DEFINING CRITICAL THINKING EXPERIENCES
OF SENIOR NURSING STUDENTS

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By

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The purpose of this qualitative study was to investigate and describe nursing students’ and clinical instructors’ understandings of critical thinking and to discover which clinical experiences were significant in allowing students to develop critical thinking abilities.

Interpretive qualitative methodology was used to explore students’ and instructors’ perceptions of critical thinking experiences that occurred during clinical education. Data were obtained from 11 student participants and 4 instructor participants using responses to prompts defining critical thinking experiences and follow-up interviews.

There were three overarching findings from this study: (a) students and instructors described similar characteristics of clinical experiences that were significant in developing critical thinking including complex situations warranting independent identification, interpretation, and decision making by students; (b) students and instructors described critical thinking as the ability to process an unclear situation, understand the significance of the context, and know what to do next; and (c) students and instructors revealed a disconnect regarding instructor significance and role during clinical experiences.
The findings of this study have demonstrated the importance of clinical experiences and preparing for them and debriefing after them for students and the development of their critical thinking.

Implications for nursing education include the need to implement certain strategies that maximize critical thinking experiences in the clinical setting, the need for education and training for clinical instructors, and the need for improved discourse between students and instructors regarding clinical experiences.
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CHAPTER I
INTRODUCTION

Quality education of nurses requires incorporation of clinical learning experiences that promote critical thinking abilities needed to provide patient care in today’s complex healthcare environment (American Association of Colleges of Nursing [AACN], 2006; National League for Nursing [NLN], 2012). Programs of nursing have been cited as inadequately preparing nurses who are competent practitioners, with many new graduates of nursing programs being unable to critically think, solve problems, and identify what is important when caring for patients (Benner, Sutphen, Leonard, & Day, 2010; Berkow, Virkstis, Stewart, & Conway, 2008; Fero, Witsberger, Wesmiller, Zullo, & Hoffman, 2009). A significant gap exists between the education of nurses and their ability to put what they have learned into practice (Institute of Medicine [IOM], 2010). The inability to think critically has been shown to affect patient safety and has been identified as a priority for not only programs of nursing education but also healthcare providers (Buerhaus, Donelan, Ulrich, Norman, & Dittus, 2006). Despite efforts to improve critical thinking of nurses, new graduates continue to be unprepared to make the decisions needed to provide safe patient care (Fero et al., 2010; Mould, White, & Gallagher, 2011; Wotton, Davis, Button, & Kelton, 2010). The inability of new nursing graduates to think critically when providing nursing care has resulted in the development of a variety of programs nationwide developed, in part, by hospitals, intended to enhance ability to provide safe patient care, programs that are often time intensive and costly (Berman et al., 2014; Edwards, Hawker, Carrier, & Rees, 2015; Guthrie, Tyrna, & Giannuzzi, 2013;
Spector, 2015; Trepanier, Early, Ulrich, & Cherry, 2012; Ulrich et al., 2010). Critical thinking has historically been identified as an essential outcome of nursing education (AACN, 2008; American Nurses Association [ANA], 2003, 2015; NLN, 2010). However, strategies for teaching critical thinking in nursing education have been primarily focused within the classroom or clinical laboratory settings and not in the clinical environment (Kong, Qin, Zhou, Mou, & Gao, 2014; Thompson & Stapley, 2011; Yuan, Williams, & Fan, 2008). The Ohio Board of Nursing (2014) reported that undergraduate registered nursing students experienced an average of 642 hours of clinical during their nursing education and Li and Kenward (2006) reported 758 hours which makes the clinical learning experience a logical setting for research in the development of critical thinking. And yet little evidence exists for what nursing students themselves say about how those clinical hours shape their critical thinking skills, including what events might have most crucially shaped their critical thinking skills. Providing a better understanding of the student perspective will allow a renewed frame of reference for nurse educators to develop critical thinking abilities in clinical activities, especially if students’ reflections are triangulated with the reflections of their instructors.

Several challenges exist that make learning in the clinical setting, in general, problematic for students. One that continues to be evident in the profession is the lack of qualified nurses willing to be full time faculty (AACN, 2015a, 2015b). This has led to increased use of part-time or adjunct faculty who are typically expert nurses with little formal training or education in teaching, development, and supervision of clinical experiences (National Council of State Boards of Nursing [NCSBN], 2008; Tschannen et
Nursing students typically spend at least half of their time in the practice setting and are often instructed by part-time faculty accountable for helping them make connections between classroom learning and patient care and develop critical thinking abilities (Aldebron & Allan, 2010; Benner et al., 2010). Some studies have identified that part-time clinical nurse educators do not have the knowledge and skills needed to teach in a way that facilitates critical thinking and that teaching effectiveness is not at the same level as full-time faculty (Allison-Jones & Hirt, 2004). Hsu (2006, 2007) studied the instructional approaches used by clinical instructors and found that part-time instructors used questioning strategies that did not promote critical thinking in nursing students. Problems exist in the clinical setting and with clinical instructors (Andreson & Levin, 2014; Davidson & Rourke, 2012; O’Mara, McDonald, Gillespie, Brown, & Miles, 2014), in general, but it seems that the use of part-time nurse educators increases the complexity of issues (Clark, 2013; Paul, 2015). The shortage of full-time faculty reduces the possibility of clinical nurse educators that teach in both the classroom and clinical setting diminishing the possibility of deep understanding and development of critical thinking abilities of students (Benner et al., 2010). Research in understanding the development of critical thinking of nurses needs to include faculty perspective including part-time clinical nurse educators as a unique group charged with developing students’ ability to provide complex patient care (ANA, 2014; Forbes, Hickey, & White, 2010).

The purpose of this study is to investigate and describe students’ and clinical instructors’ understanding of critical thinking and define clinical experiences that are significant in allowing students to develop critical thinking abilities, also called critical
thinking experiences. With variations existing in instructional approaches and characteristics of clinical instructors comes a potential match or mismatch with students and their perceptions of critical thinking as a concept and activities that optimize its development. This study also examines the clinical instructors’ perspectives of critical thinking and defines experiences that they identify as significant in the development of students’ critical thinking abilities. This examination of multiple data sources will strengthen the understanding of critical thinking in use during clinical education. A basic interpretive qualitative methodology was used to describe these experiences including details and context of the situation. The findings from this study will provide an alternative frame of reference for nurse educators to consider when designing clinical teaching strategies in nursing education.

**Background of the Problem**

The ability of new graduate nurses to critically think and provide safe patient care has been questioned through the years (Benner, Hooper-Kyriakidis, & Stannard, 2011; Del Bueno, 2005; Fero et al., 2010; IOM, 2010; Pellico, Brewer, & Kovner, 2009; Trepanier et al., 2012; Ulrich et al., 2010). Turnover rates of new graduates are reported as high as 58% within two years of initial employment (Bowles & Candela, 2005) and some of this might have to do with the fact that up to 35% of these new nurses have been cited as unprepared to critically think and manage clinical problems (Del Bueno, 2005). Upon graduation, nursing students have identified problems related to the ability to critically think including being uncomfortable in managing patient problems and deciding when to call the physician (Li & Kenward, 2006) and lacking confidence needed to make
complex decisions (Skar, 2010). Nursing literature includes extensive information about the student perceptions of clinical settings (Lovecchio, DiMattio, & Hudacek, 2015) and effective characteristics of clinical instructors (Myrick & Yonge, 2004; Twibell, Ryan, & Hermiz, 2005); however, little research has substantiated what clinical experiences allow students to use their critical thinking and how nurse educators could provide opportunities that might capitalize on development of this ability.

Clinical experiences can provide powerful learning opportunities where students can develop critical thinking abilities and integrate learning in the classroom with hands-on patient care (Benner et al., 2010). The processes associated with planning and implementing quality clinical experiences, however, have been criticized for many reasons. Two of the problems identified within nursing literature include lack of clinical site availability (Hauber, Cormier, & Whyte, 2010; Partin, Payne, & Slemmons, 2011; Weaver, 2011) and lack of qualified clinical nurse educators and faculty (AACN, 2015b; Feldman, Greenberg, Jaffe-Ruiz, Kaufman, & Cignarale, 2015; NCSBN, 2008; NLN, 2014; Oermann, Lynn, & Agger, 2015). These issues have been cited as promoting increased use of part time clinical instructors (Duffy, Stuart, & Smith, 2008; Tschan nen et al., 2014) who are often ill prepared to teach in ways to foster development of critical thinking and meet the complex demands of teaching nursing students (Allison-Jones & Hirt, 2004; Forbes et al., 2010; Little & Milliken, 2007; Reinsvold, 2008; Zungolo, 2008). The issues present in clinical education and increased use of part-time nurse educators support the need to investigate both student and instructor perspectives to allow
for deeper understanding of development and perception of critical thinking in clinical experiences.

**Learning by Experience**

The use of experience as a means of learning has long been embedded in undergraduate nursing programs and identified as one of the most important threads of nursing education (AACN, 2008; NLN; 2008; Shulman, 2005). Experience, according to John Dewey (1938), is considered the basis and means for learning. Using planned assignments and activities in the clinical setting may seem an obvious origin for learning to be a nurse; however, it is only the beginning dimension of the educational experience. It is the acting on the experience including reflection and processing by the individual that is most often the key to learning. A person is learning all the time, whether intentionally studying a particular thing, engaging in a particular activity, or being seemingly passive in a situation; collateral learning, or unintentional learning, is just as important as intentional learning (Dewey, 1938). This study builds on the theories of John Dewey (1938) to highlight learning by experience using the student and instructor lenses. The emphasis is on understanding clinical situations that prompt the development of critical thinking abilities in the student.

Clinical nurse educators are most often responsible for planning and assigning particular patient care experiences and also have the responsibility of helping students make sense of that which they encounter (Robinson, 2009; West et al., 2009). Students identify that clinical instructors are an important factor in making sense of their clinical experiences and bridging the education practice gap that exists (Esmaeili, Cheraghi,
Salsali, & Ghiyasvandian, 2014; Flood & Robinia, 2014). This may include clinical teaching strategies that promote reflection and understanding of complex patient situations while developing critical thinking abilities. The increased use of part-time clinical educators may be a factor in the ability of students to make sense of clinical situations and bridging the gap between classroom information and clinical experience (Bell-Scriber & Morton, 2009; Flood & Robinia, 2014). Seeking student perspective of clinical situations that allows them to use and develop critical thinking abilities may provide a new focus for orientation and training of clinical nurse educators in effective designing of learning activities.

**Clinical Instruction**

Historically, clinical instruction has played a major role in nursing education. Clinical experiences have been recognized as essential to prepare students to care for patients across the lifespan with the intention of developing psychomotor skills, communication strategies and professional identity (Brown, Nolan, Davies, Nolan, & Keady, 2008; Tanda & Denham, 2009). The clinical piece has also been essential from a pedagogy perspective, building on the work of Dewey as discussed in the previous section. According to the AACN (2008), within clinical education “theoretical learning becomes reality as students are coached to make connections between the standard case or situation that is presented in the classroom or laboratory setting and the constantly shifting reality of patient care” (p. 33). Shulman (2005) defined nursing as a practice profession that includes clinical experience as integral to learning the profession and
teaching in healthcare settings where real life patient situations are encountered as its signature pedagogy.

A clinical experience in nursing education is defined as an encounter with actual patients, supervised by nurse educators or qualified faculty who provide feedback, evaluation, and facilitate reflection on the experience (NCSBN, 2005). Clinical experiences are designed as opportunities to make connections between theory and practice by providing care for real patients under the supervision and guidance of nurse educators, staff nurses, and preceptors (Tanner, 2006). The current method of designing clinical experiences and assigning particular patient situations is typically based on course and program objectives and not necessarily attending to the context of the situation or the individual student. The associated clinical activities include hands-on patient care, questioning, and analyzing patient situations under the guidance of a nurse educator (Gaberson, Oermann, & Shellenbarger, 2015). The assumption is that clinical learning experiences allow students to make sense of knowledge gained in the classroom setting when encountering patient and clinical decision-making situations.

Perli and Brugnolli (2009) studied nursing students’ perceptions of their clinical learning environment and found that while the students had an overall positive perception, room for improvement was evident. Although the literature includes a multitude of studies examining student experience in clinical education and the settings in which these experiences occur (Lovecchio et al., 2015), few have substantiated specific clinical situations that promote critical thinking, particularly from the perspective of the nursing student and clinical nurse educator. The data from this study defines clinical
situations identified by students and clinical nurse educators as opportunities to use and develop critical thinking abilities.

**Criticisms of Clinical Practice**

One major criticism of clinical nursing education has been that a gap exists between what students learn in the classroom and what they experience in the clinical setting (Landers, 2000; Maben, Latter, & Macleod Clark, 2006; Robert Wood Johnson Foundation, 2010). While the purpose of clinical education is to support learning in the classroom setting, allowing students to make connections between what they have learned to actual patient situations (AACN, 2008; Scott-Tilley et al., 2007), there continues to be a “great divide” between the two and “nursing education is approached as if it has two discrete elements” (Benner et al., 2010, p. 159). The current approach to planning assignments in the clinical setting in many programs has remained fundamentally unchanged over the years and is based on the apprenticeship model first implemented by Florence Nightingale in the 1930s (Benner et al., 2010; Nightingale, 1969; Tanner, 2006). Students typically are assigned patients who are easily accessible and willing to participate with minimal strategizing for assignments that promote critical thinking capabilities in students. This weakness is due to lack of available patients, clinical sites, and patient care units willing to accept nursing students (MacIntyre, Murray, Teel, & Karshmer, 2009).

Another criticism has been that the clinical component of the nursing curriculum has been ill-defined to begin with and is often treated separately from classroom objectives (Flood & Robinia, 2014; Ironside & Mc Nelis, 2010; Meyer & Xu, 2005;
O’Connor, 2001; Tanner, 2006). Norman, Buerhaus, Donelan, McCloskey, and Dittus (2005) investigated characteristics of students and their perspectives on the quality of nursing education and found that one fifth were concerned about the quality of their education and perceived disconnects between what they were taught in the classroom and what they observed in the clinical setting. Fragmented experiences where the classroom and clinical instruction are not coordinated can lead to student instruction resulting in “superficial understanding and precludes their ability to make astute clinical judgments” (Benner et al., 2010, p. 12). Research in nursing education continues to reveal gaps in strategies to improve learning and development of critical thinking abilities (Tanner, 2006; Zungolo, 2003).

**Clinical Experience and the Student Perspective**

Student perspectives of learning in the clinical setting can provide an alternative lens to consider when planning clinical assignments and activities, particularly in regard to the need for critical thinking development. Research examining the student perspective on nursing education reveals some interesting findings. Nursing students can encounter and perceive the same clinical experience, but process it in vastly different ways (Brookfield, 1995; Hickey, 2010). A multitude of variables exist in clinical education that has been cited by students as problematic and potentially detrimental to their learning. Studies that assist in the understanding of learning from clinical experience have helped to provide evidence for what are best instructional approaches in clinical education.
S. Kelly and Courts (2007) examined new nurse graduates’ perceptions of their educational preparation and concluded that while students reported primarily positive clinical experiences, they identified a need for more individualized attention, smaller clinical groups, and more realistic preparation for real world settings. C. Kelly (2007) also found variations in teacher characteristics, acceptance by the nursing staff, student teacher ratios, and additional contextual factors as significant to the effective clinical instruction from the student’s perspective. Despite inconsistencies noted in the student’s clinical experience, the benefit of teaching in this setting is that it affords students with unique practice challenges that cannot typically be reproduced in the classroom setting (Gaberson et al., 2015). Understanding experiences that prompt students to think critically might provide a foundation for instructional strategies in the clinical setting.

**Critical Thinking**

The purpose of clinical education is to develop nurses that can provide safe care, act as competent practitioners, and are able to critically think (AACN, 2008; ANA, 2014; NLN, 2012). Quality education of nurses necessitates innovative teaching strategies and clinical experiences that develop critical thinking abilities of students and allow for provision of competent care for patients in today’s complex health care environment (AACN, 2006; IOM, 2010; NLN, 2008; Spector & Odom, 2012; Tanner, 2010). There are many definitions and ways of describing critical thinking that have evolved over the years. In general, critical thinking is a process that includes reasoning and judgment as key components (Alfaro-Lafevre, 2013). Review of the literature identifies that several variations exist (Benner, Hughes, & Sutphen, 2008) including the definition by the
American Philosophical Association (Facione, 1990) as “purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological or contextual considerations upon which judgment is based” (p. 2). The AACN (2008) defined critical thinking as “all or part of the process of questioning, analysis, synthesis, interpretation, inference, inductive and deductive reasoning, intuition, application, and creativity” (p. 36) and further asserted that “critical thinking underlies independent and interdependent decision making” (p. 36). The NLN (2010) cited nursing judgment as a program outcome that encompasses critical thinking and clinical judgment and further defined critical thinking as “identifying, evaluating and using evidence to guide decision making by means of logic and reasoning” (NLN, 2010, p. 34). While the definitions of critical thinking vary among sources, it is clear that the ability to critically think is inherent in the role of a competent nurse.

The terms critical thinking, clinical reasoning, and clinical judgment are often overlapped in the literature with critical thinking and clinical reasoning most often referred to as processes and clinical judgment as the outcome of the processes. Figure 1 is adapted from Alfaro-Lafevre (2013). Clinical reasoning has been identified as a key piece of critical thinking and refers to the process of thinking about patient situations or issues and determining preventing and managing associated problems (AACN, 2008; Alfaro-Lafevre, 2013; Simmons, Lanuza, Fonteyn, & Hicks, & Holm, 2003). Tanner (2006) used the term clinical reasoning to refer to the processes by which nurses make their judgments about patient care situations. It includes the deliberate course of
generating alternatives, weighing these alternatives against the evidence, and then choosing the one that is most appropriate in the specific clinical situation.

**Figure 1.** Relationship between critical thinking, clinical reasoning, and clinical judgment

Clinical judgment has been most cited as an outcome of the critical thinking and clinical reasoning process (AACN, 2008; Alfaro-Lafevre, 2013; NLN, 2010). The NLN (2010) identified clinical judgment as a competency inherent to nurses being able to “make judgment in practice, substantiated with evidence, that integrate nursing science in the provision of safe, quality care and promote the health of patients within family and community context” (p. 34). Judgments are typically intertwined with evidence, meaning, and outcomes and typically have an end in mind (Pesut, 2001). Tanner (2006) identified that clinical judgment as being required in clinical situations that are “underdetermined, ambiguous, and fraught with value conflicts among individuals with competing interests” (p. 205). The results from a national survey completed by the NLN (2010) identified that nursing faculty identified helping students to think on their feet and make clinical judgments as “one of the most significant challenges faced” (p. 26) in clinical education. Reasons cited for this challenge included lack of time and issues faced in the clinical sites.
Developing critical thinking including clinical reasoning and clinical judgment is a time consuming and often difficult process for nursing students. Novice nurses must consciously identify clinical situations, reason through them analytically, identify what aspects of theory apply, and make adjustments to fit the particular situation. Experienced or expert nurses are able to skip these steps and act intuitively; they just “know what to do” (Tanner, 2006, p. 206). By understanding perceptions of what critical thinking is and defining clinical experiences that promote critical thinking from both the student and instructor perspective, clinical nurse educators can plan activities using a new viewpoint in an effort to improve critical thinking abilities of students.

Critical Thinking Teaching Strategies

Benner et al. (2011) used exemplars as a way of developing the thinking ability of nurses by situating clinical experience “laden with significance” (p. 543). The basis for an exemplar is story telling which allows recollection of significant aspects of a story that are significant. Exemplars are clinical situations that allow nurses to better understand what findings are significant. When asked to reflect on a situation in the clinical setting that they learned from, students and nurses often reply with one of the following:

- A situation that stands out as the quintessence of good nursing.
- A situation that taught you something new, opened up new ways of helping, new lines of inquiry, or made you notice something new.
- A memorable exchange or encounter that taught you something new.
- A situation where you clearly made a difference.
• A situation or breakdown, error, or moral dilemma, and the situation is memorable because of the issues and problems it raised for you as a clinician. (Benner et al., 2011, p. 543)

Tanner (2006) identified that when students are asked to reflect on a clinical situation, they will typically focus on a “trigger” which is most often a breakdown or perceived breakdown in practice. Understanding the types of situations that are laden with significance or serve as triggers for student reflection may help to identify opportunities that optimize the thinking abilities of students. The ultimate goal is to develop anticipatory thinkers that can recognize and predict clinical situations and prevent or act quickly on patient problems as part of that critical thinking process. A better understanding of the contexts and type of clinical situations that promotes this type of thinking will allow nurse educators to make more effective instructional decisions when designing clinical experiences.

Rationale for the Study

Quality education of nurses requires clinical education that incorporates learning experiences that maximize critical thinking skills needed to care for patients in today’s complex healthcare environment (AACN, 2006). Little research exists defining student and instructor perceptions of critical thinking and what clinical experiences allow students to use and develop critical thinking, clinical reasoning and clinical judgment. With so many variations in the definitions of critical thinking and its components, it is unknown what student and instructor perceptions are of this necessary skill. Clinical nurse educators are the ones primarily responsible for designing and selecting specific
assignments within clinical experiences (AACN, 2008; NLN, 2012) and limited information is available to guide them in planning and selecting clinical experiences that develop the student’s ability to critically think. While strategies have been identified to increase the critical thinking abilities of students including simulation (Jeffries, 2009) and use of exemplars and case studies (Benner et al., 2010), few studies have identified student and instructors’ perceptions of critical thinking and what clinical experiences are identified as promoting critical thinking. Defining the student perspective of critical thinking and identifying critical thinking experiences from both student and instructor perspective will allow nurse educators to plan teaching and instruction to maximize understanding. Identifying characteristics of specific clinical situations, associated problems, and contexts that promote critical thinking will allow a greater understanding of student learning.

Heightening the issue of lack of evidence to plan sound clinical assignments is the fact that the nursing faculty shortage and cost savings approaches in nursing education have increased the use of part-time clinical nurse educators whose numbers are exceeding full-time faculty. Included in discussion from results of the NLN (2010) national survey is the following recommendation: “Research investigating the kinds of experiences students have in clinical settings and the ways in which these experiences influence their readiness for practice is also imperative” (p. 51). The Ohio Board of Nursing (2014) identified that associate degree nursing programs in Ohio reported between 206 and 720 hours that students spent in clinical experiences during their education. With so many
hours spent in this setting, we must understand clinical experiences that optimize critical thinking and consider the findings when designing these activities.

Research in the area of clinical education of nurses, in general, has primarily focused on student satisfaction in the clinical environment in which experiences occur (Lovecchio et al., 2015; O’Mara et al., 2014), instructor effectiveness (Allison-Jones & Hirt, 2004; Esmaeli et al., 2014; C. Kelly, 2007; Madhavanprabhakaran, Shukri, Hayudini, & Narayanan, 2013), processing of clinical experiences (Berkstresser, 2016; Marchigiano, Eduljee, & Harvey, 2011; Twibell et al., 2005), and alternatives to traditional clinical experiences (Andreson & Levin, 2014; Ashley & Stamp, 2014; B. L. Hooper, 2014; McNamara, 2015; Niederhauser, Schoessler, Gubrud-Howe, Magnussen, & Codier, 2012). Little research has been done on students’ perception of critical thinking experiences during the clinical phase of their education. And, while the traditional model of clinical experience has been cited as ineffective (NLN, 2010; Tanner, 2006), it continues to prevail in the education of nurses today.

Continuous changes in healthcare and the settings in which clinical experiences take place necessitate a constant evaluation of student learning and effects on the preparation of nurses and, in particular, their training in critical thinking. The face of healthcare has changed tremendously over the years creating confusion about what clinical experiences should look like in nursing education. The shift of patient care delivery to alternative settings has challenged nurse educators to make decisions about what the best learning environment is for the nursing student. A national survey revealed that, from a delivery perspective, nursing faculty cited a lack of quality clinical sites, lack
of qualified faculty, and large clinical group size as the top three barriers to optimizing clinical learning experiences (Ironside & McNelis, 2010). Inconsistencies and uniqueness exist in nursing education regarding context and framework for clinical education (Iwasiw, Goldenberg, & Andrusyszyn, 2009) that necessitate continual reevaluation of student learning. Stark (2003) found that there is not always consistency in the agreement between students and teachers about the quality, quantity, style, or appropriateness of clinical teaching. This supports the need to further investigate the student and clinical nurse educator perspective of clinical situations that optimize critical thinking.

**Purpose of the Study**

The purpose of this study was to investigate and describe students’ and clinical instructors’ understanding of critical thinking and define clinical experiences that were significant in allowing students to develop critical thinking abilities, also called critical thinking experiences. What was the understanding of critical thinking of both students and instructors? What were the situations and experiences related to critical thinking in the clinical setting that allow nursing students to use and develop critical thinking abilities? This study used multiple data sources to better understand the concept of critical thinking in use. Data included narrative accounts of critical thinking experiences and interviews with students and nursing instructors to see what commonalities did or did not exist regarding their understanding of critical thinking and critical thinking experiences during clinical education. More specifically this study sought to investigate: What clinical situations were identified as important in facilitating critical thinking
ability? What was the context of these experiences? The comparison between what the nursing students report and what the nursing instructors report helps to inform the field of nursing education during this time of increased emphasis on critical thinking in nursing education. Framing this research within the context of the program in which I practiced allowed for greater understanding of local knowledge and improved teaching practices with a student-centered focus for planning clinical experiences (Cochran-Smith & Lytle, 2009).

**Research Questions**

The following questions were addressed in this study:

- What are students’ perceptions of critical thinking experiences they feel they have had during clinical experiences?
- What are nursing instructors’ perceptions of critical thinking experiences that they feel have occurred during clinical experiences?
- What are the commonalities and differences between the perceptions of the nursing students and the nursing instructors regarding critical thinking experiences?

**Definition of Terms**

**Clinical experience:** For the purposes of this study, a clinical experience is planned, structured, supervised clinical instruction that occurs in a healthcare setting within a nursing education program (Gaberson et al., 2015; NCSBN, 2005).

**Clinical instructor:** A clinical instructor is a nurse educator who teaches, provides guidance, and supervises nursing students in a clinical setting.
**Constructivism:** A student centered learning theory that suggests that individuals create their own new knowledge or understanding based on previous learning, interactions, previous knowledge and experiences (Peters, 2000; Richardson & Placier, 2000).

**Critical thinking experience:** An experience identified as optimizing or developing the student’s ability to critically think within the context of providing nursing care.

**Critical thinking:** Critical thinking is the process of questioning, analysis, synthesis, interpretation, inductive and deductive reasoning, intuition, application, and creativity (AACN, 2008) that is outcomes or results focused. Clinical reasoning is a process used in critical thinking specifically in the clinical setting (Alfaro-Lafevre, 2013). Clinical judgment is the result or outcome of the clinical reasoning process and is often a conclusion, decision, or opinion (Alfaro-Lafevre, 2013; Tanner, 2006).

**LPN nursing student:** LPN nursing students are students enrolled in the nursing program who have a prior degree as a licensed practical nurse. They participate in a LPN “bridge” or transition course and enroll directly into the third semester of the nursing program.

**Nurse educator:** A nurse educator is a registered nurse who teaches and supervises undergraduate college nursing students in the classroom and/or clinical setting.
**Nursing student:** A nursing student for the purposes of this study is a student enrolled in an undergraduate associate degree nursing program where the preparation is intended to lead to the attainment of licensure as a professional nurse.

**Paramedic nursing student:** The paramedic nursing students are those students in the associate degree in nursing program who have a prior degree as a paramedic. These students participate in a paramedic transition course and enroll directly into the third semester of the nursing program.

**Traditional nursing student:** Traditional nursing students are those students in the associate degree in nursing program who have no prior educational degrees or certifications in health care. These students enroll in all four semesters of the nursing program.
CHAPTER II
LITERATURE REVIEW

This chapter presents an overview of literature related to nursing education that supports the investigation of critical thinking development during clinical experiences. Although clinical experience is well documented as a valued component of nursing education (NLN, 2008; Tanner, 2006), the investigation of students’ perceptions of learning how to critically think during these experiences is limited. This study investigates learning that goes on during clinical experiences and contexts surrounding critical thinking from the students’ perspectives. It, additionally, seeks to triangulate the students’ experiences with that of the nursing instructors involved in the clinical experiences on which the students are reflecting. The data from this study might provide an educational foundation informed by student perspective for planning and implementation of clinical experiences.

The literature reviewed includes examination of research identifying significant issues in clinical education with a focus on those that are current and in effect today. The issues include those that influence learning in clinical settings and the development of critical thinking abilities of nursing students.

Education of Nurses

Over the years, rigid organization of classroom and clinical experiences based on predetermined educational outcomes has been the norm for nursing curricula and has been most influenced by the Tyler Model (Tyler, 1949). This model has been further reinforced by the State Boards of Nursing and other accrediting bodies that seek clearly
defined and externally measured outcomes of student learning (McDermott, 2012). This approach has left little room to understand and support the individual student’s perspective of learning and include its incorporation into instructional approaches to plan clinical experiences. Dewey (1938) identified the key to effective learning as experience and asserted that “amid all uncertainties there is one permanent frame of reference: namely, the organic connection between education and personal experience” (p. 25).

Attention to this concept of personal perspective supports a renewed emphasis on what students are learning and what they find meaningful to frame instructional approaches to clinical experiences. Constructivism is a learning theory utilized to explain how individuals construct much of what they know based on their beliefs, existing knowledge and views, and prior experiences (Keating, 2011). Knowledge can be said to be subjective, individualized, and personal incorporating culture and context (Kim, 2001). This is important when developing strategies to understand how nursing students develop and use thinking abilities with regards to decision making and critical thinking.

Any transformation in education of nurses that might occur must begin with the investigation of current practice and associated learning that results from various pedagogical approaches including clinical education. The shift from the traditional teacher driven instruction that is occurring to one which incorporates understanding student perspective might prove to be more effective in the development of professional nurses. Studies are needed to investigate learning as a result of current practices of planning and supervising clinical experience keeping the student perspective in mind (Ironside & McNelis, 2010).
Current Initiatives and Challenges

Radical transformation of higher education including the current nursing curriculum has been recommended within the past decade (Benner et al., 2010; Sullivan & Rosin, 2008). Benner et al. (2010) presented a vision for the future of nursing education as a result of their seminal study supported by the Carnegie Foundation. The resulting publication *Educating Nurses: A Call for Radical Transformation* recommends redesign of classroom teaching using exemplars and contextual teaching in the classroom. Additional recommendation included a concerted effort to integrate classroom and clinical teaching in an effort to better prepare graduates to be safe, competent clinicians. Although not directly using the term critical thinking, Benner et al. (2010) identified that nursing students must develop a “sense of salience-recognizing quickly what is most urgent, most important in each particular clinical situation” (p. 14) and integrating teaching in the classroom and clinical settings that is directed towards achieving this. This call for change challenges nursing programs to educate nurses at higher levels of functioning using different innovative approaches in classroom and clinical education (IOM, 2010). Recommendations are being made that continually challenge the status quo of nursing education forcing nurse educators to imagine creative alternatives and frameworks of best practices in developing the competence and critical thinking skills of nurses (Burrell, 2014; Ironside, 2007).

Additional national initiatives call on nurse educators to reform education including the Institute of Medicine’s (IOM, 2011) future of nursing report, which called for increased emphasis on development of innovative approaches to nursing education
incorporating evidence-based teaching, evaluation of effectiveness of education and better preparation of nurses who are able to make decisions and practice clinical reasoning. These initiatives mean not only changes in the classroom setting but also increased innovation and efficiency of clinical component of nursing education. Emphasis is being placed on increased scholarship of teaching and learning, with a shift in instructional approaches that leads to sound inquiry skills and enhanced critical thinking abilities of nursing students (Benner et al., 2010). This supports the need to continually evaluate students’ perceptions of learning during their education, experiences that are significant to their development as a critical thinker, and correlation between student and clinical instructor perceptions.

**Defining Clinical Experience**

The traditional clinical education model places faculty with 8 to 10 nursing students in a clinical facility with each student caring for 1 to 2 patients at a time. The number and complexity of patients for whom a student cares tends to increase during progression through the program. A variety of approaches is used to assign patients that include nurse educator or staff selecting patients or self-selection by students. Little research has been done that investigates learning during these experiences and what is found to be meaningful to the student.

Clinical experience has always been a critical component of nursing programs. During the late 1800s in the time of Florence Nightingale, an apprenticeship model was the primary means of education (Keating, 2006; Nightingale, 1969). Today, clinical experience continues to make up an integral part of the education of nurses and includes a
variety of instructional approaches intended to promote knowledge and skill acquisition by student nurses (Bell-Scriber & Morton, 2009; Carr, 2007; Gillespie & McFetridge, 2006; Ironside & McNelis, 2010; Phillips & Vinten, 2010). Teaching and learning approaches used to facilitate clinical experiences vary with the individual program curriculum and faculty preferences. Clinical experience may be supervised using traditional nurse educators or staff nurses that have been trained as preceptors. Research evaluating preceptor-guided experience as an alternative to the traditional clinical approach has shown little difference in the satisfaction of nursing students beyond the first semester and no significant differences in cognitive outcomes of students (Hendricks, Wallace, Narwold, Guy, & Wallace, 2013). The variations that exist in instructional approaches to clinical experience support the need for studies that investigate student learning in light of various educational designs.

Learning in the clinical setting includes socialization to the role of the nurse. With clinical experiences come interactions with other healthcare providers of all proficiency levels allowing the student to situate the nursing role within the setting. By experiencing the role of the nurse when providing and coordinating actual patient care and observing the interactions of other practitioners, the student gains insight into the professional role (Dalton, 2004; Hartigan-Rogers, Cobbett, Amiraunt, & Muise-Davis, 2007). Watson (1986) identified that a nurse’s attitudes towards the practice are a direct reflection of the process of socialization that occurs during the educational process including clinical experiences. The educational process has been identified throughout the literature as a source of success to the transitional process from student to nurse. The
process of socialization is not only inherent during the nursing education process but continues well after the nurse enters the workforce (Ferguson, 2011; Tradewell, 1996; Young, Stuenkel, & Bawel-Brinkley, 2008). Nurse educators are responsible for integrating successful socialization of nursing students to prepare them for transition to the role of nurse. It is essential to understand learning during clinical experience including socialization to the role of the nurse from the student’s perspective. Learning in a clinical experience setting is discussed in further detail later in this chapter.

**Traditional Nursing Education and Potential Redesign Emphasizing Constructivism**

The traditional nursing curriculum leaves little room for the valuing of nursing students’ perspectives of their learning. Despite the complexities of healthcare reform, the shortage of nurses and the persistent call for transformation of nursing education over the years (Benner et al., 2010), traditional models continue to persist in many nursing programs. This traditional model is focused on behavioral outcomes followed by content-laden structure and continues to be evident today in both the classroom and clinical settings (NLN, 2003). The current models frame planning of clinical experiences from a teacher-centered philosophy focused on content delivery and tend to leave little room to account for individuality of students, learning styles and contextual aspects of experience (Stanley & Dougherty, 2010).

Trends toward more traditional curriculum and instruction in nursing education can be linked to accrediting and testing organizations such as the National Council of State Boards of Nursing (2005) and the state boards of nursing. These agencies continue to use the Tylerian (Tyler, 1949) approach to evaluation by setting specific objectives that
programs of nursing must meet, and determining so-called “objective” criteria intended to evaluate student learning and quality of nursing programs. The result has been nursing education programs that have adopted content laden curricula and firm measurable behavioral objectives that align with accrediting agencies, often requiring updating as regulatory changes ensue (Candela, Dalley, & Benzel-Lindley, 2006). This constant revision of objectives based on regulation minimizes the incorporation of the individual learner’s perspective (Diekelmann, 2007).

A greater emphasis on student-centered learning has been recommended by various professional organizations such as the American Nurses Association (ANA, 2015) and National League for Nursing (2012) to shape the structure of nursing education; therefore care and attention to understanding the students’ perspective of learning in clinical experience needs to be more closely examined (NLN, 2012; Institute of Medicine, 2010; Ironside & McNelis, 2010). While the professional organizations are emphasizing student-centered learning, the regulatory agencies such as state boards of nursing continue to focus on standardized test scores and other measurable criteria. What nurse educators are intending to teach may not be what the students actually believe they are learning during clinical experiences; this is an important tension that needs to be investigated. Listening to the students’ perspectives and how they align with those instructors who are responsible for clinical education might allow for a redesign of clinical experiences that optimize the development of critical thinking.

This study investigates some students’ perspectives of meaningful learning with particular focus on the critical thinking aspect during the clinical component of nursing
education. With the call for transformation of nursing education and increased use of alternative clinical experiences, understanding what students are truly learning is important, especially if we are going to redesign instructional approaches that incorporate aspects of student-centered learning. This understanding may also allow nurse educators to provide for more relevant and meaningful student experiences and redesign of instructional practices that meets learning outcomes and facilitate critical thinking abilities.

Barr and Tagg (1995) recommended a shift from the instruction paradigm in higher education to a learning paradigm to better meet the mission of colleges to produce learning. Since their recommendation of 20 years ago, the traditional dominant paradigm has continued to be the instruction paradigm, with a focus on providing instruction in various forms of didactic activities such as lectures or readings. Learning in the instruction paradigm primarily consists of information or knowledge delivered by an instructor to students who receive the instruction as the method of learning (Tagg, 2003). A more constructivist view of teaching and learning recognizes the learner as the chief agent responsible for construction of their own knowledge, which includes frameworks or wholes that develop as a result of building on learning experiences. This type of learning allows understanding and the ability to act in certain situations as a result of cumulative knowledge. The focus is not on didactic instruction, but rather student learning that takes place. If this approach is taken, the nurse educator continuously modifies teaching strategies to achieve student learning. The first step in this approach is being cognizant of what the student is truly learning during clinical experiences. Redesign of clinical
experiences is therefore done within a framework of learning that includes student perspective.

By framing education within the constructivist paradigm rather than the instructional paradigm, the program, nurse educator, and student accept responsibility for learning that occurs. This would support the inclusion of student perspective of critical thinking and clinical experiences that optimize learning of critical thinking. Barr and Tagg (1995) identified learning outcomes to be used to continually evaluate and redesign educational activities and programs. According to Tagg (2008), traditional teacher-centered education that has been focused on instructional objectives surrounding what the teacher wants to teach should be replaced by learner-centered programs that include learning from the student perspective. When education is learner-centered, the foundation then relies on authentic assessment of learning rather than instruction (Candela et al., 2006; Stanley & Dougherty, 2010; Tagg, 2003).

**Qualities of Effective Nurse Education**

Learning to be a nurse involves not only acquisition of knowledge but also the ability to apply that knowledge in a variety of patient situations that is part of the critical thinking process.

There are many ways that students learn during their educational preparation to become a nurse; however, learning by experience in the clinical setting has been identified as the most beneficial to learning the practice (Messina, Ianniciello, & Escallier, 2011). Redesigning activities inherent in clinical experiences with a focus on acquisition of critical thinking ability can support the development of competent nurses.
The National League for Nursing (2008) identified that nursing education should strengthen value placed on clinical experiences with focus on student learning within those experiences. Universal approaches to planning clinical experiences are not always effective in meeting the learning needs of students and attention to individual characteristics and context that influence learning is needed (Stark, 2003).

Clinical Experience

Clinical experiences are essential to the education of registered nurses in order to prepare competent practitioners who are able to provide safe and effective nursing care (Billings & Halstead, 2013; Budgen & Gamroth, 2008; Courtney-Pratt, FitzGerald, Ford, Marsden, & Marlow, 2012; Croxon & Maginnis, 2009). Not only are these experiences useful in allowing students to conceptualize theory while caring for real patients, their inclusion into nursing education is required by state boards of nursing and accrediting agencies. Even though the field recognizes the importance of clinical experiences and, in particular, critical thinking education, minimal research exists that investigates instructional practices included in planning clinical activities (Yonge et al., 2005) or the students’ perceptions of those experiences, particularly in relation to critical thinking. In this section, I provide a brief historical overview of clinical experience within nursing education and situate it within a context of constructivist teaching including the processes involved in learning from those experiences.

Overview of Clinical Experiences in Nursing Education

It has been recognized that there are skills that cannot be learned in any other way than clinical experience (NLN, 2008). The quality of nursing education has been cited as
directly dependent on the quality of clinical experience provided (Henderson, Cooke, Creedy, & Walker, 2012). The design of clinical experience within nursing education is largely dependent on the philosophy and framework of the particular program, availability of clinical nurse educators, and clinical setting in which it is planned. Tremendous variation exists in the design of clinical experience as regulatory requirements do not quantify hours needed or prescribe specific types of clinical experiences that best facilitate learning. While a variety of approaches to clinical experience exist, the majority of them continue to remain teacher-centered and based on the apprenticeship model. Tanner (2006) identified that despite the call for transformation in nursing education, teaching nurses in the clinical setting has remained “essentially unchanged for the past 40 years” (p. 99).

In addition to a variety of degree options to become educated as a registered nurse, innumerable curricular and instructional designs guide faculty and students within nursing education. While accrediting bodies provide basic requirements for design of nursing education, each program develops their own framework to meet the needs of a particular program, university or school, and student population (Keating, 2006). Despite variations in nursing education programs, all curricula include both classroom and clinical components of learning. The clinical component of nursing education has been recognized as vital to the development of the nursing student (Brown et al., 2008; Tanda & Denham, 2009) and required by accrediting professional organizations (NCSBN, 2005; NLN, 2013). While classroom instruction tends to be prescriptive and rigidly planned, the clinical experience is often varied, directed by classroom objectives and coordinated
by individual instructors assigned to the students. Professional accrediting bodies of nursing education programs require clinical experiences with actual patients while being supervised by qualified faculty, but have no real requirements or guidelines other than their inclusion (NCSBN, 2005; NLN, 2012). The literature supports clinical experience is important to the development of nursing students, but also identifies that it is one of the most unpredictable and varied aspects of the educational experience. This study focuses on student perspectives of learning in clinical experiences to further uncover some of this unpredictability and random quality especially in contrast to the perspectives of the instructors of the clinical experience.

**Learning by Experience**

One of the reasons for the importance of clinical experiences within nursing education is that it is historically well established, and learning by experience has been identified as an essential to education of a practice profession (Shulman, 2005). But what clinical experiences allow future nurses, in particular, to use and develop their critical thinking abilities? Although there are many factors that influence learning, the experiences in the clinical setting can have a profound impact on knowledge and thinking abilities of future nurses that link concepts presented in the classroom to real life patient situations. The experiences that each student has in the clinical setting vary and what is learned from these experiences is personal, individual, and based on student perspective (Cooper, Taft, & Thelan, 2005).

Nursing students are provided opportunities to apply and practice knowledge gained from classroom lectures and readings in actual practice situations with patients in
healthcare settings. These clinical experiences are planned by nurse educators in an effort to meet student and program learning outcomes. The comparison of perspectives of the nurse educators and the nursing students regarding these actual practice situations is the purpose of this study. Not only are clinical experiences required for the education of nurses, but they have been cited as significant in the development of role assimilation, critical thinking and awareness of the responsibilities of the nurse (Croxon & Maginnis, 2009; Ironside & Valiga, 2006; Messina et al., 2011).

Learning by experience, as cited in the work of John Dewey (1938), identified one permanent frame of reference for education as “the organic connection between education and personal experience” (p. 12). While experience is central to learning, not all experiences are educative and some experiences even impede growth and are considered mis-educative. Discerning the outcome of an experience is essential to understanding those situations that promote learning and that should guide the instructional planning of nurse educators.

When a student encounters an experience, it is the processing of that experience that results in the perception of learning in some form. It is the backward and forward connection that results in growth of knowledge or perception by the student. A key feature of learning by experience is the reflective practice of processing experiences within the context of thinking connected to doing (Rolfe, 2014). This active process of thinking during experience is a form of experimentation that ultimately produces knowledge (Dewey, 1933; Schubert, 2005). Defining experiences that prompt reflective
critical thinking provides a foundation for educators in the development of instructional strategies in clinical education.

Dewey (1938) identified the role of the educator as facilitator of experiences that serve to produce growth in the individual student. Each student assimilates clinical experience in their own way due to their unique background, frame of reference, and past experiences. Nurse educators are charged with planning and organizing clinical experiences in a way to promote learning for their students to become more effective critical thinkers (Hallet, 1997). Being cognizant of the distinctive features of each student’s learning is a key to assimilating new experiences that promote growth. In addition, the educator should assist in the reflective process of grounding concepts learned into real life experiences such as those encountered and constructed by nursing students in the clinical setting.

**Constructivist View of Learning**

Learning within the constructivist approach offers an alternative to the traditional teacher-centered pedagogy in that it is student-focused and includes students’ past experiences with knowledge as a foundation to build, modify, or expand knowledge (Keating, 2011). This perspective challenges the notion of objectivism, which purports that knowledge exists outside of the mind and is something to be attained. Instead, constructivism acknowledges that learning is an active process that an individual experiences, and knowledge is constructed in a way that makes sense for the learner (Tippins, Tobin, & Hook, 1993). Learning is created in a personal and subjective way for each learner which supports the study of learning from the student perspective rather than
investigating or comparing attainment of objective learning outcomes (Peters, 2000). Within this essence of learning, teachers are seen as mediators who plan activities and situations that build on the students’ prior experiences in an effort to make sense of what they are encountering and to develop understanding of more complex concepts (Rolloff, 2010). Conceptual understanding is the ultimate goal of successful learning within the constructivist view, and the context in which it is attained is an important consideration for future educational planning.

If a clinical experience is guided by an instructor according to the constructivist view, learning during clinical experiences is influenced by the student’s knowledge and values, past experiences, and the setting in which the situation occurs. Learning is individualized and takes into account the unique nature of each planned clinical experience. A constructivist approach might be particularly appropriate for students in nursing programs who are adult learners in the system of higher education who should be enabled to construct unique conceptualizations of specific learning situations they encounter including clinical experiences. Lincoln and Guba (1985) identified constructed realities as those situations that are constructed in the minds of individuals. The meaning of particular clinical experiences is shaped in the mind of the student and the reality for that student is not known unless the meaning is shared outright. Investigating the nursing students’ perspectives of learning in the clinical setting might provide a new perspective to redesign activities that provide more meaningful learning, particularly in the area of critical thinking. Using a constructivist lens, multiple realities and perspectives exist and each individual learner has his or her own vantage point from which learning occurs.
When applying constructivist theories to study learning during clinical experiences, the researcher would want to know the interactions of the encounter and socially constructed aspects surrounding the complex situation of learning.

Attention to the context and specifics of each student’s perspective of learning is of interest and the development of themes is key to the interpretive constructionist view within this study (Rubin & Rubin, 2005; Schwandt, 2000). By focusing on the students’ perceptions and meaning-making related to the particular experience, insight into their reality is better understood (Brajtman, Higuchi, & Murray, 2009; Wolf, 2007). Comparing and contrasting their perceptions with their instructors’ perceptions should bring to light revealing similarities and differences regarding how they have constructed the clinical learning environment. Ultimately, having knowledge of student perspectives of learning allows nurse educators to plan experiences that include more meaningful and useful learning experiences.

This study seeks to describe clinical experiences, both from the perspectives of the students and the instructors. Characteristics of experiences that students find central to critical thinking can be better understood and the context of situations that promote this type learning can be examined. These data, which came from the students, are of particular interest when considered in comparison with the perspectives of the nursing educators involved in the clinical experience.

**Experiential Learning Theory**

Experiential learning theory is a framework used to guide learning and the processing of experiences (Kolb, 1984). Simply having an experience does not
necessarily lead to learning or change in ability; it is grasping of the experience and transformation that allows a learner to make sense of, and organize it into learning. The meaningful interaction of experience and reflection are integral for learning to occur and many factors can facilitate or impede this process surrounding the ability to reflect on the situation that the student has encountered (Fowler, 2007; Frazer, Connolly, Naughton, & Kow, 2014). Experiential learning involves the interaction of the learner and the environment in a holistic way for active learning to occur. Cohen, Boud, and Walker (1993) proposed that learning by experience is socially and culturally constructed and influenced by the context in which it occurs. Context of experiences and influences on learning are important considerations when planning educational activities (Gaberson et al., 2015). Encouraging the inclusion of such context in students’ reflections on clinical experiences that promoted the use of critical thinking may provide new insight for nurse educators.

**Becoming a Reflective Practitioner**

Both Dewey (1938) and Kolb (1984) emphasized that simply having experiences alone is not sufficient for learning to occur. Learning can only occur when one thinks about the experience, reflects, and incorporates it into their repertoire of knowing. Further developed by the work of Schönb (1983) in his notion of reflective practice, reflection is the process by which professionals become aware of their implicit knowledge base and learn from experience. Two central components of reflective practice is reflection-in-action and reflection-on-action. When practicing reflection-in-action, nurses have the capacity to reflect at the same time as they act in their
roles in an intuitive way. Reflecting in this way allows for decisions to be made in the midst of action. In contrast, analyzing a situation and activities surrounding it after it has taken place with the intent on changing future actions is reflection-on-action. Both of these activities are central to the practice of nursing and development of critical thinking in the clinical setting (Cotton, 2001). Clinical experiences allow learners to use specialized knowledge that they have gained and restructure that knowledge in a new way with each experience, which results in decision making knowledge that can be applied to new situations in the future. Investigating how students make sense of clinical experience and the development of critical thinking may allow for a new perspective to redesign future activities that are more meaningful for the learner.

**Nursing Students’ Perspective of Clinical Experience**

If nurse educators want to rely on more than just historical studies of nursing students to plan for meaningful learning experiences, attention must be paid to the current students’ perspectives. Characteristics of nursing students are continually changing and instructional practices in nursing education need to be continually reviewed. Most recently, with the extreme economic conditions of the nation, many have turned to nursing as a source of economic stability, resulting in a new population of nurses entering the system while nurses already at retirement age continue to remain in the profession longer than initially intended (Buerhaus, 2008). The age of the average nurse has been increasing over the years with one third of all nurses in the current workforce over 50. The nursing workforce is still predominantly White and female; however, non-White and Hispanic registered nurse population has grown to 25% in 2013. The number of males
entering the workforce has also increased to 9% of registered nurses (Human Resources and Services Administration, 2013). Ongoing research to understand learning of current nursing students can promote the redesign of instructional strategies that are germane to an increasingly diverse student population.

With the recent change in the professional profile of the nursing student, it is imperative that nurse educators rely on recent research in order to meet the needs of today’s learner. Research reflecting student learning should guide instructional strategies and planning of clinical experiences. This study describes critical thinking use and development during clinical experiences from students' perspectives compared to perspectives and intentions of the nursing instructors. Having some understanding of students’ views, particularly of critical thinking experiences, will assist nurse educators to plan learning experiences that are more meaningful for students and potentially identify areas of misunderstanding that may exist.

Review of the literature within nursing education supports the students’ perspectives that clinical experiences are the most important aspect of their nursing education but that the experiences are not always what students expect or identify as realistic for today’s healthcare environment (Brown et al., 2008; S. Kelly & Courts, 2007; Tanda & Denham, 2009). Students’ impressions of nursing and the role of the nurse are directly influenced by clinical experiences. Lasting impressions from the culture of the ward or unit where the experiences are located, negative attitudes of those responsible for clinical supervision and attitudes of mentors can produce a cumulative effect on students’ opinions of clinical nursing in general and the intent to remain in the field (Papp,
Markkanen, & von Bonsdorf, 2003; Pearcey & Elliott, 2004; Sharif & Masoumi, 2005). Students that participated in the Carnegie study (Benner et al., 2010) reported that clinical instruction focused primarily on the technical aspects of nursing, with very little emphasis placed on the emotional and relational work of nursing, causing frustration in their learning experience. Nursing students have also indicated the primary duty of the clinical instructor as evaluation with little emphasis on facilitation of learning during clinical experiences (Wilson, 1994). Some students have even cited the feeling of being penalized for asking questions and stated the clinical instructor expected perfection as the primary evaluator (Diekelmann, 1992). This emphasizes the importance of conducting research in clinical education and investigating students’ perceptions of learning during clinical experience. Learning to think in a critical manner and making decisions within clinical situations is a key aspect to learning to be a nurse and mismatch may exist between the students’ perceptions and instructors’ intentions.

**Critical Thinking**

The concept of critical thinking has come to the forefront in the nursing education research literature since the 1990s when the American Philosophical Association published a clear definition in the Delphi Report:

We understand critical thinking to be a purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation and inference as well as explanation of the evidential conceptual, methodological, criteriological or contextual considerations upon which that judgment was based. CT is essential as a tool of inquiry. (Facione, 1990, p. 3)
With the understanding that nursing care requires dealing with patient problems that are context driven and require the consideration of alternative possibilities in the provision of care, the term critical thinking has emerged as an added dimension to nursing care (Jones & Brown, 1991; McPeck, 1981). However, while critical thinking has become a highly valued educational outcome for nurses, numerous definitions have emerged in the nursing literature since the Delphi Report and confusion about what it entails has prevailed in nursing education (Daly, 1998; Morin, 1997; Perez et al., 2015).

The terms critical thinking, clinical judgment, and clinical reasoning are all found within the nursing literature today and are often used as similar contexts. Critical thinking is identified in the American Nurses Association Scope and Standards of Practice (2015) as a skill employed to integrate data and make treatment decisions based on evidence. Demonstration of nursing competence includes the demonstration of judgment, which includes “critical thinking, problem solving, ethical reasoning, and decision-making” (ANA, 2014, pp. 3-4). This evaluation of data and decision making is also evident the National League of Nursing (2010) definition of critical thinking which includes “identifying, evaluating, and using evidence to guide decision making by means of logic and reasoning” (p. 34). The NLN identified nursing judgment as encompassing the processes of critical thinking, clinical judgment, and use of evidence to decision making. The term clinical judgment references the “process of observing, interpreting, responding, and reflecting” (p. 34). Both critical thinking and clinical judgment have been identified as overlapping in many definitions and essential to practicing the profession of nursing (AACN, 2008).
Tanner (2006) developed the Model of Clinical Judgment (see Figure 2) as a means of providing language to describe how nurses think when they are engaged in complex underdetermined clinical situations where decision-making and judgments are needed. The term clinical judgment was used to mean “an interpretation or conclusion about a patient’s needs, concerns, or health problems, and/or the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient’s response” (Tanner, 2006, p. 204). Clinical judgment was therefore seen as an outcome of a process that a nurse uses to come to the conclusion. The processing of information used to come to the judgment is referred to by Tanner as clinical reasoning. Clinical reasoning has been identified in nursing literature as a form of critical thinking within a clinical situation (Alfaro-Lafayette, 2013). The model of clinical judgment does not represent a linear process but four main aspects of noticing, interpreting, responding, and reflecting. Noticing is the function of the nurse’s expectations of a particular patient situation and influenced by the context and background of the particular nurse-patient relationship, the nurse’s past experience, and initial grasp of the situation at hand. Noticing and initial grasp of the situation lead the nurse to some type of reasoning pattern, whether it be analytic or intuitive that results in some decision making that leads the nurse to respond or act in a particular manner. This includes the processes of interpreting whereby the caregiver develops a sufficient understanding of the meaning of the data and a course of action is selected based on the interpretation. Reflecting can occur as the situation is encountered and can be termed “reflection-in-action” (Tanner, 2006, p. 209) or can promote subsequent clinical learning
leading to action in future situations. It completes the cycle of knowing what occurred as a result of the nurse’s action. Tanner identified educational implications of the model as providing “language to describe how nurses think when they are engaged in complex, underdetermined clinical situations that require judgment” (p. 209).

Figure 2. Clinical Judgment Model (Tanner, 2006)

This study served to investigate clinical situations that students and instructors identified as significant in the development of critical thinking and this model of clinical judgment provided framework for organizing data collected.

Lasater (2007) used Tanner’s Clinical Judgment Model to develop a rubric meant to measure nursing students’ clinical judgment abilities. In this rubric, noticing, interpreting, responding, and reflecting were expanded to incorporate more specific detailed dimensions for each aspect. The rubric was developed to evaluate a particular
episode or clinical situation experienced, such as in a simulation scenario; however, it has
the qualities of identifying clinical judgment development over time (see Table 1).

Table 1

Lasater Clinical Judgment Rubric Phases of Clinical Judgment with Major Concepts
(Lasater, 2007)

<table>
<thead>
<tr>
<th>Phase of Clinical Judgment</th>
<th>Associated Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noticing</td>
<td>Effective noticing involves:</td>
</tr>
<tr>
<td></td>
<td>• Focused observation</td>
</tr>
<tr>
<td></td>
<td>• Recognizing deviations from expected patterns</td>
</tr>
<tr>
<td></td>
<td>• Information seeking</td>
</tr>
<tr>
<td>Interpreting</td>
<td>Effective interpreting involves:</td>
</tr>
<tr>
<td></td>
<td>• Prioritizing data</td>
</tr>
<tr>
<td></td>
<td>• Making sense of data</td>
</tr>
<tr>
<td>Responding</td>
<td>Effective responding involves:</td>
</tr>
<tr>
<td></td>
<td>• Calm, confident manner</td>
</tr>
<tr>
<td></td>
<td>• Clear communication</td>
</tr>
<tr>
<td></td>
<td>• Well-planned intervention/flexibility</td>
</tr>
<tr>
<td></td>
<td>• Being skillful</td>
</tr>
<tr>
<td>Reflecting</td>
<td>Effective reflecting involves:</td>
</tr>
<tr>
<td></td>
<td>• Evaluation/self-analysis</td>
</tr>
<tr>
<td></td>
<td>• Commitment to improvement</td>
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</tbody>
</table>

The Lasater Clinical Judgment Rubric (LCJR; Lasater, 2007) includes levels of
performance in clinical judgment including exemplary, accomplished, developing, and
beginning with descriptors for each level in each area. The LCJR has been used in a
variety of research studies (Ashcraft et al., 2013; Blum, Borglund, & Parcells, 2010;
Chmil, Turk, Adamson, & Larew, 2015; Dillard et al., 2009) and has been further
examined as a means of teaching and evaluating students’ clinical judgment development (Lasater, 2011).

Tanner’s (2006) Clinical Judgment Model was also used as a guide to develop a template used for reflective writing as a means to develop student thinking and clinical Judgment (Nielsen, Stragnell, & Jester, 2007). Nielsen et al.’s template to guide reflection was used to help students recall pertinent data and understand complex patient situations that require clinical judgment. It was found that what the students decide to notice is dependent upon many factors that are intrinsic to the situation such as previous experience, values, ethics, and practical knowledge. The guide for reflection helped students to consider context of the patient’s background and also the details clinical situations that may affect clinical judgment. According to this model, faculty feedback is then provided to the student using the same template in an effort to improve students’ thinking abilities.

Further work to refine critical thinking in nursing education has been done by Benner, Tanner, and Chesla (2009) who distinguished “critical reflective thinking” as needed when the nurse encounters questionable practices or practices that are “in some way disconfirmed by scientific research,” in other words, a problem situation (p. 389). Benner et al. (2011) noted that clinical nurse educators cannot just teach content but need to capitalize on situated coaching for saliency and clinical reasoning. While not directly referring to critical thinking, teaching for a sense of salience means that clinical nurse educators help students to develop situated knowledge and the ability to notice (Tanner, 2006) while caring for patients. With as little as 35% of new graduate registered nurses
meeting entry level expectations for clinical judgment (Del Bueno, 2005) and frustrations expressed from hospital nurse executives that new graduates are not being prepared educationally to meet the needs of today’s healthcare (Benner et al., 2010), understanding clinical experiences that optimize development of critical thinking abilities is essential to improve the quality of clinical education is nurses.

Summary

Changes in health care delivery settings including the limited clinical settings for educational experiences, shorter patient stays, and increasing patient acuity, along with recommendations for change in the way that nurses are educated, support the need for ongoing research that examines current pedagogical approaches (Benner et al., 2009; Benner et al., 2010; IOM, 2011; Ironside & McNelis, 2010; Tanner, 2010). The traditional teacher centered instructional approach to nursing education with little attention to student perspective has been criticized (Barr & Tagg, 1995; IOM, 2011; Ironside & McNelis, 2010; Tagg, 2003) and supports a shift towards student-centered instruction that focuses on learning outcomes. The preparation of nurses necessitates the need for clinical education as a key component of learning to critically think and make decisions about complex patient situations. In these real-world teaching situations, it must be recognized that each learner has unique perspectives that the constructivist approach should be considered when planning instructional strategies in the clinical setting. Framing clinical experience within a constructivist framework necessitates taking into account learner knowledge, values, and past experiences in order to meet the learning needs of unique individuals.
Learning by experience, as outlined by the tenets of John Dewey (1938) and Kolb (1984), is a major premise for instruction in the clinical setting. A better understanding, both from the instructor and student perspectives, of experiences that allow use and development of critical thinking can provide insight for those nurse educators planning clinical education activities.

The area of clinical education is highly researched from many perspectives, but the aspect of critical thinking and students’ perception of critical thinking experiences is limited. Variability of clinical experiences with regards to setting, instructor, approaches and disconnect between classrooms and clinical were all factors that have been cited as leading to less than favorable clinical experiences. The increased diversity of nursing students and continual changes within healthcare support the need for re-evaluation of clinical teaching strategies that develop critical thinkers who are able to provide competent nursing care.
CHAPTER III
METHODOLOGY

In Chapter 1, I presented the need for this research study with the goal of investigating and describing both students’ and clinical instructors’ understanding of critical thinking and their accounts of clinical experiences that allowed them to use and develop critical thinking abilities. Literature in nursing education supports the value of clinical experience within nursing education and verifies challenges facing the nursing profession itself in preparing nursing students to be critical thinkers and competent nurses. The importance of learning by experience (Dewey, 1938) served as a foundational assumption in this study. This type of constructivist learning is unique to each student due to personal characteristics, knowledge, and past experiences. I described how findings from this study were intended to deepen understanding of the student perspective of critical thinking and clinical experiences that allowed students to use and develop critical thinking abilities. In addition, I described how the study was to triangulate students’ perception and experiences with those of the instructors involved in the clinical experiences. These data from this study provide insight to inform redesign of instructional strategies used by nurse educators when planning clinical experiences.

In Chapter 2, the need for the study was supported by a review of literature exploring the concept of nursing education in general, current initiatives and challenges in nursing education, defining the clinical experience, potential redesign of traditional nursing education emphasizing constructivism, and qualities of effective nursing education. Traditional clinical experiences that have supported an instructional and
teacher-centered approach to education are no longer supported by professional and health care organizations (Stanley & Dougherty, 2010, Walsh & Seldomridge, 2006). The clinical experience was presented with the broad categories of what clinical experiences are in nursing education, learning by experience, becoming a reflective practitioner, and examining nursing students’ perspectives of clinical experience. Learning by experience has long been embedded in the education of nurses; however, variations and inconsistencies with the planning and implementation of clinical education have been problematic for both nurse educators and students (MacIntyre et al., 2009). The review of the literature explored the concepts of critical thinking, clinical reasoning, and clinical judgment and some of the variations in definition that exist. Tanner’s (2006) Model of Clinical Judgment was presented as a way of understanding the development of critical thinking and clinical reasoning in nurses and nursing students. Lasater’s (2007) Clinical Judgment Rubric was presented as a means to describe development of clinical judgment and was built on the model developed by Tanner (2006). New graduate nurses have been identified as unable to critically think and often require remediation in transition or residency programs in order to safely care for patients in the clinical setting (Berkow et al., 2008; IOM, 2010; Spector, 2015; Spector & Odom, 2012). Chapter 2 supported the need for further research that investigates students’ perspectives of what critical thinking means to them and how clinical experiences have allowed nursing students to use and develop their critical thinking abilities.

The value of clinical experience has long been supported by professional nursing organizations and is evident in nursing literature. It has been cited by nursing students as
extremely valuable to their learning to become a nurse. In addition, clinical experience has been shown to be influential in student learning and socialization to the role of the nurse. Little research, however, has been published from the perspective of the nursing student regarding clinical experiences that are significant in developing critical thinking and situations that promote its development from this perspective.

In this current chapter, Methodology, I present theoretical assumptions that inform the study, rationale for sampling, procedures, data collection, data analysis, and establishment of trustworthiness.

**Interpretive Qualitative Methodology**

The main purpose of this study was to investigate perceptions of critical thinking and define clinical experiences that allow students to use and develop critical thinking abilities. The following questions were addressed in this study:

- What are students’ perceptions of critical thinking experiences they feel they have had during clinical experiences?
- What are nursing instructors’ perceptions of critical thinking experiences that they feel have occurred during clinical experiences?
- What are the commonalities and differences between the perceptions of the nursing students and the nursing instructors regarding critical thinking experiences?

Both students and instructors provided data in this study that allowed me to compare and contrast their views of critical thinking and critical thinking experiences. Qualitative research, in general, is implemented primarily to understand the meaning that individuals
assign to a particular issue or phenomenon (Creswell, 2007; Hesse-Biber & Leavy, 2011). A focus on the students’ perspectives in comparison with those of the nursing instructors provided information about learning that may not have been previously taken into account when designing clinical experiences that promote critical thinking. Selecting a qualitative methodology was appropriate for this study because it allowed for description of individual meaning that students and instructors had regarding critical thinking and perceptions of clinical experiences that allowed them to use and develop critical thinking abilities.

Since the purpose of this research was to investigate perceptions of critical thinking in clinical experience and why students find these experiences valuable to the development of critical thinking, an interpretive approach was used. Student data were compared with instructor data, which provided a deeper understanding of perceptions in use. Data were collected that included details and description about accounts critical thinking and the context of the identified clinical experience. Merriam (2002) identified that a basic interpretive study is focused on three concepts including “how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (p. 38). Collection of data using students’ and instructors’ accounts of clinical experiences and individual interviews provided rich description and detail of the clinical situations that were associated with critical thinking, discerned what critical thinking was for both students and instructors, and promoted inclusion of details and context of complex situations encountered in clinical experience (Creswell, 2014).
The interpretive approach of this qualitative methodology allowed for investigation of students’ and instructors’ perspectives of critical thinking experiences through the evaluation of thick rich data from several sources including the participants’ accounts of clinical experience and individual interviews. The interpretive stance assumes multiple realities exist in the interpretation of situations by different individuals and this is “normal and to be expected” (Schwartz-Shea & Yanow, 2012, p. 41). An individual’s interpretation of critical thinking and identification of clinical experiences that allowed the use and development of critical thinking is influenced by many factors including past experiences, historical and cultural norms, and specific contexts of patient and environment. Framed within a naturalist paradigm, realities are multiple, constructed and context bound (Lincoln & Guba, 2000).

Nurse educators who have a deeper appreciation of students’ accounts of critical thinking and critical thinking experiences during clinical education can be more mindful of this perspective when designing future experiences. This may be evidenced by planning and implementing clinical experiences incorporating activities identified as significant to use and development of critical thinking. The findings from this study deepen nurse educators’ understandings of perceptions of critical thinking in use and clinical experiences that support development of critical thinking.

**Design of the Study**

Creswell (2014) stated the identification of a sample for qualitative research as done purposefully to select participants that will best help the researcher to understand the research questions. In order to investigate and describe students’ and clinical
instructors’ understanding of critical thinking and define clinical experiences that were significant in allowing students to develop critical thinking abilities, also called critical thinking experiences, purposeful selection of the nursing program and level of participants was carried out.

**Site Selection**

For this study, in order to understand critical thinking experiences, I selected an associate degree of nursing program that was located on a regional campus of a large public university in the Midwest of the United States. Participants were students and clinical instructors within this nursing program that was fully accredited without conditions by the Accreditation Commission for Education in Nursing (ACEN) to ensure it meets quality and regulatory standards set forth nationally. Since I was nursing faculty in this particular program, it was of interest to me in that future programmatic changes might be informed by information garnered from the research data. As faculty, I have noticed inconsistencies with planning and use of clinical experience time and valuation of clinical opportunities. In addition, the nursing program was purposefully selected due to its close geographical location to me, allowing more time for interviews and scheduling of follow up as needed. The relationship that I had with the program, as faculty and researcher, allowed access to the participants on multiple occasions as needed. Permission to use the associate degree in nursing program was obtained by the director and administration of the program.

Using the program in which I was employed allowed the benefit of an established relationship with the participants of the study and provided for insight into learning that
occurred during clinical experiences and allowed for information-rich data regarding why students and instructors found particular experiences meaningful to development of critical thinking (Creswell, 2007; Patton, 1990). The particular course chosen within the nursing program was *Advanced Adult Nursing Concepts*, the final medical-surgical nursing course in the 2-year associate degree in nursing program. This nursing course included a 10-week classroom portion accompanied by a 9-week clinical component. Students would attend class on one day and participate in an 8-hour clinical experience scheduled weekly. In 6 of the 8 clinical experiences, each student was assigned to care for 1 to 2 patients on an acute medical unit in a hospital setting. Students were expected to complete preparatory work in an effort to better understand the complex conditions of the patient, understand medications that would be administered, and develop a plan of nursing care that would be evaluated and modified during the clinical experience. One of the weeks, students were assigned to serve as “provider of care.” In this role, they visited the hospital the day before, reviewed all patients on the medical unit, and assigned particular patients to the students who would be providing care the next day. In addition to making the assignment, the “provider of care” rounded on all the students’ patients and assisted with organization, delegation, and time management during the clinical experience day. On another clinical day, students were assigned to an alternative experience day in the intensive care unit where they were paired with an assigned staff nurse who was a preceptor for the nursing program. In this role, they provided care to critically ill patients throughout the clinical day.
Participant Selection

An initial sample of the entire class of 34 nursing students in *Advanced Adult Nursing Concepts*, which students enroll in the fourth and final semester of the associate degree nursing program, were sought for review of the *Critical Thinking Experience Assignment* review. From the initial sample, 11 students volunteered and consented to participate. These students provided written accounts of critical thinking experiences using the *Critical Thinking Experience Assignment* and participated in follow-up interviews. All four of the clinical instructors who supervised students in *Advanced Adult Nursing Concepts* volunteered and consented to participate for both submission of accounts of critical thinking experiences and follow-up interviews. Eleven student participants and 4 clinical instructors, of which two provided two written accounts, allowed for collection of in-depth data using 17 written accounts of critical thinking experiences and 15 follow-up individual interviews. At the conclusion of the interviews, it was determined that no new information was emerging and data collection was concluded (Lincoln & Guba, 1985) due to data saturation (Morse, 1994, 1995).

Patton (2002) identified that selecting information-rich cases for a purposeful sample allows the researcher to learn a great deal about issues of importance. This sample was selected from nursing students who have had three semesters of past clinical experiences and were enrolled in a nursing course in their final semester that has a minimum of 8 clinical experience days scheduled. The goal was by including written accounts of critical thinking experiences, and follow-up interview data for both student and instructor participants, data saturation, and information redundancy would be
accomplished. As data were reviewed, after all accounts of the critical thinking experiences and around half of the interviews were analyzed, theoretical saturation seemed to occur. This is how I knew that the sample size was sufficient to describe critical thinking and clinical experiences that were significant in developing critical thinking for the participants in this study. Theoretical saturation describes that a researcher continues to sample until a category becomes saturated with data (Bryman, 2016). Strauss and Corbin (1998) described it as sampling continues until no new or relevant data seems to be emerging regarding a category, the category is well developed in terms of its properties and dimension of variability, the relationships among categories are well established (p. 212). At this point in the data analysis, no new categories were emerging and data were fitting in existing themes that had already developed. Morse (1994) recommended 30–50 interviews or data sources to understand the essence of the experience which in this case, is clinical experiences that allow the student to use and develop critical thinking abilities (see Table 2).
Table 2

Data Sources

<table>
<thead>
<tr>
<th>Participants</th>
<th>Accounts of Critical Thinking Experiences</th>
<th>Individual Interviews</th>
<th>Total Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 students</td>
<td>1 each (11 total)</td>
<td>11 student participants (11 total)</td>
<td>22</td>
</tr>
<tr>
<td>4 clinical instructors</td>
<td>1 each for 2 2 each for 2 (6 total)</td>
<td>1 per clinical instructor (4 total)</td>
<td>10</td>
</tr>
<tr>
<td>15 total participants</td>
<td>17 total</td>
<td>15 total</td>
<td>32 data sources from participants plus researcher memos</td>
</tr>
</tbody>
</table>

Criterion sampling includes cases that meet a predetermined criterion of importance and provide the data that will best reflect the subject of interest such as critical thinking during clinical experiences (Patton, 2002; Polit & Beck, 2012). Aspects of criterion sampling were used in the purposeful selection of senior nursing students as they had three previous semesters of nursing courses accompanied by clinical experiences, which allowed a significant knowledge and experience base with which to compare clinical situations. Patton (2002) also identified that a small sample, such as the 15 information rich cases used for both written and interview data in this study, has the purpose of describing a concept such as critical thinking in-depth. The data collected from this sample of nursing students and instructors from a particular nursing program provided me with information that may be useful to planning future clinical experiences in the nursing course. Seeking volunteers from a group of students and associated
clinical instructors within a particular nursing program and at a particular level of progression in nursing coursework also incorporated elements of stratified purposeful sampling (Suri, 2011). The goal was to acquire a heterogeneous sample to provide varied perspectives of critical thinking and in-depth description of critical thinking experiences. This type of sampling allowed for expression of various perspectives of learning and unique context of critical thinking experiences within the particular group (Patton, 2002; Polit & Beck, 2012). The participants were engaged in clinical experience weekly and were in their final semester of the curriculum. The advantage of using participants who were in the final semester of the nursing program assured that they have had previous clinical experience and have an understanding of context surrounding clinical situations. In addition, they had the opportunity for learning experiences in previous clinical settings, which may have allowed them to better discern critical thinking experiences from their perspective.

**Recruitment Procedures**

The process of recruiting student participants included four steps which I: (a) attended class and explained the research study, (b) distributed informed consent forms to all 34 students in the class, (c) attended class the following week to answer any questions, and (d) collected signed consent forms from the students.

The initial criterion for student participant inclusion into the study was being enrolled in *Advanced Adult Nursing Concepts* nursing course. A total of 34 students were enrolled. I, as the researcher, recruited student participants for the study by attending class in the second week of *Advanced Adult Nursing Concepts* and asked for
volunteers after verbal and written explanation of the purpose of the study and information outlining the data collection process were described. Students were informed that the critical thinking experience assignment, which served as the students’ initial written account, would be reviewed and evaluated by the researcher, however, would not affect their course grade in any way. The course coordinator of Advanced Adult Nursing Concepts completed any evaluation of the assignment that had the potential to affect their grade. The script describing the recruitment presentation and written information can be found in Appendix B. Students were presented with the informed consent (Appendix C) that was signed and returned to the researcher during the following week. Of the 34 students, 11 students completed signed informed consent and demographics forms and returned them to me. I had hoped that all students would sign the consent form that allowed me access to the Critical Thinking Experience Assignment that was a required assignment for the course. I am not certain why students did not want to participate in this aspect of the study. Students in this program have not typically been asked to serve as participants in research studies; this may have caused some anxiety or uncertainty. I was clear that follow-up interviews would be completely optional and not required if a student did not want to participate in the interview. The Critical Thinking Experience Assignment was a new type of assignment for students, one unlike other assignments in previous nursing courses. Possibly this made students anxious or uncertain of the scope of the assignment. The following week I met with the 11 student participants before the regularly scheduled Advanced Adult Nursing Concepts class and reinforced that participation was voluntary and students could exit the study at any time, collected
demographics, and gave time to answer any questions. Student participants had no questions and seemed eager to participate in a research study. Participants were again reminded that they may withdraw from the study at any time.

The initial criterion for inclusion of instructor participants in the study was employment as clinical instructor of students enrolled in *Advanced Adult Nursing Concepts*. A total of four clinical instructors were assigned to teach the *Advanced Adult Nursing Concepts* nursing course. Clinical instructors were recruited using an emailed written explanation (Appendix D) regarding the purpose of the study and information outlining the data collection process including submission of at least one account of a critical thinking experience and follow-up interviews. I sent each instructor an email outlining the purpose of the research study and inviting them to participate along with appropriate informed consent and demographics forms. Instructor participants were not evaluated in any way by the researcher in their role as clinical instructor for *Advanced Adult Nursing Concepts*. Clinical instructors were informed that participation was voluntary and that they could exit the study at any time. All 4 instructors volunteered to participate and completed informed consent (Appendix E) and demographics (Appendix F). I was pleased that every clinical instructor chose to participate as then each student participant would be represented by his or her assigned clinical instructor. Instructions for completion of the *Instructor Account of Critical Thinking Experiences Protocol* were then emailed. As submissions were received, instructor participants were assigned a pseudonym and each instructor was assigned a file in NVIVO 11 software where all data associated with them were stored. A total of four instructors submitted response to the
questions; two of them submitted responses for two critical thinking experiences, resulting in a total of six submissions.

**Risk to Participants**

Approval to conduct this study was obtained from the Kent State University Institutional Review Board (IRB). There were no risks or discomfort for the participants in this study other than that of daily life. Review of the *Critical Thinking Experience Assignment*, written accounts of clinical experiences, and discussions about clinical experiences did not have the potential to affect course grade or clinical grade of the nursing student or employment status of the clinical instructor. Being the researcher, I was not a course or clinical instructor in *Advanced Adult Nursing Concepts* or involved in any way with the evaluation of clinical instruction. The researcher had no role in grading or evaluating the performance of the nursing students or clinical instructors who participated in this study.

**Data Collection**

Qualitative research is descriptive and interpretive with the purpose of understanding the meaning that participants assign to a particular situation or phenomenon (Merriam, 2002). The constructivist researcher’s goal is to elicit the view of the interviewee’s world. Keeping in mind students’ and instructors’ perspectives and constructivist pedagogy, a basic interpretive qualitative research was used to describe perceptions of critical thinking and clinical experiences that allowed the use and development of critical thinking abilities in nursing students. Research was completed by using accounts of critical thinking experiences and individual interviews to investigate
learning from first person account including the detailed context surrounding identified situations.

**Demographics**

Demographics collected on each participant included age as a defining characteristic based on research describing differences in learning and pedagogical approaches with generational variations (Billings, 2004; Johnson & Romanello, 2005; Walker et al., 2006). Participants were asked to identify gender as Smith (2006) identified that male students have unique and distinguishable needs including pressures of balancing work and school, perceptions of nursing, and having clients refusing to be cared for by male nurses which may influence clinical experience. Research has also determined that nursing curricula have been designed with female students in mind often neglecting the perspective of male students (Ellis, Meeker, & Hyde, 2006; Smith, 2006). Ethnicity was included in the demographic characteristics as barriers to success have been associated with ethnically diverse students including lack of racially and ethnically diverse faculty, and lack of finances and academic preparedness (Beacham, Askew, & Williams, 2009). See the demographics data sheet that was completed in Appendix A for student participants and Appendix F for instructor participants.

**Student demographics.** Of the 11 students who volunteered and consented to participate 5 were traditional students with no prior healthcare degree, 4 students had prior licensure as a paramedic, and 2 students had prior licensure as an LPN. Of those who consented, 3 of the 11 students were males and 8 were female. Although the sample size was small, all characteristics of the course population were represented providing a
diverse group of student participants in an effort to define critical thinking experiences from various perspectives (see Tables 3 and 4).

Table 3

*Characteristics of Student Participants*

<table>
<thead>
<tr>
<th>Student Participant</th>
<th>Age</th>
<th>Prior Degrees</th>
<th>Location of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kayla</td>
<td>41-50</td>
<td>None</td>
<td>Rose Petal Clinic</td>
</tr>
<tr>
<td>Nathan</td>
<td>31-40</td>
<td>None</td>
<td>Willoughbrook Hospital</td>
</tr>
<tr>
<td>Gayle</td>
<td>26-30</td>
<td>None</td>
<td>Willoughbrook Hospital</td>
</tr>
<tr>
<td>Beth</td>
<td>26-30</td>
<td>Other</td>
<td>Trinity Medical Center</td>
</tr>
<tr>
<td>Charlene</td>
<td>21-25</td>
<td>Other</td>
<td>Hopedale Hospital</td>
</tr>
<tr>
<td>Dennis</td>
<td>31-40</td>
<td>Paramedic</td>
<td>Hopedale Hospital</td>
</tr>
<tr>
<td>Monica</td>
<td>31-40</td>
<td>Paramedic</td>
<td>Hopedale Hospital</td>
</tr>
<tr>
<td>Laurie</td>
<td>41-50</td>
<td>Paramedic</td>
<td>Hopedale Hospital</td>
</tr>
<tr>
<td>Brandon</td>
<td>31-40</td>
<td>Multiple/Paramedic</td>
<td>Trinity Medical Center</td>
</tr>
<tr>
<td>Delores</td>
<td>21-25</td>
<td>Licensed Practical Nurse</td>
<td>Hopedale Hospital</td>
</tr>
<tr>
<td>Abbie</td>
<td>26-30</td>
<td>Licensed Practical Nurse</td>
<td>Trinity Medical Center</td>
</tr>
</tbody>
</table>
Table 4

*Student Participant Characteristics Summary*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age in years</th>
<th>Education</th>
<th>Clinical Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21-25</td>
<td>26-30</td>
<td>31-40</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Instructor demographics.** All instructor participants identified themselves as part-time instructors active in teaching in the clinical component of *Advanced Adult Nursing Concepts*. All of the instructor participants were females. Three of the 4 instructors identified MSN as their highest degree earned, and 1 identified BSN as the highest nursing degree earned. This group of part-time clinical instructors had many years of experience with 2 of them having over 10 years of experience as a clinical instructor. Demographics are as outlined in the following Table 5.
Table 5

*Characteristics of Instructor Participants*

<table>
<thead>
<tr>
<th>Instructor Participant</th>
<th>Age</th>
<th>Highest Nursing Degree</th>
<th>Location of Experience</th>
<th>Years As Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice</td>
<td>&gt; 60</td>
<td>MSN</td>
<td>Hopedale Hospital</td>
<td>&gt;10</td>
</tr>
<tr>
<td>Bonnie</td>
<td>41-50</td>
<td>MSN</td>
<td>Trinity Medical Center</td>
<td>&gt;10</td>
</tr>
<tr>
<td>Sonia</td>
<td>51-60</td>
<td>MSN</td>
<td>Willoughbrook Hospital</td>
<td>6-10</td>
</tr>
<tr>
<td>Phyllis</td>
<td>31-40</td>
<td>BSN</td>
<td>Rose Petal Clinic</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

**Reflection as Data Source**

This study aimed to understand students’ and instructors’ perceptions of critical thinking and defined clinical experiences that allowed use and development of critical thinking abilities. Reflection-on-action is a way of analyzing and structuring experiences into and organized, meaningful format (Schön, 1987). This may include storytelling, familiar term to most people, as a way of creating reasonable order out of experience using the concepts of temporality incorporating time and linking to the past and future (Moen, 2006). As a method of inquiry, narrative is a way of understanding experience through stories to frame an experience that has been lived by the storyteller (Clandinin & Connelly, 2000). Freeman (2003) used the term “aboutness” (p. 335) to reference storytelling as linking to a particular referential element of an experience. In this particular study, analysis of reflections, which included accounts of clinical experiences or stories as data was the primary design.
There were three underpinnings for using narrative reflection as accounts of critical thinking experiences in this study. First, the use of narrative allowed the participant to organize his or her experience in a way that was meaningful for him or her (Moen, 2006). Second, the use of narrative reflection allowed the context and complexities of critical thinking within the clinical experience to remain intact, included in the account of the situation, and in the analysis of the data (Ironside, 2006). The third reason for using narrative reflection was to maintain the voice of the participant in the meaning of the reflection.

The use of reflection is familiar to the nursing profession, having been incorporated into patient care situations and student learning strategies in nursing education (Burton, 2000). Reflection has also been used as a pedagogical methodology used in the classroom setting for nursing education. Students and instructors seemed comfortable with this method of response, as it was familiar and sensible as they described critical thinking experiences. The use of narrative reflection supports interpretive pedagogies in nursing, incorporating particular encounters or experiences as context for learning. The aspect of context is important when understanding knowledge and thinking in nursing practice (Ironside, 2006). This data collection method provided for inclusion of subjective meaning and context in the participants’ perceptions of critical thinking and critical thinking experiences (Chase, 2005) and provided for understanding of organization of events and meanings. Reflection and the associated details allowed for identification of connections between past and present interactions and other contextual
influences on how students developed critical thinking abilities during clinical experience (Polkinghorne, 1995).

The use of individual accounts reflecting on selected critical thinking experiences as a data collection method grounds this study because it allowed representation of critical thinking and significant clinical experiences in a particular way that had specific meaning for the participants (Merriam, 2002). This data collection method allowed participants to reflect on what was deemed relevant and the context surrounding the experience that was associated with critical thinking. Leonard and Ellen (2008) described that narrative inquiry can be used to show how social structures and other context shape the narrative productions. While narrative inquiry was not the guiding framework in this study, using students’ narrative accounts of critical thinking experiences, in their own words, allowed for examination of critical thinking perceptions and significant clinical experiences that may be used by nurse educators to challenge their assumptions on which they design clinical activities (Poorman, Webb, & Mastorovich, 2002).

Creswell (2014) suggested several forms of data collection to understand complex issues that are being investigated. Data collection to investigate critical thinking and critical thinking experiences began with reflection on particular situations experienced in the clinical setting. Freedom to select the critical thinking experience that is most significant from the participant’s perspective allowed conceptualization and inclusion of detail using their chosen words in ways that made sense to them. The use of personal accounts enabled the researcher to obtain the words and voice used by the participants
and represent data they selected to share (Creswell, 2014). By allowing description of their own accounts of critical thinking experiences, the likelihood that the data were representative of the meaning intended by the individual was increased. The personal accounts, follow-up interviews, researcher notes, and analytic memos allowed use of multiple data sources for this study. Describing their own perceptions of the clinical experience and perceptions of critical thinking along with extended discussion during interviews enabled the thick description of meaning and context (Callaghan, 2010).

**Student Accounts of Critical Thinking Experiences**

Reflection on recent clinical experiences in response to predetermined prompts was the initial data collection source. Student participants were asked to complete the *Critical Thinking Experience Assignment* as a required assignment for *Advanced Adult Nursing Concepts* course. After completion of the assignment, a copy was emailed directly to the researcher using a secure computer and email. The student participants described a clinical experience that allowed the use or development of critical thinking abilities by responding to the following prompts (Appendix G):

1. Tell me in detail about a clinical experience that you feel allowed you to use or develop your critical thinking abilities.
2. What aspects of that clinical experience allowed you to use or develop critical thinking abilities?
3. What was it about this particular experience that allowed you to use critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

**Instructor Accounts of Critical Thinking Experiences**

Reflection on recent clinical experiences in response to predetermined prompts was the initial data collection source for clinical instructors. Instructor participants were asked to reflect using a narrative account of a clinical experience that the instructor perceived as allowing the student to use or develop critical thinking abilities. The submission was forwarded via email directly to me by the instructor using a secure computer and email. The instructor participant described a clinical experience using a narrative format by responding to the following prompts (Appendix H):

1. Tell me in detail about a clinical experience that you feel allowed a student to use or develop their critical thinking abilities.
2. What aspects of that clinical experience do you think allowed the use or development critical thinking abilities?
3. What was it about this particular experience promoted the use of critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

Student and instructor participants chose the week that they responded within the specified period; however, they were encouraged to focus on the most recent clinical experiences encountered in an effort to capture detail that may have been forgotten as time passed. Responses were emailed to me as the researcher, transferred to a Word
document if they were not already in that format, and entered into participants’ files in NVIVO 11 using assigned pseudonyms. Each student participant submitted one account during the semester of planned clinical experiences. Two of the instructor participants submitted one account and two instructors submitted two accounts of a critical thinking experience.

Individual Interviews

Individual interviews were completed with each participant at a convenient time and location after the text of the critical thinking experience initial submission was entered and reviewed. Individual interviews were structured as responsive and as extended conversation (Rubin & Rubin, 2005) with the purpose of reviewing data within submitted reflections and obtaining in-depth information surrounding perception of critical thinking and descriptions of critical thinking experiences (Appendix I). The interviews allowed for a summary of what was submitted in the participant’s account of the clinical experience, with the purpose of clarifying information and giving opportunity to add additional context and detail. The interview served as an opportunity to interpretation of the initial submission with the participant, allowed me to verify and expand on detail and meaning, and served as an additional opportunity to add new information. In addition, probes unique to each key informant were developed after reading the initial submission based on its content and initial interpretation and were used to clarify meaning and expand context of critical thinking and critical thinking experiences. This approach allowed for further explanation and presentation of detail and surrounding context of the particular clinical experience and helped to describe situations
that were identified as significant to development of critical thinking. Interviews were individualized to each participant and were carried out in a conversation format or extended conversation guided by the researcher to explore meaning and detail of the individual’s perspective of critical thinking experiences (Rubin & Rubin, 2005).

Individual interviews were held on the university campus at the request of the participants. Informed consent for audiotaping was obtained prior to the interview. All participants declined listening to the interview audio-recording. Individual interviews were identified by participants’ pseudonyms and date and time. Participants were informed that data provided would be identified using their pseudonyms to maintain confidentiality. The researcher wrote limited notes during interviews with additional notes recorded after review of the interviews. Notes and memos were stored in a researcher journal within NVIVO 11 software and also a small manual researcher journal. Interviews were transcribed by the researcher, reviewed for accuracy, and entered into the project within NVIVO 11 software. The interviews were expected to last 30 to 60 minutes in length. The shortest interview was 22 minutes and the longest interview was 46 minutes in length. Participants were informed of audio-recording and time commitment in advance. The audio-recording consent can be found in the appendices (Appendix J). No additional interviews were needed after the initial interviews to understand the complexity of critical thinking experiences. The interviews allowed for open-ended reflection by the participant and were also used for confirmation and clarification of meaning from the original reflections submitted. See Appendix I for the individual interview format for students and instructor participants. Transcribing the
interviews myself allowed me to become very familiar with the data, engage with the data, and begin to develop early thoughts and ideas, which I included in the researcher journal during the transcription process. While transcription was a lengthy process, it allowed for concurrent data analysis. Transcribed interviews were entered into NVIVO 11 software for additional formal coding and data analysis.

Rubin and Rubin (2005) identified that using responsive interview as an extended conversation allows a set of broad questions to begin the discussion and also allows the participant to guide concepts to be discussed based on their perspective of critical thinking and critical thinking experiences. As the interviewer, I began the interview by telling the participants that there are no right or wrong answers and that I was interested in what they thought and wanted to know more about their experiences. The conversation began with summary of the initial submission and allowed me to clarify meaning to assure that I understood various concepts that were presented. Additional details were requested to clarify the participants’ actual accounts of critical thinking experiences. Limited notes were taken during the interview to further the depth of context and information collected. Rubin and Rubin (2005) stated that follow up should occur on matters that are particularly “puzzling or unclear” (p. 136) or when data reveals themes or concepts that are unanticipated. Rubin and Rubin identified that “probes are techniques to keep a discussion going while providing clarification” (p. 137). They are used to elicit more detail and encourage examples. Probes were used throughout the interview process to uncover detail or depth of explanations. I initially planned for one interview with each participant with the understanding that additional interviews may be
needed depending on the data collected and the analysis process. After each participant had been interviewed once, there was no need for additional interviews as data analysis confirmed redundancy in coding with no new insights being obtained, hence, reaching saturation. See Table 6 for the data collection information and timeline.

Table 6

*Data Collection Display*

<table>
<thead>
<tr>
<th>Semester Timeline</th>
<th>Data Collection</th>
<th>Data Source</th>
<th>Data Collection</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Weekly 2 to 7</td>
<td></td>
<td>Weekly 8-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Source</td>
<td></td>
<td>Data Source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical Thinking Experience</td>
<td>Individual Interviews</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignment Submissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Participants (11)</td>
<td>1</td>
<td>11 Student Key Informants 1 each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor Participants (4)</td>
<td>1 for 2 participants 2 for 2 participants</td>
<td>1 each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>TOTAL 17</td>
<td>TOTAL 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15 Total Participants

17 Accounts of Critical Thinking Experiences

15 Individual Interviews

Throughout

Researcher Memos

Researcher Memos

*Data Analysis*

Although some recommend a linear approach to data analysis, the concept of concurrent data collection and analysis was used to allow building on the findings while gathering additional data for testing and developing potential emerging themes (Rubin & Rubin, 2005). Memo writing and theorizing were recorded as connections or themes
emerged during review of the phases of data collection and review (Bogden & Biklen, 1998). I developed researcher memos at various points during the study including review of the narratives, at the end of each interview. Corbin and Strauss (2015) identified that each researcher has a unique approach to develop and record memos but reinforced the importance of writing at any point an idea is generated about the data. Memo writing was also done as needed during the interview transcription process to allow for descriptive observations or other information about the participants’ actions or other important context regarding the data that became apparent (Polit & Beck, 2012). These were compiled in NVIVO 11 software and meant to record not only my thoughts, but also feelings and emotions that occurred as I reviewed data (Bogden & Biklen, 1998). Figure 3 provides an illustration of continuous and iterative data collection and analysis that was implemented.
Accounts of critical thinking experiences. Data from the initial submissions of accounts of critical thinking experiences were collected by the researcher from students’ responses to the Critical Thinking Experience Assignment (Appendix G) and from the instructors’ responses to the Instructor Account of Critical Thinking Experiences Protocol (Appendix H). As the submissions were received via secure email, pseudonyms were assigned to each participant and the narratives were entered directly into a file specific to the participant in NVIVO 11 software for storage. I, as the researcher, am the only person who has access to the identities associated with the pseudonyms. The pseudonym key is kept in a locked filing cabinet. I, the researcher, read each submission in its entirety to identify a general sense of the participants’ accounts of critical thinking
experiences and perceptions of critical thinking held by individuals. Analytic memos or researcher notes were entered into NVIVO 11 identifying initial thoughts, potential concepts, recurring themes, and significant events in each critical thinking experience were identified (Diekelmann & Ironside, 1999). This allowed for ongoing analysis as data were collected and memos and notes were kept regarding the thinking and judgments that were made as data was reviewed. Throughout the process, context of critical thinking experiences and how each participant incorporated context within their submission was noted. Bogden and Biklen (1998) recommended that novice researchers do some degree of analysis-in-the-field but wait until all data are collected prior to formal data analysis.

**Individual interviews.** After the initial submissions of the *Critical Thinking Experience Assignment* and instructor accounts of critical thinking experiences were read in their entirety, individual interviews were set up with each student and instructor participant in an effort to clarify that which was unclear and expanded on detail and context of the descriptions using semi-structured responsive interviews. Memos and researcher notes were reviewed prior to each interview to get a sense of additional clarification that was needed regarding the description of the critical thinking experience. This one-on-one interview was audio-taped and transcribed by the researcher into a Word document which was then uploaded into NVIVO 11 software. The researcher verified accuracy of the transcribed interview and provided the participant with the opportunity to review the transcription for accuracy if they chose to do so. No participants were interested in listening to the audio-tapings. The interviews were entered into NVIVO 11
software into the participants’ files identified by the assigned pseudonyms. The interview was then reviewed in its entirety to obtain general sense of the perception of critical thinking organized using Tanner’s (2006) clinical judgment model as a guide for data analysis: noticing interpreting, responding, and reflecting. Researcher memos were maintained within NVIVO 11 identifying my thoughts, ideas of various perceptions of critical thinking, and themes that emerged within individual participant’s data and across participants’ data as, they described critical thinking experiences. Differences and similarities between the students’ and instructors’ reflections and the interview data were included in the analytic memos.

The Process of Data Analysis

The use of a qualitative computer data software, NVIVO 11, was used to store data for easy retrieval and also used to assist in coordinating analysis of the data. It allowed for organization, sorting, and ability to search information, phrases, or terms within the text. Creswell (2014) identified this type of software as an “efficient means for storing and locating qualitative data” (p. 195). The use of this software allowed for attribute coding to provide descriptive information about data including participants’ role, clinical site, previous education, and source of data including narrative account or interview. When using NVIVO 11 software, data are tagged within the text or transcript and linked to a researcher specified node or nodes, also referred to as codes, for easy identification and retrieval (Silver & Lewins, 2014). The term code was used to mean the distinct label used for each concept or theme that resulted from data analysis (Rubin & Rubin, 2005).
**Initial accounts of critical thinking.** The primary source of data began with review of the students’ and instructors’ accounts of critical thinking experiences. These were the most important data to me as they reflected the voice, specific words, and initial thoughts of the participants without influence of others or me as the researcher. Creswell (2014) identified that after organizing and preparing the data for analysis, the researcher should “read or look at the data” (p. 197) in an effort to give a general sense of the overall meaning. Keeping with the interpretive stance, the meanings and voice of the participants were best represented in the initial accounts provided by the students and instructors. The first step of the data review included a thorough reading of each account with researcher notes that identified what is going on in the situation, and concepts and context of critical thinking and critical thinking experiences.

As I initially reviewed the researcher memos or notes from the first reading of the students’ and instructors’ narrative accounts, three themes became evident that I chose to address during the follow-up individual interviews including the students’ perceptions of limited number of clinical experiences that were significant in developing critical thinking, seemingly lack of instructor interaction during critical thinking experiences in the students’ narrative accounts, and limited use of the phrase “critical thinking” particularly by students. The first theme that I noticed in the students’ data was that some students identified that critical thinking experiences were few and far between. They did not happen often. This was a first impression evident in the initial submissions that students provided. In an effort to clarify or confirm this assumption, I added questions during the interviews with regards to the number and frequency of critical thinking
experiences the students had experienced in the clinical setting. Some students stated that
the majority of experiences in the clinical were mundane and did not prompt or require
critical thinking. Beth shared her perception of the experience as “the only one I could
think of, they didn’t happen often.” On the other hand, a few students stated that they
had critical thinking experiences frequently during clinical experiences and used critical
thinking “all the time,” as Kayla described. This supports the notion that critical thinking
situations are not experienced with the same frequency by students or that students
seemed to have varying definitions of what is meant by critical thinking experiences.
This prompted additional questioning during individual interviews.

The second theme that was evident from the memos and notes from review of the
students’ and instructors’ responses to the Critical Thinking Experience Assignment was
that students included limited references to instructor involvement or identification of
strategies used by instructors during significant critical thinking situations. This finding
prompted me to ask more questions in the follow-up interviews related to specific
instructor interactions during clinical experiences. Questioning to students included:
“What role did you see the instructor having in the critical thinking experience?” During
the interviews, when asked about the influence of the instructor, students described that
“the instructor was busy” and unavailable, therefore was not key to the critical thinking
experience. Questions that were asked of the instructors included: “How was the
particular critical thinking experience planned for?” and “What strategies do you use
during clinical experiences to promote critical thinking?” Instructors described several
strategies such as questioning and guiding that they employed to assist the students
during critical thinking experiences. This disconnect was surprising—the students found
the instructor absent, however, the instructors felt they were integral. Nursing education
defines the inherent role of the clinical instructors as coaches and facilitators of clinical
experiences for nursing students (Tanner, 2006); however, perceptions of this role
seemed to vary in this study.

The third theme evident in students’ data was lack of use of the phrase “critical
tinking” in the students’ submissions. This prompted additional questioning in the
individual interviews about the use of the phrase and their perceptions of the meaning of
critical thinking. I asked questions during the interview such as “Do you hear the phrase
critical thinking used often?” and “What does the phrase critical thinking mean to you?”
Most students stated they did not hear the phrase “critical thinking” used much during
their time as a nursing student. Many stated that while they do not use the phrase critical
thinking much, they knew what it was and were able to identify it when it was being used
or happening. Instructors supported this by sharing there was limited use of the phrase
“critical thinking” but students and instructors know it as “just a way of thinking.” Even
though the literature on nursing education recognizes other terms such as clinical
reasoning or clinical judgment, students did not utilize any other terms to describe critical
thinking. This may support the need for clinical instructors in programs of nursing to
define what critical thinking is, share a common use of terminology, and aid students to
identify when it is occurring or being used.

**Individual interviews.** Once the initial accounts provided by the students and
instructors were reviewed, individual interviews were scheduled. Interviews were
audio-taped and transcribed and verified for accuracy by me, the researcher. Transcribed interviews were stored using the NVIVO 11 software. As interviews were transcribed, I recorded researcher memos and notes as ideas and themes emerged. The NVIVO 11 software allowed for storage and retrieval of data according to participant pseudonym, role such as student or instructor, and by demographic characteristics. This allowed for analysis within cases and across cases.

Once all narratives and interviews were entered into the NVIVO 11 software, formal data review began, first with review of the narratives and then the interviews as a planned coding process. Miles, Huberman, and Saldana (2014) recommended coding in two major stages of first cycle and second cycle coding and explained that “first cycle coding methods are initially assigned to data chunks” (p. 73). Bryman (2016) described this initial analysis as coding which “is a process whereby the data are broken down into their component parts and those parts are given labels” (p. 11). Due to the large quantity of data in qualitative studies, analysis is primarily concerned with initial data reduction, or reducing large amounts of data into smaller parts so that sense can be made of it. Although many approaches can be used for coding, I selected in vivo coding for first level analysis which “uses words or short phrases from the participant’s own language in the data record as codes” (Miles et al., 2014, p. 74). These may be phrases that participants used repeatedly or phrases that appear to be particularly influential to describe critical thinking and particular experiences that students and instructors identified. I began to review the students’ and instructors’ interviews for in vivo words or phrases that were used to describe critical thinking experiences. These initial codes
were considered emergent, as I did not use a predetermined framework at this point.

After the initial submissions of critical thinking experiences were analyzed, there were a total of 156 codes developed using in vivo coding. With such a large number of codes, I then began to review each in vivo code and assign a category that best described the code. Categories are groupings of codes that are reflective of a particular concept to describe aspects of critical thinking experiences that were significant or defining explanations of critical thinking (Miles et al., 2014). Categories were developed based on trends surrounding what was noticed, how it was interpreted, responding based on what was noticed, and how the reflection influenced learning and acting (Tanner, 2006). For example, the codes “I know that I am going to be a great nurse,” “It’s one of the first times I felt like a nurse,” and “willing to let me manage it” were categorized under confidence. Once this process was complete, 74 categories emerged. These 74 categories were analyzed and compared to each other resulting into larger themes that were both predetermined by Tanner’s (2006) Model of Clinical Judgment phases and also emergent when themes did not fit into the model. Further categorization resulted in 7 major themes in the data. These are listed in Table 7 with associated major descriptive concepts.

Four major themes were consistent with the phases within Tanner’s (2006) model of clinical judgment including noticing, interpreting, responding, and reflecting. Some additional themes did not fit one particular phase of clinical judgment and were, therefore, identified separately including student perceived benefits, instructional strategies, and critical thinking defined. The use of Tanner’s (2006) framework allowed
for organization and description of the large amount of coded data. The use of NVIVO 11 software allowed for easy retrieval of all data coded under each category and theme.

Table 7

*Major Themes and Associated Concepts*

<table>
<thead>
<tr>
<th>Major Theme</th>
<th>Examples of Concepts Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noticing</td>
<td>Observing</td>
</tr>
<tr>
<td></td>
<td>Recognizing</td>
</tr>
<tr>
<td></td>
<td>Identifying initial situation /Trigger</td>
</tr>
<tr>
<td>Interpreting</td>
<td>Making sense of the data, Information seeking, Communication, Questioning</td>
</tr>
<tr>
<td>Responding</td>
<td>Knowing when more information is needed Confidence Communication</td>
</tr>
<tr>
<td>Reflecting</td>
<td>Independence</td>
</tr>
<tr>
<td></td>
<td>Seeing the whole picture</td>
</tr>
<tr>
<td></td>
<td>Deep understanding</td>
</tr>
<tr>
<td></td>
<td>Setting priorities</td>
</tr>
<tr>
<td>Student Perceived Benefits</td>
<td>Confidence</td>
</tr>
<tr>
<td>Instructional Strategies</td>
<td>Assignments</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
</tr>
<tr>
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<td>Coaching</td>
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<td>Feedback</td>
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<td>Critical Thinking Defined</td>
<td>Student and instructor definitions</td>
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Data within categories and themes were examined for generalizations and assertions, compared between students and instructors, and correlated with current literature related to critical thinking in nursing education. This is further discussed in Chapter 4, Findings.
Ethical Considerations

Institutional Review Board approval was obtained for this study. Approval was sought from the educational institution in which the participants were enrolled as students and employed as instructors. Informed consent was obtained from each participant prior to the start of the research. Informed consent for audio-taped interviews was obtained prior to the interview. All data were entered into a password-protected database and de-identified by using assigned pseudonyms. A pseudonym was also used for the educational institution where the students and instructors were affiliated and the course in which they were enrolled. To ensure that participants’ voices were accurately reflected, there was opportunity to verify data for accuracy if participants chose to do so. Once data were collected and entered into the NVIVO 11 software, any original documents, audiotapes, and field notes were stored in a locked cabinet at Kent State University in Office 160J in the Robert S. Morrison Health Science Building. They will remain in storage for five years and then destroyed. All associated documentation of text is stored within a secure database in the researcher’s password protected computer.

Researcher Role and Background

In qualitative research, reflexivity refers to the notion that “the researcher is the instrument of the research” (Maxwell, 2005, p. 83). Being the instrument of the research, it is important to critically reflect on the position held and the influence this may have on the research and the associated outcomes (Lincoln & Guba, 1985). Since I am faculty in the nursing program from which the students and instructors were drawn and actually instruct nursing students in the clinical setting, I brought knowledge and understanding of
planning and supervising clinical experiences and nursing curriculum. I not only collected the data, but reviewed all data submissions, and served as the interviewer for the individual interviews. This allowed for engagement and review of the data immediately upon collection.

Within qualitative research, the researcher is the instrument of the study and does not rely on validated and reliable instruments to collect data such those used in quantitative studies (Maxwell, 2005). Hesse-Biber and Leavy (2011) identified that reflexivity within qualitative research require continual evaluation of “one’s place and power relations within the research process” (p. 13). Being the instrument of the study requires that the researcher practice reflexivity and understand that preconceived notions may influence the outcome of the research process (Lincoln & Guba, 2000). Schram (2006) set forth several assumptions that can be used to guide the researcher in qualitative inquiry. As the researcher in this type of study, I was personally engaged with the participants as we discussed the clinical experiences they encountered and had potential to influence the natural flow of experience with my questions and comments. My intent was to understand student and instructor perceptions of critical thinking and critical thinking incidents without directly influencing the individual’s perspective. However, knowing that reflection and discussion can promote self-reflection and enhance learning, it is clear that influence may have occurred without intent. In addition, due to the added time on top of rigorous coursework needed to participate in the study, I was sure to let participants know prior to obtaining informed consent that they may exit the study at any time.
By keeping researcher notes and memos, I was able to continually review and reflect of my own personal views. Field notes were limited to ideas and thoughts that I had during interviews and interactions with participants. Miles et al. (2014) described analytic memos as brief or extended narrative documents that are extensions of the researchers’ thinking processes. These were kept in NVIVO 11 as data were read and analyzed, a synthesis of my ideas and findings. My goal was to construct an authentic view of students’ and instructors’ perspectives and keep the context of their findings intact. Since I am a nurse educator in an undergraduate nursing program, I do recognize that I have beliefs about critical thinking and clinical experiences. This is the reason for particular attention to the initial narrative accounts of critical thinking experiences as these were unaffected by my presence, as the researcher, which was a potential influence during interviews. My personal beliefs prior to the study included the notion that students’ and instructors’ perspectives are to be valued and may be very different from each other with a mismatch being possible. This was a major premise for my interest in this investigational study.

Schram (2006) identified that qualitative research with social beings requires an attention to context. My role as the researcher required me to include the specifics of context found within submissions and descriptions of critical thinking experiences and to avoid minimizing detail in an effort to generalize; particular care was taken to maintain the complexity of context embedded within the submissions as a key aspect of analysis while paying attention to particulars. Finally, as a nurse educator who is currently active in both the classroom and clinical portions of a nursing program, I was enthusiastic to
understand the students’ and instructors’ perception of critical thinking and critical thinking experiences that were shared. I completely and thoroughly enjoyed reading each one of them. The perspectives I gained during the study will significantly affect my pedagogical approaches in clinical experiences.

**Trustworthiness**

When seeking “trustworthiness,” researchers attend to credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Techniques employed were meant to insure accurate reflection of participants’ construction of reality. This study was intended to describe students’ and instructors’ understanding of critical thinking and clinical experiences that allow nursing students to use and develop their critical thinking abilities.

**Credibility**

Credibility refers to the truth or believability of the findings in that the participants’ constructed realities are accurately represented in the findings (Leininger, 1994). One approach to assure credibility of the findings in this study was the collection of multiple data sources including narrative accounts and individual interviews of both students and instructors. By using multiple data sources it was more likely that findings gave more detailed description of the concept of critical thinking, defined experiences that allowed students to use and develop critical thinking skills, and identified any discrepancies that existed between the students and the instructors. My initial interpretations of the narrative accounts were reviewed during the interview session with participants. Participants in this study chose not to review their audio-taped interview
which was designed to insure accuracy of transcription, therefore I reviewed all transcripts several times for accuracy. In an effort to make findings more believable to the reader, prolonged engagement was employed as a means to enhance credibility as the researcher personally met with each participant on two to three occasions over the 15-week semester.

Saldana (2013) identified that the process of coding can be done collaboratively with other researchers or employ the process of “solo coding” in which the researcher is the only person who is coding. I was the solo coder in this research study; however, I did review my coding ideas and approaches to analysis with trusted colleagues and experienced nursing faculty with whom I collaborate on a daily basis. Reviewing my initial interpretations of the narrative accounts with participants and reviewing coding approaches with experts in the field of nursing provided opportunity to increase the credibility of this study.

**Transferability**

Transferability refers to whether the findings from this particular study can be applied to similar settings with similar context (Bryman, 2016). In depth reflection and responsive interviews were intended to describe the context of critical thinking experiences or provide thick description. Data including demographics of participants and description of the educational program were provided with the intent of giving a sense of the research and transferability of findings (Lincoln & Guba, 1985).
Confirmability

Confirmability is the concept that researcher has repeated affirmation of what has been shared and interpreted about the phenomenon under study (Leininger, 1994). Bryman (2016) described the researcher has “acted in good faith” and “has not overtly allowed personal values or theoretical inclinations to sway the conduct of the research” (p. 386). As an attempt to strengthen confirmability, efforts were made during the interviews to confirm findings with the participants regarding critical thinking experiences and better understand reasons why they consider them significant. In addition, an audit trail of memos was used to explain how I interpreted the data and shared my thoughts and findings with the participants. Efforts were made to attend to aspects of trustworthiness in order to increase the overall validity and dependability of the research study and its findings.

Conclusion

The purpose of this study was to investigate and describe students’ and clinical instructors’ understanding of critical thinking and define clinical experiences that were significant in allowing students to develop critical thinking abilities. The new graduate nurse’s ability to critically think has been questioned over the past years resulting in the development of alternative approaches to clinical experience as an effort to bridge the gap between academia and practice. Nurse educators need to redesign clinical teaching strategies used during clinical experiences to improve nursing students’ abilities to critically think during provision of nursing care. Being cognizant of perspectives of critical thinking and clinical experiences significant to its development may identify
similarities or differences that exist between students and instructors. Using students’ and instructors’ descriptions of critical thinking experiences that were identified as significant allowed me to understand critical thinking from a different lens. Comparing students’ reflections with those of instructors helped to uncover overlapping beliefs, understandings, and disconnects that were present during critical thinking experiences. Understanding clinical experiences that have been found valuable to development of critical thinking and context surrounding these experiences may provide a foundation for new pedagogical practices used to plan and implement clinical learning activities. Chapter 4 discusses the key findings of the data from this study that investigated critical thinking and critical thinking experiences. Chapter 5 presents a summary of findings from this study, implications for nursing education with regards to clinical education, and recommendations for future research.
CHAPTER IV

FINDINGS

This study explored nursing students’ and clinical instructors’ understanding of critical thinking and how they identified and defined clinical experiences as significant in that they allowed nursing students to develop critical thinking abilities. Participants’ critical thinking experiences were investigated using written accounts of students and clinical instructors and then follow-up interviews to expand on the initial written submissions. The study not only sought to describe these experiences but also to explore similarities and differences of students’ and clinical instructors’ perceptions of the critical thinking and clinical experiences that they found significant. This chapter presents the findings of the study. Findings are organized and presented according to the questions that guided this study:

1. What are students’ perceptions of critical thinking experiences they feel they have had during clinical experiences?
2. What are nursing instructors’ perceptions of critical thinking experiences that they feel have occurred during clinical experiences?
3. What are the commonalities and differences between the perceptions of the nursing student and the nursing instructors regarding critical thinking experiences?

When classifying data surrounding critical thinking experiences provided by student and instructor participants in this study, Tanner’s (2006) Clinical Judgment Model was used to organize and explain the various phases of the experience: noticing,
interpreting, responding, and reflecting. Using this model allowed for organization and detailed explanation of the clinical situations and the analysis of context of critical thinking experiences.

Three major themes became apparent in analysis of data from the narrative accounts and follow-up interviews:

1. Both student and instructor participants defined critical thinking experiences as complex clinical situations that warranted independent identification, interpretation, and decision making in order to facilitate positive patient outcomes. These experiences were seen as allowing students to attain new knowledge, use existing knowledge, and gain a deeper understanding of clinical situations. In sum, these complex situations were seen as valuable and necessary by both students and instructors to the development of critical thinking abilities.

2. The phrase “critical thinking” was not prominent in students’ or instructors’ data describing critical thinking experiences. It became apparent, however, that they understood “critical thinking” to be the ability to process an unclear or complex situation, understand significance of context, and knowing what to do next.

3. While students valued clinical instructors and viewed them as important facilitators of clinical education, student data were void of descriptions of clinical instructor/student interactions. Students described clinical situations in which they independently processed information, and at times, shared that
the clinical instructors were not key to the critical thinking experience. Most critical thinking experiences were not intentionally planned but happened incidentally. Understanding that each student may encounter critical thinking experiences at any time supports need for clinical instructors to employ strategies to essentially identify and expand learning opportunities as they occur.

**Participants**

Participants for the study were recruited from a group of nursing students and clinical instructors active in *Advanced Adult Nursing Concepts*, the medical-surgical nursing course in the final semester of an associate degree in nursing program. Data were collected during the spring semester of 2016. There were 34 students enrolled in the clinical experience course and 4 clinical instructors who could have taken part in this study. Of these potential participants, 11 students and all 4 clinical instructors agreed to participate in the study. The students represented three various categories of entry into the nursing program. The first category included traditional students, those with no credited previous experience in health care who enroll in all four semesters of nursing courses. The other categories included LPN and paramedic students who had previous health care education and certifications. LPN and paramedic students were admitted through a bridge course, which acknowledged credit for the first two traditional nursing courses. These students were admitted into the third semester of the nursing program with advanced standing. The instructor participants were all part time clinical instructors who had previously taught in the nursing program in the course *Advanced Adult Nursing*
Concepts. Data were initially collected from student participants using an assignment entitled *Critical Thinking Experience Assignment* (Appendix G) that asked students to identify and describe a critical thinking experience encountered in the clinical setting during the nursing course, which extended over 10 weeks of the 15-week semester. Students knew about this assignment at the beginning of the clinical experience and it was outlined in the course syllabus. Data were initially collected from instructor participants using an email protocol *Instructor Account of Critical Thinking Experience Protocol* (Appendix H) asking for identification and descriptions of critical thinking experiences that occurred in the clinical setting for students enrolled in their clinical cohort during the semester that data were being collected. Neither students nor instructors were aware of each other’s selected critical thinking experiences. Participants were given a choice as to which experience they chose to describe as significant to development of critical thinking. Based on analysis of data and demographics, it seemed that only one critical thinking experience was common by both an instructor and student but this could not be definitively determined because of limits placed for confidentiality of participants. Table 8 describes student dissemination among the four clinical instructors and clinical sites along with the number of critical thinking experiences submitted by each participant:
**Table 8**

*Instructor and Student Sites and Number of Experiences Submitted*

<table>
<thead>
<tr>
<th>Clinical Site</th>
<th>Instructor / # of Experiences Submitted</th>
<th>Student / # of Experiences Submitted</th>
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<tbody>
<tr>
<td>Hopedale</td>
<td>Alice/2</td>
<td>Delores/1</td>
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<tr>
<td></td>
<td></td>
<td>Dennis/1</td>
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<td></td>
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<td>Laurie/1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monica/1</td>
</tr>
<tr>
<td>Trinity Medical Center</td>
<td>Bonnie/1</td>
<td>Abbie/1</td>
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<tr>
<td></td>
<td></td>
<td>Beth/1</td>
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<tr>
<td></td>
<td></td>
<td>Brandon/1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Charlene/1</td>
</tr>
<tr>
<td>Willoughbrook Hospital</td>
<td>Sonia/2</td>
<td>Gayle/1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nathan/1</td>
</tr>
<tr>
<td>Rose Petal Clinic</td>
<td>Phyllis/1</td>
<td>Kayla/1</td>
</tr>
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</table>

*Advanced Adult Nursing Concepts* nursing course included a weekly classroom component accompanied by a weekly clinical experience in an assigned hospital setting. Students were assigned by the nursing program director in the usual process to groups of 6 to 10 and supervised by an assigned instructor during the weekly clinical experience. During the clinical experience, students engaged in the provision of patient care in the hospital for 7 hours once per week while being supervised and guided by the assigned clinical instructor. Nursing care was provided to assigned patients and included all aspects of care normally provided by the registered nurse. Nursing students were required to visit the medical surgical unit prior to the actual clinical day. During this visit they were required to review the medical record of the patient assigned to them by the manager of care, who was a fellow nursing student. Preparatory work included
investigation of medical diagnoses, treatments, and patient history along with development of a preliminary plan for nursing care. While students provided the majority of nursing care to assigned patients under the supervision of a clinical instructor, primary nurses employed by the hospital were also assigned to the patients at all times and maintained ultimate responsibility for patient safety and care provided. This resulted in student interaction not only with the clinical instructor but also primary nurses assigned to the patients. In addition to providing direct patient care for assigned patients on the medical surgical unit, each student had two days in which they participated in alternative clinical experiences. The first experience was provision of nursing care in an intensive care unit setting in which they were paired with an experienced nurse who helped guide patient care for one entire day. The second experience was a manager of care experience in which the student made the patient assignment for all other students in the group and assisted in overseeing the care provided by the students on the medical surgical unit for the entire clinical day. These alternative experiences, which were part of the nursing course *Advanced Adult Nursing Concepts*, were outlined in the course syllabus and became evident in some of the critical thinking experiences. Students remained in the same clinical group and had the same clinical instructor for the entire 10 week course. Demographic information was collected for all student key informants (Appendix A) and instructor key informants (Appendix F). Initial submissions were read in their entirety and reviewed for initial open coding. Researcher memos were also kept. Interviews were then completed for all key informants using semi-structured interviews (Appendix I). All submissions and transcribed interviews were stored using NVivo 11
software (QSR International Pty Ltd.). The use of this software allowed for secure storage of data and facilitated organization of coding procedures. In the next section, I summarize the findings, organized by research questions.

**Students’ Perceptions of Critical Thinking Experiences**

My first research question focused on students’ perceptions of critical thinking experiences. Students provided data describing critical thinking experiences that encompassed many different contexts embedded in clinical experiences including the situation itself, the thinking processes used, interactions with others, activities involved, and reflection on the experiences. In an effort to organize the data in a useful way, concepts were categorized into the four phases of clinical judgment developed by Tanner (2006): noticing, interpreting, responding, and reflecting.

**Noticing**

The first step in the Tanner’s Model of Clinical Judgment (2006) is noticing. Noticing is described as the identification of a trigger requiring critical thinking. Lasater (2007) described effective noticing as including a focused observation appropriate to the context of the situation, recognizing deviations from expected patterns, and information seeking to support findings. This study sought to better understand situations that students (and instructors) identified as significant, because this is the first step in using or developing critical thinking. When asked to identify a situation they experienced that could be categorized as a “critical thinking experience,” the following themes emerged from the data as triggers or beginnings: abnormal assessment, risk for complications,
multiple patient problems, situations with no obvious answer, and patient and family concern.

In addition to these descriptors of beginnings of critical thinking experiences, additional concepts emerged from student participants who had previous education as LPNs or paramedics. These students distinctly shared that situations they had not experienced in the past were significant to their use and development of critical thinking. In other words, if they were subjected to experiences during their clinical experience that they had never encountered before, this led to their use of critical thinking. In addition, the two student participants who had previous education as LPNs made particular reference to situations they experienced that involved prioritizing care for multiple patients as leading to development of their critical thinking.

In the next few paragraphs, I summarize the trends in the student participant data and provide key examples that fit within the noticing phase of clinical judgment (Tanner, 2006).

**Abnormal assessment.** Patient care situations in which students identified an abnormal assessment finding were often identified as promoting the use or development of critical thinking. An abnormal assessment is typically described as a deviation from the normal or expected when examining a patient. Examples of a few such deviations in the data included elevated or lower than normal blood pressure, changes in a patient’s mental status, lower than normal oxygen level, and identification of swelling or edema. Several students shared situations in which they identified something abnormal as the first step or trigger to start the critical thinking experience. Students knew that what they
were seeing or hearing “wasn’t right” or they were aware that it was problematic for the situation at hand. Gayle (all names have been changed), a traditional nursing student, described a clinical situation that began with a patient who had a subtle change in mentation. She stated, “Nearing the end of the clinical day, I had a patient start to act different from his baseline.” She shared that she then assessed him to get more information, which was not particularly alarming, but she was concerned because the patient “just was not acting himself.” Eventually the patient had a severe drop in blood pressure and experienced a cardiac complication resulting in transfer to the intensive care unit. Monica, a paramedic, also described an abnormal-assessment situation in which a patient was restless and talking incoherently. She followed up by taking the patient’s blood pressure, which was severely low and required urgent intervention. Both Gayle and Beth described these incidents surrounding abnormal assessments as ones in which they had to use their critical thinking skills. Noticing abnormal assessments or situations that were just “not right” was a theme evident in the data as being the initial trigger in critical thinking experiences. It was evident that, with these students, critical thinking situations had beginnings and that knowing what these beginnings were helped to identify critical thinking experiences.

**Risk for complications.** Being aware of potential severe complications with poor outcomes was another theme related to critical thinking experiences apparent in student data. Students identified situations in which they recognized that the patient was deteriorating and at risk for life-threatening complications if appropriate intervention did not occur. In these cases, the critical thinking experiences grew out of the students’ prior
knowledge about symptoms and complications. Beth, a traditional nursing student, stated that her patient was at risk for pulmonary edema and would experience “a potentially devastating outcome if not monitored and treated appropriately.” This comment was based on Beth’s prior knowledge of development of pulmonary edema. This sense of severity and urgency in preventing complications was apparent in the data as students talked about their critical thinking experiences. Knowing they had to act or follow through on a hunch that something serious could happen was evident when students began to describe the situation they identified as significant.

**Multiple patient problems.** Several students identified the context of caring for patients with multiple problems as leading to their critical thinking experiences. Caring for multiple patient problems was seen as significant in both student and instructor accounts of critical thinking experiences. Charlene, for example, a traditional nursing student, began describing her clinical experience taking care of a patient who had a “lengthy history of illnesses and surgeries.” The student reviewed the patient’s history of illnesses prompting her to think beyond the patient’s initial complaint of abdominal pain that was attributed to a ruptured diverticulum. The patient told the student she also had ulcerative colitis for many years and the student realized that this made nursing and medical care more complicated. Charlene realized that having an understanding of this patient’s complex history led her to recognize the situation as a critical thinking experience. As a result, she was able to identify the patient’s intestine may have perforated long before her admission and the patient needed to be taught the signs and symptoms of this complication and to seek immediate medical attention if experienced.
The care involved managing complex issues including the surgical procedure of a new colostomy which compounded the initial complaint of abdominal pain. The fact that multiple problems were present forced the student’s attention in a different direction leading to critical thinking.

**No obvious answer.** Being faced with a patient situation in which an obvious answer to a problem was not evident was identified by some students as a trigger for critical thinking situations. Tanner (2006) stated that analytic processes are required when “there is a mismatch between what is expected and what actually happens” (p. 207). Brandon, a paramedic, described the context of one of his critical thinking experiences as follows:

The aspect of that clinical experience that allowed me to use my critical thinking abilities was that I was facing a problem without an obvious solution. For the standard patient I would simply tell them to move to a different position, but this patient has legitimate reasons for not wanting to change his position. He further described the patient he was caring for as at risk for pressure ulcers; however, his severe scrotal edema and back pain prevented him from lying in bed and turning side to side. Rather than simply having the patient turn side to side, as would have been done in a typical situation, Brandon creatively helped the patient change positions while sitting in the chair as this was the only position that was comfortable. The fact that the patient was unique in his problems and obvious solutions were ineffective forced Brandon to think of alternative options, making it an experience he labeled significant and a critical thinking experience. This theme of “thinking outside of the box” was evident as students
labeled these kinds of incidents leading to their critical thinking. As some students referred to critical thinking experiences, they described situations in which the traditional or textbook ways of providing care did not suffice. Kayla had to “think outside of the box” when planning nursing care for a young patient admitted with shortness of breath and chest pain. When reviewing the medical record, she evaluated a wide variety of diagnostic studies that led her to believe the patient was experiencing pulmonary emboli, even though she did not present with typical risk factors. Kayla described the concept: “Just looking at the admitted diagnosis and following through on orders placed by the physician is not best practice for your patient.” She furthered this idea of thinking outside of the traditional framework of practice as necessary in identifying unexpected medical problems that can be brought to the physician’s attention for appropriate follow up. The fact that she was able to think outside of the box and accurately identify a condition that was not completely evident made this experience one which allowed her to use critical thinking.

**Concern.** When some students identified critical thinking experiences, patient and family concern was a significant theme. Some described scenarios in which the patient verbalized concerns about his or her own situations including medical problems or needs. Nathan, a traditional nursing student, described a situation in which a patient wanted to get his feet cleaned; however, nursing staff were not attending to his needs. Nathan recognized the concern from the patient as important even though other staff on the unit ignored his requests. The student offered to assist the patient; however, now the patient was angry and demanding the nursing staff’s attention. Nathan eventually sought
out the nurse manager of the unit to share his concerns. She met with the patient and followed through on the patient’s concerns and acknowledged the unsettling situation of being ignored by the nursing staff. As a result of the manager’s intervention and attention, the patient’s needs were met in an acceptable manner and no serious incidences occurred. Nathan recognized that acknowledging a patient’s concern and assuring that his needs were met was certainly a significant element of the clinical situation in which he used his critical thinking. Additionally, the patient with whom Nathan was working had a history of violence and was getting anxious; therefore, Nathan identified that not meeting this patient’s needs could have resulted in a potentially dangerous situation. Another student, Monica, described a situation in which family members, who were visiting, voiced concerns about a patient’s medical condition and needs and that this became an incident requiring critical thinking for her. Monica recognized earlier that the patient had a slightly low blood pressure but the fact that the family was also concerned about the patient’s change in mental status intensified her interest and further investigation of the situation. Monica followed up with additional nursing assessment and recognized the patient was experiencing heart failure eventually resulting in transfer to an intensive care unit where appropriate care was received for the patient’s critical condition. Had Monica not recognized the significance of the situation and acknowledged concern expressed by the family members, the situation could have deteriorated rapidly causing serious medical complications for the patient. She used critical thinking to listen to what the family concerns were, connected the concerns to her own assessment, and assured appropriate follow up occurred. The connections made
between Monica’s intuition and the family concerns resulted in a positive patient outcome, and these were the crucial pieces of the critical thinking experience she described. Patient and family concern were definitely mentioned in the data as being the beginnings of some of students’ critical thinking experiences.

**New situations.** The students who had previous healthcare degrees such as licensed practical nurses and paramedics identified unfamiliar situations as significant triggers for critical thinking experiences. The LPNs and paramedic students shared that they had used critical thinking in their previous roles, but it was when they encountered new situations that their critical thinking skills developed further. As part of their clinical experience, all students are assigned for one week as manager of care. In this role, the manager of care visits the hospital unit prior to the scheduled clinical day, evaluates all of the patients on the unit while consulting with nurses on the medical surgical unit, and selects and assigns the most appropriate patients to the rest of the students in the clinical group. This means that the manager of care needs to consider all of the patients’ medical conditions and associated treatment and decide which would be most appropriate for the nursing students who are scheduled to provide care the next day. Although the clinical instructor may be contacted if consultation is needed, this role is primarily an independent function of the manager of care. Laurie, a paramedic, used decision making when assigning patients to the other students and this was significant to her critical thinking because she had never done this before as a paramedic. While not related to direct patient care, having to make the unit assignment for the other students and oversee completion of work was new to her and also difficult. The fact that she had never had to
consider the conditions of so many patients at one time and then had to decide which patient was most appropriate for each student who had his or her own unique needs, made this a critical thinking experience for her. In another example, Abbie, an LPN, described a situation in which she had to decide which critical patient she should attend to first. Taking care of multiple patients with serious health problems was new for her and a significant trigger for the critical thinking experience. Abbie stated that although she had taken care of patients for years as an LPN, she had never had multiple patients that were so acutely ill requiring her to prioritize who should receive attention first. The specific situation to which she referred was an experience in which she was assigned to two patients in a critical care area when one patient was short of breath and the other had chest pain. As part of critical thinking, she reviewed the comorbidities that each patient had listed in his or her medical record and also considered the nursing report she had just received. She stated whereas both patients were critical, she was able to identify connections between the medical diagnoses and conclude that the patient who was short of breath was deteriorating rapidly and needed to be seen first. This was a new experience for Abbie and she recognized it as integral to critical thinking she would need in her future role as a registered nurse. This theme of new experience as the beginning or trigger of critical thinking was found only in the data of students who had previous education as an LPN or paramedic.

**Interpreting**

In this section, I discuss the themes from student accounts of critical thinking that I have categorized as interpreting, or the second phase of critical thinking. Tanner (2006)
identified that nurses use a variety of reasoning patterns to sort through clinical situations that initiate the process of clinical reasoning and critical thinking. Lasater (2007) described effective interpreting as including prioritization of data and making sense of data. The student accounts provided much data related to the reasoning processes used during clinical experiences. Students were generous in sharing details about how they developed sufficient understanding of clinical situations. Many themes became evident as students described critical thinking experiences and their uses of thinking and reasoning. The themes included being perplexed, rethinking the obvious, information seeking, and communicating with and questioning other health care providers.

**Being perplexed.** The theme of being perplexed was evident as students wrote and talked about the interpretations they performed in clinical situations encountered. Students often identified situations in which they thought something was going to happen or should have happened but did not, as key “interpreting” situations. These experiences I categorized as “being perplexed.” What they had learned in the classroom or from the textbook did not always apply to the unique situations they encountered in the clinical setting. Kayla, a traditional nursing student, stated, “I monitored the patient for complications associated with anticoagulant therapy and made sure their pain was at an acceptable level. I was surprised to find that my patient was not placed on telemetry.” Some students found themselves in situations where they had to analyze data, think about what they had learned, and then apply a revised approach or way of thinking to the situation. Kayla went on to say:
From here I reviewed my patient’s health history and found a previous diagnosis of hypertension (which the patient no longer has) along with tobacco, alcohol, and substance abuse. These are the only outstanding health concerns and diagnoses in her chart. The physician noted that the pulmonary embolism was more likely caused by a DVT. This perplexed me because the patient was only 27 years old, and the only factor in her chart that could have caused the DVT was smoking. I started digging through the chart to see if I could find a reason for the DVT.

Students often referred to information they had previously learned as the basis for their state of being perplexed. Working through this perplexed state and interpreting, in Kayla’s case, what she knew contrasting with the unique situation at hand was significant to the development of her critical thinking. The back and forth comparison of what the student was seeing with the textbook presentations were evident in several student accounts. The fact that what they saw in the actual patient scenario did not match the textbook and they were perplexed helped them to use and develop critical thinking. They had to examine the knowledge they had about the situation and make an interpretation in the context of the current patient circumstance. One student stated that she was trying to model the thinking of a registered nurse caring for the patient assigned to her. Gayle, a traditional nursing student, said,

I was thinking, if I were the RN I would assess first and get someone here for help based on what I am seeing now. His cardiac output is low, I have to make sure he’s laying down so it doesn’t have to work so hard.

She went on to say:
Applying my anatomy and physiology knowledge and remembering my CAB order of operations, getting help from the staff were all examples of me deliberately applying critical thinking skills. Honestly, it’s one of the first times I’ve felt like a nurse.

They attributed the knowledge they had gained throughout the program and during clinical experiences as important to their ability to recognize problems and work through being perplexed, planning nursing care within the clinical experience. Clinical situations that made students perplexed were significant in the development of critical thinking abilities.

**Rethinking the obvious.** While the theme of no obvious solution was a trigger for the critical thinking experience, rethinking the obvious was evident as some students were in the interpretation phase of the critical thinking situation at hand. Rethinking obvious solutions to problems was a key feature of making sense of clinical situations, and some students cited this “rethinking the obvious” as developing their critical thinking. The theme of thinking through situations and analyzing options that might not fit the textbook solution was an important aspect of the interpretation stage that emerged from the student data. Brandon, a student with multiple degrees including paramedic certification, cared for a patient who was at risk for skin breakdown on the coccyx. The obvious solution and textbook suggestion is to lay the patient recumbent and turn the patient side to side. Because the patient had additional medical problems that prevented him from lying down, Brandon had to think through options. He described this as follows:
The fact that my patient wasn’t a “textbook example” patient who could avoid pressure ulcers with simple turning allowed me to use critical thinking skills. My patient presented with a unique situation that I hadn’t seen before and I had to think through several possible solutions in order to help my patient.

Situations that caused the need to go beyond the typical textbook interventions came through in the data as leading to the need to interpret, a key phase of a critical thinking experience.

**Information seeking.** Information seeking and digging for information was a theme evident in some students’ descriptions of the interpretation stage of critical thinking experiences. Many students shared exactly how they recognized the need for additional data, acquired the information they used to process the situations, and in some cases, made decisions. The word “digging” came up more than once. Kayla stated, “I started digging through the chart to see if I could find a reason for the DVT.” The student identified that she needed more information before she could fully understand and make decisions about what to do in the situation. It was apparent that she was using her critical thinking abilities and recognized that she did not have all the facts needed to make an appropriate decision. She then identified what information to get, and she knew where to get it. Brandon also described information seeking as he interpreted the needs of his patient as follows: “I was forced to dig deeper to find an answer that would satisfy the patient’s needs.” Getting more information was essential to analyzing these situations before a conclusion or plan was developed.
Communicating and questioning. The theme of communicating and questioning emerged as a means of developing critical thinking for some students as they interpreted clinical experiences. Students identified communication with other health care providers as a means of gaining critical thinking abilities. Dennis, a paramedic student, described a situation in which a patient was scheduled for a surgical procedure but was unable to have the procedure done due to a high INR, a laboratory value that measures the clotting ability of the blood. Since the INR was high, surgery was cancelled because the patient was at too high of a risk to bleed excessively after surgery. The student described that discussion with the primary nurse who was also assigned to the patient, which truly allowed him to advance his ability to critically think. Dennis shared the following to describe this:

Having a nurse that was willing to discuss with me the patient’s status was the most critical thinking activity. The nurse discussed with me the treatment and also the possible reasons for his elevated levels. I had multiple questions for her and she was able to knowledgably answer them.

He further stated that often during clinical experiences, the primary nurses who work in the hospital do not have the time or take the time to discuss patient situations with students. When nurses share their ideas and rationales for patient conditions and treatments, they help students to develop critical thinking abilities. These discussions with various health care providers were important to students as they interpreted the critical thinking experiences.
**Responding**

The third phase of Tanner’s model of clinical judgment is responding which encompasses the action taken once the student or nurse has made sense of the data within the clinical experience (Tanner, 2006). After the clinical situation has been recognized and information has been collected and analyzed, a course of action is typically taken. Lasater (2007) described effective responding to include confident delegation, calm communication, interventions that are appropriate for the clinical situation, and ability to carry out nursing skills. Responding encompasses the action following assessment and interpretation.

Analyzing data from the student accounts of critical thinking related to responding revealed two themes: persistent communication and determining that more information is needed.

**Persistent communication.** The data revealed that communication with other healthcare providers, most often the nurse assigned to the patient or other nurses on the unit, was a theme evident in both students and instructor data as an integral component of responding to critical thinking experiences. Nathan, a traditional nursing student, described a situation in which he identified a patient experiencing anxiety and frustration because his needs were not being met. Nathan identified that this situation was particularly significant due to the history of violence in the patient’s medical record. He stated, “I told the nurse manager about the situation and that the patient wanted to speak with her.” The problem was reported to several other health care providers earlier who did not make any effort to follow up. Communicating appropriately—using the chain of
command and seeking action from a higher level—was important in this situation. Of interest is that the student shared he had not yet conferred with his assigned clinical instructor prior to following the chain of command. Clinical instructors are responsible for supervising and guiding students in the clinical setting. The expectation is that students communicate with the instructor for patient concerns or condition changes. Nathan was independent in his thinking and actions. He later shared during the interview that he did not communicate with the instructor because she was “too busy” and he felt she did not have time to help him and he was confident in his actions. Other students also shared that they did not interact with the clinical instructor in the clinical experience identified for similar reasons. This is a significant finding and has implications for clinical education. Communication was also identified in the experience that Monica, a paramedic student, described as she cared for a critical patient with an abnormally low blood pressure. She was concerned with the change and reported the findings to her primary nurse who seemed indifferent to the situation. In this case, the student communicated with the clinical instructor and continued to follow up with the primary nurse assigned to the patient who seemed to ignore the potential for risk identified by the student. Eventually, after shift change, the information about the blood pressure was given to the new primary nurse assigned to the patient who then acknowledged its relevance and initiated a course of action getting the patient treatment needed. Monica responded to this situation by being persistent in communicating important information until action was taken. Often students do not have the authority or role expectation to take such actions such as calling a physician or suggesting new orders. They rely on
communicating with primary nurses who then take action. Communication is essential and, in these situations in this data set, it seemed that persistence was the key. Following up with health care providers was important in the development of critical thinking abilities for these participants. Monica achieved the recognition she was seeking and intervention was taken to treat the low blood pressure. Had she not been persistent and continued communication to the primary nurses, serious harm could have come to the patient. This was, indeed, a critical thinking experience.

**Determining more information is needed.** Some students described critical thinking situations in which responding to patient situations with further assessment was essential. Students often knew that they needed more information when faced with an initial abnormal or unexpected finding. Recognizing that more information was needed and acknowledging the importance of follow up after obtaining new information was apparent in the student data. Monica, the paramedic student who recognized an abnormally low blood pressure, recognized that had she not followed up on her initial finding with additional blood pressure assessments, she would not have identified the trend in the patient’s blood pressure and that serious complications were likely without intervention. Monica wrote:

I rechecked his blood pressure and noticed it was 78/48 and immediately advised his nurse who asked me why I checked it before the 2000 vital signs and I advised her that with his current behavior compared to his behavior when I arrived I was concerned and rechecked his vitals.
Even though the primary nurse questioned Monica’s diligence in rechecking the blood pressure, the student persisted in getting the information needed to identify the serious problem and acting on it. Being able to recognize that change in behavior might relate to low blood pressure and also the need to confirm the findings was integral to this critical thinking experience. Students frequently referred to rechecking vital signs, laboratory values, or other assessment data as key to the development of critical thinking.

**Reflecting**

Reflecting is the final component of the model of clinical judgment (Tanner, 2006). It is the phase of clinical judgment in which the nurse evaluates the clinical situation and identifies outcomes that have been reached and adjustments that may need to be made. Students’ narratives included reflection on critical thinking experiences, identification of outcomes of clinical situations, and self-evaluation and analysis. While some reflections focused on patient outcomes and how their actions made a difference in those outcomes, others reflected on how the clinical experience as a whole advanced their critical thinking abilities. Each critical thinking experience identified was seen as an opportunity for clinical learning and prompted thoughtful reflection. As narratives were reviewed, several themes became evident in students’ reflections: increasing independence, concept mapping, seeing the whole picture, deep understanding, and setting priorities as a nurse.

**Independence.** The theme of being independent in clinical situations emerged as a means of developing critical thinking abilities for some students. Students identified how they practiced with increasing independence as they progressed through the nursing
program and how this was vital to development of critical thinking in the final semester. These senior nursing students were appreciative of the instructors allowing them to care for patients while trusting their knowledge and judgment. Gayle shared that the progression of becoming independent was a key aspect of development of critical thinking as follows: “I think what allowed me to use those critical thinking skills was the combination of nearly two years of rigorous theory coursework along with the increasingly independent clinical assignments and encouragement to be confident with my assessments.” She attributed the ability to think in a critical manner to the progression and increase of independent practice during her clinical experiences throughout the program. Dennis, a paramedic, described the importance of independence to the development of critical thinking as he provided care for a patient who was at a high risk for bleeding. He praised the staff nurse on the unit who not only had teaching discussions with him but also allowed him to independently manage the patient’s care with the guidance of his clinical instructor. He attributed the development of his critical thinking with being able to think through the diagnostic testing results and plan appropriate nursing care on his own for a patient who was at risk for serious complications. As he reflected on this experience, the theme of being independent became evident. He stated: “Also the nurse was willing to let me manage it with my instructor, this allowed me to experience management of the levels.” Independence was a key theme arising from the data that some students identified as integral to critical thinking.
**Concept mapping.**  Concept mapping or diagrammatic mapping has been identified in many disciplines as a teaching and learning strategy. Concept maps are intended to promote integration of previously learned with newly acquired knowledge and acquisition of complex new information (Bastable, 2014). During the 10-week clinical experience, students were required to complete one concept map intended to demonstrate students’ understanding of complex patient situations and associated treatment. The map displayed the integration of clinical findings with textbook information and incorporated the patient’s medical conditions, collected physical assessment information, and associated treatments. Students were given the choice as to which patient to use to complete the concept map but were instructed to select a patient that could be considered as having a complex set of medical problems or symptoms. No definition of complex was provided and this was left up to the student to determine. The creation of a concept map after caring for a patient was identified by some students as important to the development of their critical thinking. Charlene described a clinical situation in which she cared for a patient who had multiple medical diagnoses but was admitted primarily for a perforated diverticulum. She was able to complete several skills throughout the clinical day and decided to complete the concept map assignment on the patient because she wanted it “completed early in the semester.” She shared that her motivation, initially, was to get the assignment out of the way but as she completed the assignment, she picked up on complexities of the patient that she would not have seen otherwise. Charlene described this as follows:
I chose to do a concept map on this patient. I honestly did not think there would be a lot of information to link with my patient, but to my surprise, I was completely wrong. As I began to look up information on my patient’s diagnoses, lab values, and assessment data, I was able to critically think and link her disease processes.

The student responded to the clinical situation by electing to complete the concept map assignment. The completion of the concept map was integral in allowing the student to understand the situation with greater depth and helped the student to develop critical thinking. The completion of this assignment allowed the student to see a seemingly mundane patient experience as one that was instrumental in developing her critical thinking ability.

**Seeing the whole picture.** Seeing the whole picture of patient situations was a theme evident in many of the students’ critical thinking experiences. The phrase “whole picture” came up time and time again in both student and instructor data as they reflected on the clinical situations. Students gained appreciation for this concept during several of the experiences and noted importance of being able to look at the “whole picture” when learning to be a nurse. Kayla, a traditional nursing student, described a clinical situation in which she cared for a young patient who had a pulmonary embolism. The patient had very few medical diagnoses that were considered risk factors for this condition. Kayla knew this because she had prepared to care for this patient prior to the experience.

Students are required to prepare prior to actually caring for patients in the clinical setting. To do this, students arrive to the unit, obtain the preplanned patient assignment, review
the medical record and then investigate the patient’s conditions and associated treatments before assuming care of the patient. Having to prepare prior to arrival to the clinical unit allowed the student to have a good understanding of the patients’ overall needs and the nursing care that would be required. Kayla reflected on the critical thinking experience as follows:

This particular experience allowed me to use critical thinking because I need to look at the whole picture. Just looking at an admitted diagnosis and following through on orders placed by the physician is not the best practice for your patient. You have to look at the situation as a whole. There is a story and it paints a picture, and the picture will tell you what you need to do and look for. All of the activities that I performed that day promoted critical thinking.

Situations that require the student to “look at the whole picture” were identified as significant in the development of critical thinking. The idea of seeing the whole picture was often intertwined with connecting patient conditions and treatments as nursing students reflected on clinical situations. Charlene, for example, cared for a patient who had multiple medical conditions and it was difficult to identify exactly which problem was causing her current problems. As she read through the patient’s medical record and then began looking up her conditions and preparing to care for the patient, it all seemed to come together into a clear picture of what was going on. She summarized understanding the patient’s condition and treatments and how they intertwined in the following reflection:
As I began to look up information on my patient’s diagnoses, lab values, and assessment data, I was able to critically think and link her disease processes. As I read to obtain information on my patient, I had a lightbulb go off in my head. My patient was going through the phases of shock, acute kidney injury (AKI), and acute respiratory failure (ARF), which were ultimately leading into multiple organ dysfunction syndrome (MODS).

Some students described patient situations that were complex and required extensive and thoughtful preparation in order to provide appropriate nursing care. These experiences that allowed students to see the whole picture or understand connections between medical conditions and treatments were significant in the development of critical thinking were significant for some participants in this study.

**Deep understanding.** Clinical experiences that facilitated a new deeper understanding of medical conditions were identified as significant to the development of critical thinking by several students. “Understanding” and a “renewed understanding” were themes evident in the analysis of student data, almost as if the proverbial “lightbulb had gone off” as they had worked through real-life situations, thereby signifying as critical thinking experiences to these students. The students often referenced the concept of understanding in the final paragraph as they summarized the critical thinking experience. Being able to understand and identify the severity of medical conditions allowed students to recognize subtle changes in their patients, intervene appropriately, and prevent potentially devastating outcomes. Students identified a deeper, renewed understanding of the risks for complications in the several patient situations. Nathan, a
traditional nursing student, described this as he reflected on caring for a potentially violent patient whose needs were not being met:

I felt like this situation could have easily escalated, given the patient’s history and the RN and the Nurse’s aid should have been more aware of that. I now understand that some patients can be difficult and ‘high maintenance’ at times, and things may not seem like a big deal to us can be a huge deal for them.

The situation allowed a renewed understanding of patient needs and disconnect that can sometimes be present between patients and health care providers. Monica shared a similar example of a deeper, renewed understanding of a medical syndrome she experienced as she recognized a subtle change in the patient’s blood pressure, intervened appropriately, and facilitated medical intervention which resulted in transfer of the patient to a critical care unit. She reflected on the situation as follows:

I believe it was my critical thinking that led me to see his change in mentation and link it to poor perfusion and rechecking his vital signs so the doctor could be notified. The patient was eventually transferred to ICU where he would receive more 1:1 care for his more serious condition.

Several students described situations that promoted a deeper understanding of complex patient conditions as integral to the development of critical thinking. Within the context of the clinical experience, Charlene gained a deeper understanding of how colitis and diverticulitis can cause rupture of the intestine and ultimately lead to serious infection. She attributed the activity of researching the patient’s medical conditions and reviewing...
the medical record as allowing her to fully realize complications that were occurring and the associated treatment. Charlene stated:

I gained understanding of the complications that are associated with bowel perforations and the need for immediate diagnosis and treatment to reduce the risk of mortality. I realized that patients with even simple infections could develop complications that can lead to their death.

Some students described deeper understandings in clinical situations using the concept of thinking outside of the box. These students reflected on clinical situations that challenged them to rethink textbook approaches to understanding patient conditions and problem solving. Being challenged to develop alternative more nuanced approaches to unique patient experiences using knowledge gained in the classroom setting was significant to development of critical thinking in some instances. Some students identified certain situations that facilitated problem solving and rethinking what to do next as facilitating these deeper understandings. As some students reflected on critical thinking experiences, it became evident that these situations that promoted deeper understanding of the patients’ conditions, associated treatments and nursing care were important to the development of critical thinking abilities.

**Setting priorities.** Some students reflected on clinical experiences as being significant in which they gained a renewed understanding of priority setting. These situations were significant to development of critical thinking. These clinical experiences helped students develop insight into ordering of nursing problems, for example, or patient conditions determining which was more urgent or important to attend to. In addition to
the focus on patient problems, students described prioritization to include important qualities and characteristics, such as empathy and rapport, displayed by nurses as they provide care. As Nathan reflected on his critical thinking experience, he recognized the importance of having good rapport with the patient he was caring for who had potential for violence. Relationship building and trust was prominent and described as a priority in how Nathan described the situation that he described as significant to the development of his critical thinking. He shared: “I feel that one of the most important aspects of patient care is building trust, good communication, and rapport with your patient.” Students shared several clinical experiences which included prioritization as an important component in their developing critical thinking. Kayla described priority setting in a different way, focusing on preferential knowledge of particular aspects of patient care. She identified knowing what to look for and maintaining patient safety as important for nurses as she reflected on her critical thinking experience. She summarized it as follows: “You need to know that there is a risk for bleeding with anticoagulation therapy and patient safety is a priority.” She identified that it is the nurse’s role to set priorities while monitoring appropriate diagnostics and preventing complications related to the patient’s condition. She referred to the nurse having to be “one step ahead” and stated: “As a nurse, you need to know what measures are going to prevent this (complications) and implement them, and then evaluate for effectiveness.” Situations that allowed the student to identify priorities for patient care either before or during patient/nurse interactions were instrumental in the development of critical thinking abilities for these participants.
Students’ Perceived Benefits

As students described critical thinking experiences, it became apparent that they benefitted from the clinical situations. Development of confidence became evident in the student data as a theme that did not clearly fit into the phases of clinical judgment (Tanner, 2006) and therefore separated out. The benefit of developing confidence has implications for nursing education and is further discussed in Chapter 5.

Students acknowledged feeling confident when they were able to respond appropriately in uncertain clinical situations requiring nursing judgment. Interestingly, all of the critical thinking experiences described by students resulted in positive outcomes and initiation of appropriate intervention. Students were not inspired to reflect on negative experiences. Feelings that finally “knew what they were doing” in these circumstances were evident in some of the descriptions of their reflecting on critical thinking experiences. Students reflected on significance of the critical thinking experiences and how important the experiences were to them in becoming a nurse. Many students identified that the experience increased confidence in their ability to become a nurse. Charlene, a traditional nursing student, when reflecting on a critical thinking experience, summarized this theme of confidence as follows:

Something else that I have gained throughout the semesters that I did not have much of is confidence. I KNOW that I am going to be a great nurse because of the education and critical thinking experiences I have had through the program. The feeling of performing in the clinical setting in the same way that a veteran nurse would have performed was often tied to feelings of confidence in the data. This notion of
confidence and feeling like a nurse was explained by Gayle, a traditional nursing student. Gayle described a clinical experience in which a patient was “not acting himself.” She followed up with assessment of the patient’s blood pressure and cardiac status and eventually came to the conclusion that he was experiencing a serious cardiac complication. She shared the details of the thinking process used during the situation and how she made decisions about what should be done next. She attributed her appropriate intervention to her ability to use knowledge she had gained in past semesters of the nursing program. When reflecting on the critical thinking experience with the cardiac patient she stated: “Honestly, it’s one of the first times I’ve felt like a nurse.” Recognizing that she made appropriate decisions resulting in a positive patient outcome was key to her growth from the experience. Clinical situations that promoted the development of critical thinking allowed students to gain feelings of competence and therefore confidence in their abilities.

In the next section of this chapter, I report the findings related to critical thinking experiences that came from the data collected from the four instructor participants.

**Instructors’ Perceptions of Critical Thinking Experiences**

The second research question focused on instructors’ perceptions of critical thinking experiences. Instructors were asked to describe clinical situations that allowed students to use or develop their critical thinking abilities. All four instructors in the course served as participants in the study and provided narratives describing critical thinking experiences. As data were analyzed similarities and differences from student data became evident. The following summarizes themes from instructor data organized
by the four phases of clinical judgment: noticing, interpreting, responding, and reflecting (Tanner, 2006).

Noticing

Several themes emerged as triggers or beginnings of the clinical situations that instructors described as significant to the students’ use or development of critical thinking during the semester that data were collected. The first phase in the Model of Clinical Judgment (Tanner, 2006) is noticing in which the nurse makes an initial grasp of the particular situation. This initial grasp typically involves expectations that may or may not be met, change in a patient’s condition, or unexpected or abnormal assessment. Themes that emerged in the instructor data for the initial phase of noticing include abnormal assessment, multiple patient problems, and risk for complications. These were similar to some of the themes identified by students.

Abnormal assessment. A theme that emerged as instructors described triggers of critical thinking experiences was abnormal assessment identified by students as they completed physical examinations of the patients. In these situations as described by the instructors, students were able to discriminate abnormal or unexpected from normal findings and followed up appropriately. Phyllis, an instructor, described a situation in which the student began the clinical day with a critical thinking experience. She explained that the student arrived to the unit and received report from the primary nurse and shortly after that overheard her nurse state that the patient assigned to her care was in “v-tach.” This is a life threatening cardiac problem that requires immediate patient assessment and intervention or serious complications will likely occur. The student
immediately recognized the significance of “v-tach” and that the situation was serious and required her immediate attention. Phyllis felt that the student had identified the seriousness of the situation appropriately and that this was a significant critical thinking experience for the student. The trigger was a potentially lethal cardiac arrhythmia that was recognized as abnormal by the student. Alice, another instructor, described a clinical situation that also had beginnings that included abnormal assessment. In this situation, a student had obtained a routine scheduled blood pressure at the beginning of her shift. The student evaluated the finding and identified the blood pressure to be extremely elevated and reported the concern immediately to the instructor and primary nurse. Alice felt that the student had appropriately recognized that high blood pressure can result in serious complications for the patient, and the student obtained a second reading to verify the results and rechecked the finding several times thereafter. Alice stated that this type of situation can be difficult for students because of their common lack of confidence in ability to discriminate normal from abnormal findings and their fear of being wrong in their interpretation. Sonia, an instructor, described a different situation in which the student recognized abnormal assessment findings as significant. She explained that the student was caring for a patient with a diagnosis of COPD who had a relatively normal physical assessment in the morning. The patient was on two liters of oxygen and had diminished breath sounds, but otherwise, findings were unremarkable. Later in the morning, however, the student recognized that the patient became restless, agitated, and disoriented. His oxygen level had dropped to 88%, which was significantly lower than the earlier reading of 96%. Sonia stated, “The student determined that this was a
significant problem that needed to be addressed immediately, which led him to analyze information which would help to narrow down the possible causes.” The fact that these students recognized the abnormal assessments in the patients and intervened appropriately made the clinical situations significant to the instructors as helping students develop critical thinking.

**Multiple patient problems.** Situations in which patients had multiple problems were often written about by both instructors and students as they described critical thinking experiences. Students and instructors described situations in which patients presented with multiple medical diagnoses, problems and other compounding issues. Sonia, an instructor, described a situation in which a student was caring for a patient admitted with a new diagnosis of diabetes. Compounding the admitting diagnosis were issues of alcohol abuse and the fact that the patient recently lost his job. Being unemployed and dealing with an addiction complicated the acceptance of education and care regarding the new diagnosis of diabetes. Sonia shared, “The student was able to develop critical thinking abilities when trying to assist the patient who was feeling overwhelmed. The fact that this patient had several things going on, promoted the use of critical thinking.” Having more than one medical diagnosis or problem complicates the provision of nursing care of patients that facilitates the use and development of critical thinking in these clinical situations.

**Risk for complications.** Clinical situations in which the student recognized that monitoring for serious complications was necessary emerged as significant in both the instructors’ and students’ writing and talking about critical thinking experiences.
Instructors identified key situations in which students expressed concerns about the potential for serious complications. Bonnie described a situation in which the student was caring for a patient with multiple cardiac diagnoses who was at a great risk for deep vein thrombosis (DVT). Upon questioning, the student was able to verbalize risks that were evident in her assigned patient, provide a rationale for the complications, and perform appropriate monitoring. Bonnie felt that this student grew as a critical thinker by being able to recognize potential problems and understand the complications that could happen for this patient.

**Interpreting**

Instructors described some examples of students’ reasoning or interpreting of circumstances within critical thinking experiences. Interestingly, when asked about activities that promoted the use of critical thinking, the instructor data were less detailed or rich compared with the student data in this area. I believe this is because the students knew how they processed the situation and were able to articulate with more detail describing the reasoning patterns used. Instructors were simply describing what they observed or thought they observed which included recognition of assessment information, identification of significance, and acknowledgement of needed intervention or decision-making. Instructors did describe different approaches used by students to interpret particular clinical situations. Themes that emerged when analyzing instructor data related to interpreting critical thinking situations included recognizing significance, rethinking the obvious, and setting priorities.
Recognizing significance. That some students were recognizing the significance of clinical situations or relevant information was a theme that emerged from instructor data. All of the instructors described students’ recognition of significance in some way within the critical thinking experiences. Sonia, an experienced clinical instructor, explained how one student was able to think through a situation in which a patient was becoming short of breath despite initiation of oxygen delivery. She stated:

The student reapplied the oxygen, but did not want to assume that would correct the problem. He realized this was a sudden change for the patient and was significant. He had the opportunity to think of the possible causes. He determined that the patient was not on any medications that could cause the patient to become restless and confused. The patient did not have a history of confusion.

The instructor was describing her perception of the student’s interpreting abilities—his thinking, actions, and information shared with her by the student. She further described that the student recognized there were several possible reasons for low oxygen levels and realized that continued investigation and intervention was critical. This situation allowed the student to recognize an abnormal assessment finding and interpret significance in context of the particular patient situation, and this was important in Sonia’s eyes to the student’s development of critical thinking. In another instance, Phyllis, a clinical instructor, described a critical thinking experience in which a student reacted to a cardiac alarm and information shared that a patient was experiencing a serious cardiac arrhythmia. The student was able to correctly interpret the significance of
this clinical situation and also recognize the importance of prompt intervention, according to Phyllis. Recognition and ability to act was significant to the development of the student’s critical thinking abilities, as Phyllis described:

I think that because the student heard the alarm ringing on the telemetry monitor and heard the nurse say which room it was, that she realized the importance of going down to see her patient immediately. I think that promoted the use of critical thinking for her.

Clinical experiences that allowed the student to recognize significant information within the context of the situation and initiate necessary interventions were seen as important to the instructors in the development of student critical thinking.

Rethinking the obvious. The experience of rethinking the obvious was a theme that emerged in both student and instructor data when writing and talking about critical thinking experiences. Clinical situations in which textbook approaches to patient problems were identified as unhelpful required rethinking of obvious solutions and emerged as significant experiences for the students as reported by the instructors. This concept was evident in the critical thinking experience described by Sonia, a clinical instructor. In this situation, the student was caring for a patient with a low oxygen level and was surprised when applying oxygen did not improve the patient’s condition. Sonia summarized this occurrence as follows:

He realized that reapplying the O2 did not make a significant improvement. The patient was definitely hypoxic, but for what reason? Originally, the student
thought that reapplying the oxygen would correct the problem, but when he realized that it didn’t, he knew he had to re-evaluate. The student then had to “re-evaluate” the situation and continue to search for possible causes of hypoxia. Situations where obvious or textbook approaches were not effective allowed for reconsiderations of specific patient scenarios and variations needed to achieve positive outcomes and were seen as growth experiences for students. Instructors described these types of situations as important to the development of students’ critical thinking. This theme of re-thinking the obvious was evident in all but one of the instructor accounts of critical thinking experiences. In some cases, students were described by instructors as questioning seemingly obvious situations even when other health care providers were not concerned. Being assertive and questioning when the student’s judgment of a clinical situation differed from that of healthcare providers was an example of developing critical thinking abilities, per the instructors. Alice, a clinical instructor, shared an example of a student who recognized subtle changes in a patient’s blood pressure and level of consciousness. When this information was reported to the primary staff nurse assigned to the patient, she was met with indifference and lack of concern. Many students who are not confident with their assessment skills would have not continued to pursue intervention at that point. Alice stated that the fact that the student continued to question the findings even though others were not concerned was significant in the development of the student’s critical thinking abilities. She stated:
She then reported her blood pressure readings and her assessment of her patient to the RN taking care of this patient. Since his blood pressure earlier in the day was also low, the RN was not concerned. The student then reviewed the EMR and noted that the patient had a trend of decreasing blood pressure over the last few days. She was concerned that the patient seemed to be more lethargic and confused.

Even though the health care provider was not concerned, the student was “assertive” but “respectful” and continued to assess and report changes in the blood pressure. This eventually prompted intervention needed for patient to receive appropriate care.

Rethinking the obvious and questioning were themes that were evident in the data as instructors identified critical experiences that occurred (in their eyes) during the semester.

**Setting priorities.** The theme of setting priorities emerged in both students’ and instructors’ data as they described critical thinking experiences. Instructors identified clinical situations in which students had to make decisions while prioritizing in various ways as significant experiences in the development of students’ critical thinking abilities. Prioritization included making decisions about what is most important in particular clinical situations, temporal organization including what should be done first, and decision-making. Phyllis elaborated on one example of prioritizing as she described a student who had to weigh several options in an emergent clinical situation. The student was at the bedside of a patient who was experiencing “v-tach,” a life threatening cardiac arrhythmia. The emergency response team, including the assistant nurse manager, was
also in the room providing care to the patient. Phyllis described how the student set priorities in this situation:

> The assistant manager was in the room at this point and asked the student what she would anticipate . . . she looked at me with wide eyes but quickly remembered oxygen, frequent vitals, and maybe cardiac enzymes. She was asked what medications might be given to bring the heart rate down and she said metoprolol. She was asked what would happen if the patient did have chest pain and she said maybe a heart cath.

While many options were available for the student to choose from, she prioritized and identified the most important interventions in this critical situation, and this experience at prioritizing was significant in Phyllis’s eyes. In many of the situations, instructors described students’ abilities to attend to all options available and select the one most likely to result in a positive patient outcome as crucial to their growth. Sonia described a clinical situation in which a patient’s admission diagnosis of diabetes was complicated with recent loss of a job and an alcohol addiction. This was a situation where obvious medical needs were not priority due to compounding psychosocial factors that were not well known to the other health care providers. The student had developed a relationship with the patient and a deeper understanding of the additional problems that the patient faced including feelings of loss of control of the current situation. Through prioritization of additional psychosocial factors affecting the patient, the student was able to assist in both medical and personal matters. Sonia described this further:
The student had to assess the priorities for this patient through the use of critical thinking and evidence-based practice, regarding the effectiveness of teaching and learning as it is influenced by different variables. Had the student not been able to develop a trusting relationship with this patient, she may have not realized that there were more pressing issues affecting his ability to learn, accept his diagnosis, and change in lifestyle.

Instructors saw clinical situations that incorporated opportunities to identify and prioritize options within the experience as integral to development of critical thinking. Students saw setting priorities as an outcome or result of critical thinking experiences in the reflection phase of clinical judgment, however, instructors viewed it differently. Students did not fully recognize that they were practicing setting priorities as they processed clinical situations. Instructors, in contrast, described students as actively setting priorities as they interpreted the clinical situation at hand, as a means of understanding or making sense of the experience. This lack of recognition of priority setting within the clinical experience by the students is a concept that is discussed further in Chapter 5.

**Responding**

Responding is action or intervention that the nurse takes as a result of interpretation of the clinical situation (Tanner, 2006). It can include obtaining more information, communication with other healthcare providers, or performing actual clinical interventions. Analysis of instructor data provided a picture of how certain students responded to critical thinking experiences within the concept of deciding what to do next in the clinical experience. Instructor data analyses identified two themes of
responding within the critical thinking experiences: knowing when more information is needed and communication with others. Similar to students’ data, instructors described situations with limited performance of actual clinical intervention as students responded to the situation at hand. This may be due to the inherent role of the student as being supervised and guided by clinical instructors and ultimate responsibility for patient care maintained by the primary nurse. This limitation of student intervention and implications for clinical education is discussed further in Chapter 5.

**Knowing when more information is needed.** Instructors identified situations in which students recognized the need to obtain more information as significant critical thinking experiences for students. The theme of obtaining more information of some sort as a result of reasoning through a clinical situation was actually evident in both student and instructor data. Instructors identified situations in which students were faced with deviations or subtle changes in the patient’s condition and in which they knew when to reassess or obtain additional information such as diagnostic testing or patient history. Alice, a clinical instructor, identified an example of a student who knew to get more information without being instructed to do so. She stated: “One of the students had a patient who had developed elevated blood pressure. She reported her concern to me but also obtained manual readings in both arms lying down and reported this to her nurse.” It was significant to Alice that the student recognized the need to obtain a manual blood pressure reading in addition to using the automatic vital sign machine. Alice felt this was important information in this situation and that the student was assuring accuracy of readings prior to communication with other health care providers. Critical thinking
experiences often included this kind of activity of verifying information gained, obtaining additional information, and recognizing situations in which this was necessary, according to the instructor data.

**Communication.** Instructors also identified that communication with other health care providers was important critical thinking experiences for the students. Communication or reporting concerns to either the clinical instructor or primary nurse when students were faced with unexpected patient situations or abnormal assessment findings was a theme evident in instructors’ accounts. In these situations, not only did students have to recognize deviations from baseline but they also needed to appropriately share them with others to facilitate positive patient outcomes. Inherent in their roles as clinical experience students, the students are often limited in their capabilities to make independent decisions. Sonia, a clinical instructor, explained that the student who recognized a low oxygen level on the patient appropriately notified the primary nurse who then notified the physician. Students do not typically call physicians independently, therefore the communication is usually up to the primary nurse and this communication has to be accurate and timely. Alice, another clinical instructor, described a similar situation in which the student recognized and reported an abnormal blood pressure and, as the patient declined, identified a low oxygen level and appropriately communicated this to the appropriate staff. Appropriate communications of various aspects of clinical situations were significant themes evident in the data from instructors related to developing critical thinking abilities.
Reflecting

The final phase of Tanner’s Model of Clinical Judgment (2006) is reflecting. This area includes the nurse’s review of the clinical situation and considers learning that occurred as a result. Reflection-in-action is described as the nurse’s ability to interpret the patient situation and how the patient is responding to interventions as the clinical situation is happening. Reflection-on-action is looking back on a clinical situation and evaluating what was learned. Appropriate reflection involves consideration of the outcome of the situation, whether positive or negative in nature. Lasater (2007) identified effective reflecting as being able to independently analyze and evaluate the clinical situation and consider decisions made and alternatives possible. In addition, effective reflection focuses on ways to improve future performance. Instructor participants in this study described their own reflections and also perceived students’ reflections about critical thinking experiences and the influences they had on student learning. As instructor data were analyzed, two themes emerged included independent thinking and seeing the whole picture.

Independent thinking. One theme that emerged within the category of reflection is that instructors identified clinical experiences in which students were able to think and reason independently about patient situations as significant critical thinking experiences. These experiences of independent thinking were ones in which students were independently able to recognize problems as they occurred and make decisions about what to do next (with significant links to reflection). In these situations, students had, independently, to evaluate many factors affecting clinical situations prior to deciding on
appropriate nursing intervention, thus practicing reflection-in-action. Phyllis, a clinical instructor, explained how one student demonstrated independence during such an experience as follows: “She was able to recognize the importance of a quick assessment and vital signs. The nurse even reiterated that to her, you always look at your patient first to make sure the signs match.” The student recognized a critical cardiac problem on the electrical monitor and acted by getting additional assessment data to determine severity. This was an example of independent action that instructor identified as key to critical thinking in this situation and linked to reflection during care. In these situations described, decisions and actions that students made were often confirmed by other healthcare providers, but the initial thoughts were independent. Alice, a clinical instructor, for example, described an instance of independent thinking and action as key to achieving necessary medical care resulting in a positive patient outcome. Alice described this situation in which a student independently recognized abnormal physical assessment data and notified the primary nurse immediately. She explained as follows:

The student again, recognized the changes she was seeing in this patient was not “normal” as far as vital signs, hypoxia, and behavior changes and that sharing that with her RN enabled action to be taken in a timely manner.

Had the student not acted independently and taken immediate action, this patient may have suffered serious complications. The student’s ability to recognize a problem and respond with appropriate intervention is example of independent reflection-in-action within this clinical situation. Phyllis, a clinical instructor, shared an example of independent problem identification and appropriate student intervention in a situation in
which the patient experienced a serious cardiac arrhythmia. The student quickly went to
the patient’s room and obtained needed physical assessment information that allowed the
emergency response team to intervene appropriately. Her quick thinking and resulting
independent actions were recognized by other staff on the unit. Phyllis explained: “The
assistant manager later approached me after the team had left to say how impressed she
was with this particular student. I let the student know and she appeared very proud.”
Being able to independently identify and reason through clinical situations, practicing
reflection-in-action, allowed appropriate care to be delivered and resulted in positive
patient outcomes. As instructors looked back or reflected on critical thinking
experiences, they described situations that allowed students to engage in independent
thinking and reflection-in-action during patient care.

**Seeing the whole picture.** Seeing the “whole picture” and looking at the patient
as a “whole” were themes that emerged in instructor data describing critical thinking
experiences as they practiced reflection-on-action. As students and instructors reflected
on critical thinking experiences they often used the phrase “whole picture” as a descriptor
of how the student viewed the patient in clinical situations. Sonia, a clinical instructor,
described a situation in which the student identified subtle changes in the patient’s
respiratory status and that initial interventions seemed ineffective. This clinical
experience prompted further investigation of additional conditions that could complicate
the situation and, in the end, allowed a different perspective of seeing the “whole picture”
of the patient. Sonia shared the following: “After a lung scan, it was concluded that the
patient had a blood clot. This situation gave the student the opportunity to look at the
patient as a whole and consider all the options.” According to Sonia, this situation demonstrated the student’s ability to gain a renewed perspective and see all the problems that the patient could be experiencing. Seeing the patient as a whole and making connections between the patients’ conditions and care were identified as a deeper level of reflection-on-action for students. She further reflected on this by explaining: “I enjoy watching the satisfaction achieved by the students when they realize that they have put the pieces together by using critical thinking skills to develop a plan to deliver quality care to their patient.” Along with seeing the patient as a whole, the reference of “putting the pieces together” came up more than once in both instructor and student data as instructors saw students growing in their abilities to reflect in these critical thinking situations.

Table 9 displays critical thinking situations used as examples to illustrate themes that emerged in the students’ and instructors’ data. It became evident that some critical thinking experiences were rich with detailed information that resulted in identification of multiple themes within the same clinical situation; others had less detail and relevant information. The only critical thinking experience appeared to be mentioned by both a student and instructor involved a situation in which a student identified a low blood pressure in a patient but the primary nurse negated the finding as important. While I am not certain that this is exactly the same situation, based on descriptions and demographics, it appears to be common.
Table 9

**Critical Thinking Experiences and Associated Themes**

<table>
<thead>
<tr>
<th>Critical Thinking Situation</th>
<th>Student Who Described / Theme</th>
<th>Instructor Who Described / Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient with a low blood pressure and an indifferent nurse</td>
<td>Monica</td>
<td>Alice</td>
</tr>
<tr>
<td></td>
<td>Noticing (concern, abnormal assessment) Responding (persistent communication, determining more information is needed) Reflecting (deep understanding)</td>
<td>Interpreting (rethinking the obvious)</td>
</tr>
<tr>
<td>Patient with a low blood pressure and change in mental status</td>
<td>Gayle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noticing (abnormal assessment) Interpreting (being perplexed) Reflecting (development of confidence, independence)</td>
<td></td>
</tr>
<tr>
<td>Patient at risk for violence whose needs were unheeded</td>
<td>Nathan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noticing (concern) Responding (persistent communication) Reflecting (deep understanding, setting priorities)</td>
<td></td>
</tr>
<tr>
<td>Patient with a pulmonary embolism who did not have typical risk factors for the condition</td>
<td>Kayla</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interpreting (being perplexed, information seeking) Reflecting (seeing the whole picture, setting priorities)</td>
<td></td>
</tr>
<tr>
<td>Patient with sudden onset of v-tach cardiac dysrhythmia</td>
<td></td>
<td>Phyllis</td>
</tr>
<tr>
<td></td>
<td>Noticing (abnormal assessment) Interpreting (recognizing significance, setting priorities) Reflecting (independent thinking)</td>
<td></td>
</tr>
<tr>
<td>Patient with a high blood pressure and low oxygen level</td>
<td></td>
<td>Alice</td>
</tr>
<tr>
<td></td>
<td>Noticing (abnormal assessment) Responding (knowing when more information is needed, communication) Reflecting (independent thinking)</td>
<td></td>
</tr>
</tbody>
</table>

*(table continues)*
Table 9 (continued)

Critical Thinking Experiences and Associated Themes

<table>
<thead>
<tr>
<th>Critical Thinking Situation</th>
<th>Student Who Described / Theme</th>
<th>Instructor Who Described / Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient with a low oxygen level that did not improve with oxygen administration</td>
<td>Sonia</td>
<td>Noticing (abnormal assessment) Interpreting (recognizing significance, rethinking the obvious) Reflecting (seeing the whole picture)</td>
</tr>
<tr>
<td>Patient with abdominal pain who had several compounding medical diagnoses</td>
<td>Charlene</td>
<td>Noticing (multiple patient problems) Reflecting (concept map, independence, deep understanding)</td>
</tr>
<tr>
<td>Patient with a new diagnosis of diabetes who also was an alcoholic and had just became unemployed</td>
<td>Sonia</td>
<td>Noticing (multiple patient problems) Interpreting (setting priorities)</td>
</tr>
<tr>
<td>Patient who had surgery delayed due to a high INR and risk for bleeding</td>
<td>Dennis</td>
<td>Interpreting (communication and questioning) Reflecting (independence)</td>
</tr>
<tr>
<td>Patient at risk for pressure ulcers whose condition was complicated by scrotal edema</td>
<td>Brandon</td>
<td>Noticing (caring) Interpreting (rethinking the obvious)</td>
</tr>
<tr>
<td>Caring for more than one patient simultaneously</td>
<td>Abbie</td>
<td>Noticing (new situation) Delores Noticing (new situation)</td>
</tr>
<tr>
<td>Making patient assignments for other nursing students</td>
<td>Laurie</td>
<td>Noticing (new situation)</td>
</tr>
<tr>
<td>Patient who developed pulmonary edema, a complication of her cardiac problems, consistent with student expectations</td>
<td>Beth</td>
<td>Noticing (risk for complications)</td>
</tr>
<tr>
<td>Patient with multiple cardiac problems at risk for many complications including deep vein thrombosis</td>
<td>Bonnie</td>
<td>Noticing (risk for complications)</td>
</tr>
</tbody>
</table>
Effects of Clinical Teaching Strategies

Instructors described specific teaching strategies that were instrumental in development of critical thinking. This theme did not clearly fall into Tanner’s (2006) Model of Clinical Judgment but rather was best described in its own unique category. Teaching strategies are used in clinical education to process critical thinking experiences with the intention of learning from those clinical experiences. Some of the instructor participants shared approaches they employed to promote critical thinking especially during the interpretation phase. These teaching strategies included strategies such as incorporating information obtained in the classroom setting, asking questions, facilitating student data collection, and assignments such as concept maps. In contrast, students rarely referred to clinical teaching strategies used by instructors as significant to them during their critical thinking experiences. This reinforced the notion that disconnect was possible between instructor and student in some instances. More is said about this disconnect in Chapter 5.

Phyllis, for example, described the importance of questioning and provision of guidance by the instructor to promote critical thinking. She stated, “I feel that asking the student questions to help her see what to expect and what was currently happening helped in developing the student’s critical thinking.” During the follow-up interview, Phyllis described how she practices student questioning during every clinical experience in a group meeting prior to beginning of the clinical day. She explained that questioning helps students to recall information gained in the classroom or from previous clinical experiences and apply it to their assigned patient. Another clinical instructor, Bonnie,
described how completing a concept map assignment after the clinical experience promoted development of critical thinking abilities in the student. Concept maps were a written assignment developed after caring for a patient and are used as an instructional approach to process complex information and make connections between patient conditions and treatments. There was one reference to the importance of concept maps by a student and by one instructor. Bonnie explained it as follows: “The piece that was crucial in (the student’s) learning experience was the concept map and linking all the components together and seeing how they relate.” Instructors identified the importance of various clinical teaching strategies in students’ development of critical thinking; however, students rarely identified clinical instructor interaction or assignments as significant in the situations described. The next section summarizes data as commonalities and differences in perceptions of critical thinking experiences.

**Commonalities and Differences**

The third question in my research focused on describing the commonalities and differences in nursing students’ and instructors’ perceptions of critical thinking experiences. This included defining what critical thinking was for both students and instructors who participated in the study. The initial assignment did not ask for a definition of critical thinking, therefore purposeful questioning during follow-up interviews focused on defining and elaborating on key informants’ perceptions of critical thinking as it related to the clinical experiences described. Table 10 summarizes the themes that were unique to students and instructors and themes that were common. As illustrated in Table 10, there seemed to be more commonalities than differences as
students and instructors described critical thinking experiences and these help to provide structure to discussion of the third research question.

Table 10

*Themes Unique and Common to Students and Instructors*

<table>
<thead>
<tr>
<th>Themes Unique to Students</th>
<th>Themes Common to Students and Instructors</th>
<th>Themes Unique to Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noticing</td>
<td>Noticing</td>
<td>Noticing</td>
</tr>
<tr>
<td>No obvious answer</td>
<td>Abnormal assessment</td>
<td></td>
</tr>
<tr>
<td>Concern</td>
<td>Risk for complications</td>
<td></td>
</tr>
<tr>
<td>New situations</td>
<td>Multiple patient problems</td>
<td></td>
</tr>
<tr>
<td>Interpreting</td>
<td>Interpreting</td>
<td>Interpreting</td>
</tr>
<tr>
<td>Being perplexed</td>
<td>Rethinking the obvious</td>
<td>Recognizing significance</td>
</tr>
<tr>
<td>Information seeking</td>
<td></td>
<td>Setting priorities</td>
</tr>
<tr>
<td>Communicating and Questioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responding</td>
<td>Responding</td>
<td>Responding</td>
</tr>
<tr>
<td>Persistent communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing when more</td>
<td></td>
<td></td>
</tr>
<tr>
<td>information is needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflecting</td>
<td>Reflecting</td>
<td>Reflecting</td>
</tr>
<tr>
<td>Deep understanding</td>
<td>Independence</td>
<td>Seeing the whole picture</td>
</tr>
<tr>
<td>Concept mapping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting priorities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Perceived Benefits</td>
<td>Clinical Teaching Strategies</td>
<td></td>
</tr>
<tr>
<td>Development of confidence</td>
<td>Effects of clinical teaching</td>
<td></td>
</tr>
</tbody>
</table>

**Recognizing Problems**

Guided by Tanner’s (2006) model of clinical judgment, a clear description of clinical experiences that were significant in promoting critical development emerged. The theme of recognizing problems and situations emerged in both students’ and instructors’ data when analyzing descriptions of critical thinking experiences. This
included descriptions of instances in which students were able to recognize actual or potential problems or problematic situations. Both students and instructors identified that, when students were able to recognize problems, including aspects of context, background, and unmet expectations within clinical situations, they were using and developing their critical thinking. Nathan identified that an anxious patient could have potentially become violent if needs were not met and that he needed to intervene on behalf of this patient to prevent a potentially serious outcome. Students’ realizations that they were recognizing that problems might occur and identified potential complications that existed were evidence of critical thinking for both students and instructors. Monica, a nursing student, recognized an abnormal low blood pressure in a patient who was at risk for heart failure, and she persisted in her attempts for intervention from the primary nurse who ignored the seriousness of the finding. Eventually persistence paid off and the patient received appropriate intervention that prevented an acute decline in cardiac status. The student recognized a problem and knew significant complications would occur without intervention, resulting in a poor patient outcome. Recognizing problems whether actual or potential came up often in the students’ descriptions of key critical thinking experiences and was also closely interwoven with “knowing what to do.”

Alice, a clinical instructor, summarized the significance of recognizing problems as follows: “The clinical experience promoted critical thinking in recognizing that this was an evolving situation that needed close monitoring.” Most of the situations that were identified by instructors as critical thinking experiences began with a student’s recognition of abnormal physical assessment or recognition of severe problem, actual or
potential. Phyllis, a clinical instructor, described a situation in which a patient’s cardiac monitor alarmed, the student recognized the significance and went to the patient’s room and appropriately assessed the patient. Phyllis reflected on the significance of this occurrence as follows: “I think the class setting allowed this student to develop her critical thinking but the clinical experiences have helped her use them. She was able to recognize the importance of a quick assessment and vital signs.” Realizing the importance of various aspects of patient assessment and recognizing when potential problems could occur were key opportunities for critical thinking according to both students and instructors. Sonia, a clinical instructor, summarized how being able to recognize problems distinguishes a great nurse as follows:

It is the critical thinking piece and assessment and that kind of thing that distinguishes a good nurse from a great nurse and somebody that can pick up on things in their patient that somebody else might not be able to.

Recognizing potential and actual problems specific to the patients being cared for was a theme that emerged in both students’ and instructors’ data as critical thinking experiences were described. Teaching strategies to assist in recognizing significant clinical situations that promote critical thinking are discussed in the implications for nursing education.

**Decision Making**

The theme of decision making was apparent in both student and instructor data when describing actions taken as a result of critical thinking experiences. Using Tanner’s (2006) Model of Clinical Judgment, this would be described as responding or action taken after the situation has been interpreted through various reasoning patterns. Of
interest, those students who held a previous degree as a licensed practical nurses (LPN) or those who had been paramedics were more attentive to decision making when defining critical thinking experiences. Decision making was present, but less apparent, within data of traditional students who did not hold these prior health care degrees. Both LPNs referred to situations in which they were caring for multiple patients as key critical thinking experiences. The critical thinking experiences mentioned included the need to prioritize patients’ conditions and decide which to care for first. In this aspect, decision-making also overlapped the theme of “knowing what to do.” Delores, an LPN, attributed decision making to critical thinking as follows:

To me it was valuable because I had to make a decision. Both of them were important; giving the medications to the other patient was very important, but at the same time, if this gentleman ripped out his NG tube and the fact that he didn’t have oxygen on and his pulse ox was dropping, that was going to be more severe than the medications.

She explained the need to interpret and understand clinical situations of multiple patients and make a decision which patient should be attended to first. Embedded in this theme of making decisions is the importance of recognizing problems, knowing what to do, and also understanding the situation at hand. Ultimately the student had to make a decision and this was integral to the critical thinking experience. Abbie, also an LPN student, perceived that critical thinking is used much less in a nursing home where she currently is employed. She described this as follows: “At the nursing home, I don’t, you know, have to critically think as much. If something goes wrong it is usually just one person, where
at the hospital, you’re going to have to really figure out.” She emphasized that there is a difference in critical thinking demands when making decisions when multiple patients are being cared for. She also differentiated the types of patients cared for in the hospital by explaining the situation as follows: “If I go to the hospital I have to figure out which one would be the worst off that I would need to go see first, whereas I really never had to do that before.” Both LPNs referred to decision making among multiple patients as significant to making use of their critical thinking and, therefore, being key to their growth.

The students who had previous education as paramedics also emphasized the concept of decision making during critical thinking experiences. Their explanation of critical thinking experiences included making decisions for patients cared for over an extended time. The former paramedics shared that while they had used critical thinking in their previous roles as a paramedics, they had never experienced caring for patients over a period of time or having to make care decisions that had long term consequences, and that the long-term cases they were exposed to in the clinical setting were more demanding of their own critical thinking. Laurie, a paramedic student, shared her perspective of critical thinking in nursing school as follows:

The whole aspect of, you know, you go to nursing school, especially as a paramedic, and think well it is not going to be a whole lot different. Well, it is. It is a lot different. You are not dealing with somebody for 10 minutes and then shooing them off to someone else.
The differences related to taking care of patients over long periods of time seemed to surprise the students who were paramedics. For example, Dennis, a paramedic, felt he had used critical thinking before but identified how it was different in nursing:

> If we have an extremely ill patient where I actually have to think, we are only 10 minutes away from the hospital. So I have to manage and make decisions for 10 minutes. Where this guy here, was managed over like an evening or overnight or maybe even a day.

Long-term decision making was a theme that emerged as paramedic nursing students described critical thinking experiences. An additional concept that accompanied decision making for paramedic students’ description of critical thinking was the facing of new situations. Laurie, a paramedic, identified making the decision making related to patient assignment for other students, a task she had never done before as a paramedic. She saw this decision making as important to the development of her critical thinking. She had never assigned patients to other health care providers before and completing this task included making difficult decisions that demanded much critical thinking.

Instructors also identified decision making as they described critical thinking experiences of their students. Data coded as “decision making” included situations in which students independently identifying situations that required more information and situations that required communication with other health care providers in order to obtain appropriate intervention. The suggestions for how this finding related to decision making may inform pedagogical approaches to clinical experience are discussed in the implications section that follows.
Contextual Understanding

As participants reflected on critical thinking experiences and evaluated what was learned as a result of the clinical situations, the theme of contextual understanding emerged. This concept was apparent during several phases of clinical judgment in the situations described. Having an understanding of the situation at hand or seeking appropriate resources to better understand the specific situation was evident in instructors’ and students’ descriptions of critical thinking experiences. Students realized that when they understood what was happening in the situation and developed a new or alternative understanding of clinical situations they were also using critical thinking. Contextual understanding was often evidenced by a deeper understanding gained during the situation. Charlene, a traditional nursing student, described critical thinking as when you “just put everything together.” She said that she used her knowledge and sought out information from her textbooks and realized that she was able to understand various aspects of her patient situations that she was unaware of prior to the clinical experience. She summarized it by saying: “All these things that are going on together really made you critically think: why is she here, what is going to happen next, does she need to go to the ICU?” Thinking about the specific situation and seeking understanding was significant to critical thinking for several participants and was identified as the reason students selected particular patient situations as developing their critical thinking.

The theme of contextual understanding also emerged as instructors described critical thinking experiences. Within the clinical experiences, instructors identified critical thinking situations as being those in which students researched patient problems
and investigated medical records as methods of improving understanding. Obtaining this contextual and deep understanding was needed as students had to rethink textbook approaches to patient problems and plan specific nursing actions. Sonia identified that a student who cared for a newly diagnosed diabetic patient who also had recently lost his job and had a problem with alcohol abuse used active listening to build a trusting relationship with her patient and reach understanding. The student communicated with the patient to develop an understanding of the difficult issues that complicated nursing care. Phyllis, a clinical instructor, described teaching strategies she used to facilitate student understanding of clinical situations including questioning and coaching about complex medical conditions. It was apparent that clinical situations that improved student understanding or promoted a deep, contextual understanding of the clinical experience also developed the students’ critical thinking abilities. How this finding can influence planning of clinical experiences and affect students’ critical thinking is further explained in the implications.

**Being Independent**

The theme of being independent emerged in both the student and instructor data as students and instructors defined critical thinking experiences. This was evident across all phases of Tanner’s (2006) Model of Clinical Judgment: noticing, interpreting, responding, and reflecting. Students appreciated the increasing independence afforded to them as they progressed through the nursing program, and they described being independent as instrumental in developing critical thinking. Both students and instructors cited being independent as important to their learning to be a nurse, and this theme
became particularly prominent during the follow-up interviews. All of the instructors used the concept of independence as they described critical thinking experiences, although it was used in a slightly different context than students. Instructors tended to describe situations in which the student was thinking and acting independently as demonstrating that the student was able to critically think in the specific situation. Students, slightly differently, described being independent as a positive factor in learning to be a nurse. The freedom from being closely supervised was seen as a positive influence on learning in the clinical setting. Nathan referred to a significant patient situation in which he made a decision “how to handle” an anxious patient who had the potential for violence. This situation was void of instructor interaction and he identified that this was important in developing critical thinking. He stated that he “liked it” because he was using his own “reign in how to handle it.” The idea of being independent was interwoven throughout “knowing what to do.” Students stated that recognizing significant patient situations and knowing what to do independently were synonymous with using critical thinking in the clinical setting.

The theme of independence also emerged in instructor data in which critical thinking experiences were described. In all but one situation, instructors identified situations in which students were able to independently recognize subtle patterns or deviations from patients’ baselines and make appropriate decisions for follow up as key examples demonstrating use of critical thinking. Alice described this concept as follows: “the fact that they recognize there is a concern, that there is something they should be addressing shows me that they are able to think critically about the situation.” Being able
to independently recognize and anticipate was articulated by Phyllis as “knowing what was going to happen next.” Instructors stated that students “did well” when they were able to act independently, and that some students were independent in their thinking were triggers for their identifying a certain situation as a critical thinking experience. Instructors seemed to describe “independence” as evidence that certain students were “already there,” already able to critically think. While students seemed to indicate that “independence” was part of the growth they needed to become good at critical thinking. This concept of independence and its implications for development of critical thinking for nursing education are further described in Chapter 5.

**Looking at the Whole Picture**

Looking at the whole picture emerged as a theme for both students’ and instructors’ critical thinking experiences. This theme was overarching when reflecting on reasons that students and instructors selected particular situations which they defined as “critical thinking” situations. The theme “looking at the whole picture” was closely related to many of the other previously identified characteristics of critical thinking experiences such as recognizing problems, contextual understanding, and being independent as illustrated in Figure 4.

Several students used variations of the phrase “looking at the whole picture” when describing critical thinking experiences. Kayla, a traditional nursing student, stated:

This particular experience allowed me to use critical thinking because I need to look at the whole picture. You have to look at the situation as a whole. There is a
story and it paints a picture, and the picture will tell you what you need to do and look for.

Figure 4. Theme of looking at the whole picture

Brandon, a paramedic, referred to being able to see the whole picture and apply knowledge gained with each unique situation. When asked to define critical thinking, he stated:

I always thought that critical thinking was where they give you a bunch of different information and you have to process that information so it makes sense to you and you have to apply it to all of those situations that you actually see. It’s not just reading and reciting the information but processing it and using it later on. Students described looking at each unique patient’s situation and variances that might influence nursing care when looking at the “whole picture” of each clinical
situation. Brandon referred to this ability to see the whole picture and apply knowledge he had as developing his “own little toolbox” to use for each patient he encountered.

The theme of seeing the whole picture consistently showed up in analysis of instructor data defining critical thinking experiences. Bonnie, an experienced nursing instructor, identified the development of a concept map, a required assignment for the fourth semester students, as “crucial” in learning to critically think. She identified development of a concept map allowed the student to “link all the components together and see how they relate.” Whereas students identified this assignment as difficult, completion allowed the students “to see the bigger picture of what is going on with their patients,” according to Bonnie, and this was key to her definition of critical thinking. Critical thinking experiences identified by instructors gave students the opportunity to see patients as complex with unique needs. Sonia, a clinical instructor, summarized this as follows:

This situation gave the student the opportunity to look at the patient as a whole and consider all the options. This experience reinforced that you need to look further than the obvious, and that this is accomplished through experience and critical thinking.

Seeing the patient as a whole was a theme evident in defining critical thinking for both students and instructors. Being able to do “see the whole picture” meant that students had a new, more holistic perspective of patients that might not necessarily fit textbook descriptions and that they were able to practice with open eyes seeing the uniqueness in each clinical situation.
**Knowing What to Do**

The theme of “knowing what to do” emerged in both student and instructor data as one of the most frequent phrases used when describing and defining critical thinking experiences during all phases of clinical judgment. When clinical situations allowed students to independently identify situations in which more information needed to be gathered or in which intervention was required, critical thinking was felt to be developing in students, according to both students and instructors. The students frequently cited that they were able to use previous knowledge gained during the nursing program to grasp the situation at hand, interpret the significance, and act appropriately to identify or prevent patient complications. “Knowing what to do” in these crucial situations were clear indicators to students that they were using critical thinking skills and included all of the concepts including recognizing problems, contextual understanding, decision-making, being independent, and looking at the whole picture. It was a culmination of all of the themes and product of critical thinking for students and instructors as illustrated in Figure 5.
Kayla, a traditional nursing student, identified the importance of needing to know what to do in the clinical situation that she encountered. She recognized that she needed to know important physical assessment data to collect, critical diagnostic studies to review, and how to prioritize actions based on her patient’s condition. Brandon, a paramedic student, summarized his concept of knowing what to do related to critical thinking as follows:

I think that is when there is critical thinking, when you can apply that you know something. You are not just repeating what you saw in the textbook and you are demonstrating that you can be useful in the situation.

Students identified that situations in which they were able to recognize and understand problems the patients were experiencing and in which they knew what to do next made...
these experiences important to their growth in critical thinking. Time and time again, students referenced that they felt that they were prepared, that they knew what to observe, watch for, think about, or investigate. Kayla, a nursing student stated:

When I arrived in the morning to begin care on my patient, I already had a basic idea on what my nursing care would entail. I knew that I needed to carefully monitor the patient’s cardiopulmonary status frequently throughout the day.

Many students also described in detail how they knew what to do, often referring to information they learned in the classroom or previous clinical experiences. As Kayla said, “you always need to think a step ahead and be prepared for what could happen.” Knowing what to do was often used synonymously with critical thinking. One student identified that having to look up the patient information the night before allowed the ability to know what to do. These preparatory experiences were helpful in aiding critical thinking for some students. Abbie, an LPN, described this approach to know what to do as follows:

Looking in to the history of my patients helped me decide who would probably require more attention. My first thought would have been with the chest pain. However, when after going through the chart, patient had frequent complaints of angina and had multiple tests done with each encounter.

The phrase “knowing what to do” was often used in sentences describing what nurses should be able to do. Kayla, a traditional nursing student, explained it as follows: “As a nurse, you need to know what measures are going to prevent his and implement them, and then evaluate for effectiveness.”
Most instructors also referred to “knowing what to do” as evidence that students were thinking critically during the clinical experience. Instructors described that students were able to recognize subtle but significant changes in patient conditions and followed up in an appropriate manner. Not only did the students know when to act but they also knew what to do in the particular situation. This included interventions such as additional physical assessment of the patient or communicating with another health care provider to initiate medical intervention. Phyllis, an instructor, identified that the student “used her critical thinking” to assess the patient, recognize the importance of the problem, and was able to identify what should happen next. Instructors identified that situations in which students knew what to do were instrumental in seeing that students were practicing critical thinking.

**Summary**

This chapter presented analysis of data gathered in this research study defining critical thinking experiences of senior nursing students. The data answered the research questions: what are students’ perceptions of critical thinking experiences that they feel they have had during clinical experiences, what are nursing instructors’ perceptions of critical thinking experiences that they feel have occurred during clinical experiences, and what are the commonalities and differences between the perceptions of the nursing students and the nursing instructors regarding their critical thinking experiences? The data were collected using narrative accounts and interview transcripts from both nursing student and nursing instructor participants engaged in a senior level medical surgical
nursing course in an associate degree in nursing program. Discussion of the findings and implications for nursing education are presented in Chapter 5.
CHAPTER V
DISCUSSION AND IMPLICATIONS

This chapter presents a summary of the findings of this study, provides an overview of the implications that may be made from this research, as well as limitations of this study, recommendations for future research, and conclusion.

The aim of this study was to investigate and describe students’ and clinical instructors’ understanding of critical thinking and define clinical experiences (also called critical thinking experiences) that were significant in allowing students to develop critical thinking abilities. Three research questions were used to guide this study:

- What are students’ perceptions of critical thinking experiences they feel they have had during clinical experiences?
- What are nursing instructors’ perceptions of critical thinking experiences that they feel have occurred during clinical experiences?
- What are the commonalities and differences between the perceptions of the nursing students and the nursing instructors regarding critical thinking experiences?

Participants included students and instructors active in the senior nursing course Advanced Adult Nursing Concepts. Participants provided written accounts of clinical experiences identified as significant to the use and development of critical thinking. Participants then submitted to semi-structured interviews intended to add detail and clarity to the situations they described. Student and instructor participants defined their unique critical thinking experiences in many ways using a variety of descriptors;
however, some common themes became evident across the majority of the experiences including a high level of complexity or ambiguity within clinical situations that warranted independent identification by students, the need to interpret findings presented within clinical situations, and use of decision making skills to decide what should be done next. Both students and instructors shared the value of these experiences as allowing students to attain new knowledge, use existing knowledge, and gain a deeper understanding of clinical situations.

In the following sections, I discuss the major findings of this study organized by research questions. The implications of this research for nursing education and suggestions for future research are discussed.

Discussion

One of the findings of this study was that Tanner’s (2006) Clinical Judgment Model was effective and useful in looking at critical thinking experiences and students’ and instructors’ perceptions of critical thinking. The purpose of the model is to describe how nurses think in clinical situations that are complex, underdetermined, and rapidly changing (Tanner, 2006). Using this model as a framework for this study was useful in that it allowed for organization of data describing critical thinking experiences into phases of the thinking process. Many themes that developed were able to be categorized within the Tanner phases: noticing, interpreting, responding, and reflecting. Whereas I found Tanner’s (2006) Clinical Judgment Model useful overall, some themes that emerged from the data, such as independence, clinical instructor involvement, and knowing what to do, that did not fit singularly into one of the phases and these are
presented independently. For example, many of the students’ accounts included the theme of “independence” as they practiced in the clinical setting with little mention of clinical instructor interaction during critical thinking experiences. This was significant because the role of the clinical instructor is commonly defined to include supervision and guidance of student practice in the clinical setting. This theme of “independence” is discussed later in this chapter.

**Students’ Perceptions of Critical Thinking Experiences**

Students provided rich and detailed descriptions of the clinical situations identified as significant to the development of their critical thinking abilities. The majority of the situations described encompassed preparing for and independently providing nursing care for complex patients in the clinical setting who were experiencing changing needs and complicated problems. Some trends of the data fit neatly into the Tanner phases noticing, interpreting, responding, and reflecting.

**Noticing**

Certain “trigger” incidents were described as critical thinking experiences. This study validated the idea of identifying triggers as key incidents worthy of focus during clinical experiences that may lead to the development of critical thinking.

An important finding was that students clearly identified that critical thinking experiences have “beginnings” or triggers. These beginnings were most often recognition of an abnormal assessment finding, such as the low blood pressure identified by Gayle, or that knowing that something was “just not right” as Monica explained about her patient who had a subtle change. Tanner (2006) identified clinical situations resulting
in critical thinking and clinical judgment often had beginnings and these were referred to as “triggers.” Students identified that recognizing an abnormal pattern of response or finding in a patient often initiated a clinical experience that helped to develop their critical thinking abilities. Included in this recognition is the concept of knowing the patient and recognizing situations that are different from the patient’s typical response or clinical pattern (Tanner, Benner, Chesla, & Gordon, 1993). Tanner (2006) concluded that “sound clinical judgment rests to some degree on knowing the patient and his or her typical pattern of responses, as well as engagement with the patient and his or her concerns” (p. 206). This concept of knowing the patient and recognizing deviations supports the foundational work of Benner and Tanner (1987) as they examined clinical judgment of nurses in an intensive care setting that linked knowing the patient and salience in thinking to effective nursing skills and significant pattern recognition. The concept of knowing the patient is reflected in contemporary nursing literature as an integral component of safe and effective nursing care significant when planning high quality nursing care (Kelley, Docherty, & Brandon, 2013; Zolnierek, 2014). Beginnings of the critical thinking experiences also included identification of risk for complications.

The “trigger” experiences are tightly linked to knowledge of the patient, and the data validated the need for nursing students to study their patients before beginning the clinical experience—indeed, this prep work became integral to the critical thinking experience. Some student participants in this study were able to recognize that particular patients were at risk for serious problems as Nathan did when the patient he was assigned to became increasingly anxious due to unmet needs. Nathan was also aware of a history
of violence with this patient. Again, in this situation the student was engaged in “knowing the patient” and recognizing patterns of behavior that signaled potential complications. Tanner (2006) concluded “sound clinical judgment rests to some degree on knowing the patient and his or her typical pattern of responses, as well as engagement with the patient and his or her concerns” (p. 206). The importance of knowing the patient, understanding baseline foundational knowledge, and comparing patients to the standard or expected patterns of responses became integral to the beginnings of critical thinking experiences. Students relied on previously learned knowledge or gained new knowledge as they investigated the patient’s medical record and completed preparatory work prior to the clinical experience in an effort to know the patient and recognize when deviations presented. The findings suggest that knowing the patient and recognizing deviations is a prerequisite for students to engage in critical thinking experiences in the clinical setting.

It is worth noting that nursing students with previous health care degrees, namely LPN and paramedic, described situations a bit differently. Although Monica, a paramedic, identified a critical thinking experience that began with a deviation from baseline, the other two paramedic nursing students and two LPN nursing students attributed clinical situations that were new and different for them. They described the significance of the situations as stemming from the fact that the encounters were “different” than situations they experienced in previous roles. The students who had previous healthcare degrees seemed more confident in their ability to recognize deviation from normal or patterned changes but referred to the novelty of the situation as important
to development of critical thinking. Understanding each student’s unique learning needs should be considered when planning clinical learning experiences that are valuable for students of varied backgrounds in order to maximize development of critical thinking.

Research is scarce identifying differences in educational strategies for LPN and paramedic students in nursing education. Based on the findings in this study, clinical instructors should consider unique learning needs of nursing students, taking into account students’ backgrounds and previous experience into consideration when planning clinical learning and patient assignments.

**Responding**

Persistent communication and preparatory work were themes that emerged from the data that fit the responding phase of Tanner’s (2006) Clinical Judgment Model. After the nurse has interpreted a situation, typically an appropriate course of action is determined, and this is considered responding. Experienced nurses often simultaneously interpret and respond to patient situations based on their level of expertise and intuition.

**Persistent communication.** One of the themes to emerge from analysis of student data was that persistent communication was a means of processing or responding to the clinical experience. Students in this study were in the final semester of nursing school and did not appear to have the level of expertise, intuition, or ability to respond immediately on their own to most clinical situations. These data supported the need for persistent communication by students in place of action. Repeated, persistent communication was the action that students took most after interpreting clinical situations. This communication was used to bring findings to the attention of someone,
namely the primary nurse, who had the ability to act on them, or to confirm findings with a more experienced nurse. Students primarily described the importance of communication of patient findings with the primary nurse who was also assigned to the patient. Communication with nurses on the medical unit was used most often by students in this study in responding to the initial trigger of the critical thinking experience. Students often responded with “persistent” communication, meaning, they continued to share patient findings with primary nurse and at times, other nurses on the unit until appropriate action or acknowledgement occurred. Persistent communication meant that when nurses would not acknowledge situations that the student deemed significant, the student continued to persist and if needed, use the chain of command to achieve the recognition they were seeking in serious patient situations. The need for persistent communication has implications for nursing education in preparing assertive but confident and professional nurses who can identify significant patient findings and trust their knowledge and intuition when something “just is not right.” Nurse educators must practice strategies to facilitate the skill of confident and calm communication and knowing when to follow the chain of command to assure patient well-being.

Students mentioned very little communication with any other health care provider besides the primary nurse. This is consistent with the position of the nursing student, who is often treated as dependent and limited in effectiveness due to their lack of licensure and knowledge. Benner et al. (2009) completed a landmark study that had four key aims: to delineate the practical knowledge embedded in expert practice, to describe the nature of skills acquisition, to identify institutional impediments and resources for
development of expertise in nursing, and to begin to identify educational strategies that encourage the development of expertise. Whereas the study by Benner et al. (2009) included 130 practicing floor nurses and not nursing students, several of the concepts are helpful in understanding the development of practice expertise in nursing students. When describing the progression of development of expertise, proficient nurses are able to recognize goals and salient facts but are not always immediately confident in taking action on the findings. Hence, the primary means of intervening is often communication with nurses who have a higher level of expertise or “delegating up” (Benner et al., 2009, p. 43). As students are gaining experience in clinical practice but not yet advanced in their knowledge and ability to respond, reliance is placed on the expertise and judgment of more experienced nurses or clinical instructors. This was a concept supported by the student data in this study as was the need to persistently communicate with experienced nurses and/or clinical instructors.

Some participants in this study expressed concern when they shared significant patient information with other nurses only to be ignored. This sometimes resulted in little action or intervention with the patient. This perception that they were being ignored was a source of frustration for students as they cared for assigned patients; for one thing, they felt limited in their abilities to communicate with any other health care provider besides the primary nurse. Even when the students communicated with the clinical instructor, as Monica did when the patient’s blood pressure was low, they knew that medical intervention would not happen until the primary nurse acknowledged significance of the situation and that it warranted contacting the medical provider. Benner et al. (2009)
explained that, as a nurse gains competence, he or she is more discriminating about the practice of other members of the health care team. The senior nursing student who has already had several clinical experiences in their nursing education becomes more confident in his or her skills and abilities and often experiences frustration when he or she feels limited in their ability to act. The primary nurse, in essence, becomes the gatekeeper for initiating medical communication or ordered intervention. In some instances, participants in this study described that nurses on the medical units were not always open to student interaction or willing to coordinate patient care with the nursing students. Hartigan-Rogers et al. (2007) investigated student nurses’ perceptions of third and fourth year clinical placements and recommendations they had for future clinical experiences for future nursing students. Participants noted that clinical environments were considered non-supportive and students felt like they were continually having to prove themselves when nursing staff seemed stressed, intimidating, and unprepared to accept and teach students. This is an area of concern when students are expected to learn the role of registered nurse and be prepared to act in such a role involving complex prioritizing and decision-making in patient care. Conflict in the clinical environment has been shown to create negative outcomes for nursing students, nursing staff employed in the clinical facilities, and faculty (Myrick et al., 2006). These findings are significant because students in the final semester of nursing school will soon graduate and be expected to perform independently in providing patient care and communicating with other healthcare providers and physicians. The fact that students experience barriers that can prevent learning to communicate and follow up appropriately in the capacity of a
registered nurse supports findings that programs of nursing have been unable to adequately prepare nurses for independent practice (Benner et al., 2010; Berkow et al., 2008; Fero et al., 2009). Implications for nursing education addressing barriers in communication and strategies for improvement are discussed later.

**Preparatory work.** Tanner (2006) concluded that nurses use a variety of reasoning patterns to process patient situations including analytical processes, intuition, and narrative thinking. This study showed the reliance that students had on analytic processes to interpret the situation at hand. Analytic processes are used to break down a situation into its elements and weigh alternatives in a systematic and rationale way. Tanner (2006) identified that this type of analytic process is used when “one lacks essential knowledge” as may be the case in students preparing to be nurses, when multiple options or priorities are possible, or there is a mismatch between what is expected and what is actually occurring. The reasoning patterns of intuition and narrative thinking are typically evident in experienced nurses. Often analytic patterns of reasoning involve methodical assessment of a patient and comparison of the findings with textbook information. Students in this study validated the benefit of analytic processes used in the assignments and preparatory work required for clinical experience as promoting development of critical thinking.

This study illustrated that planned written clinical assignments were valuable to some students and identified by instructors as a means of developing critical thinking abilities. Assignments that were integrated into the *Advanced Adult Nursing Concepts* course included preparation the night before, completion of a nursing care plan the day of
the clinical experience, and one concept map that was to be completed during the 10-week course. Charlene, a traditional nursing student, identified the concept map assignment as a way of identifying understanding of particular clinical situations and found it useful in the development of her critical thinking. This post-clinical assignment allowed her to integrate many components of the patient situation and was key to the development of her critical thinking, according to Charlene. Other studies have also supported concept mapping as a useful tool for development of critical thinking in nursing students (Lee et al., 2013; Yuan et al., 2008). Concept maps were originally developed by Novak (1998) as a means of assimilating new material through diagrammatic arrangement of key concepts. The findings support other studies that have illustrated how maps provide for visualization of concepts related to a particular patient’s care and allow the student to see relationships and meaning of interrelationships between conditions and treatments (Kern, Bush, & McLeish, 2006; Jaafarpour, Aazami, & Mozafari, 2016). This study supports the importance of thoughtful and meaningful assignments such as concept map development as means for developing critical thinking abilities during clinical experiences.

**Reflecting**

The study data were rich in detail as students reflected on perceived outcomes resulting from critical thinking experiences. The most significant theme was acquisition of deep understanding, which was representative of reflection-on-action described by Tanner (2006) and the step signifying completion of the cycle of phases within the Clinical Judgment Model. Reflection-on-action is defined as “what the nurses gain from
their experience” that may contribute to their overall knowledge. Reflection, itself, requires acknowledgement of outcomes or what occurred as a result of the situation or knowledge gained. Deep understanding was gained as students practiced reflection-on-action and this was consistent with Tanner’s (2006) model of clinical judgment. There were, however, limited descriptions of reflection-in-action by students describing critical thinking experiences. In the reflecting phase, reflection-in-action refers to the “ability of nurses to ‘read’ the patient” (Tanner, 2006, p. 209) during clinical care and is described as tacit and not obvious. Students may not have the experience or knowledge base to recognize this type of thinking and reflecting as the situation is occurring. This provides for further discussion in the implications of this study.

**Deep understanding.** Deep understanding was often stated as a result of the critical thinking experiences described by the students. As students reflected on what they had learned during the critical thinking experience, they described clinical situations that gave them a deeper understanding of patient conditions, associated complications, medical treatments, and diagnostic testing. These findings are consistent with recommendations made as a result of the study by Benner et al. (2009) that in order to improve student learning, planned clinical assignments need to expand beyond provision of total care but need to enhance students’ understanding. Students in this study described that clinical experiences that gave them a renewed understanding of textbook problems with new and different perspective were integral to the development of their critical thinking. Some students in my study used the term “thinking outside of the box” to describe the process used to come to this deep understanding. Nielsen (2016) used the
term “deep learning” to describe the understanding that students achieve when they are able to integrate theory and practice in meaningful ways. Dean and Asselin (2015) described this as going beyond the facts to deep exploration of key concepts.

For participants in my study, on the night before clinical experiences, students were expected to do extensive preparation to understand the concepts related to their assigned patient and be prepared to provide safe care with a complex understanding of rationale for treatments ordered. Often, upon arrival to the unit, patient situations have changed or the student discovers that variations are present that were not anticipated. Clinical experiences are not always predictable and do not fit the textbook situations presented in class. This can result in the development of meaningful and deep learning as students consider what they have discovered, the situation at hand, and reformulate nursing plans to adjust to changes in treatment and salience of the situation. Clinical situations that were described by participants as helping them to develop deep understanding and critical thinking were those that allowed the student to see the whole picture of the patient. This meant that these situations had ambiguity and included variations from the classic picture of the conditions often described in the classroom or in textbooks. These situations included varying levels of uncertainty forcing the student to rethink their original plans they had developed the night before. Students described deep understanding using phrases such as “seeing the whole picture” and the ability to “paint a picture of the patient.” Looking at the situation as a whole meant that students needed to look beyond the obvious and investigate and understand all aspects of the patient’s condition and associated care. Students referred to connecting patient conditions with
particular treatments and understanding reasons for changes in the patient’s status.

Charlene described how during her investigation and attempt to see the whole picture of the patient, she “had a lightbulb go off” in her head. This phrase of “lightbulb go off” is of interest in that she was suddenly enlightened in understanding the associations she was seeing in her patient. Charlene’s “lightbulb” experience demonstrated the importance of the reflection step. The findings from this study illustrate the need to seek out clinical situations in which patients have complex problems and require the student to think and question what they are seeing and hearing and, ultimately, to reflect, all in an effort to develop a renewed understanding. The students, who were in the final semester of nursing school, learned to think critically by being challenged to acquire a deep understanding of complex clinical situations and to reflect on those situations.

**Independence**

The theme of independence was apparent in both student and instructor data and was evident across the phases of clinical judgment in students’ data. Independence was a theme not associated with one particular phase of Tanner’s (2006) Clinical Judgment Model. Analysis of student data suggests that independence during clinical experiences was important to all phases of critical thinking experiences. Some students described a progression experienced over the semesters as they became more independent in making decisions and planning nursing care. Being allowed to engage in clinical situations in which students felt independent was significant in their minds to promoting their own critical thinking according to many. Senior nursing students felt like their ability to provide care and nursing judgment was enhanced when they felt independent and
confident in their thinking and care they delivered. Along with practicing independently, students referenced the ability to self-regulate by examining their thinking processes and making corrections to fit the patient scenario. Facione (1990) described cognitive skills of critical thinking to include self-regulation as a cognitive skill necessary for this type of thinking. Students described that, when they felt like their judgment was trusted by the clinical instructors and primary nurses, feelings of independence enhanced their ability to think critically. Gayle described the influence of her clinical instructor in development of independent thinking within a clinical situation in which a patient was developing cardiac failure. She explained it as follows: “You know I think without the instructors telling me to be sure of my assessment and people saying ‘No, we have taught you, you know things,’ I would have just been like ‘I am messing up’, you know?” The instructors taught her to be confident with her independent thinking and assessment skills and this confidence allowed for follow up and intervention in a serious situation that would have resulted in a poor outcome had she not acted in this way. Papp et al. (2003) also found that students felt they were primarily responsible for making the most of clinical experiences in the clinical setting and that independence was essential to carrying out this responsibility. Students in my study described that they were expected to be aware of their own potential and limitations and be self-directed with a positive attitude. This is an important finding that provides evidence for clinical instructors and nursing staff involved in the clinical experience—to encourage and support independent practice while having enough safety mechanisms in place to assure patient safety.
Lack of Clinical Instructor Involvement

One of the most interesting findings in this study was the lack of references to clinical instructor interaction as students described critical thinking situations. This was a theme that was prominent in all but one of the students’ accounts of critical thinking experiences. This finding did not fit the phases of the Clinical Judgment Model (Tanner, 2006) and therefore is discussed independently. The initial assignments that described critical thinking incidents submitted by students were almost completely void of instructor interaction as were mentions of clinical instructors absent in follow-up interviews. I had to pry to get the students to talk about the instructors who were present on the clinical units with them as critical thinking experiences were discussed. When I questioned students about the role of the instructors, two students explained that the instructor was aware of the critical thinking experience while the others stated that the instructors were “too busy.” This is consistent with other studies that have also identified interactions with clinical instructors limited to communication regarding medication administration, laboratory values, and time management rather than understanding the complex concepts of patient care (Ironside, McNelis, & Ebright, 2014). During the follow-up interviews, only two students identified significant interaction with clinical instructors during the critical thinking experiences. Students seemed to be independent as they navigated the patient care arena on the clinical unit (which is, of course, something they valued as discussed in the previous section). Kayla, in contrast, shared that discussion with her clinical instructor prior to providing care was valuable to the experience. She described it as follows:
After report we went back and had preconference, and we discuss. So with my clinical instructor, we discussed my patient, we talked about why my patient was there, what her lab values were, what those meant, what I was looking for. That was all discussed in preconference, you know and then throughout the day we would check in with her.

Monica, a paramedic student, described another positive instance of clinical instructor interaction. As she described critical thinking and its presence during clinical experiences she stated:

The three instructors that I have had so far have been very intense on critical thinking. My last instructor was wonderful. In our post conference she wanted us to think and asked us ‘what are you thinking about at this point?’ It has been a good experience with the instructors I have had.

Unfortunately these positive comments were limited to two of the 11 nursing student participants. During the follow-up interview, Beth shared a different perspective of her clinical instructor. When asked to describe the interaction of her instructor during the critical thinking experience, she shared the following:

I really liked my instructor, I mean, but literally the only time I saw her was meds, you know, stuff like that, stuff I had to have her for. Beyond that she was really not there to ask me the questions of why. Like this whole scenario, I had to think of it on my own, it wasn’t that it was like a requirement before we went to the floor.
Abbie shared a similar perspective during the interview when describing the involvement of the clinical instructor within the critical thinking experience:

It was more just me. She really didn’t . . . she really didn’t come in the rooms except if we gave medicine or something like that. She really wasn’t involved, if there was something going on she told me to go get the other nurse. So it was really either me or the nurse that was caring for the patient.

The lack of instructor involvement was evident within three of the clinical settings that students were assigned. Dennis explained his perspective on the lack of involvement as follows:

I know that as a clinical instructor, it is hard to talk to every . . . I mean, I just don’t think they can talk to every single student at length about what is going on because there is 6 to 7 or maybe 8 of us, or whatever, and it is just hard for them to do that.

Clinical instructors are expected to be competent, experienced, knowledgeable, flexible, energetic, and patient while balancing structure with spontaneity. They are often expected to guide the students’ application of theory in clinical practice (Bradshaw & Hultquist, 2017). Data from this study support the challenges that exist to meet these goals. Students and faculty seemed at times to be engaged in practices that are repetitive and possible inconsequential to the development of competent practitioners. Ironside and McNelis (2010) found that nursing faculty surveyed in prelicensure clinical education described clinical situations in which the majority of their time was spent supervising students administering all of the patients’ medications during the clinical experience.
This was a time-consuming, repetitive task often resulting in exhaustion of the faculty that limited time available for instructors to interact with students in any other capacity including other activities used to develop critical thinking. This was seen as detrimental to the quality of experiences for students in the clinical setting. The findings of my study seem to support this as well in that students described clinical instructors as being unavailable during critical thinking experiences because they were supervising medication administration or were simply too busy with other activities. The increased use of part-time clinical faculty (AACN, 2015a, 2015b) has expanded the use of expert nurses that have little to no formal training or education in teaching, development, and supervision of clinical experiences (NCSBN, 2008; Tschannen et al., 2014). This lack of formal training in curriculum development, teaching strategies, and evaluation methods may result in expert nurses who are employed as part-time instructors spending the majority of clinical time on instructional approaches, such as repetitive medication administration, that are time consuming and may lack meaningfulness to development of critical thinking. Carlson and Idvall (2014) investigated student nurses’ experiences of the clinical learning environment and found that positive supervisory relationships had the most impact on overall satisfaction with the experience. Students cited that working alongside engaged and knowledgeable preceptors and supervisors was the best indicator of a positive experience. These findings are important to consider when planning training and education for nursing clinical instructors and are discussed later.
Knowing What to Do

The theme of knowing what to do became evident across all phases of the Clinical Judgment Model (Tanner, 2006) and therefore is discussed individually. In the noticing phase, students recognized the ability to accurately identify abnormal situations and know what to do in response to these findings. Within the interpreting phase, students knew how to apply and use analytic reasoning patterns. In the responding phase, students acknowledged that their ability to act was limited but they knew to communicate with other health care providers to gain the action needed within the situation. As students reflected on critical thinking experiences they realized that because of their experiences, they gained a better understanding of what to do should they encounter a similar situation in the future. Students valued the critical thinking experiences which taught them to investigate, find out pertinent information, and become more confident in their knowledge and ability to trust their intuition, their “knowing what to do.” Despite some of the research that has shown the majority of nursing students’ time in clinical is completing tasks and passing medications (Ironside et al., 2014), students in this study did not reference such routine tasks as important in their development of critical thinking. In fact, tasks were rarely mentioned in the critical thinking experiences described. Instead, valuable clinical experiences were those that included synthesizing knowledge in the context of complex patient situations, evaluating the plan of care, communicating with other nurses, and using creative and alternative approaches to solve patient issues. These types of activities have been identified as essential to the development of a competent nurse (Benner et al., 2010) and this study illustrates the value that students
place on these situations for their learning. Students were enthusiastic when they were able to say they “knew what they were doing.” It was important to them when they were doing the right thing for patients and influencing the care provided. Gayle described her feelings as she made a difference in her patient’s care by sharing: “Honestly, it was one of the first times I felt like a nurse.” Students were appreciative and grateful for their education and learning opportunities in clinical experiences. This study found that those situations students described in which they “knew what to do” resulted in feelings of confidence and role acquisition and were significant in the development of their critical thinking.

**Instructors’ Perceptions of Critical Thinking Experiences**

Instructor data were less rich in detail than the student data and reflected interpretation of the situations experienced by the students. Instructors often referred to their enacted strategies of interacting with students within critical thinking situations and the value that this interaction had on development of critical thinking abilities. Of interest is that students and instructors did not reflect on the same situations and students rarely mentioned instructor interaction. This mismatch serves as a basis for implications from this study and is discussed later in the chapter.

**Noticing**

Certain trends in the data from the noticing stage were consistent between students’ and instructors’ data. Both were able to clearly identify that critical thinking experiences have beginnings and often included identification of an abnormal assessment. Instructors, in addition, identified that some students lack confidence, which
can inhibit timely identification of abnormal findings and appropriate communication to others by students as will be described in the following section.

Similar to students’ data, clinical instructors identified that beginnings of the critical thinking experiences were most often associated with identification of a significant or abnormal patient finding. The fact that students were able to recognize the finding as important was a key component of the clinical experience according to the instructors. Opportunities identified as significant for development of critical thinking were situations in which students had to consider multiple factors related to the situation at hand including identification of normal findings, contextual factors related to the specific patient or situation-specific data, and level of significance. These experiences clearly have beginnings. Tanner (2006) recognized that complex patient situations requiring analysis and synthesis of knowledge, consideration of past experience, and situation specific data are responsible for developing clinical reasoning.

Consistent with previous research, instructor participants in this study identified that some students experience anxiety and lack confidence in their identification of abnormal or unexpected patient situations which may cause them to hesitate in bringing them to the nurse or instructor’s attention. As Killam and Heerschap (2013) found in their qualitative study to explore senior nursing students’ perceptions of challenges in the clinical setting, students identified stress and fear related to perceived lack of sufficient knowledge to provide and discuss patient care. Sharif and Masoumi (2005) found that nursing students felt anxiety and stress during clinical experiences most often due to feelings of incompetence, lack of knowledge, and lack of skills to care for the patients
assigned to them. In this study, Alice, an instructor, identified that students often lack confidence in their abilities and fear being wrong in their interpretation. She shared the following as she described her role in clinical experiences:

I think my role is more of a support for the student because when they have these concerns or thoughts, you know they want affirmation that they are correct in the path they are going. You know they don’t always get that from the staff.

She goes on to explain that this fear may, in effect, paralyze a student, and prevent effective processing of critical thinking experiences. This finding supports the key role of the instructor-student relationship in which students feel like they are able to approach the instructor with their suspicions or findings without fear of being embarrassed or feeling incompetent. Students need to feel like the student instructor role is one of support and guidance so that critical thinking experiences especially so that “beginnings” are brought to the instructors’ attention for affirmation of findings, discussion, and planning appropriate nursing care.

**Interpreting**

Rethinking the obvious was a theme that was apparent in both students’ and instructors’ data but showed up more prominently and in detailed fashion in the instructor data. This theme of rethinking the obvious was categorized within the interpreting phase of the Clinical Judgment Model (Tanner, 2006). Instructors described methods used by students as they interpreted the situation at hand, often referring to recollection of knowledge acquired in the classroom, textbooks, or previous experiences as forming the basis of the rethinking. Similar findings were evident in students’ data describing use of
foundational knowledge, completion of preparatory work, and review of previous clinical situations used to interpret critical thinking experiences.

**Rethinking the obvious.** The findings from both students’ and instructors’ data identify that clinical situations in which the student has to generate alternative plans other than typical or standard patients with similar medical conditions, as valuable to the development of their critical thinking. Tanner (2006) described clinical situations that are “underdetermined, ambiguous, and often fraught with value conflicts among individuals with competing interests” (p. 205) as situations that require clinical judgment and the use of critical thinking. Situations in which students had to rethink the obvious or textbook situations due to complex or compounding medical problems were found valuable by several students and instructors in this study. Inherent in the idea of rethinking the obvious, however, is the assumption that students have sufficient prerequisite or textbook knowledge to do the rethinking in an appropriate way. Montgomery, Killam, Mossey, and Heerschap (2014) found that lack of sufficient knowledge was identified by third year nursing students as the biggest threat to patient safety as students provided care in the clinical setting. Beginning or student nurses must learn how to recognize complex situations, apply theoretical knowledge, and then develop practical knowledge relevant to the patient situation at hand. Foundational knowledge is an essential basis for determining standard care; interpretation of the salience of the situation is also needed to modify or plan alternatives. This study illustrates the importance of having foundational knowledge to base initial understanding and engaging in patient care situations that require rethinking the obvious. This came
through in both the student and instructor data. Efforts to achieve this knowledge base can be accomplished by the clinical instructor as he or she previews patients on the medical unit and provides guidance in making students’ assignments. Incorporating patient situations that are unique and thought provoking into the clinical experience will allow students to practice salience in critical thinking and help them rethink the obvious during provision of nursing care. In addition the use of a constant comparison discussion of textbook and actual patient situations will allow review of textbook solutions contrasted with modified solutions required for unique patient circumstances.

**Commonalities and Differences Between Students and Instructors**

Both students’ and instructors’ data illustrated the importance of incorporating independent learning and decision making into clinical experiences. Students appreciated having a degree of independence in decision-making and nursing care in their final semester of the nursing program. Instructors identified that practicing independent thinking when planning nursing care promoted critical thinking development. Instructors also described that when students were demonstrating independent practice they were not only developing but also demonstrating their critical thinking abilities. Nursing education curriculum typically incorporates progressive independence in clinical performance, which typically results in a practicum experience during the final semester of nursing school. When students described independence, it was not just from clinical instructors but also independence from the primary nurses also assigned to patients on the hospital units.
This study shows that students’ abilities to recognize problems and abnormal findings specific to the patient being cared for is an essential feature of critical thinking experiences from both the students’ and instructors’ perspective. Students needed to recognize potential problems for which the patient was at risk and also needed to have the ability to identify when actual problems were occurring. Much of nursing curriculum is focused on problem prevention related to specific medical conditions. While the importance of this cannot be minimized, emphasis on being able to identify when problems are occurring and next steps that should be taken are key to critical thinking. Both students and instructors acknowledged the importance of contextual or situational knowledge prior to the clinical experience. Knowing the context of particular situations and understanding how it affects the care of a particular patient is an important component of critical thinking experiences. This type of knowledge is, of course, not always readily at hand as patients’ conditions change and cannot be simulated in campus settings or written case studies.

There were two noteworthy differences between student and instructor data including varied perceptions of clinical situations that were important for critical thinking and instructor involvement and its impact on development of critical thinking. While instructors and students shared clinical settings and experiences, they did not describe the same events when identifying critical thinking experiences. Participants were instructed to select any clinical experience that they perceived as significant in the development or use of critical thinking. This intentional design allowed the maintenance of student and instructor voice in the data, it also revealed a potential disconnect that existed between
the two participant groups. There was only one situation in which Monica, a nursing student, and Alice, a clinical instructor, seemed to describe a similar experience of a patient with an abnormally low blood pressure and an indifferent primary nurse on the hospital unit. Since students and instructors were not aware of critical thinking experiences shared by each other, and confidentiality was to be maintained, this situation could not be verified. Other than this one instance, all events described by students and instructors seemed completely unique. This has implications for clinical education in that students and instructors may be unaware of events or situations identified as important to critical thinking unless a more structured approach to identification is established. Strategies to enhance this discourse are discussed as implications for clinical education in nursing.

The second noteworthy difference between student and instructor data was the perceived level of instructor involvement and its influence on development of critical thinking abilities. Data suggested that instructors foregrounded their presence and interactions much more than students did. Bonnie, a clinical instructor described her approaches to assist students in their development of critical thinking as follows: “For pre-conference, I do a lot of questioning and drilling, when we are going to do the med passes, same thing. So, those pieces, the students have said they find helpful.” While Bonnie perceived this to be a useful strategy to developing critical thinking abilities, no students referenced this type of activity within critical thinking experiences they identified. During the interviews, each instructor shared strategies or activities they employed during clinical experiences in an effort to develop critical thinking including
questioning, telling students what to do next, having students correct assignments, and
discussing patient situations. Students in this study, on the other hand, rarely referenced
instructor interaction or involvement in the critical thinking experiences described. These
findings, again, represent disconnect between students and instructors with regards to
strategies that are perceived as useful in developing critical thinking during clinical
experiences and have implications for clinical education that are discussed later.

**Limitations of the Study**

The goal of this study was to investigate and describe students’ and instructors’
understanding of critical thinking and define clinical experiences that were significant in
allowing students to develop critical thinking abilities. Data collection, analysis, and
discussions are limited by some factors inherent in the study.

The first limitation is sample selection and size. Students and instructors were
purposefully selected from a small class population of 34 students enrolled in *Advanced
Adult Nursing Concepts*, which was scheduled in the students’ final semester of the
nursing program. Of these 34 students, 11 volunteered to participate. All who
volunteered were selected as participants in an effort to enhance sample size. There were
only 4 clinical instructors in *Advanced Adult Nursing Concepts* and all chose to
participate. The small sample from one particular nursing course may be viewed as a
limitation of this study; however, following written accounts and 15 interviews, no
additional data emerged. The data trends were redundant. Perhaps different findings
may have resulted from the study had more students participated.
The second limitation is that all 4 of the instructor participants were part-time clinical instructors. While many programs and courses employ both part-time and full-time clinical instructors, *Advanced Adult Nursing Concepts* only employed part-time instructors were participants in this study. Findings might have been different or enhanced had there been a representation of both part-time and full-time instructors.

My role as nursing faculty and a clinical instructor in the same nursing program as the students and instructors might be seen as a limitation in that participants had previous interactions and some form of relationship with me. There are several factors that were taken into consideration regarding this situation. Students who participated in the study had all been students enrolled in my courses in past semesters. This could be seen as a benefit in that there were established relationships with many students which may have promoted open discussion and sharing of information particularly in the interviews. My familiarity with the students, however, could also be seen as a limitation in that students might have perceived a potential power imbalance in that I am a faculty member in their program. I made every attempt to reinforce to students that I would not be involved in evaluation of their performance in *Advanced Adult Nursing Concepts* in any way, or in any future nursing courses within the program. I assured students that all data would remain confidential, and they could exit the study at any time. I did not perceive any uncomfortableness during interviews or interactions with the student participants. My relationship with the part-time clinical instructors was that of colleague and coworker. I was not involved in the supervision or evaluation of the clinical instructors in any way. I reinforced that all data would be kept confidential and that all participants could exit the
study at any time. There were no perceived conflicts shared. All participants remained in the study throughout the duration of the study.

The final limitation is that students and instructors reflected on different critical thinking experiences. They were able to select any experience that was perceived as significant to them and most selected different experiences to write about. The purpose of allowing students and instructors was to maintain the voice of the participant and to examine situations that were perceived as meaningful to each. This may be seen as a limitation as this approach did not allow comparison of students’ and instructors’ perspectives regarding the same experience. Findings, particularly examining the commonalities and differences between students and instructors, may have been different had they reflected on the same clinical situation. The need to perhaps have students and instructors write about the same incidents is further discussed in future research.

Implications

As programs of nursing are challenged to produce competent graduate nurses able to critically think and solve complex health care problems, and health care resources and nursing staff become scarce, recommendations for improvement in clinical education are needed to enhance student learning so that nursing graduates can hit the ground running. The findings from this study have implications for nursing education in the clinical setting in three areas: enhancing strategies to maximize critical thinking experiences, including ample learning experiences in clinical settings, and expansion of preparatory and professional development for clinical instructors to improve efficacy in facilitating clinical experiences that promote critical thinking.
Maximizing Critical Thinking Experiences

The findings from this study and other studies support the need for intentional planning for and recognition of critical thinking experiences in advance of clinical experiences. Several themes such as miscommunication and lack of interaction with clinical instructors emerged that pointed to the need for this type of planning in an effort to develop critical thinking abilities of nursing students. As supported in the literature, critical thinking had varied meanings for the participants in this study. As critical thinking experiences were described, it became clear from the data that critical thinking experiences have beginnings or triggers; however, recognizing them was not always easy for nursing students. Both students and instructors in this study identified that the phrase “critical thinking” was minimally used or absent during clinical experiences. Upon review of the Advanced Adult Nursing Concepts course syllabus, there was minimal mention of critical thinking, clinical reasoning, or clinical judgment. These findings identify a need to not only understand clinical situations that are important in promoting development of critical thinking in nursing students but also a need to define common language related to critical thinking and its use within the nursing curriculum. Most research investigating use of clinical judgment in nursing has been designed to explain how nurses use and develop this way of thinking during patient care situations. The Lasater (2007) Clinical Judgment Rubric was developed originally to describe the trajectory of clinical judgment development for nursing students using Tanner’s (2006) Clinical Judgment Model as an underlying framework. More recently, the Lasater Clinical Judgment Rubric (Lasater, 2007) has been used in several studies to describe
nursing students’ level of performance in using clinical judgment mainly during controlled simulation scenarios (Ashcraft et al., 2013; Blum et al., 2010; Chmil et al., 2015; Dillard et al., 2009). Nielsen, Lasater, and Stock (2016) described the use of Lasater Clinical Judgment Rubric (Lasater, 2007) as not only a means of evaluating but also guiding the development of clinical judgment in new graduate nurses as they orient to their first places of employment as a nurse. Research is lacking, however, in its use for nursing students during experiences within clinical settings. I am recommending the use of the Lasater Clinical Judgment Rubric (Lasater, 2007) as a means of teaching and evaluating the development of critical thinking and clinical judgment in nursing students during clinical experiences. This rubric offers common language that can be used to evaluate clinical judgment from varied perspectives: first guided by the phases of clinical judgment including noticing, interpreting, responding, and reflecting; and then using four levels of development for each dimension including beginning, developing, accomplished, and exemplary. Individual course goals can be set as the student progresses through the nursing program outlining levels of performance expectations and identified by examples of competence. Adopting the Lasater Clinical Judgment Rubric (Lasater, 2007) as a framework to describe the critical thinking and clinical judgment development using consistent language common throughout the nursing curriculum may help to provide a connection to bridge the gaps that exist between students’ and instructors’ perceptions of critical thinking and strategies for development.

Another major theme was that students identified barriers to effective communication within critical thinking experiences. Intentional planning and strategies
must be implemented by clinical instructors to lessen barriers that exist between nursing students, clinical instructors, and other healthcare providers on the floor. A universal communication technique recommended by The Joint Commission to improve communication and reduce medical errors is the SBAR (situation, background, assessment, recommendations) approach (The Joint Commission, 2017). This effective approach can be fostered by instructors to improve the communication skills of nursing students in communicating important patient information to other healthcare providers (Beckett & Kipnis, 2009; Thomas, Bertram, & Johnson, 2009). The SBAR communication approach is a standardized and useful technique accepted in the majority of healthcare settings, however, was seemingly absent in the Advanced Adult Nursing Concepts course guidelines and absent in student and instructor data. Teaching students effective techniques to communicate in ways that are accepted and understood universally may lessen barriers to the sharing of important clinical findings and also improve the confidence of students using the technique. In addition, clinical instructors need to maintain a collegial and open relationship with healthcare providers in the clinical setting by regularly conferring with staff regarding students’ approaches used when communicating patient findings to foster growth and identify further leaning needs.

The third theme that emerged included identification of meaningful preparatory work and assignments that were valuable to the development of critical thinking. Students and instructors acknowledged the need for students to arrive to clinical experiences prepared with a foundational knowledge with which to provide safe and effective nursing care. Several students identified the preparatory work completed prior
to the actual clinical experience as significant to their ability to develop critical thinking. Kayla, a nursing student, described how she went to the facility the night before the clinical experience, obtained her patient assignment, and began to review the patient’s chart. She discovered that her patient was admitted with a deep vein thrombosis but did not seem to have any risk factors for this medical problem. She went on to say she continued “digging” into the chart and then went home and researched her patient’s history and associated treatments. This preparation the night before was integral to her understanding of the critical nature of the patient’s condition and allowed her to be confident in the nursing care she was to provide during the clinical experience. Students need to have a level of foundational knowledge and need time to research problems and treatments that they may not be familiar with. Instructors can facilitate this by coordinating clinical assignments and providing preparatory requirements for nursing students. By having this foundational knowledge as a result of thoughtful and meaningful preparatory work and assignments, students are then able to apply what they have learned to actual patient situations and integrate critical thinking as patients’ conditions change.

The final theme of independence was evident in both students’ and instructors’ data as both students and faculty recognized that practicing independent thinking within clinical experiences maximized the development of critical thinking. Instructors in my study identified students’ lack of confidence in assessment skills and clinical decisions was often a barrier to developing critical thinking abilities. Clinical instructors can employ strategies early on in the nursing program to encourage students to independently
analyze and reason through clinical assignments and then confirm these findings with the instructor, other nurses on the unit, or fellow students. Socratic questioning and situational decision-making techniques can assist students to develop confidence in reasoning patterns and feelings of independence during clinical experiences. Clinical experience has been, and continues to be, an integral component of nursing education. Both students and instructors clearly identified the value of and need for clinical experiences in the development of critical thinking.

**Recognizing critical thinking experiences.** While students were able to identify particular experiences that they found significant in their critical thinking, some students shared that these types of experiences were few and far between. This is supported by a recent study conducted by Ironside et al. (2014) who examined the nature of contemporary clinical education by describing students’ and faculty’s experiences in three geographically diverse nursing programs in the United States. Findings showed that students reported spending the majority of their time completing tasks related to providing total care for their patients and spent very little time with the more complex aspects of nursing practice such as situations that required clinical reasoning and planning of nursing care. In this study, it was difficult to identify if critical thinking opportunities were simply not present during clinical experiences or if students did not recognize them as they occurred. These findings support the need for continued investigation and understanding of approaches to assist students in recognizing critical thinking experiences as they occur and maximize activities within these experiences to develop nurses who are able to recognize and think through complex patient situations. Clinical
instructors need to be mindful of salient features of clinical situations that warrant
discussion and guidance in the phases of clinical judgment. Billings and Halstead (2016)
identified that effective clinical teaching “requires educators to coach students” (p. 289)
as they engage in complicated clinical experiences in order to develop clinical reasoning
abilities. Clinical instructors need to enact and role model the practice of thoughtful
reflection-in-action as these situations are unfolding within the clinical setting. Students
shared that there was limited clinical instructor involvement as they experienced complex
patient situations and any reflection that did occur was during post-conference after the
clinical experience had occurred. The implication here for clinical instructors is that
clinical instructors need to be more present and available during the clinical experience,
perhaps even bringing to light a complex patient situation that might be missed by the
nursing student.

In addition, clinical experiences need to be thoughtfully selected to allow students
the ability to engage in situations that let them practice providing nursing care in in
situations that cannot be approximated by a classroom simulation (Oermann & Gaberson,
2014). Little research has investigated specific characteristics of clinical situations that
promote the development of critical thinking. The clinical setting can be problematic in
that it can be difficult for clinical instructors to control the type of clinical experiences
that students encounter; however, efforts should be made to include clinical assignments
that are guided by student and course objectives, learning outcomes, individual learner
needs, and availability of clinical experiences. When available, crafting clinical
assignments that include experiences that vary from textbook cases and present with ill-
structured problems and potential for complications can further facilitate development of critical thinking (Tanner, 2006).

**Making meaningful clinical assignments.** Students in this study described that critical thinking experiences were not able to be planned for—they were random occurrences that happened by chance. In this particular nursing course, *Advanced Adult Nursing Concepts*, patient assignments were not planned by the clinical instructors but by students in the clinical group who were assigned on various weeks to serve as the manager or provider of care. In this role, they were responsible to select and assign particular patients to students as a course requirement according to both the students and instructors. Alice, one of the clinical instructors in this study, explained patient assignment as follows: “Actually, I don’t have anything to do with the selection, the manager of care, the student manager of the week makes the assignment.” After review of data, it became apparent that little instruction was provided to the students with regards to assigning patients to students and they found this task difficult at times. Alice went on to say that students selected particular patients based on admitting medical diagnoses and complexity of illness. This, however, was her perception of the students’ methodology for patient assignment that was not supported by student data. Review of the *Advanced Adult Nursing Concepts* objectives provided for student manager or provider of care experience revealed no guidelines for making assignments, let alone mention of making clinical assignments at all. Along these same lines, student and instructor data included little mention of course objectives and personal learning needs in students’ or instructors’ data related to selection of particular clinical experiences.
Recommendations as a result of this finding center on clarifying the responsibility for planning effective clinical experiences. Gaberson et al. (2015) explained it as follows: “One of the most important responsibilities of a clinical teacher is crafting clinical assignments that are related to desired outcomes, appropriate to students’ levels of knowledge and skill, and challenging enough to motivate learning.” (p. 151). With so many factors to consider when planning effective clinical experiences, this process needs to be guided by a qualified clinical instructor who has working knowledge of course objectives, learning outcomes, characteristics and needs of particular students, and availability of learning opportunities. For example, data from LPN and paramedic students in my study identified these cohorts as having unique needs when they identified new and novel clinical experiences as most beneficial to development of critical thinking abilities. Students who are not necessarily familiar with the clinical setting and unique learning needs of each student are not qualified to select structured clinical activities that meet learning objectives and develop critical thinking. Billings and Halstead (2016) recognized that involvement of the clinical instructor is essential if self-selection of particular clinical experiences is a strategy used within clinical education. This involvement includes being available as a resource, communicating goals of particular experiences, and assessing personal learning needs in relation to course objectives. Efforts should be made to develop methodical approaches and clear guidelines to select patients that may be more likely to result in a critical thinking experiences understanding that random opportunities may also occur. The clinical learning experience including patient selection should not be intentionally done in random fashion or as a matter of
convenience without guidelines. Specific situations that resulted in critical thinking
development identified in my study were clinical experiences that included patients with
risk for complications, multiple medical diagnoses, and caring for more than one patient
at a time. This is supported by results of a study by Benner et al. (2011). They identified
situations that are “laden with significance” (p. 543) as being the most helpful in
developing critical thinking. Of course, due to the unpredictable nature of patient care,
selecting situations for nursing students that are complex and require deep thinking is not
always possible. Efforts should be made, however, to incorporate strategies that
maximize the possibility of assigning clinical experiences that may be significant to
developing critical thinking abilities of students.

In order to maximize meaningful patient assignments, instructors need to be fully
engaged with weekly course objectives and have clear clinical learning objectives not
only for students within a particular nursing course, but also individual learning goals for
each student based on their past experiences, level of expertise, and personal learning
goals. These types of preferences can be outlined in weekly clinical evaluation tools,
reflective journaling, and weekly learning objectives located within the course syllabus.
Having choices regarding clinical assignments can be valuable in motivating students to
be fully engaged in clinical learning opportunities and possibly provide for independence
in selecting particular situations. In an effort to enhance student involvement in clinical
assignments, instructors could visit the clinical setting, review available learning
opportunities, and develop a list of several patients that may meet student learning needs
and course outcomes and then allow students to make choices as to which patient or
patients they would actually care for during the clinical experience. This would allow the use of clinical instructor expertise in selecting appropriate clinical assignments, promote a degree of student independence, and may also be useful in reducing stress and anxiety as students prepare to provide care (Gaberson et al., 2015). If student-developed clinical assignments are utilized, clear instruction and directions need to be provided outlining course objectives, individual learner objectives, and strategies to select experiences that facilitate development of critical thinking.

**Facilitating communication.** In addition to planning meaningful patient assignments, clinical instructors need to find better ways to identify critical thinking experiences as they occur throughout the clinical experience and promote effective reflection-in-action. Therein lies the need for improved communication and discourse between students and clinical instructors. Henderson et al. (2012) identified that during clinical experiences, task completion took up the majority of time not only for students, but also clinical instructors, and this left little time for discussion of patient issues and student questions. It is not easy for all students to know when they are experiencing or developing critical thinking. Improved communication between students and clinical instructors both during and after significant clinical experiences may maximize learning and development of critical thinking. Thinking about experiences and discussing them as they are happening can be explained as reflection-in-action. Reflection-in-action or contemporaneous reflection is reflection about an action or situation as it is occurring or at the moment that it happened (Schön, 1987). Less time should be spent on task completion and increased time spent of focused reflection and discussion to promote
communication and discourse between students and instructors processing critical thinking experiences occurring during the clinical experiences. Clinical instructors should be visible and vigilant. When a possible critical thinking experience is detected, clinical instructors should pull students aside to model some reflection-in-action. In addition, strategies to enhance communication after the clinical experience occurred can be practiced by reflection-on-action. Reflection-on-action is thinking about a situation that has happened and consists of recalling a situation for the purpose of analyzing and planning and interpreting a particular experience (Schön, 1987). One method to facilitate reflection-on-action for critical thinking experiences after they have occurred might include the practice of assigning nursing students to keep a journal. Reflective journaling has been used extensively in nursing education as a means of looking back on clinical situations and identifying learning that has occurred (Gustafsson & Fagerberg, 2004; Peden-McAlpine, Tomlinson, Forneris, Genck, & Meiers, 2005). Reflecting on practice was a strategy identified by Benner et al. (2009) as an exemplar of good teaching for the sense of salience, in other words, helping students to identify that which was important about the clinical situation. Gustafsson and Fagerberg (2004) found that nurses used journaling as a means of looking back on experiences and were able to more clearly see the context of the situation and how it altered their way of thinking and understanding of nursing cares. This study included specific prompts for students and instructors to respond to that facilitated identification of critical thinking experiences and context surrounding the experiences:
1. Tell me in detail about a clinical experience that allowed you to use or develop your critical thinking abilities.

2. What aspects of that clinical experience do you think allowed the use or development of critical thinking abilities?

3. What was it about this particular experience that promoted the use of critical thinking?

4. Were there particular activities included in the clinical experience that promoted critical thinking?

Reflection-on-action can be facilitated with similar prompts and may be useful in providing direction to students as they journal and reflect on critical thinking situations encountered. This study supports the need for identification of critical thinking experiences, development of thoughtful feedback, and discussion facilitated by clinical instructors responsible for guiding clinical experiences. Communication is key to facilitating critical thinking, both during and after the clinical experiences. Thoughtful, guided reflection helps students to identify what was important in the given clinical situation and may result in learning that can be applied to future situations.

**Supporting and encouraging independent thinking.** In this study, students and instructors acknowledged the importance of being able to practice independent thinking for the development of their critical thinking. Clinical experiences need to provide for opportunities that foster independent thinking while, of course, maintaining patient safety within clinical settings. Not all nursing students are able to view the context of complex situations. Nursing students are, of course, going to lack the expert knowledge and
perspective of the clinical instructor. Even when students have the knowledge, lack of confidence in their abilities can be a barrier to demonstrating effective clinical judgment. Benner et al. (2009) found that nursing students lack confidence in their knowledge and abilities to think like a nurse and relied “almost completely on the judgment of others” (p. 43). This lack of confidence has been identified in new graduate nurses (IOM, 2011) and needs to be addressed as students progress through their nursing education. Clinical instructors need to foster a learning environment in which students are encouraged to practice thinking independently and acknowledge situations that can be handled on their own. Opportunities need to be present throughout the clinical experience that allow students to share their concerns about particular clinical situations and ideas for needed follow up in an environment that includes measure to assure patient safety. This finding, again, supports the need for the presence and vigilance of the clinical instructor, both to determine potential critical thinking experiences and to provide the appropriate scaffolding needed to provide the nursing students with the independence they need to practice their critical thinking and judgment.

**Including Ample Clinical Experiences in Nursing Education**

Whereas many nursing programs are citing problems with the coordination and maintenance of high numbers of clinical hours (MacIntyre et al., 2009), this study shows that clinical situations in real life settings are essential experiences, crucial to the development of nurses. These experiences clearly need to remain a significant component of nursing education. The increasingly complex health care environment and demands on nurses as professionals all challenge nurse educators to integrate theory and
practice in meaningful ways to develop practitioners who very quickly learn to have deep understanding of the patients they care for (Benner, 2012; Benner et al., 2010; Ironside & McNelis, 2011). Some nursing programs are reducing the number of clinical hours and replacing experiences in the clinical setting with alternative activities including simulation or classroom activities (Andreson & Levin, 2014; Ashley & Stamp, 2014; B. L. Hooper, 2014; McNamara, 2015). Gaberson et al. (2015) purported that “clinical teaching is more important than classroom teaching” (p. 9) due to the fact that nursing is a practice profession and therefore the learning that is done in the clinical setting is more important than what can be achieved in the classroom. Whereas the findings from this study certainly validate the need for clinical experience and its influence on developing critical thinking, a significant finding of this study is that the student participants actually relied on learning from both clinical and classroom settings.

Alternative learning experiences such as simulation designed to support that which is learned during clinical experiences, may enhance students’ abilities to think critically. High fidelity simulation has become a commonly used instructional approach in nursing education to promote thinking during changing patient care situations and has been shown to increase students’ self-confidence and competence (Bambini, Washburn, & Paris, 2009). Simulation in nursing education has been used to provide practice experiences for nursing students in laboratory environments with no risk to live patients (McCallum, 2007). The National Council State Boards of Nursing conducted a large-scale study comparing educational outcomes of nursing students participating in simulation activities in lieu of clinical learning experiences (Hayden, Smiley, Alexander,
Kardong-Edgren, & Jeffries, 2014). Results showed no difference in clinical competency ($p = 0.688$), nursing knowledge ($p = 0.478$), or licensure exam pass rates ($p = 0.737$). The study by Hayden et al. (2014) did not attempt to measure critical thinking or clinical judgment abilities of students, however, clearly demonstrated that some educational outcomes may be equally met with simulation experiences when compared to clinical time. A more recent study found that replacing 50% of traditional clinical time with high fidelity simulation in specialty areas including obstetrics, pediatrics, critical care, and mental health nursing resulted in significantly higher scores on pre-graduation exit exams (Curl, Smith, Chisholm, McGee, & Das, 2016). Integration of simulation as an adjunct to the learning that happens in the clinical setting provides for additional attainment of knowledge, practice of procedural skills, and effective communication to other health care providers as the simulated patient situation evolves. Nursing research has supported that this type of learning is beneficial and appeals to nursing students (Bambino, Washburn, & Paris, 2009; Cato, Lasater, & Peoples, 2009; Jefferies & Rizzolo, 2006; Lasater, 2007). Incorporating purposeful simulation as a supplement to learning that happens in the classroom and clinical setting may provide for scaffolding of learning experiences and increased confidence allowing students to maximize development of critical thinking abilities. My study does provide evidence that clinical experiences are valuable to learning to think like a nurse, but need to be scaffolded with thoughtful classroom and laboratory experiences to maximize the development of critical thinking.
Critical thinking promotes deep understanding and knowing what to do. In this study, instructors and students acknowledged the importance of classroom learning as a means of obtaining foundational knowledge but emphasized the need for clinical situations to allow for practice of what they have learned and the development of salience and knowing what to do in unique patient situations with inimitable problems requiring consideration. More specifically, critical thinking experiences within the clinical experiences helped students to identify real and potential patient complications and develop a deep understanding of clinical situations and associated nursing care needed to maintain patient safety. These are skills that cannot be replicated in the classroom setting. Phyllis, a clinical instructor, said students cannot “use” critical thinking in the classroom—critical thinking needs to be used, practiced, and developed in real clinical situations. Preparing for clinical situations, as the students did in this study, included completing preclinical assignments, investigating medications that the patient may receive, and gathering a thorough understanding of the patients’ conditions and history. This preparation practiced week after week allowed students to arrive to clinical with a prepared mind and open to focus on the salience of patient situations and adjust the nursing care accordingly (Benner et al., 2010), thus practicing and developing critical thinking abilities. This study indicated that this preparation along with follow up in a clinical setting was key to the success of the clinical experience.

This study supports the need for debriefing as a means of methodically linking that which is learned in the classroom to clinical situations and processing clinical experiences that promote the development of deep understanding and critical thinking
abilities of students. Debriefing is a strategy used to assess what is relevant to a clinical situation and has been identified as a means to develop reflective practitioners (NLN, 2015b). It is conversation happens between practitioners or between clinical instructors and students and is intended to reframe the context of a clinical situation and clarify perspectives and assumptions (Benner, et al, 2010). This type of conversation can be used in the clinical setting as a means of reflection and has potential to facilitate learning and maximize critical thinking abilities. Facilitated by the clinical instructor, debriefing incorporates semi structured cue questions that allow the student to evaluate and analyze the clinical situation encountered, share feelings and thoughts about the experience, and identify ways to improve performance in future situations. These questions are developed to promote conversation between the student and instructor about meaningful clinical experiences and may include asking the student to describe the significant clinical situation, reasons that the situation was significant to them, and how the situation may affect future clinical activities. Postclinical conferences are typically times set aside at the conclusion of clinical experiences allowing for discussion focused on situations that were encountered during the experience, reflecting on clinical practice, and formal review of assignments or course objectives (Gaberson, Oermann, & Shellenbarger, 2015). This conference provides for opportunity to reflect using debriefing techniques and clinical judgment scripts. Students and instructors are often fatigued at the end of the clinical experience and structured format of discussion can maximize learning from reflection (NLN, 2015b). The debriefing experience allows students to accomplish meaning-making of the context and issues related to the clinical situation and provides
the clinical instructor with a renewed perspective. It enables the student to leave the experience with a transformed understanding and awareness of the relevant issues and context (Forneris, 2004). Integration of structured debriefing across the nursing curriculum will allow for reframing of the student-teacher relationship to co-create meaningful clinical experiences (NLN, 2015a).

In summary, programs of nursing need to carefully consider the time that students spend in the clinical setting and assure that sufficient amount of clinical experience is included within the nursing curriculum to afford the development of critical thinking in students. Careful consideration of student outcomes, including the ability to think and reason in complex clinical situations, must be given when considering replacing traditional clinical experiences with laboratory simulation or classroom activities. In addition, clinical instructors must be visible and accessible to engage in meaningful discourse that generates thoughtful reflection during the clinical experience.

**Clinical Instructor Development**

This study, along with other studies, supports the crucial role that clinical instructor and expert nurses play in scaffolding and structuring the critical thinking experiences for nursing students. Clinical instructors are primarily responsible for the design and implementation of clinical learning experiences, however, this study supports the influence that nurses employed in the clinical setting where students were assigned, had on critical thinking experiences. It is clear that the field of nursing education needs to continue to emphasize the development of clinical nurses involved in student learning and clinical instructors through thoughtfully planned professional development programs.
(Davidson & Rourke, 2012; Forbes et al., 2010). All of the instructors in my study were employed as part-time clinical instructors. Forbes et al. completed a study that illustrated that part-time or adjunct faculty have unique and specific needs. There was an overwhelming request from the faculty in the Forbes et al. (2010) study for: formal training in the area of teaching and pedagogy; clarification of role expectations; need for materials; help with technology; and a more adequate orientation. Unfortunately, literature has shown that preparation of clinical faculty is limited and exposure to evidence-based teaching strategies and learning theory is minimal (Dahlke, Baumbusch, Affleck, & Kwon, 2012; McNelis et al., 2014). Findings from my study support that, from the students’ perspective, clinical instructor strategies were perceived as negligible during clinical experiences; however, instructors perceived they had a significant influence on student learning. This mismatch supports the need for professional development and strategies to enhance the development of the clinical instructor role.

Development of an online portal intended to provide support and educational resources to guide clinical nurses who work with students and clinical instructors who may have little preparation in clinical teaching may help to promote professional development and be convenient for these nurses. Reid, Hinderer, Jarosinski, Mister, and Seldomridge (2013) developed an online educational portal for clinical instructors in an effort to transition them from role of expert clinician to that of an effective clinical teacher. These types of programs, however, seem to be few and far between. Another study by Cangelosi, Crocker, and Sorrell (2009) explored the written narratives of nurses enrolled in a clinical nurse educator academy investigating the unique perspectives they
held regarding being an expert nurse new to the clinical educator role. It was discovered that these nurses had unique needs and were not confident in their skill set to teach students in the clinical setting which supports the need for thoughtful planning of resources to enhance performance in this role. These clinical instructors are often expert clinicians with little to no formal training in the education of nurses or instructional strategies (Myrick et al., 2006; Zungolo, 2008). Developing an online portal specific to a particular nursing program and providing access to clinical instructors and nurses involved in the education of nursing students may provide the support needed to be proficient and confident in the role of clinical educator. Within this online portal would reside frameworks for clinical education and development of critical thinking including the Model of Clinical Judgment developed by Tanner (2006) and Laster’s Clinical Judgment Rubric (2007). This framework would provide basis for discourse between all nurses working with students in the nursing program and exposure to common language used by faculty, clinical instructors, and students. In addition, clinical instructors and key nurses would have access to resources necessary to support the particular skill set needed to design, implement, and support clinical experiences. Resources in the online portal would include links to access experienced faculty, explanation of debriefing techniques applicable to the clinical setting, examples of clinical judgment scripts to facilitate reflection, description of coaching strategies, and other relevant clinical education resources. Many new clinical instructors feel frustrated at the lack of support and mentoring available to them and having access to clinical education resources may
improve their satisfaction, confidence in their role, and quality of clinical instruction for nursing students.

**Helping students rethink the obvious.** In order to improve students’ critical thinking abilities, nurse educators must initiate practices before, during and after the clinical experience that promote conversation and discourse specific to critical thinking experiences, emphasizing salient features of patient situations, the need for questioning and reflection-in-action. The study by Benner et al. (2010) recognized verbal teaching, questioning, and feedback provided by clinical supervisors is essential to helping students understand nursing care in situated clinical experiences. My study’s student participants identified limited instructor and student interaction within identified critical thinking experiences. Improvement needs to be made to better prepare clinical instructors to engage in the type of discourse, questioning, and meaningful interaction that are needed to help student nurses develop their independent critical thinking. Nursing education programs need to develop and encourage clinical instructors and provide them with information and activities that facilitate their roles as an expert clinician and teacher.

Educational and professional development efforts need to include a wide variety of topics related to clinical teaching including teaching and learning theory, critical thinking, making patient assignments, and provision of effective feedback during and after clinical experiences. Key to effective teaching of critical thinking is the clinical instructor’s ability to recognize situations in which students are demonstrating critical thinking skills and effective means of helping students to learn from these situations. Clinical judgment scripts have been shown as an effective means of assisting students to
identify critical thinking situations and reflect on the various components of the clinical experiences (Hines & Wood, 2016). Scripts have been found as a useful tool to guide learners in seeing how something should be performed or how the flow of a process should progress (O’Donnell, Reeve, & Smith, 2012). A study by Hines and Wood found that scripts based on Tanner’s (2006) model of clinical judgment helped students to focus on the learning process used in all areas of clinical judgment and facilitated learning from clinical experiences. These scripts that were used for senior nursing students as a guide for debriefing and a means to develop clinical judgment included prompts such as (a) what did you notice about your client, (b) what was your primary concern, (c) what was the plan of care and did the plan change, (d) in what ways will this affect your future action? Using student self-evaluation and Lasater’s Clinical Judgment Rubric, the use of scripting improved students’ clinical judgment in both patient-based and simulation settings (Hines & Wood, 2016). Not all students can identify if and when they are demonstrating critical thinking and innovative strategies to assist students in learning the skill may be helpful. Incorporated scripting approaches, embedded cues and prompts should be included as part of the clinical instruction process as a means to help students think through clinical situations and develop clinical judgment abilities. Utilization of effective teaching and learning strategies during clinical experiences may maximize the development of critical thinking in nursing students.

**Improved coaching in clinical experiences.** Evidence of clinical coaching was basically absent in the students’ data describing critical thinking experiences. The need to provide professional development to clinical instructors in methods of effective
Clinical coaching became evident in this study. Clinical coaching is a strategy that includes teaching, questioning, and feedback during clinical experiences that enhances student awareness of their knowledge level and how to best use that knowledge in specific patient situations (Jessee & Tanner, 2016). Problems have been evident in the providing of timely specific feedback to nursing students in ways that help them to understand (McNelis et al., 2014). Supervising nursing students in the clinical setting is typically carried out by one clinical instructor who is responsible for 6 to 10 students at a time (Aldebron & Alan, 2010). Ohio Board of Nursing Law and Rules (2017) identifies a maximum of 10 nursing students can be assigned to one clinical instructor during clinical experiences and this large number of nursing students can be difficult to manage at times. My study confirmed that clinical instructors were not available during clinical experiences to facilitate discourse about patient situations that developed. Reducing the student to instructor ratio would provide more time to practice reflection-in-action and engage in conversations to identify key features of these clinical experiences. Regulators and administrators of programs of nursing education need to reevaluate the standards used to define the number of students that should be assigned to clinical instructors. As patient acuity and student learning needs become more complex, ratios need to be reevaluated and potentially decreased to provide for facilitation of meaningful learning opportunities and improved instructor student discourse needed to develop critical thinking abilities.

In addition to improvements in the traditional clinical experience where instructors are assigned to groups of nursing students, expansion in the use of one on one
preceptored experiences may maximize development of critical thinking abilities of nursing students. Both student and instructor participants in my study identified time and time again, the valuable interactions that students had with nurses employed on the units where critical thinking experiences occurred. Students described these interactions as significant to the development of their critical thinking abilities. Instructors described clinical situations that included interactions with nurses on the units as valuable to student learning. Within the literature, nursing students have identified one on one preceptor type experiences as most effective in preparing them for independent practice (Hickey, 2010; Hartigan-Rogers et al., 2007). The preceptor model of instruction is a well-established mode of clinical teaching in nursing education (Billings & Halstead, 2016; Gaberson, Oermann, & Shellenbarger, 2015). It is typically a model in which senior nursing students are paired with a preceptor who is an expert nurse that has been approved by the nursing program in which the student is enrolled. Students typically work the preceptor’s schedule while providing care to patients in clinical settings allowing them to learn and practice clinical skills, assist in planning and implementing nursing care, and engage in the role of the nurse. Faculty employed by the nursing program serve as liaisons and supervisors of the preceptored experience. This type of clinical instruction has also been referred to as clinical practicum and allows students to engage in real world settings as they transition to the role of the nurse (Hartigan-Rogers et al., 2007). This is an effective model of clinical education that provides individualized guidance and instruction by expert nurses who have agreed to serve as preceptors to the nursing students (Smedley & Penny, 2009). Nursing programs have been challenged to
continue this type of preceptor experience due to a number of factors including lack of clinical sites, cost of implementation, and problems from the health care agencies who employ the preceptors identifying excessive workload from the experiences (Gardner & Suplee, 2010; Smedley & Penney, 2009). Findings support the need to continue to expand and utilize one on one preceptor experiences that capitalize on the guidance that expert nurses provide to students in clinical experiences as they develop critical thinking abilities.

Utilizing various clinical coaching strategies including being engaged in the care of patients with timely feedback enhances clinical instructors’ abilities to identify critical thinking experiences as they occur and to assist students to recognize these experiences in order to develop their critical thinking (Jessee & Tanner, 2016). Instructors in clinical experiences need to be trained in providing constructive feedback, coaching, and effective debriefing to students (J. I. Hooper, Benton, Mancini, & Yoder-Wise, 2016). In addition, clinical instructors need to understand and consistently use the curricular definition of “critical thinking” in an effort to help students have a better understanding of its meaning in action (Tanner, 2006). These types of coaching strategies and conversations were not evident in the data from my study.

Clinical instructors need to be provided with the education and training that facilitates the development of clinical learning and critical thinking in nursing students. Educational efforts need to focus on communication, developing trust, clarification of role, instructional approaches and clinical coaching to develop critical thinking (Santisteban & Egues, 2014). With the continued increased use of part-time faculty in
the clinical setting (Tschannen et al., 2014), increased emphasis on meeting the educational and teaching needs of this unique group of nurse educators must be a focus in order to better plan optimal learning experiences in the clinical setting that promote development of critical thinking.

This study identified the influence, whether positive or negative, that nurses employed by health care facilities where clinical experiences occurred, had on the critical thinking experienced that participants described. Students and instructors continually described communication with the nurses on the unit as integral to critical thinking experiences. At times, the nurses present on the unit were seen as the students’ only available resources and were also seen as the gatekeepers to revisions in the care of patients. A study by Hooper, Benton, Mancini, and Yoder-Wise (2016) designed to investigate challenges that nursing programs face, identified that 40% of the clinical nurses in settings where nursing students were assigned indicated that clinical faculty were not available to students during clinical experiences and nurses did not always know the competence and skill level of the students. This was identified as an area of concern and problematic for the education of the nursing students. Nurses working on the units where clinical experiences were held were not part of my study; however, student data identified similar findings of lack of instructor availability and reliance on unit nurses as resources during patient situations. These findings support that programs of nursing education need to implement additional efforts to improve communication between clinical instructors and unit nurses and professional development is important for nurses who interact with students on a daily basis. This professional development should
include training in instructional and coaching strategies with the goal of maximizing the clinical experience for nursing students. These efforts could be accomplished by in-person educational offerings for unit nurses, provision of written resources, or access to an online portal which includes resources intended to maximize clinical experiences.

**Suggestions for Future Studies**

Findings from this study provide a foundation of knowledge that explains students’ and instructors’ perceptions of critical thinking. This study was completed in a nursing program that seemed to exhibit limited use of the phrase “critical thinking” in classroom and clinical contexts. Students and instructors, however, seemed to be confident in their knowledge of the concept and its use in the clinical setting. Even though these students seemed confident in their definitions, future research that further investigates first person definitions of critical thinking by students and instructors in a variety of nursing programs may help to ease the conflicting definitions found in nursing and health care literature.

Further research is also needed to recognize and implement effective nursing pedagogies that address the development of critical thinking and optimal learning in the clinical setting. Although many studies have evaluated critical thinking development as a result of simulation and classroom learning activities, little research exists that examines aspects of clinical experiences that promote critical thinking.

Furthermore, there continues to be varying degrees of disconnect that exist between students and instructors, especially when they are in a clinical setting. Research that would examine both perspectives of similar clinical activities might provide a new
framework for how instructors and students come at critical thinking experiences differently. Having this framework for understanding would allow instructors to plan activities with some insight to the student perspective of clinical learning activities.

Longitudinal research that examines the progression of students’ understanding of critical thinking beyond graduation might demonstrate the clinical activities that students most value during their education. Understanding of the progression of critical thinking development both during and beyond nursing education could further inform and refine pedagogical practices and instructional approaches in the clinical learning environment.

**Conclusion**

Programs of nursing have been cited as inadequately preparing nurses who are competent practitioners—many new graduates are unable to critically think, solve problems, and identify what is important when caring for patients (Benner et al., 2010; Berkow et al., 2008). Despite efforts to improve the education of nurses and initiatives to enhance ability to think critically, this gap in preparedness of new graduates persists. Learning within clinical settings provides students with key opportunities to integrate theoretical knowledge learned in classroom settings into practice situations in which clinical reasoning skills and abilities to think like a nurse are maximized (O’Mara et al., 2014). Nurses have traditionally valued clinical learning experiences as essential to learning to be a nurse as these experiences are intended to integrate theory and practice in meaningful ways to prepare competent practitioners (Benner, 2012; Benner et al., 2010; Ironside & McNelis, 2011). This study was designed to look at how senior nursing students and instructors define and describe experiences that called on their critical
thinking and how these clinical experiences were perceived as beneficial (or not). Little is found in the nursing literature defining clinical experiences that are perceived as beneficial in developing the critical thinking abilities of nursing students. There are many different definitions of critical thinking in the nursing literature and most recently, the addition of the concepts of clinical reasoning (AACN, 2008; Alfaro-Lafevre, 2013; Simmons et al., 2003) and clinical judgment (Lasater, 2011; Tanner, 2006) have included critical thinking components. Whereas many studies have sought to measure critical thinking in nursing students, few studies have examined what types of clinical experiences are beneficial to its development, especially from the student and instructor perspectives.

An interpretive qualitative approach was used to guide this study that investigated perceptions of critical thinking experiences within a clinical experience. Qualitative research was implemented to understand the meaning of the descriptions of both students and instructors. The interpretive approach provided validation that students found certain experiences valuable to their critical thinking development. Tanner’s (2006) Clinical Judgment Model including the phases of noticing, interpreting, responding, and reflecting served as a valuable framework to organize and understand critical thinking during clinical experiences. This study validates that most critical thinking experiences can be evaluated using this model to break clinical experiences into smaller parts by using the phases that allowed for analysis and understanding.

There are three overarching findings of this study. The first finding is students and instructors described similar characteristics of clinical experiences that were
significant in developing critical thinking abilities. They defined them as complex clinical situations that warranted independent identification, interpretation, and decision making in an effort to facilitate positive patient outcomes. The second finding is that both students and instructors described critical thinking as the ability to process and unclear or complex situation, understand significance of context, and knowing what to do next. The third finding in this study was that there was a disconnect between students and instructors regarding the role of the clinical instructor during clinical experiences; students felt a lack of interaction during key clinical experiences while instructors felt that they had a significant presence during students’ clinical learning situations.

The findings of this study have provided me with a new perspective regarding clinical education and clinical experiences that are significant to development of critical thinking of nursing students. The importance of clinical experience for students to the development of critical thinking was clearly supported by findings in this study. Programs of nursing need to carefully evaluate that sufficient amount of clinical experiences are incorporated into the nursing curriculum to effectively develop nurses that are able to critically think. Careful consideration of student outcomes and how important clinical experiences are to development of critical thinking needs to be taken into consideration prior to replacing clinical experiences with alternative activities such as simulation or classroom approaches. Clinical experiences were found as valuable to development of critical thinking; however, in this study, these experiences were not necessarily planned but seemed to happen by chance. The implication of this finding is the need to implement strategies in the clinical setting to maximize clinical experiences
so that critical thinking experiences are highlighted and so that there is improved
discourse between students and instructors to identify these key experiences as they happen. Clinical instructors need to be provided with education and training in effective pedagogical approaches within clinical education. Particular effort must be given to use methods that facilitate supportive, meaningful feedback and engagement of discourse between students and instructors regarding clinical experiences. The implications of the study are important to provide insight to nurse educators as they plan effective pedagogies that might effectively address challenges that face nurses today.
APPENDICES
APPENDIX A

STUDENT DEMOGRAPHIC FORM
Appendix A

Student Demographic Form

Name _________________________________________________

Age ______________

Location of clinical rotation for Nursing Agency III ________________________________

Gender: Male_________ Female___________

Ethnicity: ________________

Prior educational degrees or certificates awarded beyond high school diploma

______________________________________________________________

Currently employed?  Yes____  No____

If yes, employment status?  Full-time____ Part-Time____

If yes, are you employed in a healthcare facility?  Yes____  No____

Current GPA________

Email to be used for contact ____________________________________________
APPENDIX B

STUDENT RESEARCH PARTICIPANT RECRUITMENT LETTER
Appendix B

Student Research Participant Recruitment Letter

Julie Senita, MSN, RN, CNE, Doctoral Candidate, Curriculum & Instruction
Kent State University, Kent, Ohio
jsenita@kent.edu
(440) 813-5314

January 21, 2016

Dear Nursing Student and Potential Research Participant,

I am pursuing my doctoral degree in Curriculum and Instruction at Kent State University and I am planning completion of my research Spring 2016. My area of interest is investigation of critical thinking in the clinical setting from the student and instructor perspectives. As a participant in this study, you will be asked to allow me access to the Critical Thinking Assignment that you will be submitting as a requirement for Nursing Agency III.

The purpose of this research is to provide nurse educators insight into designing clinical experiences that promote the development of critical thinking in nursing students. The information you provide will be confidential and will not be reviewed by anyone other than my doctoral advisory committee at Kent State University and me. Your information and identity will remain confidential in all aspects of the information provided and in any products of this research. You may exit the study at any time.

If you consent to participate in the study, the course coordinator, Stacy Rose, Associate Professor, Nursing, will forward the assignment you submitted to me via secure email. You may be asked to participate in a follow up audio-taped individual interview that may last 30 to 60 minutes and will be scheduled at your convenience. The purpose of this interview is to clarify information that you provided in your assignment and gain further insight into details of the clinical experience. Additional interviews may be requested as needed.

Thank you in advance,

Julie Senita, Doctoral Candidate, Curriculum & Instruction, Kent State University
APPENDIX C

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY FOR
STUDENT PARTICIPANTS
Appendix C

Informed Consent to Participate in a Research Study For

Student Participants

Study Title: *Defining Critical Thinking Experiences of Senior Nursing Students*

Principal Investigator: *William Kist*

Co-Principal Investigator: *Julie Senita, Doctoral Student*

You are being invited to participate in a research study. This consent form will provide you with information on the research project, what you will need to do, and the associated risks and benefits of the research. Your participation is voluntary. Please read this form carefully. It is important that you ask questions and fully understand the research in order to make an informed decision. You will receive a copy of this document to take with you.

**Purpose:**
The purpose of this basic interpretive qualitative study is to investigate students’ and clinical instructors’ understanding of critical thinking and describe clinical experiences that have been identified as significant for using and developing critical thinking abilities. These are also referred to as critical thinking experiences. The education of nurses includes experiential learning in clinical settings with students practicing under the supervision and guidance of clinical instructors. The clinical experiences can vary tremendously and students’ perspectives of critical thinking and reasons particular experiences are identified as significant may or may not coincide with the views of the clinical instructors and may provide a new perspective for designing future activities that optimize critical thinking.

** Procedures**
Participants in this study will be students enrolled in NRST 20208, Nursing Agency III in the Spring semester of 2016. Participation is voluntary and the review of the assignment by the researcher for the study will not be used to evaluate performance in the course in any way. As a participant you will be asked to give permission for the researcher to have access to the *Critical Thinking Experience Assignment* in Nursing Agency III that is required for course completion. The assignment will be emailed directly to me and will be shared with no one else. Demographics will also be collected for each participant giving consent.
Following the review of the assignment, I may contact you to schedule an individual interview at your convenience. This face-to-face interview will take place within two weeks of the submission. The purpose of this interview is so that I can gain an understanding of your reflection and obtain as much detail as possible to understand the details surrounding the clinical experience and the associated use and development of critical thinking. The interview will take approximately 30 to 60 minutes and will be audio-recorded. Only you and I will be present during the session and have access to the interview information. Additional interviews may be scheduled as needed.

If you choose to participate in this study, you will be asked to give consent for me to examine your submission describing critical thinking experiences. In addition, should you be asked for an interview, additional consent will be obtained to audio-tape. We will be looking for common themes that represent critical thinking in clinical situations and the details of critical thinking experiences.

Your participation is expected to last for the duration of the Spring 2016 semester.

**Audio and Video Recording and Photography**
Audio-recordings of the individual one-on-one face-to-face interviews will be transcribed into written text. All identifiers will be removed and pseudonyms assigned for each participant. Transcripts will be used for the purpose of data analysis. Audiotapes will be erased at the end of the study.

**Benefits**
This research will not benefit you directly. However, your participation in this study will help us to better understand critical thinking from the student’s perspective and describe critical thinking experiences that have been identified as significant.

**Risks and Discomforts**
There are no anticipated risks beyond those encountered in everyday life.

**Privacy and Confidentiality**
Your confidentiality will be maintained at all times. Data will be recorded under a pseudonym that only the researcher has access to. The pseudonym list will be kept in a locked in a secure file in H160J office in the Robert S. Morrison Health and Science Building. Audiotapes will be stored in the locked file cabinet and erased after transcription and verification have occurred. Data will be stored using NVIVO software loaded onto the secure computer in H160J using pseudonyms.

Your study related information will be kept confidential within the limits of the law. Any identifying information will be kept in a secure location and only the researchers will have access to the data. Research participants will not be identified in any publication or presentation of research results; only aggregate data will be used.
Your research information may, in certain circumstances, be disclosed to the Institutional Review Board (IRB), which oversees research at Kent State University, or to certain federal agencies. Confidentiality may not be maintained if you indicate that you may do harm to yourself or others.

**Compensation**
No compensation exists for participation in this research study.

**Voluntary Participation**
Taking part in this research study is entirely up to you. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. You will be informed of any new, relevant information that may affect your health, welfare, or willingness to continue your study participation. Participation in this research study will have no effect on your course grade and the information will not be used in any way to evaluate your knowledge or performance.

**Contact Information**
If you have any questions or concerns about this research, you may contact Julie Senita, Doctoral Student at 440-964-4264 or Dr. William Kist at 330-672-5839. This project has been approved by the Kent State University Institutional Review Board. If you have any questions about your rights as a research participant or complaints about the research, you may call the IRB at 330.672.2704.

**Consent Statement and Signature**
I have read this consent form and have had the opportunity to have my questions answered to my satisfaction. I voluntarily agree to participate in this study. I understand that a copy of this consent will be provided to me for future reference.

__________________________  ____________________
Participant Signature          Date
APPENDIX D

INSTRUCTOR RESEARCH PARTICIPANT RECRUITMENT LETTER
Appendix D

Instructor Research Participant Recruitment Letter

Julie Senita, MSN, RN, CNE, Doctoral Candidate, Curriculum & Instruction
Kent State University, Kent, Ohio
jsenita@kent.edu
(440) 813-5314

January 21, 2016

Dear Nursing Instructor and Potential Research Participant,

I am pursuing my doctoral degree in Curriculum and Instruction at Kent State University and I am planning completion of my research Spring 2016. My area of interest is investigation of critical thinking in the clinical setting from the student and instructor perspectives. As a participant in this study, you will be asked to respond to a set of prompts that will be emailed to you regarding a clinical experience during the semester that you think allowed the nursing student to use and develop their critical thinking abilities.

The purpose of this research is to provide nurse educators insight into designing clinical experiences that promote the development of critical thinking in nursing students. The information you provide will be confidential and will not be reviewed by anyone other than my doctoral advisory committee at Kent State University and me. Your information and identity will remain confidential in all aspects of the information provided and in any products of this research. You may exit the study at any time.

If you consent to participate in the study, I will email the prompts to you and you will reply with your submission directly to me at jsenita@kent.edu via secure email. You will also be asked to participate in a follow up audio-taped individual interview that may last 30 to 60 minutes and will be scheduled at your convenience. The purpose of this interview is to clarify information that you provided and gain further insight into details of the clinical experience. Additional interviews may be requested as needed.

Thank you in advance,

Julie Senita, Doctoral Candidate, Curriculum & Instruction, Kent State University
APPENDIX E

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY FOR
INSTRUCTOR PARTICIPANTS
Appendix E

Informed Consent to Participate in a Research Study for Instructor Participants

Study Title: *Defining Critical Thinking Experiences of Senior Nursing Students*

Principal Investigator: *William Kist*

Co-Principal Investigator: *Julie Senita, Doctoral Student*

You are being invited to participate in a research study. This consent form will provide you with information on the research project, what you will need to do, and the associated risks and benefits of the research. Your participation is voluntary. Please read this form carefully. It is important that you ask questions and fully understand the research in order to make an informed decision. You will receive a copy of this document to take with you.

**Purpose:**
The purpose of this basic interpretive qualitative study is to investigate students’ and clinical instructors’ understanding of critical thinking and describe clinical experiences that have been identified as significant for using and developing critical thinking abilities. These are also referred to as critical thinking experiences. The education of nurses includes experiential learning in clinical settings with students practicing under the supervision and guidance of clinical instructors. The clinical experiences can vary tremendously and students’ perspectives of critical thinking and reasons particular experiences are identified as significant may or may not coincide with the views of the clinical instructors and may provide a new perspective for designing future activities that optimize critical thinking.

**Procedures**
Participants in this study will be instructors assigned to clinical sites for in NRST 20208, Nursing Agency III in the Spring semester of 2016. Participation is voluntary and the review of the submission by the researcher for the study will not be used to evaluate performance in your role in any way. As a participant you will be asked to respond to a set of prompts reflecting on at least one critical thinking experience during the semester. Your response will be emailed directly to me and will be shared with no one else. Demographics will also be collected for each participant giving consent.

Following the review of the submission, I will contact you to schedule an individual interview at your convenience. This face-to-face interview will take place within two weeks of the submission. The purpose of this interview is so that I can gain an understanding of your reflection and obtain as much detail as possible to understand the
details surrounding the clinical experience and the associated use and development of critical thinking. The interview will take approximately 30 to 60 minutes and will be audio-recorded. Only you and I will be present during the session and have access to the interview information. Additional interviews may be scheduled as needed.

If you choose to participate in this study, you will be asked to give consent for me to examine your submission describing critical thinking experiences. In addition, should you be asked for an interview, additional consent will be obtained to audio-tape. We will be looking for common themes that represent critical thinking in clinical situations and the details of critical thinking experiences.

Your participation is expected to last for the duration of the Spring 2016 semester.

Audio and Video Recording and Photography
Audio-recordings of the individual one-on-one face-to face interviews will be transcribed into written text. All identifiers will be removed and pseudonyms assigned for each participant. Transcripts will be used for the purpose of data analysis. Audiotapes will be erased at the end of the study.

Benefits
This research will not benefit you directly. However, your participation in this study will help us to better understand critical thinking from the student’s perspective and describe critical thinking experiences that have been identified as significant.

Risks and Discomforts
There are no anticipated risks beyond those encountered in everyday life.

Privacy and Confidentiality
Your confidentiality will be maintained at all times. Data will be recorded under a pseudonym that only the researcher has access to. The pseudonym list will be kept in a locked in a secure file in H160J office in the Robert S. Morrison Health and Science Building. Audiotapes will be stored in the locked file cabinet and erased after transcription and verification have occurred. Data will be stored using NVIVO software loaded onto the secure computer in H160J using pseudonyms.

Your study related information will be kept confidential within the limits of the law. Any identifying information will be kept in a secure location and only the researchers will have access to the data. Research participants will not be identified in any publication or presentation of research results; only aggregate data will be used.

Your research information may, in certain circumstances, be disclosed to the Institutional Review Board (IRB), which oversees research at Kent State University, or to certain
Confidentiality may not be maintained if you indicate that you may do harm to yourself or others.

**Compensation**
No compensation exists for participation in this research study.

**Voluntary Participation**
Taking part in this research study is entirely up to you. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. You will be informed of any new, relevant information that may affect your health, welfare, or willingness to continue your study participation. Participation in this research study will have no effect on your course grade and the information will not be used in any way to evaluate your knowledge or performance.

**Contact Information**
If you have any questions or concerns about this research, you may contact Julie Senita, Doctoral Student at 440-964-4264 or Dr. William Kist at 330-672-5839. This project has been approved by the Kent State University Institutional Review Board. If you have any questions about your rights as a research participant or complaints about the research, you may call the IRB at 330.672.2704.

**Consent Statement and Signature**
I have read this consent form and have had the opportunity to have my questions answered to my satisfaction. I voluntarily agree to participate in this study. I understand that a copy of this consent will be provided to me for future reference.

_________________________________________________________  ________________
Participant Signature                                      Date
APPENDIX F

INSTRUCTOR DEMOGRAPHIC FORM
Appendix F

Instructor Demographic Form

Name _________________________________________________________________

Age    ________________

Location of clinical rotation for Nursing Agency III __________________________

Gender: Male___________     Female____________

Ethnicity: ________________

Educational degrees or certificates awarded beyond high school diploma

_______________________________________________________________________

Employment status with Kent State University:       Full-time_____ Part-time____

Number of years employed as a clinical nursing instructor  __________

Currently employed outside of Kent State University?       Yes____       No____

    If yes, employment status outside of Kent State University?
    Full-time_____ Part-Time_____  

        If yes, are you employed in a healthcare facility?   Yes____       No____

Email to be used for contact ______________________________________________
APPENDIX G

CRITICAL THINKING EXPERIENCE ASSIGNMENT FOR
STUDENT PARTICIPANTS
Appendix G

Critical Thinking Experience Assignment For Student Participants

This purpose of this required clinical assignment is to understand students’ perceptions of critical thinking and critical thinking experiences. Remember that there are no right or wrong answers, the intention is for you to share your perspective and details about the experience you encountered. Please reflect on a recent clinical experience that you encountered in your clinical for Nursing Agency III and respond to the following prompts using as much detail as possible:

1. Tell me in detail about a clinical experience that allowed you to use or develop your critical thinking abilities.
2. What aspects or activities of that clinical experience allowed you to use or develop critical thinking abilities?
3. What was it about this particular experience that allowed you to use critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

Please email your submission to srrose@kent.edu.

While this assignment is required for successful completion of Nursing Agency III, it is not a graded assignment or associated with any points for this course.

You are being asked to reflect on one clinical experience during the clinical weeks that are planned for Nursing Agency III this semester. Your submission is due by March 5, 2016. After your submission, you may be contacted for an individual follow-up interview that will be held at your convenience.

Thank you and please let me know if you have any questions,

Stacy Rose, Associate Professor, Nursing
Course Coordinator, Nursing Agency III
APPENDIX H

INSTRUCTOR ACCOUNT OF CRITICAL THINKING EXPERIENCE
PROTOCOL
Appendix H

Instructor Account of Critical Thinking Experience Protocol

Instructor Account of Critical Thinking Experiences Protocol: The following will be emailed to each instructor key informant weekly during the Nursing Agency III course during the weeks that students will be having planned clinical experiences: February 1 to March 19, 2016. Instructors are expected to respond for at least one clinical experience by March 5, 2016.

Thank you for participating in the research study to understand student’s perceptions of critical thinking and critical thinking experiences. Remember that there are no right or wrong answers, the intention is for you to share your perspective. Please consider reflecting on clinical experience that you encountered this week and respond to the following prompts using as much detail as possible:

1. Tell me in detail about a clinical experience that you feel allowed a student to use or develop their critical thinking abilities.
2. What aspects of that clinical experience do you think allowed the use or development of critical thinking abilities?
3. What was it about this particular experience that promoted the use of critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

You may reply to this email or email your response to isenita@kent.edu.

You are being asked to reflect on two out of the eight possible clinical experiences that are planned for Nursing Agency III this semester. All responses are due by March 5, 2016. After your response, I will be contacting you to schedule an individual follow-up interview that will be held at your convenience.

Thank you and please let me know if you have any questions,

Julie Senita, Doctoral Candidate, Curriculum & Instruction, Kent State University
APPENDIX I

INDIVIDUAL INTERVIEW PROTOCOL
Appendix I

Individual Interview Protocol

Interview protocol: Audio-taped individual interviews will be scheduled once the initial reflection has been submitted, reviewed and initially coded for in vivo words and frequency. The interview will begin with an introduction and appreciation for willingness to participate in the study. The key informant will be reminded the interview will take 30 to 60 minutes and will be audio-recorded and accompanied by note-taking. The interview will begin with review of the key informant submission and themes that have been interpreted from the data. The interview is meant to be an extended conversation of the submitted reflection on the critical thinking experience allowing the key informant to clarify or add any information. It will conclude with the opportunity for the key informant to ask questions and add additional information they might deem relevant.

The researcher will review the student key informant’s responses to the following prompts:
1. Tell me in detail about a clinical experience allowed you to use or develop your critical thinking abilities?
   A) Tell me one or two things you noticed.
   B) How did you interpret what you noticed?
   C) How did you respond to what you noticed?
2. What aspects of that clinical experience allowed you to use or develop critical thinking abilities?
3. What was it about this particular experience that allowed you to use critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

The researcher will review the instructor key informant’s responses to the following prompts:
1. Tell me in detail about a clinical experience allowed the student to use or develop critical thinking abilities?
   A) Tell me one or two things that the student noticed.
   B) How did the student seem to interpret what was noticed?
   C) How did the student respond to what was noticed?
2. What aspects of that clinical experience allowed the student to use or develop critical thinking abilities?
3. What was it about this particular experience that allowed the student to use critical thinking?
4. Were there particular activities included in the clinical experience that promoted critical thinking?

Additional probes will be used to follow up on concepts of interest, addition of detail/context of clinical experiences, themes and confirmation of meaning of responses. Probes will be individualized to each key informant and based on the submission.
APPENDIX J

AUDIOTAPE CONSENT FORM
Appendix J

Audiotape Consent Form

Defining Critical Thinking Experiences of Senior Nursing Students

Principal Investigator: William Kist

Co-Investigator: Julie Senita

I agree to participate in an audio-taped interview about CRITICAL THINKING EXPERIENCES OF NURSING STUDENTS as part of this project and for the purposes of data analysis. I agree that JULIE SENITA may audio-tape this interview. The date, time and place of the interview will be mutually agreed upon.

________________________________________________________________________
Signature Date

I have been told that I have the right to listen to the recording of the interview before it is used. I have decided that I:

____ want to listen to the recording  ____ do not want to listen to the recording

Sign now below if you do not want to listen to the recording. If you want to listen to the recording, you will be asked to sign after listening to them.

JULIE SENITA may / may not (circle one) use the audio-tapes made of me. The original tapes or copies may be used for:

____ this research project _____ publication _____ presentation at professional meetings

________________________________________________________________________
Signature Date
REFERENCES
REFERENCES


Courtney-Pratt, H., FitzGerald, M., Ford, K., Marsden, K., & Marlow, A. (2012). Quality of placements for undergraduate nursing students: A cross-sectional survey of
undergraduate and supervising nurses. *Journal of Advanced Nursing*, 6, 1380-1390.


Dillard, N., Sideras, S., Ryan, M., Carlton, K., Lasater, K., & Siktberg, L. (2009). A collaborative project to apply and evaluate the clinical judgment model through simulation. *Nursing Education Perspectives, 30*(2), 99-104.


http://www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/06_npsgs.htm


