group than with the other nursing groups. Appropriate statistical data was used to support the findings. Generalization of the findings is limited.

Brooks and Shepherd (1990) compared critical thinking abilities and clinical decision making skills of 200 senior students in associate ($n = 50$), Diploma ($n = 50$), baccalaureate ($n = 50$) and baccalaureate completion programs for RNs ($n = 50$). The WGCTA was used to assess critical thinking ability. The Nursing Performance Simulation Instrument was used to measure clinical decision making.

For critical thinking, scores for students in the baccalaureate and baccalaureate completion program were significantly higher (\bar{M} = 61.3, 61.1 respectively) than the diploma and associate students (\bar{M} = 51.3, 50.0 respectively). Analysis of variance and Tukey post hoc tests indicated that the mean scores were significantly different from the diploma and associate senior students (α = .05). There was no difference between the scores for clinical decision making from the associate, diploma and baccalaureate programs (\bar{M} = 32.2, 32.3 and 32.2 respectively). There was a significant difference for the baccalaureate completion students (\bar{M} = 38.0) as compared to the other students. The analysis of variance and Tukey tests indicated that the baccalaureate completion score was significantly different (α = .05) while there was no difference between the scores for clinical decision making of the senior students from the associate, diploma and baccalaureate programs. According to Brooks and Shepherd, the relationship between critical thinking and clinical decision making in nursing for all programs combined resulted in a weak, though significantly positive correlation (r = .249 and coefficient of determination = .11).

Sullivan (1987) found that critical thinking ability and fluency (to produce multiple ideas with words) did not change throughout a BSN program for 46 registered nurses who obtained a BSN during a two year study period. Critical thinking, measured by the WGCTA, was the same on entry to and exit from the program (\bar{M} = 57). Another discovery regarding critical thinking was that there was a significantly negative correlation between the length of time between basic nursing school graduation and the measurement of critical

thinking ability at the entry to the BSN completion program ($p < .05$). That is, the greater the number of years since a subject graduated from an associate or diploma program, the higher the critical thinking score was at entry to the BSN completion program. In addition, she discovered that flexibility, clinical performance and grade point averages (GPA) increased significantly from entry to graduation of the BSN completion program. Also, the ability to develop novel and innovative ideas (creativity and originality) decreased during the program. The tools used to measure critical thinking, creative thinking, and nursing performance were the WGCTA, Torrence Test of Creative Thinking, and the Stewart Evaluation of Nursing Scale respectively. All three instruments were administered to subjects twice, in the first semester and in the last four weeks of the program. In addition, GPAs were obtained at entry and exit from the baccalaureate program for each student. Conclusions can not be generalized to all nursing students because the results were from one school that only offered a baccalaureate completion program for RNs. The study considered the number of years since graduation from an associate or diploma program, but did not determine the number of years of actual nursing experience. All of these subjects had prior professional nursing experience. Other variables that may be associated with the skills were not measured.

The WGCTA was also used to measure critical thinking ability and to predict success in another baccalaureate nursing program (Bauwens & Gerhard, 1987). This longitudinal, descriptive, correlational study was done with 145 baccalaureate graduates attending an Arizona university. Critical thinking ability was not significantly changed

during the nursing education while being exposed to the scientific method and the nursing process.

Brooks and Shepherd (1992) studied the relationship between professionalism and critical thinking abilities of senior nursing students in four types of nursing educational programs including baccalaureate, associate, diploma and baccalaureate completion. Fifty students from each type of program were conveniently selected during the same semester prior to graduation. Professionalism was measured by the Health Care Professional Attitude Inventory and critical thinking ability was measured by the WGCTA. For individual programs, low to moderate correlations ranging from $r = .263$ (diploma) to $r = .516$ (baccalaureate completion) were found between critical thinking and professionalism. Comparison of critical thinking and professionalism across all programs showed a significant, but low positive correlation ($r = .447$). When critical thinking abilities were compared using a Tukey test, baccalaureate ($\bar{M} = 61.3$) and baccalaureate completion ($\bar{M} = 61.1$) showed significantly higher levels ($\alpha = .05$) than those from associate ($\bar{M} = 50.0$) and diploma ($\bar{M} = 51.3$). Generalization may be limited.

Tiessen (1987) conducted a descriptive study to determine which of eight selected variables contributed most strongly to baccalaureate students' ability to think critically. Multiple regression analysis was utilized to examine the intercorrelations between the criterion variable, total score on the WGCTA, and the predictor variables: SAT verbal score; SAT quantitative score; G.P.A.; age; and total number of credit hours in the natural sciences, behavioral/social sciences, arts and humanities and

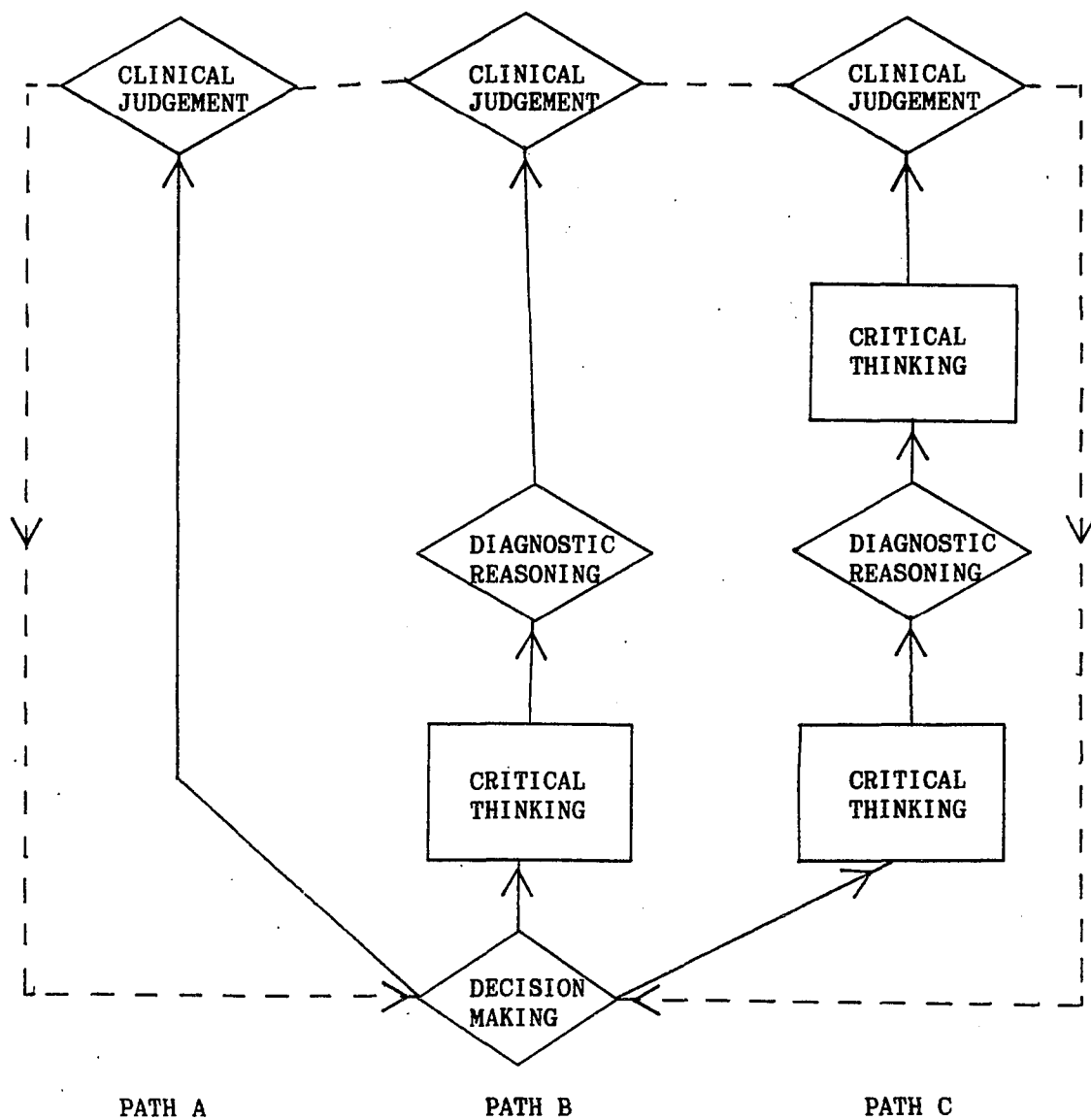
professional nursing courses required in a four year baccalaureate nursing program. There were 150 subjects from a baccalaureate program located in the Midwest. Findings indicated that the SAT quantitative score, total number of credit hours in the arts and humanities and GPA contributed most strongly to the criterion variable, accounting for 24% of the variance. It was concluded that critical thinking abilities are best correlated with variables such as academic aptitude, academic experience and quality of academic performance.

Conceptual Framework

The conceptual framework for this study included the concepts of decision making, critical thinking, diagnostic reasoning and clinical judgement based on decision theory. Decision making is a fundamental process in nursing practice. Decision making ultimately leads to clinical judgements that will determine nursing interventions. Nurses may arrive at clinical judgements in different ways. One way is to make decisions regarding the input of information about clients and leap to clinical judgements. (See Path A, Figure 1) Another approach is to use the critical thinking process after obtaining data to hypothesize a diagnosis using diagnostic reasoning and follow immediately with clinical judgement. (See Path B, Figure 1) To have safe and effective client outcomes, critical thinking is the key component in the process. Therefore, the most efficacious method for the client's outcome includes decision making through critical thinking, which leads to accurate diagnostic reasoning, followed by additional critical thinking and subsequent, relevant clinical judgements. (See Path C, Figure 1) Miller and Malcolm (1990) state

that critical thinking is inherent in diagnostic reasoning and in making sound clinical judgements. This may become a cyclical process after the evaluation of client outcomes related to nursing actions.

(See dashed line, Figure 1)



◇ = decision point
 □ = process

Figure 1. Model of possible clinical judgement decision making paths designed by the author.

The decision making process can be explained by decision theory. Decision theory has evolved from studies of problem solving, cognitive psychology and artificial intelligence. Decision theory originated in the work of economists and applied mathematicians. Decision theory is concerned with the process whereby probability estimates are obtained, revised in the light of new evidence and then combined with assessment of value to select preferred actions (Elstein & Bordage, 1982). Decision theory is interested in the costs and benefits of decisions as well as with diagnostic accuracy. In decision theory, data or cues are sequentially collected. These findings are used to revise and update opinions and to place objective or subjective probabilities or values on the data to develop states of nature or hypothesis. Diagnostic actions are available and are controlled by the decision maker. Outcomes or consequences are considered and interventions to achieve outcomes are later implemented. A part of decision analysis is selecting action(s) that maximize the expected utility. Utilities are defined as assessments of the value of each possible outcome, which are carefully distinguished from the probability of an outcome's occurrence (Elstein & Bordage, 1982). In decision theory, knowledge of cues, weight of values, hypothesis generation and potential outcomes play a key role.

Effective decision making requires critical thinking. Watson and Glaser (1980) view critical thinking as a composite of attitudes, knowledge and skills. Attitudes denote a frame of mind, an attitude of inquiry that recognizes the existence of problems and an acceptance of the general need for evidence in support of what is

asserted to be true. Knowledge involves weighing the accuracy and logic of the evidence; an understanding of the nature of valid inferences, abstractions, and generalizations. Skill in application of these attitudes and knowledge is necessary and must be acquired. Dressel and Mayhew's report (1954) on the evaluation of education lists the following abilities as being related to the concept of critical thinking:

1. The ability to define a problem.
2. The ability to select pertinent information for the solution of a problem.
3. The ability to recognize stated and unstated assumptions.
4. The ability to formulate and select relevant and promising hypotheses.
5. The ability to draw valid conclusions and judge the validity of inferences.

The process of critical thinking can be supported by decision theory. Essential components of decision making involve the complex process of cue or data sensing, cue interpretations, hypothesis formation, option generation, determining outcomes and action or intervention determination and implementation.

Nurses make astute observations of cues or patient's signs and symptoms. A hypothesis is developed based on conditional probabilities of the cues. Cues are defined by Gordon (1982) as information which influences decisions that can take on different values. Diagnosis is confirmed through accumulation of data and informally revising the probability of the hypothesis with each additional piece of data. This diagnostic reasoning procedure is

defined as a complex observation, critical thinking, and data gathering process used to identify and classify phenomena that are encountered in presenting clinical situations (Carnevali, Mitchell, Woods, and Tanner, 1984). Diagnostic reasoning is the necessary foundation for subsequent treatment decisions.

Following diagnostic reasoning, the outcome of the decision making and critical thinking process is clinical judgement in nursing. Clinical judgement is defined by Tanner (1986) as a process that incorporates a series of decisions that include: 1) decisions regarding what to observe in the patient situation, 2) inferential decisions, deriving meaning from data observed and 3) decisions regarding actions which should be taken that will be of optimal benefit to the patient. Clinical judgement is the decision making and critical thinking process applied to nursing practice. Itano (1989) states that the clinical judgement process is not a simple transduction of information to judgement, but it includes going beyond the information given. Thus, the knowledge and cognitive process of the judge are added to the information collected to arrive at a judgement. Clinical judgement is a cyclical process with evaluation of outcomes of nursing actions, which may lead to further observation and decisions with subsequent interventions. As Benner and Wrubel (1982) explain, because nursing is an applied discipline, a nurse's clinical knowledge is relevant to the extent to which its manifestation in nursing skills, including clinical judgement, makes a difference in client care and client outcomes.

Summary and Implications for the Study

The research literature has revealed some common themes related to critical thinking ability and clinical judgement skill. Nursing research has consistently identified a significant difference in critical thinking ability for different educational levels. However, nursing research addressing clinical judgement according to level of educational preparation has demonstrated inconsistent results. Only one author found a weakly positive correlation in critical thinking and clinical judgement. Critical thinking has been shown not to change through the course of a baccalaureate program, while clinical performance increases.

The heavy emphasis upon nursing process would lead to the expectation that participation in nursing education would enhance one's critical thinking ability. Additionally, one would expect that strength in critical thinking would impact upon nursing performance, particularly in terms of clinical judgement.

Because critical thinking is a key component in a nurse's decision making process, it is vital to understand that ability. In addition, since there is inconsistency in the literature as well as different expected outcomes of graduates at varying educational levels, it is important to have further research on clinical judgement skills. These data are significant to the profession, education, service and to the ultimate outcomes of a client's well being.

Research Questions

Is there a significant difference in critical thinking ability between associate and baccalaureate prepared senior nursing students?

Is there a significant difference in clinical judgement skills between associate and baccalaureate prepared senior nursing students?

What is the relationship between critical thinking ability and clinical judgement skills?

What is the relationship between selected demographic variable(s) and critical thinking ability?

What is the relationship between selected demographic variable(s) and clinical judgement skills?

Definition of Terms

Critical thinking was defined as the total score on the WGCTA (See Appendix A for WGCTA sample).

Clinical judgement was defined as the composite score of the abilities to provide acceptable diagnosis, related cues, priority interventions and rationale for the interventions after viewing the PBDS clinical judgement vignettes. (See a sample scenario and model answers in Appendix B).

CHAPTER 3

METHODOLOGY

Design

A descriptive study using a correlational, ex post facto design was conducted to determine the critical thinking abilities and clinical judgement skills of associate degree and baccalaureate degree senior nursing students. The intervening variables of related nursing work experience, other than the student role, age, gender, marital status and grade point average (GPA), were studied to determine relationships with critical thinking abilities and clinical judgement skills.

Sample

All senior nursing students graduating in a Midwestern metropolitan area were approached for participation in April and May of 1992. The students were from two baccalaureate nursing programs and one associate degree nursing program. No registered nurses returning to school were included. Any potential language barrier of a student was assessed prior to his/her inclusion in the study.

Settings

The settings included a public university, two private Christian colleges, and a community college. All of the settings were within 30 miles of a Midwestern city. The nursing programs within these settings use many of the same clinical experience sites. The public university was established in 1960 and enrolls greater than 12,500

students primarily from the same state. Students also come from other states and countries. The university has baccalaureate, baccalaureate completion and Master of Science in Nursing (MSN) programs. The private Christian colleges have a joint baccalaureate program. The private colleges have similarities. They have been established for more than 75 years and each have an enrollment of approximately 4,000. The students' origin has been from across the United States, Canada and other countries. The community college draws students primarily from the local metropolitan area, adjacent counties and to a much lesser degree from the remainder of the state, other states and countries. The community college was established 78 years ago and enrolls approximately 20,000 students. The community college has Licensed Practical Nurse (LPN) and ADN programs.

Instruments

Critical thinking and clinical judgement were measured by two instruments. First, critical thinking ability was measured by the Watson Glaser Critical Thinking Appraisal (WGCTA). The WGCTA measures the extent to which examinees have mastered certain critical thinking skills. It also provides a partial estimate of the extent to which objectives of instruction related to critical thinking have been achieved. Watson and Glaser (1980) indicate that the WGCTA is frequently used among college students and professionals for research and evaluative purposes in the following ways: 1) to measure gains in critical thinking abilities resulting from instructional programs in schools, colleges, business and industrial settings; 2) to predict success in certain types of occupations or instructional programs in which critical thinking is known to play an important role; and 3) to

determine the relationship between critical thinking abilities and other abilities or traits. The third application was similar to the use of the WGCTA in this study. It is a standardized tool that contains five subtests and yields one total score. The five subtests are: inference; recognition of assumptions; deduction; interpretation; and evaluation of arguments. Since it was developed over 25 ago, it has been revised and refined by both the authors and other users of the test.

Watson and Glaser (1980) determined the reliability by measuring the test's internal consistency, describing the stability of test scores over time, and correlating scores on alternate forms. The degree of internal consistency in the WGCTA was measured by calculating split-half reliability coefficients. The coefficients obtained were corrected for test length using the Spearman-Brown formula. The coefficients range from .69 to .85. The stability of responses to the WGCTA over time was assessed by administering it twice to a group of college students with an interval of three months between testing periods. The correlation between responses at the two time periods was .73. Alternate form reliability was calculated by correlating responses of subjects who took both Forms A and B of the WGCTA. The correlation of responses to Form A and those to Form B was .75. Form A was used in this study.

Watson and Glaser (1980) also examined the validity of the WGCTA in a number of different academic settings. Content validity was determined by the extent to which it measured samples of specified objectives of instructional programs where the instructor attempted to develop or improve critical thinking abilities of students.

Scores were seen to have improved after specific intent to develop critical thinking abilities. Construct validity was established by improvement in WGCTA performance in instructional settings. This comparison occurred when measuring and comparing different teaching methods and levels of college students. Different teaching methods, including methods designed specifically to affect critical thinking, were used for groups. The critical thinking ability was measured at intervals and compared across groups. Another indicator was to compare incoming college freshman to upper division undergraduates. For criterion validity, the WGCTA has been shown to relate to various measures of academic achievement, including SAT, overall GPA, and individual course grades.

The second tool that was used in this study is the Performance Based Development System (PBDS) clinical judgement vignette series. The nursing student's ability to make acceptable clinical judgements was measured by the use of video simulations of clinical problems developed by Performance Management Services for PBDS. The clinical judgement videos are a portion of a sophisticated performance assessment methodology. The PBDS assessment uses a diverse set of simulation techniques to measure specific performance skills identified as desirable for professional nurses. Each simulation lasts one to three minutes. Patients are portrayed by actors following scripts. These patients experience specific health risks or problems representing acute, commonly occurring physiologic problems. Medical-Surgical problems were used in the assessment. Each overt or subtle problem has been identified by a panel of content experts and has known effective nursing and/or medical

interventions. Visual and oral presentations of each specific problem are based on signs, symptoms and cues deemed relevant for problem recognition. Data are presented to the viewer in the same modality they would be perceived in a real situation. Nurse viewers absorb and process information as if they are in an actual clinical situation. Nursing interventions or actions are not presented in the simulations. The simulations present singular rather than the multiple system problems found with most patients. Because the simulations are used to determine baseline or entry ability regardless of previous clinical experience or educational credentials, the limitation of singular problem presentation is acceptable to system users (del Bueno, 1990). A criterion based tool, called the model or acceptable answer, is used for evaluation. The model answer includes the acceptable responses based on a consensus opinion of groups of clinical experts. Consistent with the principles of criterion based evaluation, responses given by the nurse being assessed are compared with the model answer. See Appendix B for a sample video simulation and model answer that was used in this study. Permission was obtained from Dorothy del Bueno, EdD, RN for the use of the clinical judgement vignette series in this study. (See Appendix C).

del Bueno (1990) describes the reliability and validity of the vignette simulations. Reliability estimates for the simulations were obtained by using an equivalence approach which averaged 94% for subjects tested with parallel situations. In addition, anecdotal evidence supported the simulations' reliability to differentiate between and among individuals. A decision consistency approach was

used to determine that the video simulations were sensitive enough to separate nurses being tested into two groups: those who could and those who could not meet predefined performance criteria with a Type II error. The methodology, therefore, was more likely to err by failing nurses with the expected ability than to pass an individual without ability. Expert nurses established content validity, and technical experts determined the visual accuracy of content presented in the simulations.

The process used in assessing a nurse with the PBDS simulation vignettes corresponds to each of the criteria defined in clinical judgement. These criteria as summarized by Tanner (1986) are: decisions regarding what to observe in patient situations; inferential decisions, deriving meaning from data observed; and decisions regarding actions which should be taken that will be of optimal benefit to the patient. The nurse observes the cues in a patient situation. The nurse must make a diagnosis, provide interventions and rationale.

There are many possible explanations for the failure to make an acceptable or effective decision. These include failure to recognize or to sense cues; inability to synthesize the cues into a diagnosis; lack of choosing enough or appropriate interventions; failure to recognize the context in which cues were given; incapacitating anxiety in the assessment situation; and/or simply disinterest in the patient problem and/or assessment situation. When performing the PBDS clinical judgement assessment, one is uncertain about where the breakdown in decision making occurs (del Bueno, 1983). Individual validation of clinical judgement is necessary in a clinical setting.

A demographic questionnaire was also utilized to collect data to describe the sample and compare the groups. (See Appendix D). Several variables were studied to identify relationships to either critical thinking ability and/or clinical judgement skills. Past experiences, values and beliefs could relate to critical thinking or clinical judgement. As one becomes older, there have been a greater number and variety of life experiences where decision making was necessary. A characteristic process of thinking could also be indicated with gender. More complex decision making could be associated with marital status. Ethnic background could be directly related to how decisions are made within the particular culture. With medical or nursing related work experience, one may have observed nurses making clinical judgements. GPA (grade point average) reflects academic performance. Perhaps with a higher GPA, there may be a greater potential for increased successful critical thinking opportunities. Any of these variables may have a direct relationship with critical thinking ability and clinical judgement skill.

Procedure

Following approval from human subjects review at Grand Valley State University, the appropriate nursing program directors and review committees of the associate and baccalaureate institutions, subjects were identified from graduating class lists. To recruit subjects, the researcher went to each class within two weeks of the administration of the tools in this study to explain the intent of the study and their involvement. Within one month of graduation, all senior nursing students were invited to participate in the study from

three nursing programs. RNs obtaining a BSN were excluded. (See Appendix E for verbal script). Any additional clarification was given at the time that the critical thinking tools were administered.

There was minimal risk to subjects involved in this study. Subjects may have experienced test anxiety and mild stress. Subjects were informed that they could withdraw from participation at any time due to excessive anxiety or stress. Subjects may have also experienced a fear of individual failure or a fear of the score having an effect on grades, graduation standing and/or potential employment. Because of these potential fears, anonymity was assured through the use of coded data and only group data was shared to protect the individual respondents. Consent was obtained from the subjects by completion of the demographic questionnaire which had a statement of consent. (See Appendix D).

Demographic questionnaires were completed at the time of the administration of the 80 question Watson Glaser Critical Thinking Appraisal (WGCTA) and the PBDS clinical judgement video assessment. The tools were administered in one sitting for each class and in a group format to avoid discrepancy in instructions and to avoid participants discussing the contents of the tools.

To measure critical thinking ability, each subject received a WGCTA test booklet and WGCTA response form. The researcher administered the WGCTA as described in the administration section of the WGCTA manual (Watson & Glaser, 1980). General directions were provided on the front of each test booklet and more specific directions were listed prior to each of the five subtests. The response forms corresponded exactly to the responses. For example,

in the recognition of assumptions subtest, the areas to respond are labeled assumption made and assumption not made. The subject did not have to interpret where to place the response. The subjects were allotted 40 minutes to complete the test. All subjects were able to complete the WGCTA within that time period.

To determine clinical judgement skill, each of the groups viewed five PBDS clinical judgement video vignettes. Each subject was asked to respond by providing one nursing diagnosis that best described the situation, including the diagnostic label and contributing etiologic factor(s). The cues that led to the diagnosis were also to be listed. In addition, each subject was to list priority interventions with rationale for every intervention. A sample vignette was shown with the corresponding model answer. (See Appendix B)

CHAPTER 4

DATA ANALYSIS/RESULTS

Data Analysis

The scores for critical thinking ability and clinical judgement were interval data. All of the correct responses from the WGCTA were counted for a total critical thinking score for each subject. For clinical judgement, each of the responses were compared to the PBDS model answers. The diagnostic label was rated as either acceptable or unacceptable with a rating of 2 or 0 respectively. The cues, interventions and rationale were each rated as acceptable, partially acceptable or unacceptable with scores of 2, 1 or 0 respectively. A total score for clinical judgement was derived for each subject. T-tests were done to determine differences between the associate and baccalaureate senior nursing students.

Nominal data was obtained with the demographic data of gender, marital status and ethnic background. The age, work experience and grade point average (GPA) was ratio data. Data was analyzed for relationships using correlations from the SPSS statistical data analysis program. Pearson's r was used to determine relationships with the interval data.

Subjects

Thirty-four subjects volunteered to participate in this study out of a potential 95 baccalaureate students and 90 associate students. Nineteen of the subjects were baccalaureate senior nursing

students and fifteen were associate senior nursing students. An equal percentage (17%) of each group volunteered.

The subjects of the two groups were similar in gender and ethnicity. The groups were different in their age and marital status. Almost 2/3 of the associate group were over 25. In contrast, almost all of the baccalaureate group were 21 to 25. All except one of the baccalaureate group were never married. However, 0.4 of the associate group were married, divorced or widowed. (See Table 1) The groups were representative of senior nursing students for both programs compared with the respective national populations for gender, age and marital status. Men have comprised 7.3% of all graduate nurses (NLN, 1989). According to the NLN, the average age of baccalaureate graduates has been 23 and associate graduates has been 31. In addition, greater than 60% of all baccalaureate graduates are single. Whereas, associate graduates are more likely to be married, separated/divorced or widowed (NLN, 1991b).

Table 1

Demographic Data

Total by Group		
Age	<u>Baccalaureate</u> (n = 19)	<u>Associate</u> (n = 15)
<u>M</u>	23	30
range	21 - 42	20 - 52
20-25	17	6
26-30	1	2
31-35	0	3
36-40	0	2
40-45	1	1
over 45	0	1
Gender		
male	2	1
female	17	14
Marital status		
never married	18	9
married	1	4
divorced	0	1
widow	0	1
Ethnic background		
Caucasian	19	15

The subject's work experience was similar with a few exceptions. These included the experience of being a nurse extern and a LPN. Most baccalaureate students had been nurse externs as compared to only a few associate students. Four associate students had been LPNs

and no baccalaureate students had previously been LPNs. (See Table 2)

Table 2

Type of Work Experience for Baccalaureate and Associate Nursing Students

Work Experience	Total by Group	
	<u>Baccalaureate</u> (n = 19)	<u>Associate</u> (n = 15)
LPN	0	4
nurse's aide	9	7
nurse extern	17	2
unit secretary	1	0
lab tech/blood drawer/ x-ray tech	1	1
other nursing/ medical experience	2	1
other work experience	8	7
no work experience	0	0

The subjects had similar grade point averages. (See Table 3)

Table 3

GPA of Baccalaureate and Associate Nursing Students

GPA	by Group	
	<u>Baccalaureate</u>	<u>Associate</u>
<u>M</u>	3.28	3.35
range	2.51 - 3.92	2.80 - 3.70

Research Questions/Techniques

Research question 1: Is there a significant difference in critical thinking ability between associate and baccalaureate prepared senior nursing students?

No significant difference was found in critical thinking between the two groups. A t-test was done to compare the critical thinking scores of the two educational levels ($t = .56$, $df = 32$, 2 - tail probability = .580). A pooled variance was done ($F = 2.47$, 2 - tail probability = .091). (See Table 4)

Table 4

Critical Thinking Scores

Scores	Group	
	<u>Baccalaureate</u>	<u>Associate</u>
Range	46 - 72	46 - 65
<u>M</u>	59.5	58.2
<u>SD</u>	7.7	4.9

Research question 2: Is there a significant difference in clinical judgement skills between associate and baccalaureate prepared senior nursing students? No significant difference was found in clinical judgement between the two groups. A t-test was done to compare the clinical judgement scores between the baccalaureate and associate ($t = .91$, $df = 32$, 2 - tail probability = .370). A pooled variance was done ($F = 2.54$, 2 - tail probability = .066). (See Table 5)

Table 5

Clinical Judgement Scores

Scores	Group	
	<u>Baccalaureate</u>	<u>Associate</u>
Range	17 - 40	10 - 39
<u>M</u>	27.0	24.7
<u>SD</u>	5.7	9.1

Research question 3: What is the relationship between critical thinking ability and clinical judgement skills? A significant correlation was found ($r = .5521$, $p < .001$).

Research question 4: What is the relationship between selected demographic variable(s) and critical thinking ability? A significant positive correlation was found between GPA and critical thinking ($r = .5949$, $p < .001$).

Research question 5: What is the relationship between selected demographic variable(s) and clinical judgement skills? A significant positive correlation was found between GPA and clinical judgement ($r = .5460$, $p < .001$).

No other correlations of variables with critical thinking or clinical judgement were significant at $p < .05$. Some of the demographic variables were not used for correlations due to lack of variability in the sample or a small sample of that variable.

To further confirm reliability of the WGCTA, a reliability analysis was performed. The reliability coefficients were $\alpha = .7266$ and standardized item $\alpha = .7642$.

Other Findings

All subjects consistently had the most unacceptable responses in determining nursing diagnosis, even though acceptable or partially acceptable responses for cues and etiology were given. The associate group had significantly fewer acceptable responses for rationale provided than the baccalaureate group. Overall, similar ratings existed in the area of cue recognition and priority interventions. However, the baccalaureate group consistently had more interventions beyond the novice expectations. (See Table 6 for a comparison of clinical judgement components between baccalaureate and associate groups.)

Table 6

Comparison of Clinical Judgement Components

Component Responses	Group	
	<u>Baccalaureate</u>	<u>Associate</u>
Diagnoses		
Acceptable	18%	25%
Etiology		
Acceptable	41%	35%
Cues		
Acceptable	48%	40%
Partially Acceptable	52%	55%
Unacceptable	0%	5%
Interventions		
Acceptable	7%	6%
Partially Acceptable	91%	87%
Unacceptable	2%	7%
Rationale		
Acceptable	73%	45%
Partially Acceptable	25%	48%
Unacceptable	2%	7%

Another finding was that the baccalaureate group's distribution of critical thinking scores was negatively skewed and bimodal. Whereas, the associate group's distribution of critical thinking scores was positively skewed and unimodal. When combining all subjects, there was a near normal distribution of critical thinking scores.

When considering the components of critical thinking, Watson and Glaser (1980) do not recommend the use of the WGCTA subtest scores for evaluation or statistical purposes because of the relatively small number of items and therefore lack of reliability for that purpose. Watson and Glaser (1980) stated, "it is feasible, however, to utilize these part-scores to analyze the critical thinking abilities of a class or larger group and to determine in the light of such analysis the types of critical thinking training most needed by the group" (p. 9). Both of the groups consistently had lower scores in inference and deduction (\bar{M} = 9-10) as compared to recognition of assumptions, interpretation and evaluation of arguments (\bar{M} = 12-13).

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Discussion of Findings

No significant difference was found between the groups in critical thinking ability. The mean score of baccalaureate senior nursing students in this study corresponds to the mean score provided by Watson and Glaser (1980) for nursing students in baccalaureate programs at universities in the Midwest ($M = 59.8$, $SD = 7.5$). The mean scores from Watson and Glaser and in this study were slightly lower than findings from Brooks and Shepherd (1992, 1990) and Pardue (1987). The mean score for critical thinking for associate was higher in this study than means obtained by Watson and Glaser (1980), Brooks and Shepherd (1992, 1990) and Pardue (1987). No scores were given by Watson and Glaser specifically for nursing students in community colleges. However, a sample of all students in junior and community colleges showed that the $M = 51.9$ and $SD = 9.6$ (Watson & Glaser, 1980). Because the mean score for critical thinking for baccalaureate students in this study was lower than recent nursing studies and the mean score for associate students was higher, it is clearly evident why there was no significant difference between the educational groups.

Pardue (1987) discusses the importance of inference and deduction in nursing practice. Because nurses depend greatly on inference and deduction, it is of concern that these areas had the

lowest scores. In the nursing process, the nurse collects data utilizing inductive and deductive reasoning, makes hypotheses (or inferential nursing diagnoses), and plans, implements and evaluates client care. Nurses need to use predictive hypothesis generation as a part of diagnostic strategies and selection of interventions that will produce the most optimal outcome.

No significant difference was found in clinical judgement skills between the two educational levels. This finding is consistent with del Bueno (1983, 1990) and Sanford, Genrich and Nowotny (1992). Benner's (1984) model further supports that no difference may exist since experience and practice play a key role in clinical judgement skill acquisition. Experience is limited for associate and baccalaureate nursing students. Knowledge and experience may be basic to competence in clinical judgement. Knowledge and experience may be crucial for the nurse to decide which information is pertinent, which cues are significant and how these findings are integrated to make appropriate hypotheses or diagnoses and judgements. Tanner (Carnevali, Mitchell, Woods, & Tanner, 1984) recognizes perception of the diagnostic task, use of experience and long term memory as factors influencing the diagnostic process. Tanner states that novices may not recognize the probabilistic relationship between cues and diagnosis. The novice tends to believe that if a cue is present, there is a 100% chance of a certain diagnosis. The expert recognizes this probabilistic relationship, seeks more dependable cues and looks for redundant information between cues. Another difference between experts and novices is the range of past experiences available to modify the probabilistic

estimates. The novice has limited experience from which to sample and therefore has greater chance of introducing bias into retrieving diagnostic hypothesis. A third difference is the extent to which the knowledge base in the long term memory is developed. Novices with a less developed network of knowledge are less efficient and accurate in their judgements. Itano (1989) further explains that there are differences in the cognitive strategies used in judgement making between novices and experts. In early data gathering, an expert can efficiently narrow the search field based on cue patterns. The expert extracts maximal information from the cues. During hypothesis activation, cue patterns serve as the basis for early hypotheses by experts. Novices, with their lack of knowledge and experience, may miss these cue patterns. Another aspect to consider regarding clinical judgement is that educators may not be developing student nurses such that a difference would exist. The outcomes in clinical judgement remain the same despite different expectations by NLN. Baccalaureate students also have a greater knowledge base from which to draw. This knowledge should influence the clinical judgement skills if the students have been taught to cluster or categorize the information in order to make effective decisions.

A moderately positive correlation was found between critical thinking ability and clinical judgement skill. This finding is consistent with Brooks and Shepherd (1990). To know whether critical thinking ability exists will help to determine a nurse's capability to develop the professional nursing practice skill of clinical judgement. In Benner's model (1984), rules are the basis for decision making for novices. Critical thinking is increasingly

evident as the skill acquisition progresses in Benner's model. The theoretical knowledge base and critical thinking skill acquisition will assist in developing the rules to guide clinical judgement as novices.

Also, GPA was found to correlate positively with critical thinking and clinical judgement. The correlation of GPA with critical thinking is consistent with Tiessen (1987). To be aware of the GPA and critical thinking ability for nursing students is important since clinical judgement skills have a positive relationship.

Application

Education. Because client outcomes can be the direct result of nurses' critical thinking and clinical judgement, it is important that educators realize their significant role in creating an environment to facilitate learning to think critically. Nursing educators need to be aware of the relationship between critical thinking, clinical judgement and GPA. GPA mirrors student performance in the classroom or clinical courses and thus, implicates teaching faculty and the role they play in the quality of the teaching-learning process itself. Traditional lecture style teaching and objective testing methods do not enhance critical thinking. Nurse educators may need additional learning about critical thinking. Nurse educators will need to make application of strategies as they relate to development of critical thinking in learners. In addition, they will need to restructure their planning, instructional methods and interactions with students. If students are to learn to critically think, educators must spend less time telling and

expecting bits of information to be retrieved on tests. Students must go beyond ordinary memorization or learning and must be able to use the skill or knowledge in different contexts. The escalating rate of change and explosion of knowledge and technology requires a transference of skills. Educators must more actively involve students in learning with understanding, in seeing the concepts, in seeing the whole picture and in finding the important patterns and relationships within the nursing discipline. Educators must also model their own thinking strategies. However, educators should not respond to students' insecurity in solving client situations by providing the student with the appropriate answer or behavior. Students should be held accountable for solving client problems. Opportunities must be provided for students to learn to listen to and ask questions of one another, to build on others' ideas, to probe issues, to find problems, to reflect on assumptions, to challenge logic and to evaluate their own and others' thinking. They must learn to give rationale for their positions and to cite evidence and facts to support their opinions or planned actions. These activities can only succeed in a psychologically safe environment which does not always expect perfect performance. Alternative perspectives or methods must be encouraged. Error must be viewed as a natural part of the learning process which, if carefully and objectively examined, provides important pieces of information on how to improve performance. Success could be defined as learning something new, doing a little better than before, attempting a challenge, but not necessarily outperforming others. Nursing educators need to facilitate the acquisition of critical thinking in their courses.

The particular critical thinking skills that can be further developed are deduction and inference, which are necessary for clinical judgement. Nursing educators must identify methodology for teaching critical thinking skills and must evaluate which teaching strategies facilitate clinical judgement. Limited clinical experience for students must lead faculty to select or facilitate the experiences that will best allow practice in clinical judgement skills. The enhancement of critical thinking will further promote clinical judgement skills.

Since no significant difference was found in either critical thinking or clinical judgement between the two educational levels, nursing faculty, especially in baccalaureate programs, need to look critically at their curricula. Graduate outcomes should be congruent with the NLN criteria for accreditation.

Service. Since there is no longer a nursing shortage in the area from which the subjects come, service institutions can be selective in employing graduate nurses. GPA should be one of several factors that should continue to be considered. It may be helpful for service to be aware that there is not a significant difference in clinical judgement skills near the time of graduation for baccalaureate and associate. Therefore, service will need to provide a wealth of experience for graduate nurses to develop clinical judgement skills with select individuals that can best mentor those skills. Graduate nurses need clinicians skilled in clinical judgement that can work side by side with them. These clinicians can facilitate the novice nurses pattern recognition, cue salience, diagnostic reasoning, problem solving, critical thinking and clinical

judgement process. Nursing is an applied discipline. The actual clinical experience may be the critical informative variable in beginning nurses. A nurse's theoretical knowledge is relevant only to the extent to which it is used in patient care activities. Sanford, Genrich and Nowotny (1992) state "the experience of assessing the state of the patient, taking actions and evaluating those actions in repetitive clinical situations provides information and feedback that enable nurses to make finer discriminations and to recognize salient cues" (p. 73).

Profession. Knowledge and experience are not merely possessed in nursing, but must be applied to nursing practice. This application is clear when effective clinical judgement is needed for clients. Nurses are needed to think critically in order to meet the increasingly complex client care needs of today. Nurses of the 1990s are bombarded with more and more information to interpret and analyze so that actions can be formulated, implemented and evaluated. Effective clinical judgement is the skill that can separate professional nursing personnel from technical or ancillary personnel. Professional nurses are accountable to their consumers to provide safe, effective and efficient client care. The difference in client outcomes is affected by accurate clinical judgements in day to day practice. Competence in critical thinking and effective clinical judgements is crucial in nursing practice.

Limitations

The moderate sample size ($N = 34$) requires caution in generalizing or extrapolating the results beyond the groups in this study. Near the time of graduation, one is uncertain what the

motivating factor is for nursing students to participate in a graduate study. The end of a nursing education with multiple exams and assignments did not lend to motivated students who would participate in a study. In this study, students voluntarily participated. The assumption of random sampling is also important for statistical tests.

The associate subjects in this study may not be a representative sample. The volunteer associate subjects may not reflect the average abilities. The students that attend the community college selected in this study may not be similar in their abilities as compared to students at other community colleges. The expectations of the educators at the selected community college may have higher outcome standards than at other community college nursing programs. The curriculum of the selected community college may not be typical of associate programs. If the mean score for associate subjects was more similar to other studies, a difference between the two groups may have been found.

The lack of research findings to support differences in clinical judgement is attributed to several factors. Tanner and Lindeman (1987) suggest that this is due to methodological problems, instrumentation, small sample size and lack of controls. Since clinical judgement is such a complex and variable process, one set of five videos at one point in time may not portray a true picture of clinical judgement skill. A greater number of video simulations may have brought a distinction between groups. The video simulations only present typical, specific cues based on sight and sound. The nurse has no history with the client. S/he can not ask questions,

feel, touch, smell or see the whole environment. All of the cues are not available for pattern recognition. In a real situation, the nurse has all her/his senses available for perception. The intent of PBDS is to use a standardized process to determine an individual's actual or potential ability to perform the critical thinking skill of clinical judgement. Therefore, an overview of possible ability may be measured, but not the application of knowledge. The rating method of measurement of clinical judgement in this study may not be sensitive enough to determine where breakdowns in clinical judgement occurs.

Suggestion for Further Research

Studies show that both critical thinking and clinical judgement is a complex and variable process. A replication of this study with a larger sample would be recommended. However, a longitudinal study may be more indicative of the change that occurs in the learning process and the application of critical thinking skills. The data collection could occur during undergraduate study and post graduation work experience for both critical thinking and clinical judgement. Critical thinking could be measured on entrance and exit of a nursing program and after RN work experience has ensued. Otherwise, care must be taken in attributing levels of achievement in critical thinking abilities and clinical judgement to aspects of a particular nursing curriculum or educational preparation. Observation of performance or the use of exemplars may be a more reliable method than the use of simulations for clinical judgement. Therefore, a descriptive, qualitative approach may provide a more true measure of clinical judgement skills.

Additional areas of study may include:

1. Determination of what teaching methods improve critical thinking and/or clinical judgement skills.
2. Exploration of what experiential factors most influence decision making or clinical judgement.
3. A comparison of factors influencing students and/or nurses' decision making skills in a clinical setting versus decision making in a simulated situation.
4. Further delineation of specific cues that determine nursing diagnoses.
5. Determining reliable and valid measurement tools for clinical judgement.
6. Validation of the conceptual framework or decision making pathways for clinical judgement model presented in this study.
7. Clearer delineation or definition of the terms diagnostic reasoning and clinical judgement.
8. Determine what part intuition plays in the critical thinking process.

Conclusion

Critical thinking is a combination of an attitude of inquiry, supported by a knowledge base and enhanced by skill in application through clinical judgement in nursing. The outcomes of clients are a direct result of nurses' critical thinking and clinical judgement. Because critical thinking and clinical judgement are such crucial skills for nurses, nurse educators must create the context for the development of these skills. Baccalaureate curriculums must be scrutinized to meet expected outcome competencies in critical

thinking since no significant difference was found between educational levels. The relationship of critical thinking and clinical judgement further signifies the importance of the facilitation to think critically. Service must be aware of the need to develop clinical judgement skills. Guided experience may be the key to the development of clinical judgement. Above all, nurses are responsible to the public and their individual clients to provide quality care through effective critical thinking and clinical judgement.

APPENDICES

APPENDIX A

Sample from Inference Test of the Watson Glaser Critical Thinking Appraisal

Example

Two hundred students in their early teens voluntarily attended a recent weekend student conference in a midwestern city. At this conference, the topics of race relations and means of achieving lasting world peace were discussed, since these were the problems the students selected as being most vital in today's world.

1. As a group, the students who attended this conference showed a keener interest in broad social problems than do most other students in their early teens.
2. The majority of the students had not previously discussed the conference topics in their schools.
3. The students came from all sections of the country.
4. The students discussed mainly labor relations problems.
5. Some teenage students felt it worthwhile to discuss problems of race relations and ways of achieving world peace.

Note. The range of answers used to evaluate the above statements are: true, probably true, insufficient data, probably false and false.

APPENDIX B

PERFORMANCE MANAGEMENT SERVICES

PERFORMANCE BASED DEVELOPMENT SYSTEM

Clinical Judgement Video Simulations

Cassette 703 Vignette 1 Patient Name Arthur Zimmerman

Narrative Description

Mr. Zimmerman is a 72 year old man who underwent a suprapubic prostatectomy 48 hours ago for cancer. His early post-operative course was complicated by a brief episode of profound hypovolemic shock which was rapidly treated and resolved. Although Mr. Zimmerman has been retired for the last 5 years, he remains very active and has no other significant health problems.

The video simulation incorporates the following clinical data with a scene of various signs, symptoms and cues that the actor portrays.

Clinical Data

	<u>10/5</u>	<u>10/6</u>
Intake	2600	3200
Output	2300	1600
Specific Gravity	1.022	1.030
	<u>10/7 0800</u>	
BUN	38	
Cr	2.1	
Na+	133	
K+	5.8	
Cl-	109	
CO2	21	
	<u>10/7 0600</u>	<u>10/7 1200</u>
Foley	150	100
Subrapubic	100	100 irrigated - 0 clots

Model Answer - 703-1

Problem: renal failure or renal compromise

Nursing Diagnosis: Altered urinary elimination related to recent hypovolemic shock in the immediate post-operative period as evidenced by concentrated urine, decreased urinary output, BUN 38, Cr 2.1, K+ 5.8, no evidence of clots when irrigating the foley.

<u>Priority Interventions</u>	<u>Rationale</u>
*Notify MD of: changes in BUN/Cr nausea mentation changes in urine output	Medical management/orders needed.
*Anticipate orders for IV fluids/challenge <u>or</u> restrictions	To support renal system and correct problem.
*NPO	To prevent further risk.
Check for antiemetic orders	To relieve discomfort.
Keep emesis basin available	To regain trusting relationship.
*Lung assessment	Differentiate or validate congestive heart failure.
*Intake and output	Establish a baseline for comparison.
*Blood pressure and pulse	Establish a baseline for comparison.
Explain treatments	Relieve anxiety and patient advocacy.
*Indicates necessary interventions for novice level nurse.	

APPENDIX C

Permission for Use of the Clinical Judgement Vignettes


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TO WHOM IT MAY CONCERN

Dorothy J. del Bueno

has permission to use the P.M.S. video tapes entitled "Clinical
Judgment Series" owned by Performance Management Services, Inc., in
her master's thesis "A comparison of Critical Thinking Ability and
Clinical Judgment Skills in ADN and BSN Senior Nursing Students."


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APPENDIX D

Code _____
Record 1
Group _____

Demographic Questionnaire

By completing the following questionnaire, I give my consent to participate in a study that examines critical thinking and clinical judgement skills.

Please fill in the blank or put an X in the blank that best describes you for each item.

1. AGE (in years) _____ [6,7]
2. GENDER _____ male [8]
_____ female
3. MARITAL STATUS _____ never married [9]
_____ married
_____ divorced
_____ widow/widower
4. ETHNIC BACKGROUND _____ Caucasian [10]
_____ Black
_____ Hispanic
_____ Asian/Pacific
_____ Native American
_____ other: specify _____

5. (Indicate all of the following that apply and the length of time in that experience.)

WORK EXPERIENCE

[12-41]

_____ LPN	_____ year(s)	_____ month(s)
_____ nurse's aide	_____ year(s)	_____ month(s)
_____ nurse extern/ intern	_____ year(s)	_____ month(s)
_____ unit secretary	_____ year(s)	_____ month(s)
_____ lab tech/ blood drawer/ x-ray tech	_____ year(s)	_____ month(s)
_____ other nursing/ medical experience	_____ year(s)	_____ month(s)
_____ other work experience	_____ year(s)	_____ month(s)
_____ no work experience		

6. GPA (to the nearest hundredth, at the last grading period)

[43-45]

APPENDIX E

Verbal Script

Hello. My name is Deb Sietsema. I am a graduate student at Grand Valley State University. I am conducting a study that examines critical thinking ability and clinical judgement skills in senior nursing students. This study is in partial fulfillment of the requirements for a Master's Degree in Nursing.

The procedure to participate in this study is to complete a demographic questionnaire, a critical thinking test and responding to five videotaped client situations. This will take approximately two hours. The critical thinking test has 80 multiple choice questions. After viewing each videotaped situation, you will respond with a diagnosis, the cues noted to derive that diagnosis, priority interventions and rationale. A sample videotape with responses will be provided. The specific directions for completing the tests will be given at the time the tests are administered.

Participation in this study may assist you in preparation for state board exams. The critical thinking appraisal will provide you practice in determining the best response for multiple choice questions. You will need to use inference, recognition, deduction, interpretation, and evaluation. The videotaped clinical situations may also be of benefit in preparation for your state board exams. The clinical simulations may be similar to situations addressed on the state board exams. Nursing process is heavily emphasized on state board exams. In the clinical judgement portion of the study, you may use the nursing process to determine the responses after viewing the clinical situations.

You have been selected to be involved in this research project by virtue of the fact that you are a senior nursing student. (For baccalaureate students only) If you are a RN that has returned to school to obtain your BSN, you will not be included in this study because your professional experience may have an effect on the results. (For all) If you feel that you may have any language barrier that may affect your ability to participate, you may discuss this privately with me at the end of this session. Your responses in this study will not affect your status as a student nurse or your grades.

All of your responses will be held strictly confidential. The individual data will be identified by a code number. Your name will not be used in connection with the results or the outcome of the study. Any reports of this study will contain group data only and may be released in the literature.

There are no anticipated risks to you in this study. You may receive some benefit in practicing your critical thinking and clinical judgement skills. The results of this study could have an impact on curriculum development in schools of nursing and the teaching methods used. Institutions hiring graduate nurses can utilize the results in planning orientation.

Do you have any questions? (Respond according to question(s).)

Since it is important to me for all to participate that are interested, I would like to determine with you the best date and time that the group can participate in the study. (Assist interested group to come to a consensus of date and time.) If you plan to

participate in the study, it will occur on _____
_____(provide date, time and place). Your
participation is voluntary and you may choose to discontinue
participation at any time. If you have any additional questions
after I leave, they will be addressed at the time the study is
conducted or you may call me at 896-7607. You may have the results
of this study by contacting me. (Provide name and address.) Thank
you for your consideration to participate in this study.

(If anyone is in attendance at the study that has not heard this
script, it will be repeated before the administration of the research
tools. Additional questions will be addressed.

My name and address will be provided again.)

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