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Intuition and the Decision Making Process of Expert Critical Care Nurses

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**INTUITION AND THE DECISION MAKING PROCESS
OF EXPERT CRITICAL CARE NURSES**

by

Kelley A. Hemsall

A THESIS

**Submitted to
Grand Valley State University
in partial fulfillment of the requirements for the
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ABSTRACT
INTUITION AND THE DECISION MAKING PROCESS
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Kelley A. Hempsall

The purpose of this study was to examine the role of intuition and the decision making process of expert critical care nurses in providing health care for hospitalized patients. A descriptive correlational design was employed using a non-probability convenience sample of 172 registered nurses working in critical care areas. Data were obtained by a questionnaire developed by the researcher. Ninety five nurses (55.2%) responded. Data analysis included a comparison of the relationship of expert nurses' (n=49) total scores and the total scores of the non-expert nurses (n=46). No statistically significant difference was found in either the expert or non-expert group based on gender or initial nursing education. A significant difference was found between the 2 groups based on years in critical care and years as a registered nurse. Expert nurses used intuition in decision making more based on significantly higher total scores.

Dedication

**This work is dedicated to my parents who have always believed
I could do more than I thought was possible.**

Acknowledgments

I am grateful to many people for their help with this research project.

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CHAPTER 1

INTRODUCTION

Nurses make decisions regarding patient care on a daily basis. Many of these decisions make a difference in patient outcomes. Decision making involves assessment, knowledge, action, and evaluation. These steps represent a linear process. Nursing, however, invariably involves highly complex elements that require analytical and non-linear thinking processes (Miller & Rew, 1989). It is within the non-linear thinking process that intuition plays an integral role. Using intuitive knowledge involves drawing on experience, sensing subtle qualitative changes, linking perceptions from the past with an anticipated future, and taking action (Schraeder & Fischer, 1987).

Expert nurses use more than just the linear process to solve complex problems in patient care. The expert, in fact, has an intuitive grasp of the situation that involves seeing the whole picture and recognizing patterns inherent in previous experiences (Rew, 1988a). Not all experienced nurses are able to use intuition to assist in decision making. While it is necessary to have experience from which to draw, intuition is not another name for experience. Experience is only one component of intuition (Schraeder & Fischer, 1987). The degree to which intuition plays a role in the decision making process of expert nurses is of concern to this researcher.

Patricia Benner's (1984) Novice to Expert Model is based on ascending levels of proficiency. According to the model, the nurse passes through five stages of career development; novice, advanced beginner, competent, proficient and expert. Benner's model proposes that one component of the expert stage is working from an intuitive base.

Statement of the Problem

This research examined intuition and the decision making process of expert critical care nurses in comparison to non-expert critical care nurses. Specific questions to be answered were: What role does intuition play in the decision making process? Is there a difference between expert and non-expert critical care nurses' use of intuition in decision making?.

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The theoretical framework for this research study is Benner's (1984) Novice to Expert Model. The focus of the literature review includes the definitions of intuition and the use of intuition in nursing decision making.

Theoretical Framework

Patricia Benner (1984) has developed the Novice to Expert Model which is the basis for this research. Benner's model is based on ascending levels of proficiency. Benner has built on the Dreyfus Model of Skill Acquisition. The Dreyfus model states that in the acquisition and development of a skill, a student passes through five levels of proficiency: novice, advanced beginner, competent, proficient, and expert (Dreyfus & Dreyfus, 1986, p. 21). "These different levels reflect changes in three general aspects of skilled performance. One is a movement from reliance on abstract principles to the use of past concrete experience as paradigms. The second is a change in the learner's perception of the demand situation, in which the situation is seen less and less as a compilation of equally relevant bits, and more and more as a complete whole in which only certain parts are relevant. The third is a passage from detached observer to involved performer" (Benner, 1984, p. 13).

Benner defines the five levels of proficiency relative to nursing as follows. "The novice is the nurse who has no experience in the area in which she/he is expected to

perform. Nursing students enter new clinical areas as novice, but students are not the only novices. Any nurse entering a clinical setting where she or he has no experience with the patient population may be limited to the novice level of performance if the goals and tools of patient care are unfamiliar” (Benner, 1984, p. 21). The novice is guided by concrete rules to follow.

The advanced beginners are ones who can demonstrate marginally acceptable performance (Benner, 1984). The advanced beginner is starting to assimilate knowledge based on recurring situations. The third stage is competent. “Competence, typified by the nurse who has been on the job in the same or similar situations two or three years, develops when the nurse begins to see his or her actions in terms of long-range goals or plans of which he or she is consciously aware” (Benner, 1984, p. 25). Benner goes on to further define the competent nurse as lacking the speed and flexibility of the proficient nurse while having a feeling of mastery and the ability to cope with and manage the many contingencies of clinical nursing.

Proficient nurses perceive situations as wholes rather than in terms of aspects and their performance is guided by maxims. “Proficient nurses understand a situation as a whole because they perceive its meaning in terms of long-term goals” (Benner, 1984, p. 27). Proficient nurses are able to modify their plans in response to events based on experience. This understanding improves the proficient nurse's decision making; it becomes less labored because the nurse now has a perspective on which existing attributes and aspects are determined to be the important ones. “Whereas the competent person does not yet have enough experiences to recognize a situation in terms of an overall picture or in terms of which aspects are most salient or most important, the proficient

performer considers fewer options and hones in on an accurate region of the problem” (Benner, 1984, p. 29).

The final level in Benner's model is the expert. “The expert does not rely on an analytic principle to connect her/his understanding of the situation to an appropriate action. The expert nurse, with an enormous background of experience, now has an intuitive grasp of each situation and zeros 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). Expertise is not based on years of experience. This nurse has rich perspectives based on his or her experiences, however, responses and interventions are most often based on intuition (Harvey & Tveit, 1994, p. 50).

Research on Intuition in Nursing

Several studies have been done to determine how or if expert nurses use intuition in decision making. The authors of these studies also give their definitions of intuition. The subjects of these studies included nurses dealing with different patient populations.

Schraeder and Fisher (1987) studied intuition with a qualitative methodology. They define intuition as the sudden, inexplicable feeling that something is wrong, even if medical tests cannot confirm the patient's altered state. In their study 15 staff nurses, the head nurse, and the medical director of a 20 bed nursery in a large university medical center were interviewed. The nurses interviewed had one to seven years experience with a mean of four years. Data were also gathered by participant observation and review of primary documents. The tape recorded interviews were examined for common themes. The authors did not specify if "expert" nurses were used exclusively or how these might have been defined.

The major theme of the study was the use of intuitive knowledge to form judgments and to initiate nursing actions in situations in which the extreme deterioration of an infant's physical condition was anticipated (Schraeder & Fisher, 1987, p. 48). They found four factors that influenced intuitive thinking. The first factor was the characteristic of the nurse. It was assumed that nurses who were caring and nurturing would be more intuitive. "Paradoxically, intuitive thinking was found in the most experienced, technically proficient nurses who might or might not be sensitive to some of the caring dimensions of neonatal nursing, such as support to parents" (Schraeder & Fisher, 1987, p. 48). These nurses used intuition along with their in-depth knowledge of neonatal nursing and vast experience with clinical problems.

The second factor in using intuition in decision making was "a feeling of relatedness to the infant" (Schraeder & Fisher, 1987, p. 48). This "relatedness" involved feelings of love for the infant, feelings of loss at the prospect of the child dying and looking forward to coming to work to care for the infant.

Perceiving the infant's physiological cues, i.e., color, activity level, movement, tone and posture, was the third factor in the use of intuitive knowledge. "Knowing an infant enables a nurse to perceive those cues that are individual to that infant and then make judgments about the significance of those cues" (Schraeder & Fisher, 1987, p. 49).

The fourth factor in using intuition in clinical decision making was the pairing of present knowledge with past experiences. This allowed the nurse to anticipate the future and to take necessary action.

Young (1987) defines clinical intuition as a process whereby the nurse knows something about a patient that cannot be verbalized, that is verbalized with difficulty, or

for which the source of knowledge cannot be determined. Young used qualitative methods when she observed and interviewed 41 registered nurses in a variety of clinical settings. The nurses were asked to describe their past experiences using intuition. The responses were coded by the researcher based on Young's intuitive knowledge scale for the amount of intuition involved in the judgment process. The characteristics Young found in nurses who were most intuitive were an open attitude toward people, an acceptance of nontraditional medical treatment and the ability to articulate their use of intuition.

Rew (1988a, 1988b, 1990, 1991) conducted several studies examining nurses' use of intuition. The Rew (1990) study used a qualitative descriptive method to study 25 critical care nurses' use of intuition. The author focused on the steps in the nursing process in which intuition was used and the emotions felt by the nurse when using intuition. The majority of the nurses said they experienced intuition during the assessment and the implementation/intervention steps of the nursing process. Twelve nurses agreed that they used intuition during nursing diagnosis, while 11 indicated that they experienced this phenomenon during evaluation. Nine nurses stated they had intuitive experiences during the planning phase. "Many nurses stressed that they were less likely to rely on intuition during the planning and evaluation steps of the nursing process because this was where they consciously applied scientific information and validated their care with observable data" (Rew, 1990, p. 34).

The physiological sensations the nurses felt when using intuition ranged from eyes tearing, ears ringing, mouth dryness, tightening of the muscles, increased heart rate, nausea and adrenaline pumping. Emotions experienced by the nurses included love,

empathy, worry, anxiousness and concern. According to Rew (1990), these findings supported those of Schraeder and Fisher. The findings in this study support the theory that critical care nurses use intuition in decision making.

Pyles and Stern (1983) developed the theory of Nursing Gestalt after conducting in-depth interviews with 28 critical care nurses. This theory is used to explain the cognitive process used by experienced critical care nurses when making assessments and judgments (Pyles & Stern, 1983, p. 51). Nurses' intuition has a role in Nursing Gestalt. The authors state that "gut feelings" are the essence of the art of nursing. "While theoretical knowledge is necessary for sound judgment, the nurse's sensory impression of the patient is equally important" (Pyles & Stern, 1983, p. 54). The nurses often found resistance when they told physicians that their assessment of a situation was based on "gut feelings" or a "sixth sense." The physicians wanted scientific information. The expert nurses felt this was an increased risk to their patients when the nurse is not believed because the assessment is not based on scientific fact. Often the nurse's assessment of a problem was dismissed by the physician and later the nurse's gut feeling proved true.

Benner and Tanner (1987) state that "intuition is an understanding without a rationale and that intuitive judgment is what distinguishes expert judgment from the decisions or computations that might be made by a beginner or by a machine"(p.23). They conducted a pilot study to determine the nature and role of intuition in expert clinical judgment. The study group was comprised of 21 nurses deemed expert by their peers. These nurses all had at least five years experience in a clinical area. The researchers interviewed the nurses a minimum of three times and observed their clinical practice. From this information the researchers found examples of Dreyfus's six key aspects of

intuitive judgment: pattern recognition, similarity recognition, common sense understanding, skilled know-how, sense of salience, and deliberative rationality (Benner & Tanner, 1987, p. 23). This research supports the concept that intuitive knowledge and analytic reasoning can be used simultaneously in decision making.

Research on Intuition Outside of Nursing

Research regarding intuition and decision making is not limited to nursing. Cosier and Aplin (1982) studied the role that intuition plays in decision making by studying 111 business students. The experimenter displayed five playing cards, 10 through ace (the same suit). The experimenter stated that he was going to shuffle the five cards and draw one. The subjects were told to concentrate on the card's identity and record their predictions. After they wrote down their predictions, the experimenter displayed the card. This process was continued for 30 draws. Next, the experimenter told the subjects that they would be repeating the card-identification process with a different set of cards. As before, the subjects made 30 predictions of the cards' identities. The card-reading task was used to identify potentially highly intuitive subjects. Eight or more correct card identifications on both sets of 30 card-reading trials was selected as the criterion (Cosier & Aplin, 1982, p. 279). The researchers separated subjects into groups with high and low intuition depending on the ability to identify cards. The subjects then made a series of simulated managerial decisions. The subjects in the highly intuitive group made significantly better decisions in the simulated decision task than the other subjects. "These results suggest that some individuals may have unique intuitive abilities which may assist in decision making" (Cosier & Aplin, 1982, p. 275).

Summary and Implications for this Study

A critique of the literature review reveals that the studies involving nurses are all qualitative and contained small convenient samples ($n < 50$). The findings of the research cannot be generalized to all nurses when small sample sizes are used. The research conducted by Schraeder and Fischer, Young, and Pyles and Stern did not define an expert nurse. Schraeder and Fischer (1987) used a mixed sample of nurses ranging from 1 to 7 years of experience. Young (1987) and Rew (1990) did not state if their samples were experienced or mixed. Pyles and Stern (1983) used experienced staff with a mean of 7.96 years. Since these samples are not similar and the definitions of expert are not clear, their usefulness in comparing the expert's and novice's use of intuition is limited. The participants of the studies were primarily female and no attempted investigation of the relationship between gender and intuition was made. No was there any mention of the cultural diversity of the participants was made.

Benner and Tanner (1987) did use expert nurses for their research. These participants were identified as expert by peers using Benner's definition of an expert nurse. Using peers to rate expert nurses may have led to responder bias. There was no indication that measures were taken to prevent this from occurring.

Research Question and Hypothesis

The research questions asked in this study were: What role does intuition play in the decision making process? Is there a difference between expert and non-expert critical care nurses' use of intuition in decision making? The hypothesis was that expert critical care nurses use intuition in making decisions more than non-expert nurses.

Definition of Terms

Benner (1984) defines expert as one who no longer relies on an analytic principle to connect her or his understanding of the situation to an appropriate action. “The expert nurse, with an enormous background of experience, has an intuitive grasp of each situation and zeros 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). For this study the above definition was used as well as the following criteria:

Expert nurse: must have a minimum of 5 years experience, fulfill the role of charge nurse, and/or act as a preceptor or resource person for the unit as determined by her or his manager.

Non-expert nurse: those nurses identified by their manager as not fulfilling the charge nurse role, not acting as a preceptor or resource person. The non-experts may vary in their years of experience.

Critical care nurse: a nurse who works in a unit specifically for the critically ill patient. The nurse may have a diploma, associate, or baccalaureate degree in nursing.

Critical care unit: any unit that has a high acuity of hemodynamically unstable patients who may require ventilatory support, vasoactive drugs, intensive monitoring and assessment. This may include the coronary care unit (CCU), cardiac surgery unit (CSU), neuro care unit (NCU), surgical trauma intensive care unit (STICU), the emergency department (ER), and the post anesthesia care unit (PACU).

Intuition: understanding without a rationale (Benner & Tanner, 1987).

Decision making: determining what to do in a given situation.

CHAPTER 3

METHODOLOGY

Study Design

A descriptive correlational design was used to examine the role of intuition in the decision making process of expert critical care nurses. The aim of using descriptive correlational research is to describe the relationship among variables rather than to infer cause and effect. The purpose of this study was to describe an existing relationship between the expert critical care nurse and the use of intuition in decision making. It is hypothesized that nurses defined as expert according to Benner's definition use intuition in decision making more than nurses who are not expert. A comparison was made of the number of years in nursing, age, gender between the expert and non-expert nurses..

A non-probability convenience sample was used for this research. Since this was a correlational study, there was no manipulation of the independent variable. In this research investigation the dependent variable is the use of intuition.

Selection of Subjects

The sample for this study was 172 critical care nurses from a medical center in a Midwest city. The criteria used to select the participants was: must be a registered nurse working in a critical care setting; may work either full or part time; must have practiced in a critical care setting for at least one year; must be identified as expert nurses or non-expert by their manager according to Benner's definition of an expert nurse; and may have

either a diploma, associate (ADN), or baccalaureate (BSN) degree in nursing or be enrolled in a graduate nursing program. The final criterion for participation in this study is that all participants of the study must work in a clinical role.

The unit managers were given a list of criteria to determine which staff members fit Benner's definition of an expert nurse. These criteria included: The expert nurse would no longer rely on an analytic principle to connect her or his understanding of the situation to an appropriate action. "The expert nurse, with an enormous background of experience, has an intuitive grasp of each situation and zeros 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 addition, expert nurses (for this study) must have a minimum of 5 years experience in nursing, may fulfill the charge nurse role, and/or may act as a preceptor or resource person for the unit. The list of expert nurses was forwarded to the researcher. The nurses identified by their manager as expert received colored questionnaires. The remainder received white questionnaires. This aided the researcher in differentiating how expert nurses use intuition in comparison with others without revealing who was classified as an expert nurse.

Characteristics of the Subjects

Of the 172 questionnaires distributed 78 (45.4%) were experts and 94 (54.6%) were non-expert as determined by their managers. Ninety-five questionnaires were returned. This equaled a response rate of 55.2%. Forty-nine (51.5%) of the responses were from the group considered to be expert. Forty-six non-experts (48.4%) returned questionnaires. The total respondents' ages ranged from 30 to 60 years, with a mean of 40.0 (s.d.=6.2). Eighty-two (86.3%) were female and 13 (13.7%) were male. The

number of years in nursing for the total number of respondents was from 5 to 38 years, with a mean of 15.7 years (s.d.=6.8).

The questionnaires were sent to nurses in all areas of critical care at the medical center. The breakdown of the number of respondents from each unit is displayed in Table 1.

Table 1

Respondents by Critical Care Unit

Unit	Total Sample n (%)	Non-Expert n (%)	Expert n (%)
PACU	21 (22.1)	8 (17.4)	13 (26.5)
CCU	13 (13.7)	8 (17.4)	5 (10.2)
CSU	19 (20.0)	9 (19.6)	10 (20.4)
STICU	11 (11.6)	5 (10.9)	6 (12.2)
ER	19 (20.0)	12 (26.1)	7 (14.3)
NCU	12 (12.6)	4 (8.7)	8 (16.3)

Instrument

The questionnaire used for this study was developed by the researcher as no quantitative tool was found that dealt with the concept of intuition (Appendix A). The content validity was reviewed by a doctorally prepared expert in the area of intuition. The tool met approval for content and appropriateness for the topic to be studied.

A pilot study was undertaken with ten graduate level nursing students to review the questionnaire for clarity, ease of use and understanding. Their comments were as follows: the questionnaire is easy to read and complete; the directions were clear, it took about 10 minutes to complete; two questions were redundant; and one question was perceived as antagonistic. The questionnaire was revised in response to these comments. The professor who reviewed the questionnaire felt it would be more exciting if the researcher elicited personal experiences from the participants. The tool was revised to include a section for participants to document any comments regarding the research topic, however, no respondents included comments about the topic. The items on the questionnaire were scored on a 5 point Likert scale. The participants ranked their responses to the items 1-strongly disagree through 5-strongly agree. Responses to each item on the questionnaire were totaled and used in data analysis as an indication of the use of intuition. It was assumed that the higher the score the more the respondent used intuition.

The tool was analyzed for internal consistency. The reliability coefficient alpha was found to be .87. Polit and Hungler (1991) define a reliability coefficient of .70 or greater as sufficient to test for internal consistency.

The instrument contained three a priori subscales. A reliability alpha coefficient was determined for each subscale. The first subscale reflected the respondents' attitude toward intuition. This subscale included 11 items (item number 1, 2, 3, 4, 15, 18, 19, 20, 21, 26, 33) and had a reliability alpha coefficient of .71. The second subscale related to the use of intuition with the nursing process. This subscale contained 5 items (items number 9, 10, 11, 12, 13) and had a reliability alpha coefficient of .90. The final subscale contained 17 items (items numbers 5, 6, 7, 8, 14, 16, 24, 25, 27, 28, 31, 32) pertaining to the use of intuition. The reliability alpha coefficient for this subscale was .48. A coefficient of .60 is sufficient for group-level comparisons. The .48 coefficient of the use of intuition in general subscale is problematic for group comparisons (Polit & Hungler, 1991). The items in each subscale were also totaled and used to examine each group's attitude toward intuition and use of intuition. Questionnaire items 17, 22, 23, 29, 30, 34, 35 and 36 did not belong in any of the subscales.

Data Collection Procedure

The nurse manager of the critical care areas (neuro care unit, surgical-trauma intensive care unit, coronary care unit, cardiac care unit, post anesthesia care unit and the emergency department) were sent a letter (Appendix B) explaining the research to be done and outlining Benner's definition of an expert nurse. They were asked to list those nurses in their departments who fit Benner's definition. This list of nurses was returned to the researcher. The researcher sent all critical care staff a letter explaining the research problem and purpose (Appendix C), and the research questionnaire. The staff deemed expert by their manager received a colored questionnaire. The remaining staff received a white questionnaire. Two weeks after the questionnaires were distributed, a follow up

letter was mailed (Appendix D). This letter served two purposes, one to thank the participants who returned their questionnaires and to encourage others to return the questionnaires as soon as possible. Fifty-two (30% of the sample, 55% of the respondents) questionnaires were returned initially. Forty-three (25% of the sample, 45% of the respondents) were returned after the reminder.

Benefits and Risks to the Subjects

In order to conduct this research study, permission was obtained from Grand Valley State University Human Subjects Committee (Appendix E) and the Nursing Research Committee (Appendix F) at the Midwestern hospital where the research was conducted. It was determined that the participants in this study would not receive any direct benefit from their participation. There was no personal risk or job jeopardy associated with participation in the study. All responses were kept confidential and anonymity of participants was maintained. Although there was no direct benefit to the participants, the identification of decision making practices will be useful to the profession of nursing.

CHAPTER 4

RESULTS

The purpose of this study was to examine intuition and the decision making process of expert critical care nurses. Data analysis was accomplished utilizing the Statistical Package for Social Sciences (SPSS/WIN+) software.

Hypothesis

The hypothesis for this study was: Expert critical care nurses use intuition in making decisions more than non-expert nurses. Statistical analyses used in this study were Chi square and t-tests. Significance was set at $p < .05$ for all tests.

Comparison of the Subsamples

Chi square was used to determine if there was a difference between the non-expert and expert groups according to gender and initial nursing education. There was no statistically significant difference found in either group based on these 2 factors. Results are shown in Tables 2 and 3.

In order to further evaluate the sub-sample, t-tests were done to examine age, years as a registered nurse, and years in critical care nursing. There was no significant difference in the age of the participants in the non-expert and expert groups ($t = -.06$; $d.f. = 93$; $p = .94$). There was a significant difference found between the 2 groups according to years as a registered nurse ($t = -2.02$; $d.f. = 93$; $p = .04$) and years in critical care nursing

($t=-2.98$; d.f.=93; $p=.004$). Table 4 further examines the expert and non-expert groups by comparing the mean ages, years in nursing and years in critical care for each group.

Table 2

Comparison of Gender in Expert and Non-Expert Groups

Group	Male n (%)	Female n (%)
Expert	8 (16.3%)	41 (83.7%)
Non-Expert	5 (10.9%)	41 (89.1%)

Note. $X^2 = 0.6$; d.f.=1; $p>.05$.

Table 3

Comparison of Initial Nursing Education in Expert and Non-Expert Groups

Group	Diploma n (%)	ADN n (%)	BSN n (%)
Expert	9 (18.4%)	30 (61.2%)	10 (20.4%)
Non-Expert	13 (28.3%)	23 (50.0%)	10 (21.7%)

Note. $X^2 = 1.58$; d.f.=2; $p>.05$.

Table 4

Comparison of Expert and Non-Expert Groups by Age, Years in Nursing, and Years in Critical Care

	Expert m (s.d.)	Non-Expert m (s.d.)	t
Age	40.0 (5.5)	40.0 (6.9)	-0.06
Years in Nursing	17.0 (5.4)	14.3 (7.8)	-2.02*
Years in Critical Care	13.9 (4.8)	10.5 (6.1)	-2.98*

Note: * Significant < .05

Members in both groups had specialty certification. Twenty-one (22.1%) of the respondents had specialty certification. The Critical Care Certified Registered Nurse (CCRN) certification was the most common. Six (12.2%) experts had CCRN certification compared to 2 (4.3%) of the non-experts.

Forty-eight (98%) of the 49 expert nurses serve as a member of the hospital's code zero response team. Eighteen (39%) of the 46 non-expert nurses also participate on the code team.

Comparisons of the experts' and non-experts' responses to the items in each subscale are shown in Tables 5, 6, and 7. Items which did not belong in the subsamples are found in Table 8. Responses of strongly agree and agree were collapsed as were responses of strongly disagree and disagree. Experts seem to agree more with all the

items in the use of intuition with the nursing process subscale than the non-experts. The non-experts group agree more than the expert group that intuition is a hunch. Non-experts agreed that they trust the decisions made based on intuition. A large percentage of the expert group disagreed that novice nurses use intuition. Nearly half of the non-experts felt neutral about the statement.

Table 5

Comparison of Responses to Items in the Attitude Toward Intuition Subscale

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
1. Intuition is a sixth sense.				
Expert	40 (81.6)	4 (8.2)	5 (10.2)	49 (100)
Non-Expert	34 (73.9)	9 (19.6)	3 (6.5)	46 (100)
2. Intuition is another name for experience.				
Expert	35 (71.4)	7 (14.3)	7 (14.2)	49 (100)
Non-Expert	28 (60.9)	7 (15.2)	11 (23.9)	46 (100)
3. Intuition is a way of knowing.				
Expert	42 (85.7)	4 (8.2)	3 (6.1)	49 (100)
Non-Expert	33 (71.7)	8 (17.4)	3 (6.5)	44 (96)
4. Intuition is a gut feeling.				
Expert	47 (95.9)	1 (2.0)	1 (2.0)	49 (100)
Non-Expert	40 (86.9)	5 (10.9)	1 (2.2)	46 (100)
15. Intuition is a hunch.				
Expert	30 (61.2)	11 (22.4)	8 (16.3)	49 (100)
Non-Expert	29 (63.0)	7 (15.2)	10 (21.8)	46 (100)

Table 5 (continued)

Comparison of Responses to Items in the Attitude Toward Intuition Subscale

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
18. I trust the decisions I make based on objective data.				
Expert	44 (89.8)	4 (8.2)	1 (2.0)	49 (100)
Non-Expert	42 (91.3)	3 (6.5)	1 (2.2)	46 (100)
19. I trust the decisions I make based on intuition.				
Expert	44 (89.8)	4 (8.2)	1 (2.0)	49 (100)
Non-Expert	33 (71.8)	8 (17.4)	5 (10.9)	46 (100)
20. I believe others trust the decisions I make based on objective data.				
Expert	47 (95.9)	2 (4.1)	0 (0.0)	49 (100)
Non-Expert	40 (86.9)	5 (10.9)	1 (2.2)	46 (100)
21. I believe others trust the decisions I make based on intuition.				
Expert	40 (81.6)	7 (14.3)	2 (4.0)	49 (100)
Non-Expert	24 (52.1)	16 (34.8)	6 (13.0)	46 (100)
26. I believe in intuition.				
Expert	43 (87.8)	4 (8.2)	1 (2.0)	48 (98)
Non-Expert	35 (76.1)	4 (8.7)	7 (15.2)	46 (100)
33. I believe others when they make decisions based on intuition.				
Expert	39 (79.6)	9 (18.4)	1 (2.0)	49 (100)
Non-Expert	30 (65.2)	14 (30.4)	2 (4.4)	46 (100)

Note. Percentages do not add up to 100% due to missing data.

Table 6

Comparison of Responses to Items in the Use of Intuition with the Nursing Process Subscale

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
9. I use intuition when assessing a patient.				
Expert	32 (65.3)	9 (18.4)	8 (16.3)	49 (100)
Non-Expert	24 (52.2)	12 (26.1)	10 (21.8)	46 (100)
10. I use intuition in making a nursing diagnosis.				
Expert	28 (57.2)	10 (20.4)	10 (20.4)	48 (98)
Non-Expert	19 (41.3)	15 (32.6)	12 (26.0)	46 (100)
11. I use intuition in planning care.				
Expert	35 (71.5)	5 (10.2)	9 (18.4)	49 (100)
Non-Expert	22 (47.8)	18 (39.1)	6 (13.0)	46 (100)
12. I use intuition in implementing care.				
Expert	35 (71.4)	8 (16.3)	6 (12.2)	49 (100)
Non-Expert	23 (50.0)	15 (32.6)	8 (17.4)	46 (100)
13. I use intuition in evaluating care.				
Expert	27 (55.1)	9 (18.4)	13 (26.5)	49 (100)
Non-Expert	18 (39.1)	16 (34.8)	12 (28.3)	46 (100)

Note. Percentages do not add up to 100% due to missing data.

Table 7

Comparison of Responses to Items in the Use of Intuition in General Subscale

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
5. Men use intuition.				
Expert	18 (36.7)	20 (40.8)	11 (22.5)	49 (100)
Non-Expert	14 (30.5)	21 (45.7)	9 (19.5)	44 (96)
6. Women use intuition.				
Expert	44 (89.8)	5 (10.2)	0 (0.0)	49 (100)
Non-Expert	39 (84.8)	7 (15.2)	0 (0.0)	46 (100)
7. I have used intuition in my practice.				
Expert	47 (95.9)	1 (2.0)	1 (2.0)	49 (100)
Non-Expert	42 (91.3)	2 (4.3)	1 (2.2)	45 (97)
8. Physicians use objective data more than intuition.				
Expert	36 (73.5)	9 (18.4)	4 (8.2)	49 (100)
Non-Expert	33 (71.8)	4 (8.7)	9 (19.6)	46 (100)
14. I use intuition when a patient "doesn't look right".				
Expert	42 (85.7)	5 (10.2)	2 (4.0)	49 (100)
Non-Expert	38 (82.6)	5 (10.9)	3 (6.5)	46 (100)
16. Experienced nurses use intuition.				
Expert	44 (89.8)	5 (10.2)	0 (0.0)	49 (100)
Non-Expert	33 (71.7)	8 (17.4)	5 (10.9)	46 (100)
24. Novice nurses use intuition.				
Expert	6 (12.2)	16 (32.7)	26 (53.1)	48 (98)
Non-Expert	13 (28.2)	21 (45.7)	12 (26.0)	46 (100)

Table 7 (continued)

Comparison of Responses to Items in the Use of Intuition in General Subscale

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
<hr/>				
25. I would never use intuition to make a decision.				
Expert	1 (2.0)	3 (6.1)	45 (91.8)	49 (100)
Non-Expert	1 (2.2)	9 (19.6)	36 (78.3)	46 (100)
27. Men and women use intuition to the same degree.				
Expert	14 (28.5)	9 (18.4)	26 (53.1)	49 (100)
Non-Expert	1 (2.2)	19 (41.3)	26 (56.6)	46 (100)
28. My intuitive knowledge has been useful.				
Expert	43 (87.8)	5 (10.2)	1 (2.0)	49 (100)
Non-Expert	39 (84.8)	5 (10.9)	2 (4.3)	46 (100)
31. I encourage others to use their intuition.				
Expert	19 (59.2)	16 (32.7)	4 (8.2)	49 (100)
Non-Expert	18 (39.1)	20 (43.5)	8 (17.3)	46 (100)
32. The longer I am a nurse, the more I use intuition.				
Expert	38 (77.5)	8 (16.3)	3 (6.1)	49 (100)
Non-Expert	26 (56.5)	11 (23.9)	9 (19.5)	46 (100)

Note. Percentages do not add up to 100% due to missing data.

Table 8

Comparison of The Remaining Items of the Questionnaire

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
17. I am not aware of when my decisions are based on intuition				
Expert	35 (71.4)	7 (14.2)	7 (14.2)	49 (100)
Non-Expert	33 (71.8)	8 (17.4)	5 (10.9)	46 (100)
22. My decisions based on objective data have saved someone's life.				
Expert	47 (95.9)	1 (2.0)	1 (2.0)	49 (100)
Non-Expert	19 (41.3)	15 (32.6)	12 (26.0)	46 (100)
23 My decisions based on intuition have saved someone's life.				
Expert	47 (95.9)	1 (2.0)	1 (2.0)	49 (100)
Non-Expert	14 (30.5)	21 (45.7)	9 (19.5)	44 (96)
29. I have called a physician and told him/her. " I can't put my finger on it, but something is not right".				
Expert	47 (95.9)	0 (0)	2 (4.1)	49 (100)
Non-Expert	28 (60.9)	7 (15.2)	11 (23.9)	46 (100)
30. I have made life or death decisions based on intuition.				
Expert	42 (85.7)	4 (8.2)	3 (6.1)	49 (100)
Non-Expert	10 (21.8)	7 (15.2)	29 (63.0)	46 (100)

Table 8 (continued)

Comparison of The Remaining Items of the Questionnaire

Item Number	Agree n (%)	Neutral n (%)	Disagree n (%)	Total n (%)
34. When others dispute a decision I made based intuition. I suggest they disprove it.				
Expert	28 (57.2)	10 (20.4)	10 (20.4)	48 (98)
Non-Expert	19 (41.3)	15 (32.6)	12 (26.0)	46 (100)
35. When others dispute a decision I made based on intuition I feel that I must substantiate it.				
Expert	8 (16.3)	0 (0)	41 (83.6)	49 (100)
Non-Expert	23 (50.0)	15 (32.6)	8 (17.7)	46 (100)
36 Because of intuition I have gotten emergency equipment ready before the patient's vital signs or EKG pattern were life threatening.				
Expert	40 (81.6)	7 (14.3)	2 (4.0)	49 (100)
Non-Expert	33 (71.8)	8 (17.4)	5 (10.9)	46 (100)

Note. Percentages do not add up to 100% due to missing data.

Hypothesis testing

A t-test was used to analyze the non-expert group's total score (mean=128.82; s.d.=13.2) to the expert group's total score (mean=136.42; s.d.=14.6). The analysis was done on 95 subjects with no missing data. There was a significant difference between the 2 groups ($t=-2.66$; d.f.=92.89; $p=.009$). Thus the hypothesis was supported.

A t-test was done on each subscale to determine its significance based on the participants' responses. The attitude subscale was found to be statistically significant ($t=2.10$; $d.f.=93$; $p=.039$).

The differences in scores on the use of intuition with the nursing process subscale was not statistically significant ($t=-1.60$; $d.f.=93$; $p=.113$) nor was the subscale for the use of intuition in general ($t=-1.94$; $d.f.=93$; $p=.056$). However, the latter difference approached significance and may be significant if the sample size were larger. The mean values for each sub-scale are represented in Table 9.

Table 9

Mean Values for Subscales

Scale	Expert	Non-Expert	t
	m (s.d.)	m (s.d.)	
Attitude toward Intuition	44.5 (5.0)	42.2 (4.4)	2.10*
Use of Intuition with the Nursing Process	17.9 (5.0)	16.4 (3.8)	-1.60
Use of Intuition in General	61.4 (8.7)	58.2 (7.3)	-1.94
Total Score	136.4 (14.6)	128.8 (13.2)	-2.66*

Note. * $p < .05$

CHAPTER 5

DISCUSSION AND IMPLICATIONS

The findings of this study did support the hypothesis that expert critical care nurses use intuition in decision making more than non-expert critical care nurses. The subscale analysis indicates that the attitudes toward intuition are significantly different while the use of intuition in general approaches significance.

There were characteristics on which the expert and non-expert groups showed some similarities. Both groups were primarily female. The initial nursing education for both groups was predominately the Associate Degree in Nursing. This may be due to the fact that there is a community college in the city where the research was conducted.

Relationship of Findings to the Conceptual Framework

According to the research findings, the expert critical care nurses did use intuition in decision making, based on their total and subscales scores. The experts scored significantly higher in their attitude toward intuition and their use of intuition based on total scores. Both groups were similar in their response to using intuition with the nursing process. These findings lend some support to the conceptual framework. Benner's (1984) concept that the expert nurse has an intuitive grasp of each situation and zeros in on the accurate region of the problem was reflected in the research findings. The experts' responses to items in the use of intuition in general subscale parallel Benner's concept. Forty-seven (95.9%) of the experts agreed with the statement that they have used intuition

in their practice and 42 (85.7%) have used intuition when a patient "doesn't look right." Overwhelmingly, 45 (91.8%) of the experts disagreed with the statement I would never use intuition to make a decision. Most experts 43 (87.8%) felt their intuitive knowledge has been helpful. Experts seem to accept intuition more than non-experts. There was a difference in the use of intuition between the 2 groups of participants. The experts may have ascended to a higher level of proficiency and may have greater confidence in their use of intuition. According to Benner (1984) working from an intuitive knowledge base is a characteristic held by experts.

Relationship of Findings to Previous Research

Rew (1990) found the majority of nurses said they experienced intuition during the assessment and intervention steps of the nursing process. The results of this research agrees with Rew' findings. Of the expert nurses 32 (65.3%) used intuition in the assessment and 35 (71.4%) used intuition during intervention. Twenty-four (52.2%) of the non-experts used intuition in assessment and 23 (50%) used it during implementation of care.

Limitations and Recommendations

The findings of this study are from a non-random sample of 95 critical care nurses from one Midwestern medical center. Thus the results cannot be generalized beyond the present sample. In order to generalize, a much larger random sample from several hospitals would need to be utilized.

The medical center was involved in work redesign activities when this study was done. There was a feeling of skepticism among many staff members. This may have negatively influenced participation in the study.

A limitation of the study was the small number of male participants. Of the total participants 13.7% (n=13) were male. Moses (1992) reports that 4.3% of the registered nurses in the United States are male. There were no reported statistics regarding the number of male registered nurses in critical care. While this is a larger percentage than in the overall population of registered nurses, the number of men was too small to study as a subsample. Further research is needed to indicate the use of intuition by male nurses specifically.

The instrument used for this study may be more useful to examine attitudes toward intuition than use of intuition. Although this study assumed that the participants' total score reflected their use of intuition, this may not be the case. The results of the three a priori subscales suggest that the instrument is more reflective of attitudes toward intuition than overall use of intuition. The instrument should be tested on larger groups and needs to be refined to be reflective of the actual use of intuition.

Implications for Nursing

As nurses mature with their profession they need to be encouraged to trust and use their intuition. Nurse educators, managers, preceptors, mentors, and doctors must facilitate this by acknowledging the stages of skill acquisition and supporting the use of intuition.

Nursing practice can be enhanced when nurses trust and use intuition. The decision to act before objective data are available can be potentially time saving as well as life saving. Nurses who are in tune to their intuition can foster others to use intuition by role modeling, mentoring and encouraging.

Nursing administration can help the novice nurse by providing an environment

which facilitates moving from education to practice. One example is the teaming of a novice nurse with an expert nurse in a preceptor role, thus providing a resource in a non-threatening setting. The preceptor can assist the novice with skill acquisition, pattern recognition and clinical judgment.

Nursing educators can increase the use of intuition by using teaching scenarios that develop clinical decision making and cue recognition. Students need to be challenged to make clinical decisions based on abstract as well as objective data.

Future Research

Suggestions for future research include replication of this study with the following changes in sample; more male nurses, nurses from different specialties such as obstetric and psychiatric nurses, and nurses of different ethnic backgrounds. More research using quantitative as well as qualitative methods would be helpful. To accomplish these studies, refinement of this instrument or development of another would be necessary. Further research in the intuitive processes of nurses will provide a foundation which will promote the use and trust of intuition. Working from an intuitive knowledge base is insightful and should not be discouraged.

APPENDICES

APPENDIX A

Intuition Questionnaire

APPENDIX A

CODE__(1,2)

Intuition Questionnaire

Please respond to the following statements by circling the number which corresponds to your feelings regarding the statement. The responses are numbered 1 through 5 and correspond as follows:

1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.

- | | |
|---|-----------|
| 1. Intuition is a sixth sense. | 1 2 3 4 5 |
| 2. Intuition is another name for experience. | 1 2 3 4 5 |
| 3. Intuition is a way of knowing. | 1 2 3 4 5 |
| 4. Intuition is a gut feeling. | 1 2 3 4 5 |
| 5. Men use intuition. | 1 2 3 4 5 |
| 6. Women use intuition | 1 2 3 4 5 |
| 7. I have used intuition in my practice. | 1 2 3 4 5 |
| 8. Physicians use objective data more than intuition. | 1 2 3 4 5 |
| 9. I use intuition when assessing a patient. | 1 2 3 4 5 |
| 10. I use intuition in making a nursing diagnosis. | 1 2 3 4 5 |
| 11. I use intuition in planning care. | 1 2 3 4 5 |
| 12. I use intuition in implementing care. | 1 2 3 4 5 |
| 13. I use intuition in evaluating care. | 1 2 3 4 5 |

1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

- | | |
|--|-----------|
| 14. I use intuition when a patient "doesn't look right". | 1 2 3 4 5 |
| 15. Intuition is a hunch. | 1 2 3 4 5 |
| 16. Experienced nurses use intuition. | 1 2 3 4 5 |
| 17. I am not aware of when my decisions are based on intuition. | 1 2 3 4 5 |
| 18. I trust the decisions I make based on objective data. | 1 2 3 4 5 |
| 19. I trust the decisions I make based on intuition. | 1 2 3 4 5 |
| 20. I believe others trust the decisions I make based on objective data. | 1 2 3 4 5 |
| 21. I believe others trust the decisions I make based on intuition. | 1 2 3 4 5 |
| 22. My decisions based on objective data have saved someone's life. | 1 2 3 4 5 |
| 23. My decisions based on intuition have saved someone's life. | 1 2 3 4 5 |
| 24. Novice nurses use intuition. | 1 2 3 4 5 |
| 25. I would never use intuition to make a decision. | 1 2 3 4 5 |
| 26. I believe in intuition. | 1 2 3 4 5 |
| 27. Men and women use intuition to the same degree. | 1 2 3 4 5 |
| 28. My intuitive knowledge has been useful. | 1 2 3 4 5 |

1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

- | | |
|---|-----------|
| 29. I have called a physician and told him/her, "I can't put my finger on it, but something is not right." | 1 2 3 4 5 |
| 30. I have made life or death decisions based on intuition. | 1 2 3 4 5 |
| 31. I encourage others to use their intuition. | 1 2 3 4 5 |
| 32. The longer I am a nurse, the more I use intuition. | 1 2 3 4 5 |
| 33. I believe others when they make decisions based on intuition. | 1 2 3 4 5 |
| 34. When others dispute a decision I made based on intuition I suggest they disprove it. | 1 2 3 4 5 |
| 35. When others dispute a decision I made based on intuition I feel I must substantiate it. | 1 2 3 4 5 |
| 36. Because of intuition I have gotten emergency equipment ready before the patient's vital signs or EKG pattern were life threatening. | 1 2 3 4 5 |

If you have any comments on this topic, please feel free to write in the space below:

Characteristics

CODE____(1,2)

Please respond to the following questions. The numbers in parenthesis are for computer entry.

What is your age? _____

What is your gender? _____

How many years have you been a registered nurse? _____

How many years have you worked in critical care? _____

Which critical care unit do you work? _____

What is your initial nursing education?

___Diploma ___ADN ___BSN

Are you a charge nurse? _____

Are you a preceptor? _____

Are you on the code team? _____

Do other staff members use you as a resource? _____ If yes, how many questions are you asked during a shift? 1-3 ___, 4-9 ___, >9 ___.

APPENDIX B

Letter of Introduction to Management

APPENDIX B

Letter of Introduction to Management

Dear (Director's name),

In order to complete the thesis requirements for the M.S.N. degree at Grand Valley State University, I would like to invite your staff to participate in my research study. The purpose of the study is to examine what is the role of intuition in the decision making process of expert nurses. I need your assistance in determining which members of your staff are expert critical care nurses based on Patricia Benner's definition.

The expert, according to Benner, no longer relies on an analytic principle to connect her or his understanding of the situation to an appropriate action. The expert nurse, with an enormous background of experience, grasps each situation and zeros in on the accurate region of the problem. Also in order to reach the expert stage a nurse must have five years experience, act as a charge nurse and/or resource person or preceptor.

With this definition in mind, would you please send me a list of the staff who fit Benner's definition. Please remember that they must have a minimum of 5 years experience in critical care.

Please return this list to me in the enclosed envelope no later than July 15, 1995. Thank you for your time.

Sincerely,

Kelley Hemsall, RN, BSN

APPENDIX C

Letter to Staff Nurses

APPENDIX C

Letter to Staff Nurses

Dear Critical Care Nurse,

Nurses make important decisions everyday. Many of these decisions have life threatening consequences. Often the rationale for the decision is rooted in scientific knowledge, but sometimes a nurse makes a decision based on a "gut feeling." I am conducting a research study to determine how nurses make decisions.

This research is for my masters degree thesis requirement and is in no way connected with our employment at Borgess Medical Center. There is no personal risk or job jeopardy associated with your participation with this study. You will not receive any personal benefit from participating in this study, however, the identification of decision making practices will be useful to the profession of nursing. A questionnaire has been developed to illicit your responses. This questionnaire will take approximately ten minutes of your time. Your identity will not be revealed. The results of this study will help to develop learning of decision making/clinical judgment.

After completing the questionnaire, please return it in the self addressed stamped envelope. Please do not write your name on the questionnaire.

If you are interested in the results of this study, please contact me at the number below. Return of the questionnaire implies consent to participate in this study.

I will be happy to answer any questions. Thank you for your time and assistance.

Sincerely,

Kelley Hempsall RN, BSN
phone 382-1740

APPENDIX D

Follow up Letter

APPENDIX D

Follow up Letter

Dear Critical Care Nurse,

You may recall receiving a research questionnaire 2 weeks ago. If you have already returned it please accept my thanks. If you have not returned it please complete it and return it to me as soon as possible. I appreciate your time and assistance with this project. I will be happy to answer any questions or send you another questionnaire if you have misplaced yours.

Sincerely,

**Kelley Hemsall RN, BSN
phone 382-1740 or 226-7167**

APPENDIX E

Letter of Approval from Grand Valley State University

APPENDIX E

Letter of Approval from Grand Valley State University



1 CAMPUS DRIVE • ALLENSDALE MICHIGAN 49401-9403 • 616/895-6611

August 1, 1995

Kelley A. Hempsall
2522 Lorraine Ave.
Kalamazoo, MI 49008

Dear Kelley:

Your proposed project entitled *"Intuition and the Decision Making Process of Expert Critical Care Nurses"* has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,



Paul Huizenga, Chair
Human Research Review Committee

APPENDIX F

Letter of Approval from Hospital Research Committee

APPENDIX F

Letter of Approval from Hospital Research Committee

Borgess Medical Center
1521 Gull Road
Kalamazoo, Michigan 49001-1640
Telephone 616-383-7000

*Memorial
Sisters of St. Joseph
Health System, Inc.
Kalamazoo, Michigan*

BORGESS
Medical Center

August 10, 1995

Kelley A. Hemsall
2522 Lorraine Ave
Kalamazoo, MI 49008-2130

Dear Kelley:

The Nursing Research Committee is pleased to inform you that your proposal "Intuition and the Decision Making Process of Expert Critical Care Nurses" is approved for conduct at Borgess Medical Center.

As we discussed on the phone, we will need a copy of your abstract upon completion of the study. This information will be shared with the Quality Improvement Council and you may be asked to make a short presentation.

I look forward to the progress of this study. Please call me at 226-6798 if you have any questions.

Sincerely,



Connie Pardee MSN, RN, CEN
Chair, Nursing Research Committee

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