EVALUATION OF NURSING STUDENTS’ REFLECTIVE WRITING SKILLS FOR CRITICAL THINKING
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TABLE OF CONTENTS

Table of Contents ................................................................................................................................................. i-ii
Abstract .................................................................................................................................................................... iii

Chapter I: Introduction

Introduction ............................................................................................................................................................... 1
Background and Significance ................................................................................................................................. 3
Statement of Problem ............................................................................................................................................... 5
Purpose of the Study ................................................................................................................................................ 5
Research Question .................................................................................................................................................. 6
Theoretical Framework ........................................................................................................................................... 6
Definition of Reflective Writing - Conceptual ....................................................................................................... 6
Definition of Reflective Writing - Operational ...................................................................................................... 6
Definition of Critical Thinking Skills - Conceptual .............................................................................................. 7
Definition of Critical Thinking Skills - Operational ........................................................................................... 7
Limitations ............................................................................................................................................................. 7
Assumptions .......................................................................................................................................................... 7
Summary ............................................................................................................................................................... 8

Chapter II: Literature Review

Introduction ............................................................................................................................................................... 9
Purpose ................................................................................................................................................................. 9
Organizing Framework ....................................................................................................................................... 9
Students’ Perception of Critical Thinking .......................................................................................................... 11
Nurses’ Perceptions of Critical Thinking .................................................................23
Faculty Perceptions of Critical Thinking ...............................................................30
Summary ...................................................................................................................32

Chapter III: Methodology

Introduction .............................................................................................................35
Problem ...................................................................................................................35
Purpose ...................................................................................................................35
Research Questions .................................................................................................35
Population, Sample and Setting .............................................................................35
Protection of Human Subjects ...............................................................................36
Procedures .............................................................................................................37
Instrumentation ....................................................................................................37
Research Design ....................................................................................................38
Measures of Data Analysis ....................................................................................39
Summary ................................................................................................................39
References .............................................................................................................40
ABSTRACT

RESEARCH PAPER: Evaluation of Nursing Students’ Reflective Writing Skills for Critical Thinking.

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Reflective writing has been identified as a way of evaluating critical thinking, therefore nurse educators need to evaluate students’ writings for evidence of critical thinking. The purpose of this correlational study is to evaluate the relationship between students’ reflective writing and critical thinking skills. This is a partial replication of Kennison’s (2006) study. The conceptual framework for the study is Critical Thinking based on the American Psychological Delphi Research (Facione & Facione, 1994) project on critical thinking. The study will take place at Indiana-Purdue University, Fort Wayne Campus. The anticipated sample is 50 junior level nursing students enrolled in NUR 336 Medical-Surgical III Nursing of Adults with Complex HealthCare Problems. Reflective writing skills will be measured by the Critical Thinking scale. The California Critical thinking Skills Test (CCTST) will measure critical thinking of all students enrolled. Findings will provide evidence that critical thinking can be measured with the use of reflective writing and that reflective writing can improve critical thinking.
Chapter I
Introduction

Healthcare and technology are evolving in an ever-changing global environment (Nair & Leesberg-Stamler, 2013). The population of the United States (U.S.) is living longer, creating additional needs for medical/nursing technical and critical thinking skills due to an increase in chronic illness. Patients are being admitted to hospitals with complex health care issues. In addition, the Affordable Healthcare Act (ACA 2010) will allow an estimated 30 million Americans who have been uninsured, to have access to immediate and ongoing care leading to increased costs of Medicare and insurance coverage (Buettgens, Garret, & Holahsn, 2010).

Healthcare in the U.S. has higher administrative costs and overuse of advanced diagnostic and treatment technologies. Healthcare costs are rising annually, and with an estimated 77 million Baby Boomers reaching the age of retirement the social insurance programs Medicare and Medicaid spending is going to put a strain on the State and Federal governments’ budget (Kentworthy, 2011).

The nursing profession has more than 3 million members, and is the nation’s largest healthcare workforce. Nurses are directly involved with hospital delivery systems, and are leaders in reform. Nurses are faced with a number of barriers that prevent effective reform. Through the Robert Wood Johnson Foundation (RJFW) (Buettgens et al., 2010) and the Institute of Medicine (IOM, 2010), a 2 year initiative took place to assess and transform the nursing profession.

Four key messages were developed: practice to the full extent of education and training, achieve higher levels of education and training through an improved education system that promotes seamless academic progression, and be full
partners, with physician and in redesigning healthcare. The final message was that effective workforce planning and policy making require better data collection and information infrastructure. (Buettgens et al., 2010, p. 4)

Nursing education must keep pace with the healthcare industry to prepare competent professional nurses to meet the needs of the next decade. “Nurses must be talented critical thinkers to cope with the challenges related to the ever changing healthcare system” (Nair & Leesberg-Stamler, 2013, p. 131). Nurse educators should encourage nurses to complete the baccalaueate degree to meet the increasing demand for competent professionals. Academic nursing school leaders should encourage diversity of students to prepare for the diverse population that is being served. Nurses must challenge each other to be lifelong learners in order to provide competent care to a diverse population across the lifespan (Nair & Leesberg-Stamler, 2013).

Schools of nursing must prepare students to be competent practitioners. “Practicing nurses must be critical thinkers to effectively cope with advancing technologies, fiscal cutbacks, human resource limitations, and the increased acuity seen in many patient care situations” (Nair & Leesberg-Stamler, 2013, p. 131). Schools of nursing must prepare practitioners who provide safe, quality care to all patients. Nurses need to be positioned in the role of leader, and collaborate with physicians, and other members of the healthcare team, to conduct research to improve the medical/nursing environment and provide efficient, evidence based practice care (Nair & Leesberg-Stamler, 2013).

Nurse Educators have begun to see the benefits that reflective practice has on developing critical thinking skills for nursing students (Craft, 2005). Nurse Educators like Lasater, Nielson, Kennison, and Craft have all researched reflective writing in nursing education. The purpose is
for students to create new knowledge and understanding of patient care. Each time the student cares for a patient, experience is gained and a new level of skill is developed. Students are encouraged to write about clinical experiences and then brainstorm about feelings that may not have been addressed.

Critical thinking is more of a process than a definition. Critical thinking has components, phases and central features (Riddell, 2007). The goal of nurse educators is to prompt reflection and encourage students to develop habits of critical reflection. Students are educated in class about a complete assessments. Faculty need to integrate the actual assessment in practice with the help of a nurse educator (Benner, as cited in Kennison, 2012). This study will further the work of Kennison on reflective writing.

**Background and Significance**

Critical thinking has been analyzed and researched since the 1980’s. Interest has grown over the past 3 years, with as many as 300 nursing articles published discussing the value of critical thinking (Riddell, 2007). Critical thinking is thought to enhance clinical competence, but research evidence is inconsistent (Riddell, 2007). As cited in Riddell, Brookfield described critical thinking by using the following key components: “identifying and challenging assumptions, exploring and imagining alternatives, understanding the importance of context and engaging reflective skepticism” (p. 121). The literature attempts to define critical thinking, but it is thought that critical thinking requires description rather than a definition. Many nursing scholars such as Tanner, Lasater, Kennison, and Facione have attempted to define, describe and evaluate critical thinking (Tanner, 2006).

Over the last two decades critical thinking has been debated by many governing bodies and thought to be an important part of undergraduate nursing education. The governing bodies
include the U. S. Department of Education, the National League of Nursing, and the American Association of Colleges of Nursing (Scheffer & Rubenfeld, 2000, p. 352). A qualitative study was done on critical thinking, a Delphi study, to define critical thinking. The American Philosophical Association research study attempted to obtain a consensus from a diverse group of nursing experts about the understanding of critical thinking. A consensus definition was obtained. The six critical thinking skills identified were: defining, analyzing, reflecting and evaluating the problem using critical judgment.

There have been a number of attempts to measure critical thinking. The critical thinking scale is a tool that was developed to evaluate nursing students’ ability to critically think by evaluating reflective writing based on the six critical thinking skills identified in the Delphi study. The California Critical Thinking Skills Test (CCTST) was based on the Delphi study, and has been used to assess critical thinking skills of nursing students, and has demonstrated reliability (Facione & Facione, 1994).

Reflective writing about a clinical experience was used as a way to evaluate critical thinking (Kennison, 2006). Faculty looked for evidence of critical thinking by evaluating students’ writings using an 8 point Likert scale. Faculty identified students’ ability to interpret, analyze, evaluate, explain or self-examines clinical experience. Faculty scored the clinical writings in order to evaluate critical thinking (Kennison & Misselwitz, 2002, p. 241).

Learning journals, writing workshops, and critical incident analysis were used to help first year student nurses develop reflective writing skills. Usher, Francis and Owens, recognized the importance of reflection, and attempted to incorporate reflective writing exercises into an undergraduate curriculum. The authors learned that reflection about everyday incidents and critical incidents vary, and are hard for students to differentiate. The word “critical” lead
students to more dramatic events than everyday or routine events (Usher, Francis, & Owens, 1999, p. 11). An increase in students’ lived experiences were noted to influence the reflection in the writings encountered.

Reflective journaling helps students develop awareness about patient experiences (Harris, 2008). Findings from this qualitative study suggested that open-ended reflective journals promoted critical reflection and encouraged self-assessment, self-development and life-long learning (Harris, 2008, p. 316). In this study students were empowered to challenge and argue with those who were critiquing the journals, and defend what was written enabling students to develop skills for reflective writing.

The relationship between reflective writing and critical thinking is difficult to describe and evaluate. The use of the Critical Thinking Scale will allow faculty to evaluate critical thinking throughout the nursing program (Kennison, 2006). Further study is needed to validate the use of reflective writing and critical thinking in nursing Education.

Statement of Problem

Critical thinking is an expected skill for nurses in professional practice. Therefore nurse educators need to teach students how to critically think. Reflective writing is a way that nurse educators can evaluate students’ ability to critically think (Kennison, 2006).

Purpose of the Study

The purpose of this correlation study is to evaluate junior level nursing students’ ability to critically think by the evaluation of students’ reflective writing. This is a partial replication of Kennison’s, (2006) study.
Research Question

Is there a relationship between nursing students’ reflective writing about clinical experiences and critical thinking skills?

Conceptual Framework

The conceptual framework for the study is Critical Thinking based on the American Psychological Delphi Research (Facione & Facione, 1994) project on critical thinking. The Facione and Facione study was conducted over a period of 2 years with participation of academic experts from around the U.S. and Canada. The purpose of the study was to describe critical thinking and the characteristics of nurses’ abilities to make clinical judgments (Facione & Facione, 1994). The international experts in the Delphi research further identified five core critical thinking cognitive skills. The core critical thinking cognitive skills that emerged from the study were: defining, analyzing, reflecting, and evaluating the problem using clinical judgment. This framework is appropriate for this study because it is reliable and has been an appropriate framework to evaluate students’ critical thinking by analyzing nursing students’ reflective writing (Kennison, 2006).

Definition of Terms

Reflective Writing: Conceptual.

Reflective writing is a description of thoughts and feelings about what has happened in a significant patient care experience (Kennison & Misselwitz, 2002).

Reflective Writing: Operational.

Reflective writing is measured by the California Critical Thinking Skills Test (CCTST) that was developed to evaluate reflective journal writing. The scale is based on the Facione and Facione’s six critical thinking cognitive skills and 15 sub skills. The six critical thinking skills
are interpretation, analysis, evaluation, inference, explanation and self-regulation (Kennison & Misselwitz, 2002).

*Critical Thinking Skills: Conceptual.*

According to the work of Facione and Facione critical thinking is characterized as the process of purposeful and self-regulatory judgment. Critical thinking can be further described as an interactive, reflective and reasoning process (Facione & Facione, 1994, p. 345).

*Critical Thinking Skills: Operational.*

The California Critical Thinking Disposition Inventory (CCTDI) is the first test used to measure the seven cognitive critical thinking skills which follow the Delphi research study. The CCTDI is a disciple neutral instrument that can be used within many professional disciplines. There are seven subscales used to determine a score, as well as an overall score. The seven subscales include: inquisitiveness, systematicity, analyticity, truth-seeking, open-mindedness, self-confidence, and maturity (Facione & Facione, 1994, p. 346). With the further research completed by Facione and Facione, and the use of the Delphi research, a critical thinking scale was developed that is more closely related to the field of nursing, the California Critical Thinking Skills Test (CCTST).

*Limitations*

Generalization is limited due to sample size from a single setting in the Northern Indiana.

*Assumptions*

1. Reflective writing will help nursing students develop critical thinking skills.

2. Improved critical thinking skills will allow students to provide safe and effective care.
Summary

Nurses need to critically think in order to provide safe and quality care to patients. The purpose of this correlation study is to evaluate junior level nursing students’ ability to critically think by the evaluation of students’ reflective writing. The sample will be drawn from baccalaureate junior nursing students at IPFW. Reflective writing and CT skills will be evaluated. This is a partial replication of the Kennison’s, (2006) study. Findings from this study will provide nursing educators with insight into the use of reflective writing of nursing students develop to critical thinking skills.
Chapter II
Review of Literature

Introduction

Nurses are required to make decisions about care given to patients on a daily basis. Critical thinking is a crucial tool nurses need. Reflective writing is used in nursing education to help measure clinical judgment and develop critical thinking skills. Critical thinking is a process of problem solving where questioning and data collection takes place in order to develop clinical judgment/thinking (Kennison, 2006).

Purpose

The purpose of this study is to evaluate junior level nursing students’ ability to critically think through the evaluation of reflective writing. The students are enrolled in junior level Medical–Surgical clinical courses that focuses on complex health care problems.

Organization of the Literature

The literature is organized into five sections. The first section is the conceptual framework. The second section is students’ perceptions of critical thinking. The third section is nurses’ perceptions of critical thinking, followed by faculty perceptions of critical thinking. A summary follows.

Conceptual Framework

The conceptual framework for the study is Critical thinking based on the American Psychological Delphi Research, (Facione & Facione, 1994) project on critical thinking. A 2 year study was conducted with the use of academic experts from around the United States and Canada to describe critical thinking, and further describe the characteristics of a nurse with classic clinical judgment (Facione & Facione, 1994). The international experts in the Delphi research
further identified five core critical thinking cognitive skills. The core critical thinking cognitive skills included: defining, analyzing, reflecting and evaluating the problem using clinical judgment. Critical thinking requires individuals to comprehend the issue while defining the problem. Once the problem is defined, the individual must reflect on the possibilities that can be used in the decision-making process. Once the decision is made the individual must then evaluate the decision for a further learning opportunity.

Forty-six international experts went further to develop the California Critical Thinking Disposition Inventory (CCTDI), which identified seven dispositional characteristics of a critical thinker by narrowing the core skills previously identified. The California Critical Thinking Disposition Inventory (CCTDI) was one the first tools developed to measure seven aspects of critical thinking disposition whose initial representation comes from the Delphi report. The seven dispositional subscales include: inquisitiveness, analyticity, truth-seeking, open-mindedness, self-confidence, and maturity (Facione & Facione, 1994, p. 346). The seven skills can be easily understood among many professions and are described as: inquisitiveness, systematicity, analyticity, truth-seeking, open-mindedness, and self-confidence and maturity (Facione & Facione, 1994). Inquisitiveness is the ability to seek further knowledge to explain the meaning of something. Being organized and focused is best applied to describe systematicity. Analyticity involves reasoning and being able to anticipate problems and to resolve problems. Truth-seeking means asking questions and always seeking for the latest knowledge in a given situation. Being able to consider others’ views openly without being bias is the description for open-mindedness. Self-confidence is described as a person’s ability to be confident in the decisions made. Maturity is the ability to look at all options and make judgments based on evidence. The 75 items on the instrument are administered over 20 minutes.
The California Critical Thinking Skills Test (CCTST) is a companion to the CCTDI, and is also based on the Delphi project. It has been used to evaluate critical thinking skills of students. Research studies are now available that show the usefulness of this tool with nursing student samples. Two studies (\(N = 20\), \(N = 180\)) were conducted to look at overall relationships scores among the CCTDI and the CCTST. Findings showed highly significant correlations (\(r = .66, .67\) \(p< .001\)) which supports overall validity of the tools (Facione & Facione, 1994, p. 347).

Students’ Perceptions of Critical Thinking

As the nursing profession has evolved, nurses have been given more autonomy, and are expected to make decisions and solve problems independently. Critical thinking is a thought process that is used as a vital part of a nurse’s role when providing care. The decisions regarding patient care are complex, and often involve both physical and psychosocial well-being of individuals and families. The purpose of this study was to examine relationships among critical thinking, decision making, and clinical nursing expertise during clinical simulation. Nursing actions require a knowledge base to make decisions (Martin, 2002).

The sample included 149 students, new graduates, and experienced registered nurses, selected from schools of nursing and health care agencies located in the Midwest. There were 136 females and 13 males. The sample for this study consisted of 27 Associate degree student nurses (ADN), and 20 Baccalaureate degree student nurses (BSN) who had just started the first clinical course. Also included in the study were 20 graduates of a BSN program who had not obtained Registered Nurse (RN) licensure. Registered Nurses employed in healthcare agencies were identified as experts, having 5 or more years of experience in the current field. Thirty of the expert nurses graduated from an ADN or Diploma program, while the other 24 had completed a BSN program. Three hundred beginning nursing students, graduate nurses not yet registered,
and nurses considered experts from various schools and health care agencies, were invited to participate in the study. Nurses who responded positively to the invitation were contacted, and a time and date was established for the instrument to be administered (Martin, 2002).

The instrument used to measure critical thinking was the Elements of Thought Instrument (ETI). Additional instruments included videotaped vignettes, and a demographic data sheet. Each individual that participated viewed nursing situations that were videotaped, and randomly selected from one of five recordings. The videotapes were previously used simulations that had been part of a testing program from the Excelsior College. Each vignette was 1 to 2 minutes in length. While viewing simulations, the participants were asked to verbalize everything that came to mind that would relate to a decision about the clinical problem presented. Each recording was transcribed and then a critical thinking score was obtained. Four weeks later, each recording was scored to establish consistent scoring (Martin, 2002).

Validity of the ETI was established through evaluation by an associate. The ETI used a series of continuous points for adjectives to describe critical thinking such as clear, relevant, justified, and significant. A 3 point Likert-type scale was used with 38 adjectives to describe responses. The scores ranged from 114, which indicated a high level of critical thinking, to 38, which indicated a low level of critical thinking (Martin, 2002). A decision score sheet was also used for scoring.

The findings indicated there was a difference in critical thinking scores on the ETI among the three levels of nurses. The nursing students had the lowest scores, and the nurse experts had the highest scores. The findings suggested that as nurses achieve higher levels of clinical experience, nurses are able to make decisions using critical thinking. Knowledge and experience, along with critical thinking, assist the nurse in progressing to the level of the expert.
No significant difference was found among ADN and BSN subjects regarding critical thinking on the ETI (Martin, 2002).

Critical thinking scores showed improvement as the nurse went from novice to expert levels. There was a link identified between clinical experience, knowledge, and decision-making as it related to critical thinking. More time spent in clinical practice and classroom experiences were linked to high levels of critical thinking. Classroom experiences designed to increase experience were beneficial. This study showed evidence that having a mix of novice to expert nurses caring for clients is needed to provide the best nursing care (Martin, 2002).

Students who are fair-minded, objective, and have analytical thinking skills have the ability to critically think (Mangena & Chabeli, 2005). Nursing students are faced with many questions in practice. The authors examined what obstacles occur in the facilitation of critical thinking, and how the obstacles can be overcome in nursing education according to faculty and students. A qualitative, exploratory, descriptive and contextual design was used.

The sample was recruited from two colleges and included 95 nurse educators, and 145 fourth year student nurses (Mangena & Chabeli, 2005). Students and nurse educators who were asked to participate had little foundational understanding of critical thinking. Group interviews were conducted with the volunteer participants and facilitators. Students and nurse educators were asked to describe and explore obstacles identified in the facilitation of critical thinking. The interviews were tape-recorded to enhance credibility of the data collected. A researcher and independent coder analyzed the data through Tesch’s descriptive open coding.

Findings showed educators who lacked the ability to be a critical thinker also lacked the ability to develop and facilitate critical thinking skills. Nurse educators lacked the knowledge to
facilitate critical thinking and were resistant to change. Students wanted fewer lectures and more discussions or scenarios that incorporate critical thinking (Mangena & Chabeli, 2005).

In conclusion, nurse educators may not model critical thinking in all aspects of nursing education (Mangena & Chabali, 2005). Nursing faculty should use thought-provoking learning skills to stimulate students’ ability to critically think. Teaching methods such as reflective writing, video simulation, peer debates, and peer teaching in a clinical setting can help develop critical thinking. Students want more experiences that teach critical thinking. Students can also develop critical thinking skills by observing and working with clinical faculty members as a role model.

Student nurses struggle to understand the many perspectives of clinical decision-making. Issues concerning when to make a clinical decision, how to respond to pending clinical decisions, what kind of decision needs to be made, and what prompts the process of decision-making, are all challenging (Baxter & Rideout, 2006). The purpose of this qualitative study was to explore the decision-making abilities of baccalaureate nursing students.

The sample consisted of second year nursing students who provide direct patient care on an inpatient unit at a large tertiary teaching hospital in southwestern Ontario. The students (n=12) were responsible for providing direct patient care while working with a clinical tutor assigned to that unit, 7 hours weekly for a 12-week term. Each of the students were assigned to work in one of the two clinical settings. The settings included a 19 bed gynecological surgery unit, or a 35 bed orthopedic surgery unit (Baxter & Rideout, 2006).

Tools used to collect data were weekly journals, taped unstructured interviews, and semi-structured interviews. Students were asked to describe a situation that occurred during the day that required the student to make one or more decisions. The students were then asked to use
five reflective steps to describe and analyze the situation. The situation could be positive or negative. During step one, students were asked to think about the experience that happened during the day. During step two, the students were asked to describe the situation in chronological order. During step three, students were asked to analyze the situation in the journal entry using thoughts and feelings that were encountered, and the response to the situation. During step four, students were asked to reflect and describe what went well, and what could have been done differently or better. During step five, students were asked to document how the same situation could have been handled differently (Baxter & Rideout, 2006).

Findings suggested that students’ interactions with patients were of great value. Students did not avoid patient care, but did seek help in making clinical decisions often. Once students received help, the students proceeded with a clinical decision. Influential factors to decision-making included emotional based responses, knowledge based responses, or the question of who to ask for help. Four factors that influenced students’ decision making were: knowledge level, confidence level, fear of making the patient angry, or making the wrong decision. Communication and conflict resolution skills were necessary to promote clinical decisions. Encounters with the patients, tutors, and nurses directly influenced students’ decision-making abilities (Baxter & Rideout, 2006).

Clinical decision-making is a complex process that nursing students learn in practice. Baxter and Rideout (2006) concluded that several factors influence decision-making. The ability of students to make a clinical decision is effected by the student’s ability to communicate with patients, the clinical tutor, and bedside nurses. Students need a supportive learning environment to be confident and less intimidated or frightened as students make clinical decisions regarding patient care.
Critical thinking is an important part of nursing practice. There is little research on the relationship between reflective writing about a clinical experience and critical thinking. One method to evaluate critical thinking skills of nursing students is reflective writing. The purpose of this descriptive, correlational design study was for nursing faculty to evaluate students’ reflective writing for evidence of critical thinking (Kennison, 2006).

The sample (N=57) included senior Baccalaureate nursing students over a 4 year period from a small northwestern liberal arts college. The age range was 20 to 49. The majority were Caucasian, with a mean age of 25 years. The mean grade point average was 3.34, with a grade point range being 2.62 to 4.0 (Kennison, 2006).

The Critical Thinking Scale (CTS) is based on the six critical thinking skills identified from the American Philosophical Association Delphi research study. “The six skills are interpretation, analysis, inference, evaluation, explanation and self-evaluation” (Kennison, 2006, p. 270). A 5 point Likert scale was used as a response set for the CTS. Validity was shown to be 1.0 using the Index of Content Validity (Kennison, 2006). The California Critical Thinking Skills Test (CCTST) was used at the beginning of the study and at the end. Students were asked to write about a significant patient experience that includes students’ thoughts, feelings, and happenings. “The California Critical Thinking Skills Test (CCTST) is a 34-item multiple choice test that targets the cognitive skills of interpretation, analysis, evaluation, inference, and explanation” (Kennison, 2006, p. 271). The Watson-Glaser Critical Thinking Appraisal was also used as a benchmark for critical thinking at entry and exit of a nursing program (Kennison, 2006). Research on the CCTST revealed improved test score results of college students who completed general education critical thinking courses. The mean the pre-test and post-test score showed
improved scores of +1.90 and +0.98, significant at p<.000 with reliability coefficients 0.69 and 0.68 respectively (Kennison, 2006).

Fifty-seven reflective writing sample responses were analyzed using a two-tailed Pearson correlation (Kennison, 2006). Results indicated a statistically significant positive relationship \( r=0.223, p<.05, r^2 = 0.543 \) between critical thinking measured by the CCTST and the mean faculty rating of the Baccalaureate nursing students’ reflective writings. The findings also showed the students’ GPAs had a similar relationship with the CCTST. No significant relationships were found among age, CCTST, and CTS mean faculty rating using a one tailed Pearson correlation (Kennison, 2006). The CTS has the potential to be a valuable tool that will allow faculty to evaluate critical thinking skills. Further, critical thinking and reflective writing showed a positive correlation with the CTS tool. GPA and CSTST also showed a positive relationship. Relationships were not found between the student’s age, CCTST and mean faculty rating using the CTS.

The author concluded extensive training for faculty is needed to evaluate reflective writing for critical thinking skills. Experienced faculty rate the CCTST differently than faculty with no practical experience. Reflective witterings skills can measure critical thinking. The CTS has the potential to serve as a valuable tool that allows faculty to evaluate critical thinking throughout the course of a nursing program (Kennison, 2006).

Traditional clinical education for nurses is becoming more difficult to replicate. With the limited availability of patients in the clinical setting, students have less time to develop clinical judgment or critical thinking skills. Concept-based learning activities are a way to teach specific concepts in the clinical area that have already been taught in theory. Concept based learning allows students to learn about foundational concepts, and then apply concepts to a real life
situation in order to enhance clinical judgment and critical thinking (Lasater & Nielsen, 2009). The purpose of this study was to evaluate the effect of concept based learning on clinical judgment.

The study took place in a hospital setting, as well as a simulation lab. The sample consisted of two groups of third semester Baccalaureate students. The control group consisted of 3 male and 10 female students enrolled in an adult acute care clinical with no concept based learning activities. The experimental group, referred to as the treatment group, consisted of 4 male and 11 female students. The clinical course was nursing care of children and family. Students participated in two or more concept based learning activities. Both groups were exposed to direct patient care as well as high-fidelity simulation. Students were introduced to specific concepts, and then further studied the same concept in the clinical setting. Simulation was used to evaluate clinical judgment (Lasater & Nielson, 2009).

The Lasater clinical judgment rubric was used to rate the simulations (Lasater & Nielson, 2009). The four phases of clinical judgment, noticing, interpreting, responding, and reflecting, were evaluated during the simulation scenarios. There were two raters, the primary and the backup, that collected quantitative data in the simulation laboratory. The rates focused on the students that were assigned the primary nurse role. Both raters reached a 90% inter-rate reliability using the rubric.

The results of the study showed that the treatment group scored significantly higher in all four phases of clinical judgment, as well as in clinical judgment as a whole. The results are as follows: in noticing $F(1, 26) = 11.13, p < 0.01$, in interpreting $F(1, 26) = 5.60, p < 0.05$, in responding $F(1, 26) = 6.28, p < 0.05$, and in reflecting $F(1, 26) = 7.62, p < 0.01$. Finally the total clinical judgment score was $F(1, 26) = 10.99, p < 0.01$ (Lasater & Nielson, 2009, p. 444).
The researchers reviewed interviews that were videotaped to collect the qualitative data. The qualitative results identified the following themes: the importance of study guide structure, the use of concept-based learning activities to clinical learning, the bridge between theory and practice, and the development of students’ thinking and clinical judgment (Lasater & Nielson, 2009).

Findings suggested that concept based learning is beneficial as well as challenging to students. Allowing students to study one concept at a time gives students time to bridge theory to practice. Connecting theory with patients’ assessments in concept based learning has a positive influence on students’ clinical judgment. Students were better prepared when patient information, such as patho-physiology and background information, was reviewed prior to providing patient care. Since there is limited availability of clinical sites, and patient contact in nursing education, simulation is one alternative for students to develop clinical judgment on specific concepts being presented (Lasater & Nielson, 2009).

Students’ success in nursing programs cannot be measured only by academic success, but must also include performance in the clinical area. If students use guided journaling to reflect on clinical experiences, students could identify weaknesses in nursing concepts that need further explanation. Students must demonstrate the ability to be successful in the classroom and clinical area (Taylor-Haslip, 2010).

The study took place in New York at a Community College. The Associate degree nursing students included were in the mother-baby and pediatric clinical rotations at a major municipal hospital (Taylor-Haslip, 2010). There were 30 students involved, 28 were female, and 2 were male. The students were divided in groups of 10. Students’ ages ranged from mid 20’s to mid...
50’s. Most students in the study had previously worked full-time and were now returning to school.

The Hatton and Smith levels of reflection criteria were used to evaluate students’ level of reflection from guided journals (Taylor-Haslip, 2010). The Hatton and Smith research was conducted at the University of Sydney, was grounded in literature, and defined students’ reflective writing. Criteria were developed to evaluate reflective writing. “The four criteria used are descriptive, descriptive reflection, dialogic reflection and critical reflection are adapted and used as a method of maintaining consistency and fairness in evaluating each students journal” (Taylor-Haslip, 2010, p. 69). Descriptive journaling does not include any reflection, but it does include reporting events. Descriptive reflection journaling was defined as students’ use of personal judgment and provide reasoning. Dialogic reflection demonstrates a leveling of understanding, and shows the ability to use judgment while considering possible alternatives. Critical reflection is demonstrated when students provide a clear rationale for actions and decisions (Taylor-Haslip, 2010). During the first week of clinical, a baseline evaluation of the guided journals was conducted. Students were given verbal and written feedback. Over the entire semester there were 30 journals written and evaluated for the students’ level of reflection recorded in the journal. Journals were collected at week 1, 4, 8, and 12.

Findings suggested that at the end of the semester, the student’s ability to reflect on experiences during clinical did improve. The Hatton and Smith criteria for evaluation revealed the following findings: 3 students demonstrated descriptive writing, 14 students demonstrated descriptive reflective writing, and 13 students demonstrated dialogic reflective writing (Taylor-Haslip, 2010). At week 1, 100% of students recorded entries into the journals, but only 27%
demonstrated documentation at a descriptive reflection level of journaling. Students’ scores on the first exam were on average 75%.

At week 4, 17% of students were documenting at a descriptive reflection level. Students’ exam scores averaged 82%, and 90%, which showed that students were performing at a satisfactory level during clinical. At week 8, 90% were documenting reflectively in journals provided. Fifty-one percent were documenting at the descriptive reflective, and 48% were documenting at the dialogic reflective level (Taylor-Haslip, 2010).

Exam scores at week 8 averaged 77%, and 96% of students had a satisfactory performance evaluation. At week 12 there was no change in the level of participation, and the documentation showed no change in the level of reflection. The students’ exam scores on average for the final were 85%. Ninety-six percent of the students had a satisfactory performance rating for clinical (Taylor-Haslip, 2010). Students that reflected more often, and would seek clarification, demonstrated an increase in knowledge that was noted in students’ written assignments.

In conclusion, the use of guided reflection motivates students to gradually develop a higher level of decision-making and critical thinking. Reflecting on the clinical day stimulates the student to consider strengths and barriers to decision-making in the patient care area. Taylor-Haslip (2010) found that as students move to the next level of reflective writing, students also improve in clinical performance. Exam grades and reflective writing ability has shown a strong correlation, as the writing ability of students increases so do students’ exam grades and ability to perform in the clinical area. Week 8 did show a decline in the average exam scores, but the findings suggested further investigation was needed to determine the cause.

Nurses, students, practicing nurses, and nurse educators believe there are areas for improvement in theoretical content taught, and the ability of the student to apply knowledge in
the clinical setting (Glynn, 2012). The challenge for nurse educators is to educate students to care for patients with complex healthcare needs, while ensuring students have the knowledge and skills necessary to provide appropriate care. The purpose of this qualitative study was to explore students’ perceptions of clinical judgment and clinical confidence while experiencing structured classroom reflective practice (Glynn, 2012). The following research questions was asked: “How will BSN students describe a structured, reflective classroom experience that incorporates reflection–on-action based on Tanner’s Clinical Judgement Model, on their perceived development of clinical judgement and clinical confidence” (Glynn, 2012, p. 134).

This study was conducted at a private, nonsectarian institution in eastern United States (Glynn, 2012). Students enrolled in the BSN program were invited to participate, and were provided with a detailed description of the study prior to participation. The sample included 34 female students. Eighty-one percent of the students were enrolled in the traditional BSN program. With the use of random selection, 15 of 34 students were randomly selected to be interviewed at the beginning and end of the semester.

A guide for reflection was developed by Nielson et al. (2007) using Tanner’s Clinical Judgment Model, a model used to describe and evaluate students thinking. The guide aided in the evaluation of students’ knowledge, and reflects on actions taken in specific patient situations (Glynn, 2012).

The participants reported that weekly patient presentations and evaluation activities contributed positively to students’ development of clinical judgment. Students’ ability to identify priority needs of patients was identified as the first step to developing clinical confidence. Themes were developed based on findings related to clinical judgment and clinical confidence. The three themes identified for clinical judgment were: “application of acquired
knowledge, perceived increased patient care experience, and situated teaching and prioritizing” (Glynn, 2012, p. 138). The three themes identified for clinical confidence were “reassurance, improved communication with the healthcare team, and realization of the depth of the science of nursing” (Glynn, 2012, p. 138).

In conclusion, the uses-of structured reflective practice sessions improves students’ ability to apply theory to patient situations, and recognize specific patient issues. Reflective practice in the classroom also allows students a safe environment to discuss patient situations, and learn from each other’s comments and questions. Novice nurses reported that the reflective practice also allows students to prioritize necessary care to be provided. Preceptors are often not provided with the education foundation to facilitate critical thinking. Preceptors frequently ask questions that do not engage a higher level of thinking. Therefore preceptors need the training to be able to talk with novice nurses about what new nurses were thinking about when caring for patients (Glynn, 2012).

Nurses’ Perceptions of Critical Thinking

The ability to make clinical judgments is imperative to overall patient safety. Research on new graduates has shown that new nurses were poor performers when making clinical judgments. New nurses must assume the care of many patients and make clinical judgments based on intellectual development. An understanding of new nurses’ perspectives will help develop learning experiences for clinical judgments (Etheridge, 2007). The purpose of this qualitative study was to describe new nurses’ perceptions regarding ability to make clinical nursing judgments, and learn how to make judgments.

Over a period of 9 months, graduates with Baccalaureate degrees in nursing who worked on medical-surgical units in a 350 bed acute care hospital in West Michigan were recruited. The
graduates were interviewed about perceptions of how nurses think. Participants included female nurses between the ages of 22-26. Graduates were from two separate 4-year colleges, having passed the NCLEX exam on the first try, and were participants in a nurse intern program after graduation (Etheridge, 2007).

Etheridge (2007) used semi-structured interviews to collect data. Interviews were taped on three separate occasions: within 1 month after working with a preceptor, 2-3 months later, and again at 8-9 months following the first interview. Fictitious names were given to participants to protect the nurses. The focus of the interviews was on new graduates’ ability to think like a nurse when making clinical judgments. Interviews were transcribed verbatim, validated and analyzed.

The authors identified two main categories: “graduate’s ability to think like a nurse,” and “how new graduates learn.” Graduates found that learning to think like a nurse was difficult, mainly due to lack of confidence. The graduates did not know what to do in a particular patient situation. Another challenge was the level of responsibility graduates were expected to assume. Responsibility became overwhelming. Lastly, the graduates found that critical thinking about patient care was a key part of nursing. Graduates’ ability to identify patients’ needs for individualized care and to respond differently to each patient was one example. New graduates’ ability to learn how to think like a nurse was the second category identified. The graduate’s ability to think like a nurse was improved through clinical experiences. When graduates were assigned a variety of patients, the graduates were able to relate the clinical setting to classroom learning (Etheridge, 2007).

Faculty help was identified as an effective learning strategy. Faculty asking questions about the patient being cared for was most helpful. Lastly, a discussion with peers allowed graduates
to think like a nurse. Graduates found it helpful to discuss experiences and plans of care with peers to help the information become concrete. Since the graduates could not see every patient, it was helpful to hear other graduates talk about the experiences (Etheridge, 2007).

Conclusions were that graduate nurses did not have the ability to “think like a nurse” and make clinical decisions. Once nurses understood how to think like a nurse, confidence in the role of a nurse was experienced. The graduates were able to accept responsibility, think more critically, and become aware of changing relationships with others. The ability to think like a nurse takes time and experience to develop, and reflects a belief in oneself with regard to competence and accountability. The transition from student nurse to beginning practitioner is enhanced by means of hands on clinical experience, support from the healthcare team, and sharing experiences with peers (Etheridge, 2007).

Nurses are expected to make judgments on a daily basis about patients’ situations. Patients’ lives depend on the critical decisions nurses make. Nurse experts doubt the accuracy of test results as a predictor, or a measure to assess success of students in the nursing program. The purpose of this study was to examine a predictive relationship between critical thinking and successes in nursing (Shirrell, 2008).

Data were gathered from records of 173 graduates with Associate of Applied Science degrees in nursing from a private Midwestern college. Graduates had taken the NCLEX-RN exam between the years 2001-2006. Of the approximate 40 students accepted per year, 30-35 graduated from the nursing program. Students remained anonymous and were randomly selected from the academic records over the previous 6 years (Shirrell, 2008).

Data examined included students’ GPAs from all nursing courses and science courses, pass-fail on the NCLEX-RN, and test scores on the CAAP critical thinking test. Critical thinking was
measured by the Collegiate Assessment of Academic Proficiency (CAAP) critical thinking test. In this study the dependent variable was success in a nursing program based on passing the NCLEX-RN on the first attempt. The independent variables included the ability to think critically as determined by the CAAP test, and nursing students’ GPA in nursing and science courses (Shirrell, 2008).

The results of this study showed that critical thinking alone is not a good predictor of success in nursing, but remains a viable asset for successful nursing practice (Shirrell, 2008). Critical thinking, nursing GPA, and science GPA were predictors of success on the NCLEX-RN ($F=7.987, p < .0001$), accounting for 12% of the variance ($r=.352, R^2 = .124$). Nursing GPA was the only statistically significant predictor of success on NCLEX ($t = 3.939, p > .0001$) (Shirrell, 2008). The authors found that for every 0.1 increase in a student’s GPA it was three times more likely that the student would pass NCLEX (Shirrell, 2008).

The author concluded that it is difficult to predict success on NCLEX. Nursing is a practice-based profession, and graduates must apply critical thinking skills to make effective decisions and clinical judgments. Therefore nurses need critical thinking skills as well as a knowledge base in science and nursing to make an effective clinical decision (Shirrell, 2008).

With the numbers of reported patient injuries, nurses need the ability to recognize changes in patients’ conditions, perform independently, prioritize patient needs, and anticipate nursing interventions. Treatment will often be delayed if the nurse is unable to critically think, directly affecting patients’ safety. The purpose of this study was to evaluate the needs of students, both, new and experienced, regarding critical thinking (Fero, Witsberger, Wesmmiller, Zullo, & Hoffman, 2009).
The sample included 2,144 new and experienced nurses employed by the same university healthcare system. This system included 19 acute care, specialty, community, and regional hospitals located in southwestern Pennsylvania. All nurses eligible were employed from January 1, 2004 to September 30, 2006 (Fero et al., 2009). Nurses were Diploma, Associate, or Baccalaureate level prepared. Diploma programs offer hospital based preparation, while Associate degree programs prepare nurses to function in the role of a staff nurse in a hospital or impatient facility. The Baccalaureate degree program prepares nurses for leadership roles in the hospital, inpatient facilities, or community setting. Fifty-six percent of the samples were new nurses, and 25% had 10 or more years of experience.

The clinical judgment portion of the Performance Based Development System (PBDS) was used as an assessment tool. The PBDS assessment identifies learning opportunities for nurses based on critical thinking needs, and assists in developing individualized education to better prepare nurses for safe clinical practice (Fero et al., 2009). The PBDS is a tool used to evaluate the nurse’s ability to recognize a problem, report the essential data, initiate nursing interventions, determine urgency of the problem, anticipate physicians’ orders, and provide a rationale to support the decisions made. Ten videotaped vignettes were used that reflected common clinical problems that may occur on a medical surgical unit that require a nursing intervention. Participants were asked to view each vignette, and then in writing, state the problem, and describe what actions should be taken including a rationale. A nurse rater reviewed the responses, and determined if the respondent meet the expectations for each of the 10 vignettes. After all responses were evaluated, the nurse rater used an organizational algorithm to determine each individuals overall rating. The raters then determined if the expectations were met or not
The reliability of the clinical vignettes was estimated at 94% for individuals tested in similar situations (Fero et al., 2009).

Findings suggested that new graduates prepared at the Associate degree level did not meet expectations 31.0% of the time when compared with Baccalaureate degree level nurses at 29.6%, and with Diploma nurses at 23.6%. Nurses with greater than or equal to 10 years of experience, and prepared at the Diploma level did not meet expectations 22% of the time when compared with the associate course at 18.3%, and baccalaureate at 11.5% (Fero et al., 2009).

The authors concluded that the PBDS assessment tool is helpful in providing individual information about individual nurse’s performance. Overall, nurses with more experience were better at identifying appropriate interventions, and the majority of all nurses in this study were able to state actions that indicated that nurses are able to manage critical situations and anticipate care independently (Fero et al., 2009).

The purpose of this study was to investigate the impact that preceptors have on novice nurses, using contextual learning interventions. Preceptors are often not provided with the education foundation to facilitate critical thinking. Preceptors frequently ask questions that do not engage a higher level of thinking. Therefore preceptors need the training to be able to talk to novice nurses about what nurses were thinking about when caring for patients (Forneris & Peden-McAlpine, 2009).

The study took place in part of the northwestern United States. The participants were nurse preceptors and novice nurses working in an acute care facility. The preceptors were defined as educated nurse colleagues assigned by the facility to orient novice nurses during the first 3 months of practice (Forneris & Peden-McApline, 2009). The orientation took place during the first 3 months of practice. The group of nurse preceptors median age was 35 years, and the
education of the preceptors represented both ASN and BSN prepared nurses, with median years of practice experience being 14 (Forneris & Peden-McApline, 2009). All preceptors that had previous experience with precepting novice nurses were given instructions by the investigator on the contextual learning intervention, to engage the attributes of critical thinking in practice (Forneris & Peden & McApline, 2009).

Forneris and Peden-McApline (2009) used the Contextual learning Intervention (CLI). Preceptors received training about how to engage novice nurses in critically thinking by the investigator using a case study approach. Two goals were established: first the preceptor must understand the content and process of critical thinking, and the second was that preceptor must develop the role of enhancing novice nurses ability to critically think in practice (Forneris & Peden-McApline, 2009). The preceptor group session at 1 month consisted of focusing on what the preceptors’ perspectives of critical thinking were. The conversations helped identify preceptors’ beliefs and knowledge about critical thinking prior to introducing coaching techniques. During month 6 preceptors discussed precepting styles and evaluated critical thinking styles.

The instrument used was Stake’s case study four phase analysis. The preceptors’ sessions took place initially, during the first 3 months of the research study. There were four specific learning activities involved with preceptor training: (a) engaging in a critical conversation about the attributes of critical thinking; (b) discussion on reflection and reflective practice; (c) engaging directly in reflective practice using a narrative story from practice; and (d) evaluating critically reflective thinking using preceptor experiences and evidence of novice nurses’ critical thinking. The first three learning activities were used during the case study, and the last activity was used during the final group (Forneris & Peden-McAlpine, 2009, p. 1718). Evidence of rigor
was maintained in the case study by following the format closely for data collection and analysis. A case study expert was also consulted to assure consensus. The qualitative process was well documented.

Findings from month 1 showed that preceptors changed the description of critical thinking and the manner in which novice nurses were engaged in dialogue (Forneris & Peden-McApline, 2009). Preceptors were more likely to use the CLI for coaching and developing critical thinking of novice nurses. During month 6, preceptors recognized that the CLI was useful in helping novice nurses critically think. Discussions between the novice nurse and the preceptors created a bigger picture that allowed novice nurses to understand the rationales for nursing actions. Conversations were often moved to a higher level and more reflective compared to month 1 conversations.

Preceptors identified the importance of the “preceptor role” with the use of CLI on novice nurses ability to critically think. The preceptor’s ability to use reflection encouraged questioning and enhanced novice nurse’s critical thinking. “Preceptors stories revealed that thinking out loud helped validate knowledge and assumptions so preceptors could better articulate rationales” (Forneris & Peden-McApline, 2009, p. 1721).

*Faculty Perceptions of Critical Thinking*

The constantly changing healthcare environment and growth of technology requires nurses to identify problems and independently make clinical decisions. Schools of nursing are mandated to prepare students to critically think. This qualitative study examined a group of nursing faculty members’ approaches to teaching critical thinking skills to baccalaureate nursing students in a clinical setting (Twibell, Ryan, & Hermiz, 2005).
The study took place at a mid-western school of nursing. The sample consisted of six clinical nursing instructors who taught upper-division nursing students. Each faculty member had a minimum of 5 years of clinical nursing experience, and 1 year of teaching experience in a baccalaureate program. All were women 40 to 55 years old. The faculty taught beginning adult health, intermediate adult health, child bearing/child rearing, mental health, community health and nursing management (Twibell et al., 2005).

A qualitative, ethno-graphic approach was used as the design. Each faculty member was interviewed three times within 1 semester. The interviews were at 2 week intervals and occurred soon after a clinical experience. Interviews were audio-taped, transcribed and analyzed by two researchers. One researcher conducted all the interviews. Interview questions included:

Describe a student that exhibited progress toward critical thinking; Describe words the student used to evidence progress in critical thinking; what words or actions did you take to supports a students’ critical thinking and what mannerisms of your teaching stimulate or support the evolvement of critical thinking? (Twibell et al., 2005, p. 73)

Faculty used questions that encouraged critical thinking, while students asked questions that simulated critical thinking utilizing the nursing process. The interviews were analyzed by domain and taxonomic analysis. Terms used in the interviews were reported in a final analysis only if mentioned by at least three of the six respondents.

Five similar statements emerged from the analysis. The statements where summarized as: “putting it all together,” “strategies to promote critical thinking,” “role of clinical instructors,” “beneficial characteristics on instructors,” and “rewards of critical thinking.” The authors
focused on the first two statements which contained the more detailed description and as the strongest consensus that participated (Twibell et al., 2005, p. 73).

The authors concluded that critical thinking is being taught in the clinical setting. There were multiple methods identified as ways critical thinking is being effectively taught in the clinical setting. Critical thinking is a skill that is still growing and needs further research (Twibell et al., 2005).

**Summary of Findings**

*Students’ Perceptions of Critical Thinking.*

Martin (2002) investigated critical thinking scores of novice to expert nurses. Findings suggested that nursing students had the lowest scores and the experts had the highest scores. Nurses who spend more time in the classroom and clinical were linked to a higher level of critical thinking.

Mangena and Chabeli (2005) found that students’ critical thinking skills were enhanced with thought-provoking assignments such as reflective writing, video simulation, peer debated and peer teaching. Students expressed that more experiences that involved critical thinking stimulated students ability to critically think.

Baxter and Rideout (2006) found that many factors effect students’ ability to make clinical decisions. Students need a non-threatening environment in order to make clinical decisions. Students found that being confident and feeling supported were able to make clinical decisions regarding patient care.

Kennison (2006) concluded that students’ reflective writing can measure critical thinking skills. The author suggested that there is a positive relationship among critical thinking and
reflective writing. The CTS is a valuable tool that can be used as a by faculty to evaluate students critical thinking ability.

Authors Lasater and Nielsen (2009) found that concept-based learning is beneficial to students. Connecting theory to patient’s assessments is having a positive influence on students’ clinical judgment. Simulation has been used due to limited clinical availability as one alternative to help students develop clinical judgment on specific concepts presented.

Taylor-Haslip (2010) investigated students’ ability to develop a higher level of decision-making. Guided reflection was motivating to students and helped improve students’ clinical decision-making and critical thinking. Reflective writing was also to help students improve critical thinking skills.

Structured reflective practice sessions improved students’ ability to apply theory to patient care situations were studied by Glynn (2012). Reflective practice students believed was a safer place to discuss and learn from other students’ comments and ideas.

Prioritizing patient care is another way reflective practice helps students facilitate critical thinking.

*Nurses’ Perceptions of Critical Thinking.*

Etheridge (2007) found that graduate nurse’s clinical experiences improved the graduate’s abilities to think like a nurse. Thinking like a nurse, takes time and experience, as well as belief in oneself to be competent and accountable. Once graduate nurses understood how to think like a nurse the graduates developed confidence.

Shirrell (2008) reported that nurses need to apply critical thinking skills to make effective clinical decisions judgments. Critical thinking alone is not a positive indicator of success in
nurses. Nurses need a solid knowledge base in science, nursing and critical thinking to make appropriate clinical decisions.

Fero et al. (2009) found that the PBDS was helpful in identifying individual nurse’s ability to make clinical decisions. The authors found that the majority of nurses in the study were able to identify actions and anticipate care needed. Nurses with more experience were found more independent in managing critical situations.

Forneris and Peden-McApline (2009) found that discussions between preceptors and novice nurses helped develop critical thinking skills. Reflection encouraged novice nurses to think critically and stimulate questioning. Preceptor stories were also helpful to allow novice nurses to better understand the rationales for clinical decisions made.

**Faculty Perceptions of Critical thinking.**

Twibell et al. (2005) concluded that critical thinking is being taught effectively by faculty in the clinical setting. Multiple methods were identified as ways critical thinking is being taught. The study also identified the need for further research on the skill of critical thinking.
Chapter III

Methods and Procedures

Introduction

Critical thinking skills (CT) are required to make clinical decisions in clinical practice (Kennison, 2006). One method of teaching CT skills is through reflective writing. The Critical Thinking Scale and California Critical Thinking Skills Test are tools that can measure students’ ability to critically think in clinical practice with the use of reflective writing. This chapter contains a description of the methods and procedures that will be used in the study.

Problem

Nurses must use knowledge and skills to make critical decisions about patients’ care. The ability to reflect on clinical cases, and prioritize information can help to develop critical decision making skills. Reflection is one way student nurses can learn critical thinking skills (Kennison, 2006). The conceptual framework for the study is Critical Thinking based on the American Psychological Delphi Research (Facione & Facione, 1994) project on critical thinking.

Purpose

The purpose of this study is to evaluate the relationship between students’ reflective writing and critical thinking skills. This is a partial replication of Kennison’s (2006) study.

Research Question

Is there a relationship between nursing students’ reflective writing scores about significant clinical experiences and critical thinking skills?

Population, Sample, Setting

The study will take place at Indiana-Purdue University, Fort Wayne campus (IPFW) in
Northeast, Indiana. The NUR 336 Medical-Surgical III Nursing of Adults course with complex health care problems has 50-60 students each semester. Fifty junior level baccalaureate degree nursing students will be invited to participate in this study. The anticipated sample is 40 students. Inclusion criteria are: students must be in the junior level, enrolled in the medical-surgical nursing clinical course, NUR 336, and willing to participate in this study. The study will be conducted during the students’ clinical conferences each week at the school. Study participants’ age and gender will be collected as demographic data.

Protection of Human Subjects

The proposal for the research study will be submitted to the Institutional Review Board (IRB) of Ball State University. The study will then be submitted to IPFW IRB for approval. After obtaining approval from the IRB at IPFW, the researcher will meet with the Dean of the School of Nursing to request approval to conduct the study at the School of Nursing. Approval will also be obtained from the nursing faculty teaching the NUR 336 adult medical-surgical course. The researcher will meet with the nursing faculty at a time scheduled by the faculty to explain the study.

The researcher will meet with each clinical group of students and explain the purpose of the study. There will be five clinical groups and five faculty members. The researcher will discuss the study and include a statement about the purpose of the research, the expected duration of the study, and the ability to decline from participation at any time. Participation in this study is voluntary and students’ grades will not depend on participation or change in participation. Confidentiality will be maintained throughout the study. Students will be given numbers to use instead of names for reflective journals to maintain anonymity.
Procedures

After receiving approval from the IRB boards at both Universities and the Dean of the school of nursing, the nurse researcher will meet with faculty to discuss the research process. Preparation for course faculty will take place prior to the start of clinical that semester. Faculty will be educated on the research study and the procedures for data collection. The Faculty will be given a research based reference on how to foster critical thinking and reflection. During orientation to the study, the American Association Delphi Study will be introduced, including the six critical thinking skills. The researcher will ask faculty to meet with students during the second week of the semester after class to coordinate the assignment regarding the testing and journal keeping.

The researcher will meet with the individual student clinical groups with the students’ faculty member at an assigned time. The researcher will ask the students to participate in the study at that time. All students who decide to participate will attend the briefing session. During the 15th week of the semester all students in NUR 336 will be asked to sign up to take the California Critical Thinking Skills Test with the testing center.

Students will be asked to keep reflective journals on some clinical experience. Students will write about significant clinical experiences without using any patient identifiers. The faculty will analyze the weekly journals and provide feedback to students in the clinical group to facilitate critical thinking. The researcher will analyze the reflective journals during week 9 of clinical and use the Critical Thinking Scale to rate the relevance.

Instrumentation

The two instruments used in this research study will be the Critical Thinking Scale (CTS) (Kennison, 2006) and the California Critical Thinking Skills Test (CCTST) (Facione & Facione
The Critical Thinking Scale (CTS) was used to measure reflective writing skills, based on the six critical thinking skills identified from the American Philosophical Association Delphi research study, 1990. “The six skills are interpretation, analysis, inference, evaluation, explanation and self-evaluation” (Kennison, 2006, p. 270). The CTS has six items. A 4 point Likert scale is the response set for the CTS with 1= not relevant, 2= somewhat relevant, 3= quite relevant, and 4= very relevant. Validity was shown to be 1.0 using the Index of Content Validity (as cited in Kennison, 2006).

The CCTST (Facione & Facione, 1994) is a 34 item multiple choice test that evaluates cognitive skills of interpretation, analysis, evaluation, inference and explanation (as cited in Kennison, 2006). The CCTST is used as a benchmark for critical thinking and is an entry and exit assessment for critical thinking in nursing programs.

Nursing Students will be asked to write about a significant patient experience each week throughout the clinical experience. The writing should include the students’ descriptions of critical thinking skills and sub skills from the work of Facione and Facione (Kennison, 2006, p. 271). The researcher will grade the reflective writing journals and rate each item based on its relevance using 4-point scale. A score of 1 is considered not relevant, a score of 2 is somewhat relevant, a score of 3 is quite relevant and a score of 4 is very relevant (Facione & Facione, as cited in Kennison, 2006).

**Design**

Correlational research design is a nonexperimental, descriptive design. The independent variable is reflective writing and the dependent variable is critical thinking. A correlational design is a systematic examination used to identify relationships among variables (Burns & Grove, 2009, p. 478).
Data Analysis

The mean scores from the CTS and the scores from the CCTST will be calculated. The overall score for each of the five subscales will be calculated. A Pearson correlation (r) will be used to determine the relationship between reflective writing scores and critical thinking skills scores. A Pearson correlation is test that measures the relationship between two variables (Burns & Grove, 2009, p. 479).

Summary

This chapter contains the methods and procedures for the study. The study is a partial replication of the Kennison’s (2006) research study. The purpose of this study is to evaluate the relationship between baccalaureate nursing students’ reflective writing and critical thinking skills. The sample will include five groups of students in a medical nursing clinical course. The students will be evaluated on reflective writing skills each week about a clinical experience and students’ critical thinking skills. The CCTST will evaluate CT skills. The correlational study will examine the relationship of two variables (Burns & Grove, 2009).
References


