ABSTRACT

PUTNAM, EDNA LORENE. Traditional Versus Precepted Clinical Experiences for Junior Nursing Students: Is There a Difference in Clinical Competence? (Under the direction of Duane Akroyd.)

This study was conducted using an experimental research design to examine two clinical supervision models for junior level nursing student clinical experiences. The traditional model of one instructor supervising eight to ten students on one unit, was compared with the precepted model where one student was paired with one experienced, practicing registered nurse on a unit with regular visits by a faculty clinical instructor. The precepted model was proposed in this study as a model of clinical education that would be consistent with the Situated Learning Model with an emphasis on learning with a role model through observation and participation in the community of practice in authentic activities.

This study included 107 junior level student participants (control group n=54; experimental group n=53), from one school of nursing. Students in both groups were enrolled in the same courses, assigned to general medical-surgical nursing units, in similar hospital settings in the same region, for the same number of hours.

The Clinical Competency Rating Scale (CCRS) developed by Scheetz (1988) was used to rate clinical competency in three areas including: problem solving, applying theory to practice, and psychomotor skill development. Clinical competency was compared using t-tests, and analysis of covariance (ANCOVA) was used to control for differences in faculty experience level. The precepted model of clinical education did not yield junior nursing

students who achieved higher levels of clinical competence compared to the traditional model. Students having traditional clinical experiences were rated higher in the psychomotor skill development variable with no consistent statistical difference in the other two variables.

Suggestions for practice included: improving faculty preparation for rating students' performance, attention to preparing preceptors to specifically help students with psychomotor skill development when the precepted model is used, and monitoring clinical experiences for the factors that could impede learning in the situated learning model. Suggestions for future research included adding qualitative research methods and adding other quantitative measures of competency.

Traditional Versus Precepted Clinical Experiences for Junior Nursing Students:
Is There a Difference in Clinical Competence?

by
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DEDICATION

This work is dedicated in memory of my father Frank Todd, Jr. and in honor of my mother Edna Todd. You were my first teachers in life. You taught me about life, love, laughter, the importance of family, the value of education, and the importance of service to others. Thanks to you, I was grounded early in my life in the things that matter. Your support over the MANY years of my formal education helped to make this dream a reality for me.

BIOGRAPHY

Edna Lorene Todd was born in Bowling Green, Kentucky to Frank and Edna Todd. She is their fourth and youngest daughter. She graduated from Bowling Green High School in 1977, attended Baylor University, and the University of Kentucky before going to Eastern Kentucky University where she earned an Associate Degree in Nursing in 1981. After practicing for 6 years as a nurse in various roles in Frankfort, Kentucky, she pursued a baccalaureate degree in nursing from Western Kentucky University, in Bowling Green, Kentucky while continuing to practice as a nurse in Bowling Green, Kentucky and at Vanderbilt Children's Hospital in Nashville, Tennessee. After earning a baccalaureate degree from Western Kentucky University in 1989, she moved to western North Carolina and began teaching in the associate degree nursing program of Region A Nursing Consortium. While teaching in this program, she pursued and earned a master's degree in nursing from the University of North Carolina in Charlotte in 1995.

In 1996 Lorene became the director of the Region A Nursing Consortium program where she led that program through a major curriculum transition from a quarter system to semester system. In 2000 Lorene left the community college to join the faculty of Western Carolina University in Cullowhee, North Carolina where she continues to teach and where she coordinates the junior-level of the pre-licensure program.

During the 1999-2000 academic year Lorene began to work collaboratively with Dr. Ann Putnam Johnson. Together they created a preceptor development program which started with preparing preceptors to work with students. Their work has now grown to include a program for preceptors of new graduates and an advanced program for those who desire to broaden their skills in precepting. Together, they have presented regionally, nationally, and internationally related to their preceptor development work.

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Finally, I want to express thankfulness to God, and acknowledge that with God all things are possible. "With man this is impossible, but with God all things are possible." Matthew 19:26 (New International Version)

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CHAPTER 1

INTRODUCTION

Educators in professional programs must prepare competent practitioners of their respective disciplines. Schön (1987) wrote about concerns regarding the incongruence between what professional schools were teaching and what practitioners entering a profession needed most to know. In these concerns, Schön included law schools that produce trial lawyers who lacked skill in trying cases; business schools that failed to teach to the level of those from other areas of the world; and schools of engineering that produced narrowly trained technicians. According to Schön, graduates completing professional programs particularly lacked preparation to practice competently in situations in which basic professional knowledge or theories cannot be applied to guide practice. Nursing education, the focus of this research, has experienced similar criticisms that graduates of baccalaureate programs are not prepared for the rigors of practice (Ellerton & Gregor, 2003; Kramer, 1974; Myrick, 1988; Smith, 1995). Baccalaureate nursing programs must meet the challenge of preparing more competent beginning practitioners.

In an historic work by Kramer (1974), she described “reality shock” in new nurses, and addressed the lack of adequate skills and socialization for graduates moving into practice. According to Kramer, new graduates of baccalaureate programs enter the profession well versed in theory but not in all of the skills needed to cope with the realities of practice. Graduates experience dissonance between the role they expect and what they find in practice. Other authors have also identified that new graduates often lacked the clinical preparation to competently function in acute care settings (Myrick, 1988; Smith, 1995; Wagner, 1980). Preceptorships, in which students work closely with experienced nurses near the end of their program of study, evolved in response to the work by Kramer (1974) and is believed to ease the transition to practice and reduce the reality shock of new graduates as they enter the workforce (Byrd, Hood, & Youtsey, 1997; Goldenberg & Iwasiw, 1993; Kaviani & Stillwell, 2000; Pierce, 1991).

The traditional model of basic nursing education has been in existence for decades (Packard, Polifroni, & Shah, 1994). In nursing, clinical teaching is grounded in tradition, common sense, and feasibility with little grounding in research (DeYoung, 2003). For example, there are regulations by state boards of nursing for numbers of clinical hours and faculty to student ratios but there is no research-based rationale or support for these regulations. These regulations vary widely from state to state with no discernable pattern (Packard, Polifroni, & Shah). Little research has been done to substantiate any one model of clinical education as superior. Young (2004) suggests that it is inappropriate for nurse educators to teach students the importance of evidence-based practice in nursing while continuing to teach without a research base for the practices of nursing education. Nurse educators must consider replacing the old, antiquated model steeped in tradition, convenience, and common sense with more effective and research based methods.

The Nature of Clinical Experiences: Context of the Research Problem

Typically, clinical education in a baccalaureate nursing program begins in the third or junior year after prerequisite science and liberal studies courses have been completed and continues throughout the program in each semester. Although rotations will occur in specialty areas such as pediatrics, mother-baby, mental health, and public health, the majority of clinical time is usually spent in acute care settings caring for adults. Therefore, the next section will begin with a description of a traditional, beginning level clinical experience in an acute care setting and will move to a description of the preceptor model of clinical education.

Traditional Clinical Experience

In a traditional clinical rotation, students are supervised and evaluated in the acute care settings by a registered nurse who is also an educator with an advanced degree and as a faculty member is familiar with the values, philosophy, and curriculum of the program (Hunsberger, Baumann, Lappan, Carter, Bowman, & Goddard, 2000). The assumption is that this faculty clinical instructor will be able to directly observe students performing skills, documenting patient care, and interacting with patients, family members, and staff. While this traditional clinical model provides the potential for direct supervision by a qualified nurse educator, it does not assure or promote the level of supervision, support, and attention that most junior level nursing students require to be successful and provide safe patient care. The outcomes of traditional clinical experiences are impacted by brief student-faculty interactions and limited exposure to a variety of patient care experiences (Beeman, 2001).

Limited Faculty-Student Interactions

A traditional clinical rotation early in a nursing program consists of a clinical faculty instructor and eight to twelve students assigned to a nursing unit for eight to twelve hours per week, for a semester or a portion of a semester. The clinical faculty instructor-to-student ratio is typically governed by state board regulations (Packard, Polifroni, & Shah, 1994). The clinical faculty instructor remains on the nursing unit, or rotates among units in the facility if students are assigned to different units, for the entire time period that students are present in the clinical site. The student to clinical faculty instructor ratio decreases the amount of time available for individual student-faculty interactions. In a traditional clinical rotation, working with one student may result in the clinical faculty instructor being unavailable to work with the other students for long periods of time. Wang and Blumberg (1995) found that one third of the interactions between faculty and students lasted one minute or less and one third lasted one to six minutes. An analysis of these interactions revealed that the majority were leading/directing or information giving in nature. In another study, only 25 percent of a student's time was spent interacting with the instructor or any other registered nurse, and the remaining 75 percent of the student's time was spent unsupervised (Polifroni, Packard, Shah, & MacAvoy, 1995). The findings of these studies are troubling for several reasons including the small amount of time spent in interactions with experienced nurses, the lack of reflective questioning, and the amount of unsupervised time students spend in caring for patients. These studies suggest that the presence of a faculty clinical instructor does not assure quality or timely interactions or instruction.

Limited Exposure to Patient Care Situations

At the junior level, each student is typically assigned to care for one patient during the clinical day. The traditional clinical education model usually does not allow for students to care for more than one patient per clinical day, because this would increase the total patient assignment and responsibility for the clinical instructor beyond what is considered safe or prudent (Beeman, 2001). Lack of experience in caring for multiple patients concurrently limits the amount and variety of patient assessments, patient problems or needs, psychomotor skills, and potential patient interactions the student may experience. This limit in breadth of patient care assignments is unfortunate because after graduation a new nurse is expected to manage multiple patients. A new graduate within a few weeks may be caring for four to six patients during a shift.

The Precepted Clinical Experience

In a precepted clinical experience, students learn one-on-one with a registered nurse while still being guided in the experience by a nurse educator (DeYoung, 2003). The preceptor is a practicing staff nurse, employed by the clinical facility, who exposes the student to his or her work through dialogue, observation, and role modeling (Clayton, Broome, and Ellis, 1989). Each student in the precepted clinical rotation group is assigned to work a specified number of hours with an experienced nurse during the nurse's regular shifts which may be nights, days, weekdays, or weekends. The faculty clinical instructor makes periodic visits to meet with the student and preceptor in the clinical area and is available by phone or beeper. In visits with the preceptor, the faculty can gather evaluative input from an informed perspective since the preceptor spends many hours with the student (Bonnel, Gomez, Lobodzinski, & West, 2005). Faculty find they have more quality time to facilitate learning during visits with the preceptor and student because they are not also focused on several other students and patient care issues at the same time (Beeman, 2001). Faculty as the link between education and practice (Stokes & Kost, 2005) are ultimately responsible for the learning experience and evaluating the learner outcomes (DeYoung, 2003; Hunsberger, Baumann, Lappan, Carter, Bowman, & Goddard, 2000; Litwack, Linc, & Bower, 1985; Reilly & Oermann, 1992).

Next, proposed strengths of the precepted experience including close practice with a role model, student perception of a focus on learning, and increased experience and authenticity of the experience will be offered. Finally, the controversy related to the most appropriate use of the precepted model in the curriculum will be discussed.

Experience with a Practicing Role Model

Clinical faculty can be role models for students but what the one-on-one relationship with an experienced practicing nurse can offer to a student is the credibility the preceptor has in the clinical setting. The preceptor may hold more credibility with the student as a competent nurse than a faculty member who may seem out of touch with the day to day functioning in a clinical setting. A good preceptor knows how the system works, the routines, the physicians, and the other members of the healthcare team that come and go from a clinical unit. The student through the preceptor has access to this culture in a way that is more difficult, if not impossible, through a faculty clinical instructor. In teaching students about the work management role of nursing, the staff nurse is seen as the most qualified person because of the clinical credibility and acceptance by the staff (Edmond, 2001).

Perception of Learning Focus Rather Than Evaluative Focus

Students often have the perception that all experiences with a faculty clinical instructor are evaluative in nature. Therefore, students may be less stressed away from the direct supervision of the faculty and may view the precepted experience as more learning oriented. In a learning oriented experience, the student is able to engage in reflective thought, experience success in patient-centered care, and have a feeling of competence which is enhanced by their role model (Loving, 1993).

Increased Experience in More Realistic Work Environment

The precepted clinical experience provides the student with enhanced learning opportunities such as caring for multiple patients, performing many more psychomotor skills, working different hours, and interacting with other healthcare providers, while receiving one-on-one attention, guidance, and feedback from an experienced registered nurse who has been trained to precept students. This experience assists the student with skill development, self-confidence, and socialization into a new role (Clayton, Broome, & Ellis, 1989; Ferguson, & Calder, 1993). Students can also learn from closely working with the nurse preceptor in assessing patients and hearing the preceptor think aloud in processing the findings, as well as receive immediate validation of their own findings as they perform assessments. Overall, the student can experience a more typical day in the life of a nurse (Beeman, 2001).

Precepting: What Curriculum Level is Most Appropriate?

There is not agreement as to the appropriate level in the curriculum for the precepted model. O'Mara (1997) proposed that the precepted model could be used at anytime from the first clinical exposure to the orientation experience as a new graduate. Similarly Rowles and Cole (2005) asserted that while precepted experiences may be useful at all levels of education, they are particularly useful for senior and/or graduates level clinical instruction. Others disagree with these opinions and claim that the precepted model is not appropriate for teaching beginning students the knowledge, skills and abilities of nursing (Ellis & Clayton, 1989; North Carolina Board of Nursing, n.d.).

The precepted model has generally been used at the senior level to assist students in preparing for role transition (Laschinger & MacMaster, 1992; Reilly & Oermann, 1992) and anticipatory socialization (Dobbs, 1988; Goldenberg & Iwasiw, 1993; Nesler, Hanner, Melburg, & McGowan, 2001) or by hospitals as a format for orientation of new graduates (Anderson, 1998; Bartz & Srsic-Stoehr, 1994; Brasler, 1993; Giles & Moran, 1989; Shamian & Lemieux, 1984). But why is the preceptor model considered more appropriate for students near the end of their educational programs or at the beginning of their nursing careers? There is no data or rationale given to support this position.

A contemporary challenge in nursing education is to optimize the clinical experience (Taylor, & Care, 1999). The precepted model of clinical education, which draws on the expertise of practicing nurses to assist with the clinical instruction, is proposed as an alternative to provide a richer clinical experience at the junior level. By applying this model earlier in the program, students are not only able to begin the process of professional socialization earlier but progressively increase confidence, enhance problem solving skills, gain opportunities to apply theory to practice, and develop a repertoire of psychomotor skills.

Statement of the Problem

As addressed in the previous discussion of two different models of clinical education there are many issues impacting clinical experiences for students. Research has been conducted to study many aspects of precepted clinical experiences including: clinical competence (Scheetz, 1989; Yonge & Trojan, 1992), clinical gains in competence and self-efficacy (Brehaut, Turik, & Wade, 1998), professional socialization (Clayton, Broome, & Ellis, 1989), role conception (Hyton, 1993; Itano, Warren, & Ishaida, 1987; Olson, Gresley, & Heater, 1984), and performance (Myrick & Awrey, 1988). While all of these studies have added to the body of knowledge related to precepting, there is not a clear trend in the findings related to competency development. Additionally, there are concerns regarding some of the research methodology and design. These issues will be addressed below.

Methodological Problems with Previous Studies of Preceptorships

None of the studies reviewed related to precepting students used an experimental design. Several studies compared precepted and traditional clinical groups but they used convenience, non-randomized samples (Brehaut, Turik, & Wade, 1998; Clayton, Broome, & Ellis, 1989; Hyton, 1993; Itano, Warren, & Ishida, 1987; Myrick & Awrey, 1988; Olson, Gresley, & Heater, 1984; Scheetz, 1989; Yonge, & Trojan, 1992). In some of these studies (Itano, Warren, & Ishida, 1987; Olson, Gresley, & Heater, 1984; Scheetz, 1989; Yonge & Trojan, 1992), the students selected the type of clinical experience in which they would be enrolled. While this type of research related to precepted and traditional clinical experiences has added to knowledge about the relationships between these two models, these types of studies do not allow for any conclusions about cause-and-effect relationships (Fraenkel & Wallen, 2000).

Clinical settings with their complexity are rich learning environments but this complexity makes research difficult (DeYoung, 2003). Bain (1996), in a literature review related to preceptorships, found that much of the literature lacked the details needed for replication. Because of the combination of the complexity of the clinical setting and the lack of details given in many of the studies, several methodological and design issues in past studies need to be examined closer. For example, some of the reports of previous studies have lacked enough detail to interpret the amount of clinical experience involved in the study. Laschinger and MacMaster (1992) offered a very specific time frame and stated that the students participated in a minimum of 288 hours of clinical time but Yonge and Trojan (1992) describe the clinical experiences as three and six weeks in length with no description of the amount of time per week or hours per experience.

Preceptorships and Competency

Some studies identified significant increases in competence in the precepted students' performance compared to the performance of non-precepted students (Clayton, Broome, & Ellis, 1989; Scheetz, 1989). However, Yonge and Trojan (1992) found that non-precepted students had gains in more areas of the instrument used than the precepted students. Other studies revealed mixed results. Scales, Alverson, and Harder (1993) found mixed results when they compared students' ratings of their performance following a precepted experience. They found that the precepted students had significant increases in planning and evaluation and significant decreases in teaching and collaborating. Another study had variable results that were dependent on who rated the performance – the student, the investigator, or the preceptor (Myrick & Awrey, 1988). Finally, Olson, Gresley, and Heater (1984) found no significant difference in professional role mastery between precepted students and students in traditional clinical experiences.

Precepting in the Junior Level of Baccalaureate Program Clinical Experiences

In addition to the issue of mixed results, there is a lack of studies in the literature focused on the use of precepting for junior level students. This along with the differences of opinions regarding the placement of precepted experiences in the curriculum makes it difficult to make decisions based on sound evidence. Most of the quantitative studies reviewed involved either senior students (Clayton, Broome, & Ellis, 1989; Dobbs, 1988; Goldenberg & Iwasiw, 1993; Goldenberg, Iwasiw, & MacMaster, 1997; Laschinger & MacMaster, 1992; Myrick, 2002; Myrick & Awrey, 1988; Nehls, Rather, & Guyette, 1997; Sandoval, 1995; Scales, Alverson, & Harder, 1993), a mixed group of a few juniors with a majority of seniors (Barrett & Myrick, 1998), a summer experience between the junior and senior year (Olson, Gresley, & Heater, 1984; Rush, Peel, & McCracken, 2004; Scheetz, 1989) or the class level of the students was not identified (Coudret, Fuchs, Roberts, Suhreheinrich, & White, 1994; Hylton, 1993). Only one quantitative study (Yonge & Trojan, 1992) specifically focused on third year students. Two qualitative studies (Peirce, 1991; Young, 2004) did identify a focus on junior level students. The literature does reveal a move to include junior level students in precepted experiences as evidenced by sporadic identification of juniors along with senior students as the subjects in the studies (Barrett & Myrick, 1998; Brehaut, Turik, & Wade, 1998). Two anecdotal reports of pilot projects, specifically describing the use of preceptors with junior level students, have also been published (Beeman, 2001; Haas, Deardorff, Klotz, Baker, Coleman, & DeWitt, 2002). Since the literature depicts a trend toward applying the precepted model to junior level clinical experiences, the outcomes for this population need to be explicitly studied with more quantitative research.

As addressed thus far in this chapter, nursing education is approaching a crossroad and can no longer depend solely on the teaching models utilized in the past. Since nursing is an applied practice discipline, effective clinical education is paramount in preparing competent practitioners. Decisions regarding clinical teaching models must be developed using research as opposed to tradition and habit. There is sparse information in the literature that speaks to sound clinical education research and the clinical education of the beginning level student has received less attention than that of students preparing to enter practice. Research that studies outcomes of traditional versus precepted clinical education models for junior level students must be conducted with clearly defined detail in the design and more rigorous control to provide more useful data. Particularly, the application of the precepted model for the junior level student has not been studied sufficiently. For it is only through research that nursing educators can make decisions from a fully informed perspective.

Conceptual Framework

The two clinical teaching models being compared in this study are grounded in different theoretical perspectives. The traditional clinical model is deeply embedded in the behaviorist learning theories (O'Connor, 2001). In developing a conceptual framework for the precepted model of clinical education, concepts from several theoretical models were used and related to explain the expected outcomes of this type of clinical experience. Bandura's (1977, 1997) work related to expert modeling, observational learning, and mastery of occupational roles, and situated learning as described by Lave and Wenger

(1991) will be used as a lens to view learning and to explain expected advantages of the precepted clinical experience compared to the traditional model. Visual representations of the traditional and the precepted models of clinical education are presented in Appendix A and B respectively.

Theoretical Underpinnings of the Traditional Model of Clinical Education

In traditional nursing education, the emphasis is on the outcomes of learning as reflected in the achievement of behavioral objectives in the clinical setting (O'Connor, 2001). Clinical objectives reflect cognitive, psychomotor, and affective behaviors. In addition to the historical underpinnings of the behaviorist approach to teaching and learning in nursing, behavioral objectives have traditionally been required by accrediting agencies for nursing education and have partially driven this focus. Merriam and Caffarella (1999) identify several education practices that arise from behavioral learning theory including the use of behavioral objectives, systematic design of instruction, the importance of the instructor's accountability, and competency-based education. These educational practices arising from the behaviorist perspective have been used in traditional clinical education for nursing. Traditional clinical experiences have been designed with the key relationship of teaching and learning being the clinical faculty and student relationship. The clinical faculty have controlled the patient assignments of the students, maintained control and direct supervision of the clinical experience, and based evaluations on achievement of behavioral objectives, often based on competency checklists. In this model as depicted in the schematic figure in Appendix A, the students and faculty are apart from the culture of the clinical unit. The students do have contact and interactions with staff nurses, and other healthcare disciplines but do not primarily engage with these other members of the clinical unit culture due to the presence of the clinical faculty and the focus of the teaching-learning interactions with the student and clinical faculty. The outcome of the student's performance is measured by comparison to clinical behavioral objectives. The student's development of clinical competency can be hampered from limited involvement in the culture, limited exposure to direct, meaningful interaction with practicing nurses, and limited exposure to a variety of patient care situations.

Model of Precepted Clinical Education

A schematic depiction of the precepted clinical model is presented in Appendix B. The concepts/theories of master modeling and situated learning which are part of the social learning and constructivist theoretical traditions are represented in this model and will be described.

Mastery of Occupational Roles through Modeling and Observational Learning

Modeling of occupational roles. Master modeling as described by Bandura (1986) can be used to develop intellectual, social, and behavioral competencies. The method reported to produce the best results involves three major elements. First, occupational skills are modeled. Through this modeling, basic rules and strategies are conveyed. Second, the learners receive guided practice so they can perfect the skills. Bandura discusses this as occurring in simulated conditions. Third, the learners are helped to apply their newly learned skills in work situations (Bandura, 1997). After subskills of complex skills are learned in this way, they can be combined to serve different purposes and to deal with different situations. In nursing, some of this modeling of subskills usually occurs early in the program as students observe skill performance and then practice in a skills lab on campus. The third element, application in a work situation, occurs in the clinical setting where the actual complexity of day to day patient care can be experienced.

In a study by Andersen (1991), students reported that role modeling facilitated learning to anticipate problems and then helped them see how to take steps to prevent problems. The expectation with the precepted model of clinical instruction is that there will be many more opportunities for the student to be guided in the application of new skills through the one-on-one relationship rather than waiting for an instructor's guidance and instruction. Myrick (2002) suggested that the preceptor assisted the students in developing critical thinking skills, most often incidentally rather than purposively, through role modeling, facilitating, guiding, and prioritizing. In these incidental encounters, preceptors encouraged students to ask questions, examine problems, and consider alternatives. This increased opportunity is depicted in Appendix B by an overlapping of the student and preceptor figures showing opportunities for the preceptor to model and guide in many patient care situations depicted by the lines from the student/preceptor figures to several patients.

Modeling influences should be designed to build a sense of personal efficacy as well as to convey knowledge about rules (Bandura, 1997). Bandura suggests that the impact of modeling on beliefs about one's capabilities is greatly increased by perceived similarity to the models. Students may see the preceptor as more like themselves than academician clinical instructors who may have been out of active practice for a period of time.

The opportunity for students to work closely with an experienced nurse who embodies these characteristics cannot be overestimated. Modeling as a form of teaching was important part of what Benner, Tanner, and Chelsea (1996) found. They believe that close work with an experienced nurse is the only way a student can learn embodied nursing skills. Teaching by example and modeling of embodied skills is found in expert practitioners' modeling of complex, response-based skills such as turning a dying cancer patient in a manner that lessens additional pain and then the student can try to imitate the skill. Only by observing an experienced nurse can the student appreciate and learn the skills associated with comforting and 'being-with' that are embodied. In discussing the implications of their study for nursing education, Benner, Tanner, and Chelsea (1996) suggest that students work with experienced nurses who can guide them and reveal saliences, nuances, and qualitative distinctions in a patient's condition. They advocate focusing the students' attention on what is relevant. In working with preceptors, students can be coached in what is relevant, irrelevant, and can compare and contrast the many clinical situations they will see.

Observational learning. Bandura (1977), in this earlier work, discusses the role of observational and vicarious learning. He suggests that the capacity to learn by observation allows the learner to acquire large, integrated patterns of knowledge in a much shorter length of time without having to learn by trial and error. He suggests that very complex behaviors (e.g. learning language) can only be learned through some use of modeling.

Davies (1993) found that the major aspect of nursing uncovered by students through observation of their preceptors as role models was providing direct patient care with creativity and flexibility. It is expected that students in a precepted experience will have many more opportunities to observe the experienced preceptor in clinical situations. This is depicted in the model through the student caring for more patients and through observing procedures with other patients. According to Benner, Tanner, and Chelsea (1996), students who are precepted may have more opportunities to observe with other patients on the unit because other staff nurses on the unit who are not overwhelmed with many other learners are more willing to bring students into observe interesting procedures or findings. The precepted model (Appendix B) depicts a much less chaotic environment with fewer learners on the unit at one time than the traditional model.

Learning in Practice: Situated Learning

The premise of situated learning is that knowledge acquired in specific situations is more powerful and useful than knowledge that is decontextualized and abstract, that cannot be applied to specific situations (Orey & Nelson, 1994). Context of learning matters (Wilson, 1993) and it is seen as a social phenomenon rather than a process occurring in the mind (Orey & Nelson, 1994). Schön (1987) suggests that learning professional artistry or competence in unique, uncertain, and conflicted situations of practice depends on access to coaches who guide and initiate students into the traditions of the profession through reflection-in-action. Situated learning is not just learning by doing but is described by Lave and Wenger (1991) as learning that is "an integral and inseparable aspect of social practice" (p. 31). The two terms used by Lave and Wenger to characterize learning are legitimate peripheral participation and community of practice.

Legitimate peripheral participation. Lave and Wenger (1991) use the term legitimate peripheral participation (LPP) to suggest a gaining of access to growing involvement. LPP is not meant to be an educational technique but a way of understanding learning – either intentional or unintentional. Learners as peripheral participants are able to have a view of the "whole" and what can be learned from engagement in practice. This is depicted in the model by the student being almost entirely enclosed in the clinical unit culture. Lave and Wenger suggest that learners in LPP do not acquire skills from observation and imitation alone but through participation as learning –"of both absorbing and being absorbed in –the "culture of practice" (p. 95).

Community of practice. A community of practice is defined by Lave and Wenger as "a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice" (p. 98). As learners move toward full participation in the community of practice, they take on broader responsibilities and more difficult and risky tasks, and experience an increasing sense of taking on the identity of a master practitioner. Taylor and Care (1999) describe the importance of the sociological aspects of clinical learning. "Immersion in professional practice and interactions with expert practitioners, patients, and other students are essential elements in developing not only technical knowledge but also beliefs and cultural norms that guide nursing practice" (p. 35). In the model, the student, preceptor, and instructor all overlap, depicting the relationships involved in the learning experience for the student. The lines to patients and to other healthcare providers show the student taking on more care and responsibility than is possible in the traditional clinical model.

Authentic activities. Related to the idea of LPP, other authors discuss the importance of authentic activity in learning (Brown, Collins, & Duguid, 1989; Wilson, 1993). Wilson suggests that learning and knowing need to be in actual situations not in artificial settings and that "problem solving and human cognition practices are carried out in conjunction with the setting, not simply as internalized mental processes" (p. 77). Wilson offers internships for physicians, clerkships for lawyers, and apprenticeships for architects, as examples of learning that is situational, tool dependent, and involves social interaction. Brown, Collins, and Duguid (1989) suggest that learners in traditional education are often asked to use tools and knowledge of the discipline without being able to participate in the culture.

Benner, Tanner, and Chelsea (1996) suggest that participation in many total patient care experiences supports the development of analytical thinking and the ability to see qualitative distinctions among patient manifestations. They explain that in teaching clinical judgment, students need help in recognizing aspects of real-life situations rather than context-free features that might be learned in the classroom. They need help in recognizing the relevant and ignoring irrelevant information in many situations and then, generating possible explanations for data they have gathered. The student and preceptor caring for their patients is a more authentic learning experience because it does take place not only in the clinical setting but also within the culture of the clinical unit. By caring for more patients, accomplishing more tasks, and interacting in more patient care situations within the unit, the student also reaches a more authentic level of practice.

The Precepted Clinical Model – Leading to Competence

As depicted in the precepted clinical model (Appendix B) the connection of the student to the culture of practice through almost total immersion of the student in the culture is meant to show that, although the student is included in the culture, it is not anticipated that in a few weeks the student could become completely immersed in the culture. But learning in an authentic situation with practicing nurses has the effect of placing learning into a meaningful context as well as stimulating a reexamination of the theoretical component of their learning (Cope, Cuthbertson, & Stoddart, 2000). The precepted student should be able to benefit from increased engagement in practice than that depicted in the traditional model where the student is closely tied to the clinical faculty for instruction and support and is not included in the culture of practice.

Nurse preceptors, who maintain immersion in clinical practice, are clinically credible and as active teachers in the clinical areas are the most appropriate people to teach practical skills and responsiveness to situations. Through the preceptor, the student has a skilled role model, opportunities for observation, gains access to many more learning situations and is guided in learning in the authentic situations of the acute care nursing unit. Student nurses are much more likely to reach the level of social interaction and become "embedded in the culture" if they are working one-on-one with staff nurses rather than working in the clinical setting with a nursing instructor and with several other nursing students on the unit. These experiences provide many more opportunities for students to practice and increase competence in problem solving, applying theory to practice, and psychomotor skills. The increased competence that the student may gain through this learning experience is depicted in the model by a color gradient in the student figure from light for a dependent level to dark for an independent level of functioning. The student in the precepted model is shown near the independent range while students in the traditional model are predicted to be closer to the dependent level.

Purpose of the Study and Research Question

The purpose of this research will be to compare the clinical competency outcomes of nursing students using two methods of clinical education – the precepted model and the traditional model. Specifically, this research will focus on the innovative application of the preceptor model in the junior year of a baccalaureate nursing program. The research question posed is:

1. Will junior nursing students in the precepted clinical group achieve higher levels of clinical competence compared with the junior nursing students in the traditional clinical group?

Significance of the Study

This study will add to the body of knowledge related to the precepted model of clinical nursing education. First, it explores areas that have previously been addressed very little in the literature related to precepted experiences for junior level nursing students. While a quantitative study (Yonge & Trojan, 1992) and two qualitative studies (Pierce, 1991; Young, 2004) of the use of the precepted model with junior level nursing students exist, the results do not provide strong measurable outcome information for decision making related to the clinical model used for junior level nursing students in the Western Carolina University program.

The nature of the precepted model of clinical education, as it will be implemented, potentially adds to the number of clients students care for and increases the level of professional interactions in an authentic clinical setting. Potentially, the results of this study may be used to redesign clinical education at Western Carolina University to allow for more authentic, enhanced, and efficient use of clinical time for students. This redesign of the clinical experience will use the rich resources of the practicing nurses in the region and will promote a supportive, collaborative learning relationship between the student, preceptor, and instructor. If the findings of this research suggest the precepted model is useful in improving clinical competence for junior students and the precepted model is then used throughout the program, this may not only lead to more competent graduates but may also lessen the anxiety new graduates face in the transition from student to practicing registered nurse since they will have already had a more realistic experience of practice early in their education. These graduates, after they have some time to develop their own expert practice in their chosen areas of nursing. could be the preceptors and master role models for the next generation of students.

The results of this study related to the level of competence development in junior level students and comparison to previous studies with other populations will add to the dialogue about the use of the precepted model. This study potentially may lead to additional research related to measuring different concepts (e.g. socialization, role conception, self-efficacy) in the junior level population as these concepts have been studied in senior students and graduates. Since clinical performance and competence is highly valued in nursing, the present study is a logical beginning.

Given the importance of clinical education to the preparation of nurses for practice and the lack of a research basis for some of the choices currently made for the design of clinical experiences, this work's contribution to the body of knowledge about clinical design may influence clinical education in western North Carolina, the state, and even nationally. If the precepted model is shown to be effective in developing competency more efficiently and effectively than traditional models, then faculty and students may be freed from the antiquated model of clinical education that is based on tradition and common sense and was created when the health care delivery system was very different. The precepted model could free faculty to spend time facilitating learning with the student-preceptor dyad rather than dealing with the triad of instructor-student-patient in the traditional model where the very real and pressing patient care issues usually dictate the priorities of the clinical day rather than the learning needs of the student. If the precepted model becomes more the norm of clinical education, then more consistent training and development of practicing nurses as clinical teachers could become the standard of educating nurses (Young, 2004). Nurses are already educated in the principles and practices of teaching and learning for their role in patient education. Thus, the addition of education to become clinical teachers of students is related to content already in the curriculum and can be part of learning to facilitate and support the growth of the profession. This model of clinical education could be more effective and efficient by using the talents of all those involved to the greatest good for the students – teachers will be teachers and excellent clinicians will be the excellent role models who draw the student into the community of practice and learning in authentic settings.

Limitations

There are a few limitations in the design and proposed implementation of this study. The characteristics of the population, the variations inherent in instructions and clinical facilities, and time are limitations identified for this study.

First, the population of the junior nursing students at Western Carolina University is the focus of the study. The results will not be generalizable beyond this population. In this population, the students come to a clinical experience with varying past experiences related to nursing care. All will have one semester of basic clinical experience but some of the students will have been nursing assistants for some time and others will be relatively new to the clinical experience. A few students may have other experiences in healthcare related to other disciplines.

A variety of nursing care units in a variety of acute care hospitals in western North Carolina will be used for this study. This variety inherently adds some differences to the experiences for the students. All students, whether in a precepted or a traditional clinical experience, will be assigned to a medical-surgical nursing care unit. While the medical-surgical units used for the study were chosen for some consistency across facilities, these clinical sites vary some due to client populations and organizational culture.

In addition to clinical facility differences, the precepted students will be assigned to approximately thirty different preceptors and three different faculty clinical instructors. The traditional groups will be assigned to three different faculty clinical instructors. All of these preceptors and faculty clinical instructors will be involved in completing the instrument measuring clinical competence. While the faculty clinical instructors are all experienced teachers, the preceptors may vary significantly related to experience as nurses and as preceptors.

Finally, the study will be conducted over a six week clinical experience. The effects of the precepted experience might be more pronounced if the experience were longer. There was no study found that suggests a minimum amount of time needed in a clinical experience for a change in competence level.

Definitions

The following are definitions of terms used in this study:

Clinical Competence – The ability to utilize the problem-solving process, apply theory to practice, and perform psychomotor skills (Scheetz, 1989).

Faculty Clinical Instructor – A registered nurse who holds at least a master's degree in nursing and who is employed by the university. The clinical instructor organizes the traditional and precepted clinical experiences and ultimately evaluates the students' performance at the completion of the clinical rotation. In the case of the precepted experience, the evaluation is completed by the clinical instructor in conjunction with the preceptor.

Junior Level Nursing Student – A student who has completed two years of prerequisite and liberal studies courses who has been accepted by a selective process into the nursing program.

Preceptee – A junior student enrolled in a medical-surgical nursing course in the basic baccalaureate nursing program of Western Carolina University.

Preceptor – A registered nurse with at least one year of clinical experience and at least one year of experience on the unit where the nurse is precepting, who is employed by the hospital and will serve as an on-site instructor and supervisor of the student's performance. The preceptor will complete training in the principles of adult learning, methods to enhance critical thinking, clinical skill development, providing feedback and evaluation, and managing difficult situations.

Preceptorship – A clinical experience in which a preceptee is paired with a preceptor for 72 hours which is the equivalent of six weeks of 12 hours of clinical. The student arranges to work with the preceptor during his/her regular work schedule.

Traditional Clinical – A clinical experience in which a group of approximately 10 students is assigned to one nursing unit, to be instructed and supervised by one on-site clinical instructor for 12 hours per week for a total of six weeks.

CHAPTER 2

REVIEW OF LITERATURE

The literature related to clinical education was examined for studies and reports related to competence assessment in nursing education; competence development and the precepted model of clinical education; situated learning and clinical education; and then, specifically works related to the application of the precepted model to the clinical experiences of junior level nursing students. First,methodological and design issues found in the literature related to previous studies of the precepted model of clinical education will be discussed.

Methodology of Previous Studies of Precepting

In the research literature related to the precepted model of clinical education, there are some areas that lack descriptive detail for replication or comparison and some issues of design that weaken the research studies. These issues will be presented.

In the literature, the length of precepted experiences are difficult to interpret and compare due to the lack of consistency in the details offered in describing experiences. Some authors offer only how many weeks and experience lasts without any explanation as to how many days a week or hours per the student is in the experience. Brehaut, Turik, and Wade (1998) describe the clinical experience as 12 weeks in length without any numbers of days or hours. Clayton, Broome, and Ellis (1989) similarly offer that the experience is five weeks in length while the experience in the Myrick and Awrey (1988) study is three weeks. Other authors provide a range of hours per week a student might participate in an experience. Some of these ranges vary considerably. Olson, Gresley, and Heater (1984) describe the experience in their study as eight weeks in length with 24 to 40 hours of clinical practice per week. Similarly Scheetz (1989) described the clinical experience as 10 to 12 weeks in length with 30 to 40 hours per week. Finally, some authors do provide the number of hours and more specificity in how these hours are scheduled. Scales, Alverson, and Harder (1993) describe the clinical experience in their study as eight hours per day, for five days a week, over a five week period of time.

Several studies reviewed had less (some significantly less) than 15 in each group (Brehaut, Turik, & Wade, 1998; Laschinger & MacMaster; Olson, Gresley, & Heater, 1984; Yonge, & Trojan, 1992). For example, Myrick, and Awrey's (1988) study with seven students in the precepted group and five students in the traditional clinical group had the smallest sample size found in the literature reviewed. Such small sample sizes affects the statistical power and bring the results into question.

Another issue of clinical design is related to variations in preparation of the preceptors (Bain, 1996). Training for preceptors varies widely in the literature. Some studies just identify that the preceptors attended some type of class or training without any specification as to the depth or content of the training (Myrick, 2002; Pierce, 1991; Rush, Peel, & McCracken, 2004). Trojan and Yonge (1992) reported that the preceptors in their study had no organized orientation but some of the clinical faculty did on-site, personal orientations while others were contacted by telephone. Many other studies did not indicate whether the preceptors were trained prior to the experience (Byrd, Hood, & Youtsey, 1997; Coudret, Fuchs, Roberts, Suhrheinrich, & White, 1994; Dobbs, 1988; Goldenberg & Iwasiw, 1993; Itani, Warren, & Ishida, 1987; Laschinger & MacMacMaster, 1992; Myrick

& Yonge, 2001; Nehls, Rather, & Guyette, 1997; Nesler, Hanner, Melburg, & McGowan, 2001; Young 2004). Others identified that orientation of the preceptor to the role was important in their findings because some preceptors had been negatively rated by preceptees (Johnson, 1999).

Many of the studies, related to competency, conducted clinical experiences in a variety of types of clinical nursing units. While it might be argued that competency can be developed in any type of nursing unit, competencies such as psychomotor skills, therapeutic communication, level of difficult of problem solving situations would vary greatly among types of clinical units such as critical care, emergency room, pediatrics, obstetrics, and medical-surgical units. None of the studies reviewed seemed to control for this type of variability in the clinical settings of the student assignments. Some did not report the type of clinical units used (Olson, Gresley, & Heater, 1984). Others report in vague terms such as numerous and varied (Clayton, Broome, & Ellis, 1989). Myrick and Awrey (1988) report nine different unit types including the operating room, intensive care, emergency room, along with medical, and surgical units. Scheetz (1989) reports that the nine acute care hospitals were used and were matched for size, and geographical setting, and teaching affiliation but she does not discuss unit types. In part of her analysis, she reports a significant difference in the groups was due to courses already completed and only a few students were in these specialty types of units (e.g. obstetrics and pediatrics).

In addition to the nonrandomization of groups in all of the studies reviewed that was discussed in Chapter One, the appropriate instrument use is another design issue found in this literature review. Yonge and Trojan (1992), in a study comparing the preceptor model of clinical education to traditional clinical, reported that using the Schwirian Six Dimensional Scale of Nursing Performance (6-D Scale) was a problem in their study. They report that the instrument was designed for use with practicing nurses rather than students. Schwirian (1978) describes this instrument as an appropriate appraisal of the performance of nurses in job settings, as a self-appraisal, employer appraisal, and nurse graduates' perceptions of adequacy of nursing school preparation. Several other studies used this instrument with students rather than with practicing nurses (Barrett & Myrick, 1998; Clayton, Broome, & Ellis, 1989; Myrick & Awrey, 1988; Olson, Gresley, & Heater, 1984; Scales, Alverson, & Harder, 1993). Clayton, Broome, & Ellis used the 6-D Scale to measure socialization rather than competency or performance which was a different application of this instrument other than the focus of its design.

Because clinical settings are so complex, there may be other variations in some of the clinical designs that are not revealed in the written reports. Bain (1996) in a preceptorship literature review found that much of the literature lacked the details needed for replication.

The previous discussion of methodological issues brings into focus some of the difficulties and complexities of research related to clinical education. Attending to some details in description and commitment to a design that controls, as much as possible, for variations in experiences could lead to a stronger body of research related to the precepted model of clinical education.

Measuring Competence

Girot (1993) suggests there is some confusion around the meaning of competence. In her study, participants had two perceptions of competency – one related to performance of activities and the other related to a state of being. Two fairly recent reviews of the nursing literature (Bradshaw, 1998; Watson, Stimpson, Topping, & Porock, 2000) related to clinical competence reveals some of the same confusion or lack of agreement. Bradshaw (1998) concludes that nursing competency is defined in vague and board terms. Even though there has been progress in describing outcome criteria for nursing programs, there is no universal agreement related to indicators of quality clinical performance (Krichbaum, Rowan, Duckett, Ryden, & Savik, 1994). Watson, Stimpson, Topping, and Porock (2000) found that competence had been difficult to measure and methods used to measure competence had not demonstrated reliability and validity. They further suggest that few papers related to the topic have sufficient academic rigor to inform the debate related to clinical competence. Some of the issues they raise related to assessing competence, are problems in determining what to assess, and how to balance the issues of objectivity and unfamiliarity. Objectivity may be a problem when socialization processes may have occurred (as in a precepted experience) which might bias the evaluation. A non-representative assessment of competence might be completed by an assessor unfamiliar with the student's performance after a short observation. They suggest that self-assessment may be a useful adjunct to other measures of clinical competence.

Scheetz (1989) found a lack of much published research related to clinical competence development of nursing students. She further found instruments developed for evaluation in individual courses but found a lack of instruments with acceptable psychometric data to measure clinical competence. Several authors have ventured into developing a method to describe and more importantly evaluate clinical competence or performance but many tools for clinical performance remain subjective in nature (Woolley, Bryan, & Davis, 1998). This present review of literature reveals little progress developing instruments to measure or evaluate competence in nursing students.

Woolley, Bryan, and Davis (1998) developed a five part summative clinical evaluation for use with students enrolled in an associate degree program with an attempt to overcome some of the subjective aspects of the clinical evaluation process. The five part evaluation includes: the ability to consistently exhibit professional behaviors, a random skills performance examination, a plan of care examination, a critical situations examination, and the required course assignments. They presented a vague statement about reliability of the critical situations examination, and the results of a correlation study (N=76) of the critical situation examination with the theory grades and the clinical instructors' assigned grades. They reported an r value of .44 (p=.00). No other reliability or validity information was presented for the project.

Scheetz (1989) developed and tested the Clinical Competence Rating Scale (CCRS) with the goal of creating an instrument that was generic enough in nature to be used in a variety of clinical settings, would have acceptable psychometric properties, would be flexible enough to use in a variety of clinical settings, and could be easily administered and scored. After an extensive literature review, Scheetz defined clinical competence as effective and efficient performance in problem solving, application of theory to practice, and psychomotor skill performance. She developed the instrument in these three areas based on Primm's 1986 competency statements and the National League for Nursing's 1978 statement of characteristics for baccalaureate graduates. She conducted studies to determine reliability and validity of the instruments and included this data in her work. This data is described in detail in Chapter Three.

Further validation of the use of the Scheetz (1990) instrument by preceptors comes from a study by Ferguson and Calder (1993) in which they investigated the following using the CCRS instrument: the similarities and differences between nurse preceptors and nurse educators in their assessment of importance of performance criteria, and how the level of educational preparation of the nurse preceptor influences the way the preceptor assesses the importance of performance criteria. The authors adapted the CCRS by Scheetz (1990) to a valuing scale and named it the Clinical Competence Criteria Valuing Scale (CCCVS). They found no significant difference between the educator and preceptor groups for the total CCCVS. In a comparison of items, there was a significant difference between educators and preceptors valuing of only seven of the total (53) items. When hospital preceptors with and without a baccalaureate degree were compared, there was a significant difference on only two items. Experience did not affect the valuing of competence criteria to a great extent. When preceptors with five or more years of experience were compared to those with less than five years of experience, a significant difference in valuing was seen on only two items.

Clearly more work needs to be done related to competency assessment in nursing. Additional research needs to be conducted using the current measures to further test the validity and reliability data. Creation of additional efficient methods to assess competency also needs to be considered for the future.

Preceptorships and Competence Development

Several studies were found in the literature that examined the issues of competency development and precepting. First, exploratory studies will be examined, followed by quasi experimental studies that compared groups who were precepted with some type of control group. Finally, some qualitative studies will be reviewed that relate to competency development.

Two studies were found that examined the development of various types of competency in nursing students without using a control group. Laschinger and MacMaster (1992) conducted an exploratory study using Kolb's theory of experiential learning to examine a senior preceptor experience. This study involved an extended experience by the students (n=20) of 288 hours of clinical time. The analysis for this study was pretest-posttest, paired t tests. While the increases were seen in all competences, significant increases (p>.05) were observed for 11 competences including: gathering information, imagining implications of ambiguous situations, building conceptual models, testing theories and ideas, analyzing quantitative data, experimenting with new ideas and approaches, choosing best solution, being personally involved, influencing and leading others, seeking and exploiting opportunities, and dealing with people. The authors report that compared to their expected results from a literature review, the students' abstract skills improved more than expected following this experience suggesting they were able to use theory and conceptual knowledge and apply it in the clinical setting.

Scales, Alverson and Harder (1993) also used one group and a prettest posttest design but used the Schwirian 6-D Scale to determine if a preceptorship program was effective in increasing performance. The report of this study also provided a detailed description of the amount of clinical time which was eight hours a day, five days a week, for five weeks (i.e. 200 hours). The authors describe using a variety of clinical units but do not offer more detail. The results of this study are mixed in that the *t*-test analysis of the pretest-posttest revealed statistically significant ($p<.05$) improvement in quality of planning and evaluation, it also revealed a statistically significant ($p<.05$) decrease in the students' confidence in teaching/collaboration. The students rated teaching/collaboration highest of the subscales prior to the experience and lowest of the subscales after the experience. The authors suggest this decrease may be due to difficulty performing this role while caring for more patients.

Clayton, Broome and Ellis (1989) and Myrick and Awrey (1988) used a pretest posttest design and the 6-D Scale to examine the precepted experience in two different studies. Myrick and Awrey use the 6-D to measure clinical competency and Clayton, Broome, and Ellis use the same instrument to measure professional socialization. Both studies use a variety of types of clinical units. Myrick and Awrey give a list of types of units but do not explain which units were used for precepted clinical. The amount of clinical experiences were vague in both studies, only offering the number of weeks in the clinical setting. The Myrick and Awrey study involved a three week experience and the Clayton, Broome, and Ellis study involved a five week experience. These two studies varied widely in numbers of subjects. The Myrick and Awrey study was small (N=12) with seven students being precepted and five students assigned with a clinical instructor. The Clayton, Broome, and Ellis study was much larger (*N*=66) with the students divided equally between the precepted (*n*=33) and nonprecepted groups (*n*=33).

When comparing the results of the pretest-posttest t-tests for these two studies statistically significant increases are seen in most areas of the 6-D Scale. Myrick and Awrey (1988) found the precepted students rated their performance significantly better ($p<.05$) at the end of the three weeks in critical care, teaching/collaboration, planning/evaluation, interpersonal relationships/communications, and marginally significantly ($p<.01$) better in professional development. Students who were not precepted rated their performance as being marginally significantly ($p<.01$) better in professional development. At six months after the clinical experiences, Clayton, Broome, and Ellis (1988) found the precepted students had significantly higher scores ($p<.05$) in four of the six subscales including: 1) leadership, 2) teaching/collaboration, 3) planning/evaluation, 4) interpersonal relations and communication. The only two subscales in which there was not a significant difference were professional development, and critical care.

In addition to self rating by the students, Myrick and Awrey (1988) had the clinical instructors and each of the preceptors rated the student performance using the 6-D Scale at the end of the experience and the investigator and a research assistant rated the students' performance in both groups with another instrument – the Slater Nursing Competency Rating Scale (Slater Scale). When rated by the instructor and the preceptors, the two-tailed t-tests indicated that the subjects in the nonprecepted student group performed significantly better ($p<.05$) than the subjects in the precepted clinical experience in planning/ evaluation and marginally significantly better ($p<.01$) in the interpersonal relationships/communications subscale. When rated by the investigator and the research assistant with the Slater Scale, there was no statistical significant difference in the performance of the groups.

Two studies (Olson, Gresley, & Heater, 1984; Scheetz, 1989) investigated the effects of a summer precepted experience between the junior and senior years using a quasi-experimental design. Both of these studies involved longer clinical experiences of eight weeks (Olson, Gresley, & Heater) and ten to twelve weeks (Scheetz). The hours varied per week from 24-40 hours in the Olson, Gresley, and Heater study to 30-40 hours in the Scheetz study. Again in these studies, the sample sizes varied widely. Olson, Gresley, and Heater had eight students who worked with preceptors and had 36 students who were classmates of the precepted students but who were not enrolled in the summer course. Scheetz had a larger group of students (N=72) with 36 students being precepted by RNs and a control group of 36 students who were employed as nursing assistants in a noninstructional clinical setting. Olson, Gresley, and Heater do not offer a description of the summer experiences of the nonprecepted students whether they were employed in nursing, not in nursing, or were unemployed or engaged in activities which might have affected their self-ratings.

Olson, Gresley, and Heater (1984) used the 6-D Scale and found no significant difference between the groups in any subgroup of the scale. The authors share that the level of significance for the study was .05 but do not share any of the statistical data in the report. Scheetz measured competence with the Clinical Competency Rating Scale (CCRS) which she developed for this study to measure competence in three domains – problem solving, application of theory to practice, and psychomotor skill performance. Scheetz (1989), in contrast to the previous findings, found that the treatment group had a significantly (p<.05) greater gain in clinical competence in all three domains of the CCRS using an analysis of covariance.

Myrick (2002), in a qualitative study of preceptorships and critical thinking, found that the preceptors set the tone for learning by valuing the preceptees, displaying supportive attitudes, and working with them as opposed to directing them. Being open and approachable created a climate for critical thinking. The staff was also important in accepting the student into the practice setting. Öhrling and Halberg (2000) found some similar themes. They found that through understanding and acceptance by the preceptor, the student developed feelings of competence and positive self-esteem in learning. The authors found that when the students' most urgent needs were met then they could enter a new mode of learning. They could approach a situation with moderation, calmness, reflection and self-confidence. The preceptor and student in the one-on-one relationship could mutually decide when the student could take on more independence from an informed view of the student's abilities. This helped the student move towards increased competence and confidence.

Rush, Peel, and McCracken (2004), in a qualitative study of a precepted experience for students in the summer between their junior and senior years, identified the central process of the experience as "empowered learning on the inside." The learners reported having a wide range of experiences in the precepted experience that moved them from observer to doer. These students described quantum leap learning compared to traditional clinical experiences in terms of learning to see the big picture, being able to manage and prioritize care, interacting with patients, performing of skills, and developing thinking skills. They described this as a culture that allowed the students to experience the real world of nursing, immersed in the culture, and the feeling of being on the inside. This contrasted with traditional clinical experiences where students felt they were outsiders.

The literature review related to preceptorships and competency demonstrates mixed results related to competency outcomes. When viewed as a body of literature, there was no clear trend in the data. Designs in which the students had many hours of precepted experience such as the study by Scales, Alverson, and Harder (1993) the subjects had both significant increases and decreases in areas of competency. The two studies done with summer experiences by Scheetz (1989) and Olson, Gresley, and Heater (1984) with their contrasting results of significantly greater gains in competence for the precepted versus the nonprecepted students in the Scheetz study to the no significant differences in the Olson, Gresley, and Heater study, add to the research body related to precepting. But these mixed results, with some of the lack of information provided about how the studies were conducted and controlled, and the small amount of studies related to this specific topic weakens the usefulness of this information.

Situated Learning and Clinical Education

The clinical education literature was reviewed for studies related to social cognitive theory and situated learning. Some studies were found that used parts of Bandura's theory (e.g. modeling, self-efficacy) as a theoretical framework or foundation for their research in clinical education. Goldenberg, Iwasiw, & MacMaster (1997) used Bandura's model of self-efficacy as a theoretical framework in designing an instrument to measure self-efficacy. They did a pre- and post-measure of self-efficacy with students in a 12 week precepted clinical. They found a significant gain in measured self-efficacy score following the precepted clinical. Sandoval (1995) used social cognitive theory as the theoretical framework of her qualitative study of senior nursing students in a precepted experience. She described environmental factors such as type of clinical setting, the receptiveness of the preceptor in chance encounters as factors that influenced learning. In the area of personal and cognitive factors she found that students were able to use what they had learned in other courses and change or self-regulate behaviors. Finally students recognized that behavioral factors directly affected their learning. If the student was eager to learn the preceptor was eager to teach.

A study by Cope, Cuthbertson, and Bernadette (2000) examined students' experiences following clinical placements in a qualitative study in Scotland. The themes that emerged from their study were: joining the community of practice, the contexualization of learning, and the support of learning in practice. They described the students' acceptance in to the community of practice as having two aspects – a social acceptance and a professional acceptance. Their finding suggest that their mentors or preceptors had interacted with the learners in ways that facilitated learning using cognitive apprenticeship strategies consistent with situated learning. They also found in their study that sometimes learners felt a lack of acceptance in the community of practice. They explained that this could be due to some short placements. Only the total amount of clinical placements for the program was given in the report of the study. No time span was given for individual placements. The authors did suggest that clinical placement design could be improved by making mentors more aware of the importance of social and professional acceptance into the community and the effects on learning.

Preceptorships at the Junior Level of Baccalaureate Program

While many studies focusing on juniors related to the construct of clinical competence are lacking, one quantitative study and two qualitative studies were found. Additionally two authors have reported anecdotal findings in the literature after doing trials of placing junior level nursing students with preceptors.

The one quantitative study revealing findings specifically about third year students in a precepted clinical experience is a study by Yonge and Trojan (1992). This is the only study related to the combined concepts of precepting, competence, and third year students specifically. This quasi-experimental study of a precepted group (n=9) and a non-precepted group (n=19) of clinical students was conducted to determine the difference in the nursing performance between the two groups as measured by the Six Dimensional Scale of Nursing Performance (6-D Scale) by the students themselves, the preceptors, and the professors. The students completed the instrument at the beginning and end of the clinical experience and the preceptors and professors completed the instrument at the end of the clinical experience. The students were assigned to a variety of areas of clinical practice including: psychiatry (precepted and non-precepted), pediatrics (non-precepted), surgery (non-precepted), medicine (precepted), obstetrics (precepted), and hospital clinics (precepted).

Some of the placements were 3 weeks and some were 6 weeks in length. Precepted student data was collected by mail and non-precepted student data was collected in person.

In the Yonge and Trojan (1992) study, the non-precepted students had significant increases in more areas of the 6-D Scale than the precepted students. The non-preceptored group had significantly higher scores for five of the six areas of the instrument including: 1) leadership, 2) teaching, 3) planning, 4) interpersonal relations, and 5) professionalism. The precepted group had only two significantly higher scores including: 1) teaching and 2) professionalism. The preceptors generally rated the students higher than the students' self-evaluations and higher than the professors' ratings of the non-preceptored students. The authors suggest caution when interpreting the findings as they presented several limitations to their study including a small sample size, data gathering differences in the two groups related to some data being gathered by mail and others in person, a lack of standard preceptor orientation, and the use of an instrument designed for use with practicing nurses. An additional limitation identified in critically reviewing this study is that variability in the type of clinical practice units.

Pierce (1991) describes a qualitative study, conducted at Columbia University School of Nursing, where they use a precepted clinical for the very first clinical experience and for the last clinical experience of the curriculum. Her research questions were related to the students' perceptions of their clinical experiences and examining the difference between first-level and second-level students' perceptions of the precepted experience. In relating the differences in the experiences for the two levels, the author presented the different activities the students accomplished at each level. The first-level accomplishments were much more psychomotor skill and activity focused while the second-level accomplishments were more descriptive of leadership and complex care activities. The second-level students reported they would change nothing about their clinical but the first-level students indicated they needed more structure and guidance. Pierce cautions in her literature review that many earlier studies related to precepting were flawed and should be viewed with caution. She suggests that information was lacking because previous authors had not describe the clinical experiences adequately. It is interesting to note this caution by Pierce because she does not reveal the level of training of the preceptors in her study. She does offer that they receive an orientation to the program and a manual explaining their duties. Since the juniors in her study indicate they needed more guidance and structure, it would be revealing to know if the orientation provided training for the preceptors related to the structure and guidance needed by beginning level students. Since preceptorships are typically used for senior, more experienced students, the preceptors may have not been trained for the different needs of the two groups.

Young (2004), in a qualitative study, examined the application of the precepted clinical education to the clinical experiences of junior students. The student reflections included in this work were positively related to the precepted experience. While a story told by one student revealed initial intimidation in the experience, it also revealed an excitement about learning from a practicing nurse. The students revealed that the personal knowing and connection with a nurse led the students to more confidence in their learning to think and practice as nurses.

Two published anecdotal reports were reviewed because they specifically discussed the use of the precepted model of clinical education with junior level students. Beeman (2001) provides a thorough description of her implementation of using the precepted model with junior level students. She describes the training provided the preceptors based on her concerns about the junior level students' requirements for higher levels of supervision that the senior students or new graduates that the preceptors were accustomed to supervising. She provided training that included: strategies that enhance or hinder learning, clinical decision making, the unsafe student, placement of the experience in the curriculum, establishing a working relationship, liability issues, and evaluation issues.

Beeman (2001) reflected on the experience and believed that the clinical expertise of the nursing staff combined with her expertise in teaching and learning led to a sound educational experience for the students. She relates giving up some of her power and control of the clinical learning to the preceptor. She reveals a change in her role to a true facilitator of learning as she visited students in the clinical area. Since she did not have the stress of multiple tasks from giving medications to doing procedures with multiple students on the unit, she was able to review the student's work and facilitate the student's understanding of clinical situations. Outcomes Beeman identified for the students from this experience included: accomplishment of many more skills, a chance to think more holistically about their patients, caring for complex patients who might have not been chosen due to the faculty workload in a traditional clinical, learning first hand about the importance of prioritization and flexibility, interacting with people from different disciplines, hearing their preceptor think aloud as decisions were made, and being included in unit activities.

A pilot project with nine students was conduced by Haas, Deardorff, Klotz, Baker, Coleman, and DeWitt (2002) which introduced the precepted model of clinical education in the second semester of the junior year. A group of first semester seniors were also included in data collection. Most of the data was not differentiated for junior and senior students related to advantages and disadvantages. General advantages they found were: increased clinical experiences, increased confidence, continuity, improved time management, real world expectations, validation of chosen profession, flexibility, and responsibility for their own learning. Disadvantages of the precepted experience included: long days, limited patient populations, and scheduling difficulties, including problems if the preceptor was absent. In the unanticipated benefits, they did specifically discuss that students even at the junior level were able to maintain a team of four to six patients. Again, the authors identified that training was provided through inservices including the following content: forces driving nursing education and healthcare, teaching principles, learning types, roles of preceptors, faculty and students, possible advantages and disadvantages of the experience, and examples of interactions.

Summary

There has not been enough research conducted related to precepting at the junior level. In the one quantitative study related to precepting at the junior level, the authors themselves offer several items of caution for the use of the information from their study. This study was conducted at least 16 years ago but several more recent qualitative studies and anecdotal reports show a continued interest in this application of the precepted model so further quantitative studies should be done to examine this issue.

The body of literature related to the precepted model of clinical education in nursing related to methodological and design issues, competence assessment in nursing, competence and precepting, situated learning and clinical education, and finally the application of the precepted model in the junior level of the nursing curriculum was reviewed. This literature review demonstrates why further research is necessary and gives a frame of reference from previous studies and reports of the application of the precepted model with nursing students in general, and with junior-level nursing students specifically.

CHAPTER 3

METHODOLOGY

This chapter will describe various aspects of the study, including the research design, the participants in the study, the instrument used to operationalize clinical competence, the procedures that were followed, and the statistical methods that were used.

Research Design

A random, experimental, pretest, posttest, control-group design was used for this study. An experimental group will be precepted during the first seven week clinical rotation and a control group will participate in a traditional clinical experience. Students, preceptors and instructors will be asked to complete a demographic questionnaire at the beginning of the first clinical rotation. The clinical instructors who supervise the students in traditional clinical experiences in the fall semester will complete the Clinical Competence Rating Scale (CCRS) (Scheetz, 2001) as a baseline measure of clinical competence. These clinical instructors will not have any of the same students in the spring semester when the students will be divided into the experimental and control group. At the completion of the first clinical rotation the clinical instructors, and preceptors will complete the CCRS.

The research design is a random, experimental, pretest, posttest, control-group design and is depicted as:

Experimental Group	R	O_1	X	O_3
Control Group	R	O_2		O_4

In this study of clinical education models, the independent variable is the precepted clinical experience and the dependent variable is clinical competency. This design with randomization, comparison of groups, manipulation of the independent variable is appropriate for this study because it provides the elements of design to allow for examining a causative relationship between the independent and dependent variables (Fraenkel & Wallen, 2000).

Participants

The participants included second semester junior baccalaureate nursing students enrolled in a nursing science clinical course during Spring Semester in 2006 and 2007 at Western Carolina University, which is a regional comprehensive, rural university located in the Appalachian mountains of western North Carolina. This is the entire junior nursing class and the students progress through the program as a cohort so they have completed the same prerequisite and nursing courses. The students were randomly placed into the experimental and control groups. Other participants were the preceptors and clinical instructors each year who taught and supervised the students during the clinical experiences and who completed the measure of clinical competence.

Instrument

Demographic Questionnaire

A student demographic questionnaire (Appendix C) was administered requesting information related to student age, years of previous healthcare experience, and GPA. A preceptor demographic questionnaire (Appendix D) was administered requesting information related to age, years of experience as a nurse, highest nursing degree completed, and previous experience as a preceptor. A clinical faculty demographic questionnaire (Appendix E) was administered requesting information related to years of experience as a nurse, highest nursing degree completed, highest non-nursing degree completed, and years of teaching experience.

Clinical Competence Rating Scale

The Clinical Competence Rating Scale (CCRS) was created by Scheetz (1988, 2001). The scale was designed to measure clinical competence in three areas including: problem solving, application of theory to practice, and psychomotor skill performance. Scheetz developed this instrument using the National League for Nursing's 1978 statement of characteristics of baccalaureate graduates and Primm's competency statements for baccalaureate graduates. The CCRS (Appendix G) consists of 53 nursing behaviors using a Likert-type scale. The student's level of competence is rated and given point values as: independent (5 points), supervised (4 points), assisted (3 points), marginal (2 points), and dependent (1 point). She offers directions for this descriptive rating scale that reflects performance according to standards of practice, quality of performance, and the amount of assistance needed. The instrument has items in three subscales of clinical competence including: problem solving (29 items), application of theory to practice (14 items), and psychomotor skill performance (10 items).

Scheetz (1988, 2001) describes summative scoring to yield a total clinical competence score and subscale scores for problem solving, application of theory to practice, and psychomotor skill performance. Items rated as not observed were assigned the mean score for the respective subscale. Scheetz (1988) used summative scoring for the instrument. Higher subscale and total scores represented higher levels of competence. The scores for the instrument range from 53-265.

Validity. Scheetz (1988) reported three measures of validity including content, concurrent, and construct. Information related to each of these is presented next.

Content validity was determined by calculating an index from the rating of each item on the instrument by a panel of ten masters and doctorally prepared content experts. They rated the relevance of each item to the relevant dimension of clinical competence. The content validity index was .90. The experts were also asked to judge whether the items in the instrument adequately represented the domains of competence (Scheetz, 1988).

Concurrent validity was estimated for the problem solving and application of theory to practice subscales using the nursing process subscale of the *NLN Comprehensive Nursing Achievement Test, 1986 edition* as the criterion reference measure. Spearman Rank Order correlation estimates were determined between the mean subscale scores for the CCRS and the mean nursing process subscale score of the *NLN Comprehensive Nursing Achievement Test*. The sample for this measure was 27 senior nursing students from a baccalaureate nursing program. The Spearman Rank Order correlation for the problem solving subscale was r=.68 and for the application of theory to practice subscale was r=.65 (Scheetz, 1988).

Construct validity was estimated using contrasted groups of two groups of baccalaureate nursing students. The group low consisted of junior nursing students (n=28) and the group high consisted of senior nursing students (n=36) for the characteristic of clinical competence. Clinical instructors completed the instrument at midsemester to measure clinical competence for each subject. One-way analysis of variance was performed to compare differences between the low and high groups on the mean subscale and total scale scores. Significant between group differences were found for all subscales and the total clinical competence instrument. F values obtained were 4.20 (*p*=.0419) for the problem solving subscale, 7.96 (*p*=.0064) for the application of theory to practice subscale, 6.94 (*p*=.0103) for the psychomotor skill performance subscale, and 6.15 (*p*=.0151) for the total CCRS measure (Scheetz, 1988).

Reliability. Scheetz (1988) reported three measures of reliability including interrater, internal consistency, and sensitivity to change. Values for each of these are presented.

Scheetz (1988) reported estimating interrater reliability through field testing on two occasions. The instrument was field tested with pairs of registered nurse who independently and simultaneously observed 10 senior baccalaureate nursing students on a medical-surgical unit over a two day period of time. The second estimate of interrater reliability was taken from a sample of scores from her 1988 study. Spearman Rank Order Correlation coefficients were calculated for each subscale and for the entire instrument. The Spearman *r* for the first and second measures were .83 and .91 for problem solving subscale, .84 and .93 for the application of theory to practice subscale, .66 and .80 for the psychomotor skill performance subscale. For the total CCRS the Spearman *r* was .80 and .86 for the first and second measure respectively.

The alpha coefficient was also measured for each subscale on two occasions as described above. The alpha coefficient for internal consistency ranged from .93-.98 for the problem solving subscale, from .91-.96 for the application of theory to practice subscale, from .92-.98 for the psychomotor skill development subscale, and .96-.97 for the CCRS total score.

Scheetz (1988) reports a study to determine the sensitivity to change for the CCRS. This was conducted over a five-week period of time for two groups of subjects. The first group consisted of 27 junior nursing students and the second group consisted of 37 senior nursing students, both from a baccalaureate nursing program. A one-way analysis of variance was determined using pretest and posttest scores. For the junior student scores an F value of 15.20 (p=.0005) was obtained on the total CCRS. For the senior student scores an F value of 9.96 (p=.0028) was obtained for the total CCRS.

Statistical Procedures

First, descriptive statistics were computed for each group in the study including group means and standard deviations. To answer the question "will junior nursing students in the precepted clinical group achieve higher levels of clinical competence compared with those junior nursing students in the traditional clinical group", *t* tests were conducted using the pretest posttest scores on the CCRS for each year and for the combined data from both years. The posttest mean of the experimental group was compared to the posttest mean of the control group. This was done for each subscale as well as for the total competency score for the CCRS.

The data was further analyzed using analysis of covariance (ANCOVA) procedures to compare the clinical competence scores of the two groups using other data as the covariant to adjust for initial differences between groups (Fraenkel & Wallen, 2001). In this case, the ANCOVA was used to increase precision in the experience by reducing the possible within-treatment variability in factors related to faculty experience and will increase the likelihood that a treatment related difference will be detected (Dowdy & Wearden, 1983).

Experimental Procedures

Prior to beginning the experiment, written permission from the university and informed consent from each participant was obtained. The class was listed alphabetically and numbered beginning with one and continuing with consecutive numbers. Each participant was assigned to either the experimental or control group using a table of random numbers. A random starting place was identified and the last two digits of the numbers in the random number table was used to select half of the students for the experimental group. The remaining students were placed in the control group. The clinical instructors completed the CCRS instrument at the end of the clinical experiences in the fall semester for all of the students in the study.

This seven week clinical rotation was 72 hours in length. The traditional clinical groups attended clinical for 12 hours each week for six weeks. The precepted clinical students arranged their schedules with their preceptors to be completed over the course of the first six weeks of the semester. Both of these clinical experiences took place on what are considered to be general medical-surgical units. No intensive care, emergency room, out-patient, or specialty areas such as pediatrics or obstetrics were included as clinical sites.

Preceptor Selection and Preparation

Preceptors were selected in collaboration between the nursing faculty and the nurse manager or supervisor. The preceptors were all registered nurses. A baccalaureate degree was preferred but preceptors with associate degrees and diplomas were utilized. The preceptors were required to have at least one year experience and have worked in the area in which they will precept for at least one year.

The preceptors were prepared for their role in the students' clinical experiences through a one-day workshop by the primary researcher and a colleague who have designed a preceptor workshop and self-study modules, and have seven years experience presenting this workshop. The topics included in the workshop include: creating a learning environment, adult learning principles, methods for enhancing critical thinking, strategies for being an effective preceptor and enhancing thinking using Benner's (1984) stages of skill acquisition, methods for giving feedback and contributing to evaluation, and strategies for dealing with difficult situations. This workshop content is also available in printed module form and was provided for completion for those who have not attended the workshop. All preceptors were expected to attend the workshop or complete the self-study modules.

Rater Preparation

The CCRS is designed with descriptive statements for each level of performance related to the standard of performance and the quality of assistance required. This is included on the first page of the instrument along with directions for completion of the instrument. The instrument was presented to the faculty clinical instructors at a junior-level faculty meeting. The instrument design in the three areas of clinical competence and the rating system will be reviewed with the faculty by the researcher. The faculty were trained in rating student performance using the instrument. The faculty who supervised students in the precepted clinical experiences delivered the CCRS instrument to the preceptors during a clinical site visit and reviewed the instrument design and purpose in rating clinical competence and instructed the preceptor in completing the instrument. The raters were asked to place checkmarks in the appropriate columns on the instrument. The researcher used the checkmarks to determine the score for each subscale and for the overall competence rating.

There is some subjectivity involved in rating with this type of observation instrument. Since several faculty members and many preceptors were involved in contributing to the ratings, t-tests to compare differences in mean scores and coefficients to compare relationships between scores were determined to assess for rater reliability for the CCRS scores (Gay,1996).

Clinical Experiences

All traditional clinical experiences were completed with the students supervised in their care delivery by clinical faculty and the precepted clinicals were completed by the students working one-on-one with preceptors and facilitated by clinical faculty who arranged general orientation that was required by the facility. The clinical faculty visited each student-preceptor pair during the first week of clinical and at least every other week thereafter and as was needed in the interim. The clinical faculty were available by phone or beeper during all times the students were in clinical. The clinical faculty visited each student-preceptor pair during the last week of clinical to facilitate closure to the relationship and to gather information for the completion of the student evaluation.

During the six week clinical rotation all students completed weekly clinical logs regardless of placement in the experimental or control group. All students had a weekly clinical post-conference. The traditional students had post-conferences at the end of clinical days. The precepted students met for weekly post-conferences with their clinical instructor on campus. The clinical instructor for the precepted students made at least four, on-site visits to each of the precepted students and remained available by phone or beeper while students were in the clinical site with the preceptor regardless of shift or day of the week.

Measurement of Competence

During the final week of each rotation, the clinical faculty instructors completed the CCRS for each student. For the precepted students, the clinical faculty instructor completed this instrument after observations during clinical visits and the preceptor also completed the instrument. The clinical faculty instructors for the traditional groups completed the instrument at the end of the sixth week of the clinical experience.

Summary

The procedures and design described in this chapter provided for a more rigorous study than many of those done in the past related to the precepted model of clinical education. Particularly, this study will add to the small body of literature related to using the precepting model of clinical education with junior-level nursing students.

CHAPTER 4

RESULTS

This experimental study was conducted during the spring semester clinical practicum course for junior level students at Western Carolina University during two academic years. In 2006, the first year of the study, the researcher (a faculty member at Western Carolina University) conducted the research following the Western Carolina University Institutional Review Board procedures. For the second year, permission was granted by the Institutional Review Boards at both Western Carolina University and North Carolina State University for the study to be conducted following the same procedural process as the first year. For this study, the experimental group included the students who were precepted during the first six week clinical rotation, and the control group included the students in traditional clinical experience during the same time period. The baseline measure of clinical competence, using the Clinical Competence Rating Scale (CCRS) (Scheetz, 2000), was completed by faculty who supervised the students in traditional clinical experiences in the fall semesters prior to the spring semesters of both years of the study. During the experimental study, the students were rated at the end of the first spring clinical rotation by clinical faculty for the control and experimental groups.

The results of the study are reported throughout this chapter using data from both years. There were a total of 107 student participants (control group n = 54, experimental group n = 53), nine faculty (six faculty each year, with four faculty participating both years), and 47 preceptors (6 preceptors participated both years, with a total of 53 students precepted) involved in the study. Student sample size information for each year is presented in Table 4.1. Information related to characteristics of the student, faculty, and preceptor participants was collected and will be described in this chapter.

Table 4.1 *Student Participant Sample Sizes*

Year	*n*	Control (Traditional Clinical)	Experimental (Precepted Clinical)
2006	53	27	26
2007	54	27	27
Combined 06 and 07	107	54	53

Description of Participants

Students

Student characteristics including age, gender, race, and previous healthcare experience will be described. Analyses were performed to compare the control and experimental group with variables related to student and faculty characteristics.

Age. Data related to age was collected for 101 participants. The mean age for student participants was 22.46 years. A majority of the students (77.2%) were traditional college age students, less than 22 years old. Means, standard deviations, and ranges for student participant age for each year are presented by control and experimental groups in Table 4.2. The control and experimental groups were compared using *t*-test procedures to identify if there was a significant difference in the age of the participants of the control and experimental groups. No significant difference between group means was found related to participant age. The results are presented in Table 4.2.

Table 4.2 *Student Participant Age by Groups and t-tests for Differences in Group Ages*

	n	Mean	SD	Range	*t* value	*p* value
Sample	101	22.46	4.685	19-44		
Experimental	49	22.918	5.480	19-44		
Control	52	22.019	3.791	19-37		
					0.92	.3583

GPA. The mean GPA for the combined 2006 and 2007 participants was 3.534 (control group $\bar{x}$ = 3.576, experimental group $\bar{x}$ = 3.490). The means, standard deviations, and the range of values for GPA for participants are presented in Table 4.3. The control and experimental groups were compared using *t*-tests comparing the mean GPA values. No significant difference was found between the mean GPA scores. See Table 4.3.

Table 4.3 *Student Participant GPA by Groups and t-tests for Differences in Group GPA*

	n	Mean	SD	Range	*t* value	*p* value
Sample	101	3.534	0.231	3.04-4.0		
Experimental	49	3.490	0.247	3.04-3.978		
Control	52	3.576	0.208	3.1-4.0		
					-1.88	.0626

Previous healthcare experience of student participants. Students reported a variety of types of previous experience in healthcare. The most frequently reported type of experience was nursing assistant (n = 20), followed by three students who had experience both as a nursing assistant and unit secretary. Other types of experience reported by students included pharmacy technician, medical records technician, rehabilitation technician, and medical office assistant. Thirty-four students reported no previous healthcare experience.

Since most of the students were traditional age college students, they had very little experience in healthcare prior to beginning in the nursing program. The most experience any student reported was five years. The mean for years of previous healthcare experience was 1.134, with the control group having a mean of 1.074 years of experience and the experimental group having a mean of 1.199 years of experience. Means, standard deviations, and ranges are presented in Table 4.4. Groups were compared using *t*-tests for group mean differences related to previous healthcare experience. No significant difference between group means was found. See Table 4.4 for results.

Table 4.4 *Student Participant Previous Health Care Experience by Groups and t-tests for Differences in Experience*

	n	Mean	SD	Range	*t* value	*p* value
Sample	101	1.134	1.466	0-5		
Experimental	49	1.199	1.527	0-5		
Control	52	1.074	1.418	0-4.5		
					0.43	0.6698

Race. There were members of several racial groups in the control group including: one Hispanic, two Native Americans, two Asian Americans, and the remaining participants were Caucasian. All participants in the experimental group were Caucasian with the exception of one Native American individual. Overall for the total student participants, 95% were Caucasian.

Gender. As is typical in many nursing programs, gender diversity is lacking since 96% of the student participants were female. There were four male participants: three in the control group and one in the experimental group.

Faculty Characteristics

Faculty for this study included the full-time faculty who taught in the junior-level of the Western Carolina University nursing program during the 2005-2006 and 2006-2007 academic years, along with part-time faculty members who taught in clinical courses. Faculty who taught the clinical course in the fall semester of each year completed the Clinical Competency Rating Scale (CCRS) for the pre-experimental ratings. This was accomplished at the end of the fall semester clinical experience prior to the experimental intervention in the spring semester. Each year, in the spring semester clinical course, three faculty members taught students in traditional clinical experiences (control group), and three faculty members taught students in precepted clinical experiences (experimental group).

Faculty who taught the spring clinical course completed the CCRS at the end of the experimental intervention which occurred during the first six-week clinical rotation of the spring semester. A total of eight different faculty members were involved in the post-experiment ratings. Four faculty members were involved in both years of the study (three full-time and one part-time), and four faculty members were involved in only one year of the study (two full-time and two part-time).

Teaching experience. Faculty years of teaching experience for those who completed the post-ratings ranged from 0.5 to 35 years with a mean of 11.50 years (control group $\bar{x}$ = 4.67, experimental group $\bar{x}$ = 18.33). See Table 4.5 for means, standard deviations, and ranges of years of experience. A Wilcoxon-Mann-Whitney test comparing group means was computed for years of previous teaching experience for those faculty who completed the post-ratings. A statistically significant difference was found in the teaching experience for those faculty completing the post-ratings (z = -2.3219, p = .0101). The faculty teaching the precepted clinical groups had more teaching experience than the faculty teaching the traditional clinical groups.

Table 4.5 *Wilcoxon-Mann-Whitney Test Comparing Faculty Teaching Experience in Years for Those Who Completed CCRS Post-Ratings*

Sample	n	Mean	SD	Range	z value	p value
Combined		11.50	11.4276	0.5-35		
Experimental	6	18.33	12.9254	5-35		
Control	6	4.67	2.8577	0.5-8		
					-2.3219	.0101*

Clinical experience. Faculty years of clinical experience for those who completed the post-ratings ranged from 8 to 38 years with a mean of 24.92 years (control group $\bar{x}$ = 19.67, experimental group $\bar{x}$ = 30.17). See Table 4.6 for means, standard deviations, and ranges of years of experience. A Wilcoxon-Mann-Whitney test comparing group means was computed for the variable of previous teaching experience for those faculty who completed the post-ratings. A statistically significant difference in years of faculty clinical experience was found with the experimental group faculty having more clinical experience. The faculty teaching the precepted clinical groups had more clinical experience than the faculty teaching the traditional clinical groups.

Table 4.6 *Wilcoxon-Mann-Whitney Test Comparing Faculty Clinical Experience in Years for Those Who Completed CCRS Post-Ratings*

Sample	n	Mean	SD	Range	*z* value	*p* value
Combined		24.92	12.0940	8-38		
Experimental	6	30.17	10.3811	10-38		
Control	6	19.67	12.1600	8-33		
					-1.9283	.0269*

E*ducation level.* The faculty who taught the spring clinical course were all MSN prepared. The precepted faculty included one person with a post-graduate certificate, and one person with doctoral course work completed.

Preceptors

Data related to clinical experience, precepting experience, and educational level were gathered from the preceptors. Data were obtained from a total of 47 preceptors.

Previous clinical experience. Each preceptor was required to have at least one year of clinical experience and at least one year of experience on the unit where the student was being precepted. The most frequently reported level of experience was 5-10 years (n=19, 40.4%), followed by 2-5 years (n=15, 31.9%). See Table 4.7 for years of reported clinical experience by preceptors.

Previous precepting experience. Seven (14.9%) of the 47 preceptors had no previous experience precepting. The most frequently reported years of experience was 2-5 years (n=17, 36.2%) followed by 1-2 years (n=10, 21.3%). Over 72% of the preceptors had five years or less of experience precepting. See Table 4.7 for years of reported precepting experience by the preceptors.

Table 4.7 Preceptor Experience in Years (n=47)

Years of Experience	None	1-2	2-5	5-10	10-15	15-20	20+
Clinical - *n*	0	2	15	19	5	2	4
% of total *n*		4.3%	31.9%	40.4%	10.6%	4.3%	8.5%
Precepting - *n*	7	10	17	8	3	1	1
% of total *n*	14.9%	21.3%	36.2%	17.0%	6.4%	2.1%	2.1%

Educational level. A majority of the preceptors (63.8%) held an associate degree in nursing (ADN) with no further formal education. An additional 6.4% reported an ADN with a BS or BA in another field, and 2.1% reported being enrolled in a BSN program. This constituted a total of 72.3% whose highest preparation in nursing was an ADN. The other 27.6% held a BSN as their highest preparation in nursing with one of those reporting also holding an EdD degree. See Table 4.8 for preceptor educational information.

Table 4.8 Preceptors' Level of Education (n=47)

Experience	ADN	ADN with BS/BA in another field	ADN enrolled in BSN	BSN	MSN	BSN, EdD
n	30	3	1	12	0	1
% of total *n*	63.8%	6.4%	2.1%	25.5%	0	2.1%

Reliability

Reliability - Instrument Correlation Coefficients

The internal consistency of each subscale for the pre-rating and post-rating was measured using the Cronbach Alpha Coefficient. The alpha coefficients for the pre-ratings were: problem solving = 0.9595, application of theory to practice = 0.9121, psychomotor skill development = 0.9358, and CCRS total = 0.8401. The alpha coefficients for the post-ratings were: problem solving = 0.9656, application of theory to practice = 0.9186, psychomotor skill development = 0.9018, and CCRS total = 0.7770.

Reliability - Comparing Faculty Ratings

Faculty raters were compared to evaluate if there was a significant difference in faculty rating of students. Each student was rated at the end of the clinical experiences by a single faculty member. There were a total of nine faculty members who rated students during the study with eight of these participating in the post-experience ratings. Since the same students were not rated by two faculty raters at the same time, traditional interrater reliability tests which compare two raters who rate the same subject at the same time, would not be appropriate.

First, faculty ratings of participants were examined related to minimum scores, maximum scores, ranges, means, and standard deviations to look for differences and trends in ratings. The results of this examination are included in three tables (Tables 4.9, 4.10, 4.11), one for each variable of the CCRS (problem solving, applying theory to practice, and psychomotor skill development).

For the problem solving and applying theory to practice variables, the means of the ratings of participants by faculty coded as 8 and 9 were the two highest means, and the two lowest ranges and standard deviations. For example, the mean score for all faculty raters for the problem solving variable was 119.73, with a range of 59.99, and a standard deviation of 13.82. The mean ratings of faculty 8 and 9 were 133.60 and 136.33 respectively, with a range of 23 and 11 respectively, and a standard deviation of 6.74 and 3.54 respectively. For the psychomotor skill development variable, faculty 1 and 5 had lower range of scores for participants and lower standard deviations than faculty 8, but faculty 8 still had the second highest mean average for ratings. Faculty 9 had the lowest range of scores, lowest standard deviations, and the highest mean scores for all three variables. In general, faculty 8 and 9 assigned higher scores with less variation of scores than the other faculty; all of their students were scored similarly, with high scores and without much variation.

Table 4.9 *Comparing Faculty Ratings of Problem Solving CCRS Variable*

Faculty Code Number	n	Minimum	Maximum	Range	Mean	Standard Deviation
1	20	91	125	34	110.5	10.63
2	17	83.89	136	52.11	114.46	11.83
3	18	101	139	38	113.22	9.54
5	16	109	143.88	34.88	124.07	13.24
6	8	95.12	133.61	38.49	114.51	12.37
7	9	101	142	41	126.11	15.39
8	10	117	140	23	133.60	6.74
9	9	131	142	11	136.33	3.54
Total	107	83.89	143.88	59.99	119.73	13.82

Table 4.10 *Comparing Faculty Ratings of Applying Theory to Practice CCRS Variable*

Faculty Code Number	n	Minimum	Maximum	Range	Mean	Standard Deviation
1	20	47	60	13	53.28	3.97
2	17	38	66	28	55.59	6.31
3	18	50	68	18	56.28	5.26
5	16	54	68	14	60.38	5.76
6	8	42	60.66	18.6	51.98	6.23
7	9	48	67	19	59.78	6.96
8	10	54	64	10	60.40	2.95
9	9	62	68	6	65.44	2.60
Total	107	38	68	30	57.43	6.31

Table 4.11 *Comparing Faculty Ratings of Psychomotor Skill Development CCRS Variable*

Faculty Code Number	n	Minimum	Maximum	Range	Mean	Standard Deviation
1	20	39	45	6	40.17	1.25
2	17	35	47	12	38.47	3.37
3	18	37	49	12	42.05	4.38
5	9	40	45	5	40.55	1.67
6	8	34	48	14	41.03	5.02
7	9	38	48	10	42.78	3.56
8	10	40	47.22	7.22	43.94	2.32
9	9	45	49	4	47.22	1.20
Total	107	34	49	15	41.60	3.89

To compare the eight faculty raters who completed the post-experiment ratings for statistically significant differences, *t*-tests were performed for each possible pair of faculty members to determine if there was a significant difference in rating. Using the Bonferronni method to interpret the significance level of the test, the significance level of .05 was divided by the number of possible pairs of faculty raters (28 possible pairs) to yield a significance level of .0018 for each pair. The results of the *t*-tests comparing faculty raters are presented in three tables (one for each of the three CCRS subsections). See Tables 4.12, 4.13, 4.14 for faculty rating comparisons for the variables of problem-solving, applying theory to practice, and psychomotor skill development respectively.

For the comparison of faculty ratings of participants for the problem solving variable, eight of the twenty-eight pairs reached the .0018 level of significance. The pairs were 1 and 8, 1 and 9 , 2 and 8, 2 and 9, 3 and 8, 3 and 9, 6 and 8, and 6 and 9. Each of these pairings included either faculty 8 or 9. See Table 4.12.

Table 4.12 *Comparing Variation in Faculty Ratings of Problem Solving CCRS Variable Using t-tests for All Possible Faculty Pairs (.0018 level of significance - .05 divided by 28 pairs)*

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
1	Experimental	18	110.5	10.634		
2	Both	17	114.46	11.834		
					-1.04	.3043
1	Experimental	18	110.5	10.634		
3	Control	18	113.22	9.546		
					-0.81	.4246
1	Experimental	18	110.5	10.634		
5	Experimental	16	124.07	13.236		
					-3.31	.0023
1	Experimental	18	110.5	10.634		
6	Experimental	8	114.51	12.373		
					-0.84	.4068
1	Experimental	18	110.5	10.634		
7	Control	9	126.11	15.39		
					-3.09	.0048
1	Experimental	18	110.5	10.634		
8	Control	10	133.60	6.736		
					-6.19	<.0001*
1	Experimental	18	110.5	10.634		
9	Control	9	136.33	3.535		
					-9.33	<.0001*
2	Both	17	114.46	11.834		
3	Control	18	113.22	9.546		
					0.34	.7340
2	Both	17	114.46	11.834		
5	Experimental	16	124.07	13.236		
					-2.20	.0354
2	Both	17	114.46	11.834		
6	Experimental	8	114.51	12.373		
					-0.01	.9934
2	Both	17	114.46	11.834		
7	Control	9	126.11	15.39		
					-2.15	.0416
2	Both	8	114.46	11.834		
8	Control	10	133.60	6.736		
					-4.66	<.0001*
2	Both	17	114.46	11.834		
9	Control	9	136.33	3.535		
					-7.05	<.0001*
3	Control	18	113.22	9.546		
5	Experimental	16	124.07	13.236		
					-2.76	.0094
3	Control	18	113.22	9.546		
6	Experimental	8	114.51	12.373		
					-0.29	.7747

Table 4.12 Continued

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
3	Control	18	113.22	9.546		
7	Control	9	126.11	15.39		
					-2.69	.0125
3	Control	9	113.22	9.546		
8	Control	10	133.60	6.736		
					-5.95	<.0001*
3	Control	18	113.22	9.546		
9	Control	9	136.33	3.535		
					-6.97	<.0001*
5	Experimental	16	124.07	13.236		
6	Experimental	8	114.51	12.373		
					1.70	.1028
5	Experimental	16	124.07	13.236		
7	Control	9	126.11	15.39		
					-0.35	.7296
5	Experimental	16	124.07	13.236		
8	Control	10	133.60	6.736		
					-2.42	.0236
5	Experimental	16	124.07	13.236		
9	Control	9	136.33	3.535		
					-3.49	.0025
6	Experimental	8	114.51	12.373		
7	Control	9	126.11	15.39		
					-1.70	.1101
6	Experimental	8	114.51	12.373		
8	Control	10	133.60	6.736		
					-4.19	.0007*
6	Experimental	8	114.51	12.373		
9	Control	9	136.33	3.535		
					-4.82	.0013*
7	Control	9	126.11	15.39		
8	Control	10	133.60	6.736		
					-1.35	.2054
7	Control	9	126.11	15.39		
9	Control	9	136.33	3.535		
					-1.94	.0846
8	Control	10	133.60	6.736		
9	Control	9	136.33	3.535		
					-1.09	.2919

Similarly in comparing faculty ratings of participants for the applying theory to practice variable, seven of the twenty-eight pairs reached the designated level of significance. The pairs were 1 and 5, 1 and 8, 1 and 9, 2 and 9, 3 and 9, 6 and 9, and 8 and

9. For this variable, faculty 9 was involved in five of the seven pairs that reached the level of significance with faculty 8 being one of the faculty in two of the pairs. See Table 4.13.

Table 4.13 *Comparing Variation in Faculty Ratings of Applying Theory to Practice CCRS Variable Using t-tests for All Possible Faculty Pairs (.0018 level of significance - .05 divided by 28 pairs)*

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
1	Experimental	18	53.278	3.968		
2	Both	17	55.588	6.305		
					-1.31	.2008
1	Experimental	18	53.278	3.968		
3	Control	18	56.278	5.256		
					-1.93	.0616
1	Experimental	18	53.278	3.968		
5	Experimental	16	60.375	5.761		
					-4.22	.0002*
1	Experimental	18	53.278	3.968		
6	Experimental	8	51.979	6.234		
					0.64	.5251
1	Experimental	18	53.278	3.968		
7	Control	8	59.778	6.960		
					-2.60	.0253
1	Experimental	18	53.278	3.968		
8	Control	10	60.4	2.952		
					-4.95	<.0001*
1	Experimental	18	53.278	3.968		
9	Control	9	65.444	2.603		
					-8.31	<.0001*
2	Both	17	55.588	6.305		
3	Control	18	56.278	5.256		
					-0.35	.7269
2	Both	17	55.588	6.305		
5	Experimental	16	60.375	5.761		
					02.27	.0302
2	Both	17	55.588	6.305		
6	Experimental	8	51.979	6.234		
					1.34	.1934
2	Both	17	55.588	6.305		
7	Control	9	59.778	6.960		
					-1.56	.1328
2	Both	17	55.588	6.305		
8	Control	10	60.4	2.952		
					-2.69	.0129
2	Both	17	55.588	6.305		
9	Control	9	65.444	2.603		
					-5.61	<.0001*

Table 4.13 Continued

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
3	Control	18	56.278	5.256		
5	Experimental	16	60.375	5.761		
					-2.17	.0376
3	Control	18	56.278	5.256		
6	Experimental	16	51.979	6.234		
					1.82	.0812
3	Control	18	56.278	5.256		
7	Control	9	59.778	6.960		
					-1.46	.1556
3	Control	18	56.278	5.256		
8	Control	10	60.4	2.952		
					-2.28	.0313
3	Control	18	56.278	5.256		
9	Control	9	65.444	2.603		
					-4.91	<.0001*
5	Experimental	16	60.375	5.761		
6	Experimental	8	51.979	6.234		
					3.28	.0034
5	Experimental	16	60.375	5.761		
7	Control	9	59.778	6.960		
					0.23	.8193
5	Experimental	16	60.375	5.761		
8	Control	10	60.4	2.952		
					-0.01	.9885
5	Experimental	16	60.375	5.761		
9	Control	9	65.444	2.603		
					-2.48	.0207
6	Experimental	8	51.979	6.234		
7	Control	9	59.778	6.960		
					-2.42	.0286
6	Experimental	8	51.979	6.234		
8	Control	10	60.4	2.952		
					-3.52	.0060
6	Experimental	8	51.979	6.234		
9	Control	9	66.444	2.603		
					-5.69	.0003*
7	Control	8	59.778	6.960		
8	Control	9	60.4	2.952		
					-0.25	..8083
7	Control	8	59.778	6.960		
9	Control	9	65.444	2.603		
					-2.29	.0447
8	Control	10	60.4	2.952		
9	Control	9	65.444	2.603		
					-3.93	.0011*

In the final section, the psychomotor skill development variable, there were six pairs that reached the significance level of .0018. The pairs that differed significantly in their ratings were 1 and 8, 1 and 9, 2 and 8, 2 and 9, 5 and 9, and 8 and 9. Again faculty 8 and 9 were the common factors in these pairings that reached a level of significant for differences in mean scores (faculty 8 in three of the six, and faculty 9 in four of the six, with one of these pairs involving both faculty 8 and 9). See Table 4.14.

Table 4.14 *Comparing Variation in Faculty Ratings of Psychomotor Skill Development CCRS Variable Using t-tests for All Possible Faculty Pairs (.0018 level of significance - .05 divided by 28 pairs)*

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
1	Experimental	18	40.167	1.249		
2	Both	17	38.471	3.375		
					1.95	.0653
1	Experimental	18	40.167	1.249		
3	Control	18	42.056	4.385		
					-1.76	.0943
1	Experimental	18	40.167	1.249		
5	Experimental	9	40.556	1.667		
					-0.68	.5013
1	Experimental	18	40.167	1.249		
6	Experimental	8	41.031	5.022		
					-0.48	.6449
1	Experimental	18	40.167	1.249		
7	Control	9	42.778	3.563		
					-2.13	.0616
1	Experimental	18	40.167	1.249		
8	Control	10	43.944	2.319		
					-4.78	.0005*
1	Experimental	18	40.167	1.249		
9	Control	9	47.222	1.202		
					-14.01	<.0001*
2	Both	17	38.471	3.375		
3	Control	18	42.056	4.385		
					-2.70	.0109
2	Both	17	38.471	3.375		
5	Experimental	9	40.556	1.667		
					-2.11	.0457
2	Both	17	38.471	3.375		
6	Experimental	8	41.031	5.022		
					-1.51	.1441

Table 4.14 Continued

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
2	Both	17	38.471	3.375		
7	Control	9	42.778	3.563		
					-3.04	.0057
2	Both	17	38.471	3.375		
8	Control	10	43.944	2.319		
					-4.52	.0001*
2	Both	17	38.471	3.375		
9	Control	9	47.222	1.202		
					-9.60	<.0001*
3	Control	18	42.056	4.385		
5	Experimental	9	40.556	1.667		
					1.28	.2134
3	Control	18	42.056	4.385		
6	Experimental	8	41.031	5.022		
					0.53	.6035
3	Control	18	42.056	4.385		
7	Control	9	42.778	3.563		
					-0.43	.6728
3	Control	18	42.056	4.385		
8	Control	10	43.944	2.319		
					-1.26	.2188
3	Control	18	42.056	4.385		
9	Control	9	47.222	1.202		
					-3.44	.0021
5	Experimental	9	40.556	1.667		
6	Experimental	8	41.031	5.022		
					-0.26	.8044
5	Experimental	9	40.556	1.667		
7	Control	9	44.778	3.563		
					-1.69	.1174
5	Experimental	9	40.556	1.667		
8	Control	10	43.944	2.319		
					-3.62	.0021
5	Experimental	9	40.556	1.667		
9	Control	9	47.222	1.202		
					-9.73	<.0001*
6	Experimental	8	41.031	5.022		
7	Control	9	42.778	3.653		
					-0.83	.4170
6	Experimental	8	41.031	5.022		
8	Control	10	43.944	2.319		
					-1.52	.1624
6	Experimental	8	41.031	5.022		
9	Control	9	47.222	1.202		
					-3.40	.0099
7	Control	9	42.778	3.563		
8	Control	10	43.944	2.319		
					-0.85	.4046

Table 4.14 Continued

Faculty Pair	Group Type	n	Mean	sd	*t* value	*p*-value
7	Control	9	42.778	3.563		
9	Control	9	47.222	1.202		
					-3.55	.0055
8	Control	10	43.944	2.319		
9	Control	9	47.222	1.202		
					-3.80	.0014*

Clearly, faculty 8 and 9 differed significantly in ratings compared to other faculty ratings. These two faculty who rated students in the traditional clinical setting, were both part-time faculty members with the department at the time of the study. Overall, for these comparisons, 21 of the 84 faculty pairs compared reached the .0018 level of significance for difference in means. Nine of these pairs involved faculty 8, and 13 of the pairs involved faculty 9 with two of the pairs involving both 8 and 9. Only one of the pairs that reached the .0018 level of significance did not involve either faculty 8 or 9 (pair 1 and 5 for the applying theory to practice variable).

Comparing Groups Before Experimental Intervention

Although random assignment to groups was used to increase the chance of having groups that were equivalent, a *t*-test was performed on the pre-experiment rating subscales to analyze the data for pre-experimental differences in competence. It was noted that the control group (traditional clinical) scored higher than the experimental group (precepted clinical) in each of the three variables measured (problem-solving, applying theory to practice, and problem solving) but no significant difference was found between group means on any subscale of the CCRS scores. (See table 4.15)

Table 4.15 Comparison of Groups before Experimental Intervention Using t-tests of CCRS Mean Score

Variable	n	Mean	SD	Range	*t* value	*p*-value
Problem Solving						
Control Group	49	109.012	9.854	83-131		
Experimental Group	49	106.021	16.602	63-140		
					-1.08	.2816
Applying Theory to Practice						
Control Group	49	52.078	4.881	39.846-62		
Experimental Group	49	51.703	7.812	32-69		
					-0.29	.7763
Psychomotor Skill Development						
Control Group	49	38.313	3.648	28-50		
Experimental Group	49	37.753	6.122	25-50		
					-0.55	.5838

Analysis to Answer the Research Question

The focus of this study was on the following research question: Will junior nursing students in the precepted clinical group achieve higher levels of clinical competence compared with the junior nursing students in the traditional clinical group? To answer this question first a *t*-test was planned using the means of post-experiment scores on each subscale of the CCRS. Considering the differences found in the ratings of two of the faculty on the ratings of students after the experimental intervention, other analyses were also conducted to examine the data further after excluding the ratings of those faculty whose ratings differed significantly. First, the *t*-test results will be presented with the full data set. In the next section *t*-test results will be presented with the ratings of faculty coded as 8 and 9 removed from the data set.

The *t*-test with the full data set yielded significant differences (p>.05) for each subscale with the control group having higher scores than the experimental group. The junior nursing students in the precepted clinical group (experimental) did not achieve higher levels of clinical competence, as measured by the CCRS, compared with junior nursing students in the traditional clinical group (control group). On the contrary, the traditional clinical students had statistically significant higher scores than the precepted clinical students in all areas of the CCRS. Students in the traditional clinical group scored significantly higher than students in the precepted clinical experience in problem solving, applying theory to practice, and psychomotor skill development as measured by the CCRS. See Tables 4.16 for t-test results for post-clinical comparisons.

Table 4.16 Comparison of Groups After Experimental Intervention Using t-tests of CCRS Mean Scores

Variable	n	Mean	SD	Range	*t* value	*p*-value
Problem Solving						
Control Group	54	124.07	13.32	101-142		
Experimental Group	51	115.14	12.95	83.893-143.883		
					-3.48	.0007*
Applying Theory to Practice						
Control Group	54	59.54	5.66	48-68		
Experimental Group	51	55.19	6.26	38-68		
					-3.74	.0003*
Psychomotor Skill Development						
Control Group	54	43.16	3.95	35-49		
Experimental Group	44	39.69	2.86	34-48		
					-5.04	<.0001*

The *t*-test with the faculty ratings of the faculty coded as 8 and 9 removed from the data set, yielded different results in the problem solving and applying theory to practice variables. Contrary to what the full data set analysis showed, the *t*-test in this case did not show significant differences for problem solving and applying theory to practice. The mean score for the traditional clinical group was still higher in all areas compared to the precepted clinical group, but this had been true in the pre-experimental analysis for differences in groups. A statistically significant difference was only shown in the psychomotor skill development area (*t* value = -2.73, p = .0084). The participants in the traditional clinical group were scored significantly higher on the psychomotor skill development variable measures than were the participants in the precepted clinical group. See table 4.17 for *t*-test analysis of CCRS subsections with faculty 8 and 9 ratings removed from the data set.

Table 4.17 Comparison of Groups After Experimental Intervention Using t-tests of CCRS Mean Scores with Ratings from Faculty 8 and 9 Removed from Data

Variable	n	Mean	SD	Range	*t* value	*p*-value
Problem Solving						
Control Group	35	118.20	12.63	101-142		
Experimental Group	51	115.14	12.948	83.89-143.88		
					-1.09	.2795
Applying Theory to Practice						
Control Group	35	57.77	5.77	48-68		
Experimental Group	51	55.19	6.26	38-68		
					-1.94	.0561
Psychomotor Skill Development						
Control Group	35	41.89	4.04	35-49		
Experimental Group	44	39.69	2.86	34-48		
					-2.73	.0084*

Examining Relationship of Faculty Variables to CCRS Scores

Due to some of the statistically significant differences previously discussed related to faculty teaching experience, faculty clinical experience, and variations in faculty ratings when individual raters were compared, several variables were examined further for possible effects on the CCRS scores. The first faculty variables examined further were years of teaching experience, and years of clinical experience and the possible effects of these on the

CCRS scores. Pearson correlation coefficients were computed to examine the relationship of these variables to ratings on the CCRS. Analysis of covariance (ANCOVA) was performed to compare control group and experimental group means for the CCRS scores using first, faculty teaching experience, and then, faculty clinical experience as covariates to control for the possible effect of these variables. These analyses were completed since the Wilcoxon-Mann-Whitney tests, comparing faculty teaching experience and faculty clinical experience for the control and experimental groups, demonstrated statistically significantly greater years of experience for the precepted faculty in both areas. The ANCOVA results will be presented in each section first with the full data set and then with the faculty 8 and 9 ratings removed from the data. An assumption related to data characteristics for the use of ANCOVA is homogeneity of regression. This condition was analyzed using Levene's test and was met for the data where ANCOVA is used in the following sections.

Faculty Teaching Experience

Pearson correlation coefficients were computed to examine the relationship between faculty teaching experience and student scores on the CCRS. There were no significant correlations in the post-clinical rating scores compared to the years of faculty teaching experience. See Table 4.18 for results. Since there were no significant correlations between faculty years of teaching experience and the ratings of students on the various areas of the CCRS, no further analyses were conducted related to faculty teaching experience and the effect on the study.

Table 4.18 Pearson Correlation Coefficients of Faculty Previous Teaching Experience and Post-Rating CCRS Scores

	n	Pearson *r*	*p*
Problem Solving	96	0.0001	.9996
Application of Theory to Practice	96	-0.0427	.6794
Psychomotor Skill Development	89	-0.1675	.1167

Analysis of Covariance (ANCOVA) comparing the control and experimental group means for the CCRS with the years of faculty teaching experience as a covariate for the full data set was conducted. This analysis revealed statistically significant differences in the groups only in the area of psychomotor skill development. This differs from what was found with the *t*-test comparison reported earlier when the full data set was used, where there were statistically significant results in all areas of the CCRS. When faculty teaching experience was included as a covariate in the analysis, there remains the statistically significant findings that the traditional clinical group scored significantly higher than the precepted clinical group only in the area of psychomotor skill performance (F value 17.56, r^2 = .2041, p = <.0001). This r^2 value demonstrates a moderate effect size. This is a similar result as was found with the t-test analysis comparing group means with the ratings of faculty 8 and 9 removed from the data set. See Table 4.19 for ANCOVA results.

Table 4.19 Analysis of Covariance of CCRS Posttest Scores using Faculty Years of Teaching Experience as Covariate by Experimental and Control Groups for Full Data

Group	Mean Faculty Teaching Experience	Posttest CCRS Mean Score	Adjusted CCRS Mean Mean	Standard error	F Value	*r* squared	*p*-value
Problem Solving							
Control	4.78	124.07	122.17	3.87			
Experimental	18.73	115.14	117.15	4.01			
					2.37	0.1363	0.1264
Applying Theory to Practice							
Control	4.78	59.54	58.58	1.94			
Experimental	18.73	55.19	56.20	2.01			
					2.62	0.1566	0.1087
Psychomotor Skill Development							
Control	4.78	43.16	43.38	0.44			
Experimental	19.96	39.69	39.41	0.50			
					17.56	0.2041	<.0001*

The ANCOVA comparing the control and experimental groups means for the CCRS with the years of faculty teaching experience as a covariate for the data set with the ratings of participants by faculty 8 and 9 removed, revealed similar results from the previous analysis since there was only a statistically significant difference found in the ratings for the psychomotor skill development variable (F value 9.31, r^2 = .1146, p = <.0031). The participants in the traditional group scored significantly higher in only the psychomotor skill development variable as compared to the precepted group when taking into account the years of faculty teaching experience of the raters. See Table 4.20. The r^2 value demonstrates a smaller effect size with the ratings of faculty 8 and 9 removed.

Table 4.20 Analysis of Covariance of CCRS Posttest Scores Using Faculty Years of Teaching Experience as Covariate by Experimental and Control Groups for Data Set with Ratings of Faculty 8 and 9 Removed

Group	Mean Faculty Teaching Experience	Posttest CCRS Mean Score	Adjusted CCRS Mean Mean	Standard error	F Value	*r* squared	*p*-value
Problem Solving							
Control	4.96	118.20	116.04	2.45			
Experimental	18.73	115.14	116.62	1.95			
					0.03	0.0514	0.8678
Applying Theory to Practice							
Control	4.96	57.77	56.81	1.16			
Experimental	18.73	55.19	55.85	0.92			
					0.35	0.0751	0.5578
Psychomotor Skill Development							
Control	4.96	41.89	42.33	0.67			
Experimental	19.96	39.69	39.33	0.58			
					9.31	0.1146	<.0031*

Faculty Clinical Experience

For the post-rating comparison of faculty clinical experience and the CCRS scores, the Pearson correlation coefficients reached the .05 significance level in the area of psychomotor skill development. There was a weak to moderate negative correlation (r= -0.2634, p = .0126). The results are presented in Table 4.21. As faculty years of clinical experience was higher then the student scores were lower (i.e. the more experienced the faculty, the lower the student scores) in the psychomotor skill development area. The more experienced faculty may have had higher expectations or were more experienced at scoring students and, therefore, more comfortable in scoring students lower.

Table 4.21 Pearson Correlation Coefficients of Faculty Previous Clinical Experience and Post-Rating CCRS Scores

	n	Pearson *r*	*p*
Problem Solving	98	0.1006	.3293
Application of Theory to Practice	96	0.0127	.9024
Psychomotor Skill Development	89	-0.2634	.0126*

The ANCOVA comparing the control and experimental groups with the years of faculty clinical experience as a covariate using the full data set revealed statistically significant differences in all areas of the CCRS. This is similar results to the t-test results presented early (Table 4.16). According to these results, controlling for faculty clinical experience, the traditional clinical group mean scores were statistically significantly higher in all three areas of the CCRS (problem solving, applying theory to practice, and psychomotor skill development). The results are presented in Tables 4.22. The r^2 values reveal a moderate effect size with the largest of the three effect sizes being in the area of the psychomotor skill development variable (problem solving – F=29.41, r^2 =0.2691, p = <.0001; applying theory to practice - F=23.30, r^2 =0.1973, p = <.0001; psychomotor skill development - F=42.99, r^2 =0.3336, p = <.0001).

Table 4.22 Analysis of Covariance of CCRS Posttest Scores using Faculty Years of Clinical Experience as Covariate by Experimental and Control Groups for Full Data Set

Group	Mean Faculty Clinical Experience	Posttest CCRS Mean Score	Adjusted CCRS Mean Mean	Standard error	F Value	*r* squared	*p*-value
Problem Solving							
Control	20.67	124.07	126.42	1.70			
Experimental	30.08	115.14	112.65	1.75			
					29.41	0.2691	<.0001*
Applying Theory to Practice							
Control	20.67	59.54	60.28	0.81			
Experimental	30.08	55.19	54.41	0.84			
					23.30	0.1973	<.0001*
Psychomotor Skill Development							
Control	20.67	43.16	43.66	0.45			
Experimental	29.45	39.69	39.07	0.50			
					42.99	0.3336	<.0001*

An ANCOVA was also conducted comparing the control and experimental groups with the years of faculty clinical experience as a covariate for the data set with the ratings for faculty 8 and 9 removed. The results are presented in Table 4.23. Similarly to the t-test results presented earlier, there was a statistically significant difference in the control and experimental group means with the traditional group mean being higher than the precepted group. Upon examining the r^2 values, it was found that even though this result was statistically significant, there was a small effect size for the variables with the psychomotor skill development variable having the higher of the three effect sizes (problem solving - F=5.31, r^2=0.0732, p = .0237; applying theory to practice - F=6.75, r^2=0.0753, p = .0111; psychomotor skill development – F value=15.10, r^2=0.1667, p = .0002).

Table 4.23 Analysis of Covariance of CCRS Posttest Scores using Faculty Years of Clinical Experience as Covariate by Experimental and Control Groups for Data with Ratings of Faculty 8 and 9 Removed

Group	Mean Faculty Clinical Experience	Posttest CCRS Mean Score	Adjusted CCRS Mean Mean	Standard error	F Value	*r* squared	*p*-value
Problem Solving							
Control	14.40	118.20	121.16	2.47			
Experimental	30.08	115.14	113.11	1.96			
					5.31	0.0732	.0237*
Applying Theory to Practice							
Control	14.40	57.77	58.83	1.19			
Experimental	30.08	55.19	54.47	0.94			
					6.75	0.0753	.0111*
Psychomotor Skill Development							
Control	14.4	41.89	42.68	0.64			
Experimental	29.45	39.69	39.06	0.56			
					15.10	0.1667	.0002*

Summary

Many analyses have been conducted to fully examine the data obtained in this study conducted in 2006 and again in 2007. Some of the ratings of participants bring into question possible influences related to faculty issues including differences in clinical experience, and variability in faculty ratings of students in the different clinical groups. The instrument used in this study to measure clinical competence had demonstrated strong reliability and validity in the past so this also leads to questions regarding preparation of faculty for completing the instrument, or other factors which might influence ratings. For example, part-time and full-time faculty were involved in the study, and part-time faculty due to distance and other obligations, interacted little with the research and other faculty during the study.

The t-tests comparing the control and experimental groups related to the CCRS categories did not demonstrate significant differences in the groups prior to the clinical rotations. The post-experiment *t*-tests (using the full data set) did show significant differences in every area, with the control group having higher scores in each and every area, therefore the research question, using the full data, set is answered that the precepted model of clinical education did not yield junior nursing students who achieved higher levels of clinical competence compared to the junior nursing students who participated in a traditional clinical group. On the contrary, the students in the traditional group scored higher in each area.

Some analyses raised questions related to the findings using the full data set, including the trends in differences that were found in faculty ratings of students. When some faculty ratings of participants that varied significantly from others were removed, the statistical test results were different. The answer to the research question with the revised data set is that the precepted model of clinical education did not yield junior nursing students who achieved higher levels of clinical competence compared to the junior nursing students who participated in the traditional clinical group. The students in the traditional clinical group scored significantly higher than the students in the precepted clinical group in the psychomotor skill development variable only. No significant difference was found in the problem solving or applying theory to practice variables.

The *t*-test comparisons of faculty rating yielded some of the most interesting analyses as it revealed differences in ratings by some faculty members as compared to others. This raises questions related to the reliability of some of the findings. The next chapter will discuss the conclusions that have been drawn from this work, and the implications of the results of this study. Recommendations for future review and research will be presented.

CHAPTER 5

SUMMARY OF FINDINGS, IMPLICATIONS, RECOMMENDATIONS

This study was conducted using an experimental research design to examine two different clinical supervision models for junior level nursing student clinical experiences. The traditional model (control group) of one instructor supervising eight to ten students on one unit was compared with the precepted model (experimental group) where one student was paired with one experienced, practicing registered nurse on a unit with regular visits by a faculty clinical instructor. Students were randomly assigned to either the control or experimental group. The two groups were compared using faculty ratings of student clinical competence as measured using the Clinical Competency Rating Scale (CCRS) designed by Scheetz (1988, 2000) which measures competency in three areas: problem solving, applying theory to practice, and psychomotor performance. This study was conducted in the Spring Semesters of 2006 and 2007.

The research question for this study was: Will junior nursing students in the precepted clinical group achieve higher levels of clinical competence compared with the junior nursing students in the traditional clinical group? The results of the analyses to answer the research question will be summarized and compared with previous studies. The implications of the findings for the situated learning model, social learning theory, and the practice of clinical education will be discussed, along with recommendations for future research.

Summary of Findings

First, group characteristics of the control and experimental groups of students were compared to assess for any differences that might be thought to influence competency development. The control and experimental groups did not differ significantly in characteristics such as age, grade point average, or previous health care experience. The students' pre-experiment level of competence was rated by faculty and the mean scores of the two groups were compared using a *t*-test to determine if there was a significant difference in the two groups prior to the experimental intervention. The students in the traditional clinical had higher, but not statistically higher, competency scores prior to the experiment.

The faculty scoring the two groups of students were also assessed for differences. It was found that the faculty did differ significantly in years of teaching experience and years of clinical experience, with the faculty teaching the precepted students being more experienced. The level of experience and education of the preceptors was also reviewed. Seventy-two percent of the preceptors had five years or less experience as a preceptor and an associate degree was the highest degree in nursing for 72.3% of the preceptors.

To answer the research question, several analyses were completed using *t*-tests of all student ratings by faculty collected for 2006 and 2007. First, a significant difference in all areas of the CCRS tool (problem solving, applying theory to practice, and psychomotor skill development) was found. Contrary to what was expected, it was the students in the traditional clinical experience who had a statistically higher level of competence than the students in the precepted clinical experience (problem solving *p*=.0007, applying theory to practice *p*=.0003, psychomotor *p*=<.0001).

Some of the most interesting and unexpected results of the analyses were related to differences found in faculty ratings of students. Individual faculty ratings of students were compared with *t*-tests after descriptive statistics showed striking differences in means, and ranges of scoring by some faculty members. These faculty ratings of students were analyzed with t-tests and with a lower threshold for significance by dividing the .05 significance level used throughout the study by the number of pairs being compared using the Bonferroni Method. Twenty-one of the 84 pairs of ratings reached the significance level. All but one of these pairs involved two individual faculty members. Because of the statistical differences found in these comparisons of faculty ratings, the analyses of the data comparing the control and experimental groups were repeated after removing the ratings of students by these two faculty. When the analyses were repeated without these two faculty member ratings, there was no significant differences in the problem solving or applying theory to practice areas of the CCRS. In the psychomotor skill development section, there was still a statistically significant difference, with the traditional students still scoring higher than the precepted students (p=.0084).

Other analyses were also completed since faculty clinical and teaching experience revealed that the two groups of faculty differed significantly related to years of experience. Pearson correlation coefficients were determined to see if there was a relationship between years of experience of the faculty and the ratings they performed related to student competency. There was no significant correlation between years of faculty teaching experience and ratings on any area of the CCRS. There was a significant, weak to moderate negative correlation ($r=-.2634$, $p=.0126$) between years of faculty clinical experience and psychomotor skill development ratings. As years of faculty clinical experience increased, the ratings of students decreased.

Because of the significant differences that were found in faculty experience, and the correlation of the CCRS ratings with years of faculty clinical experience, an analysis of covariance (ANCOVA) was completed to determine if the significance of the findings related to competency in the CCRS was affected by the faculty experience. When years of faculty teaching experience was considered as a covariant in comparing the two groups in the CCRS competency areas, there were significant differences in the control and experimental group ratings only in the area of psychomotor performance. When years of faculty clinical experience was considered as a covariant, there were significant differences in the control and experimental group ratings in all areas of the CCRS.

Overall in this study, the psychomotor skill development area of the CCRS showed statistically significant differences more consistently than the other areas of the CCRS. The students in the traditional clinical rated significantly higher than the students in the precepted clinical experience. For the problem solving and applying theory to practice rating scales, there were no significant differences between groups when faculty ratings in question were removed and when faculty teaching experience was considered as a covariate. Even though the results for these two variables showed significance when faculty clinical experience was used as a covariate, these results were not as consistent as the psychomotor skill development area of competence.

Comparing Findings to Body of Research

In comparing the results of this study to the body of research related to precepting and competence development, few studies had overwhelmingly positive or negative results related to precepting. More studies had mixed results, as this study did, with no significant difference in most analyses for the problem solving and applying theory to practice variables, and results that showed that the traditional clinical students rated significantly higher in the psychomotor variable. Studies from the literature related to comparison of precepted and traditional clinical experiences were reviewed for commonalities, differences, and trends in relation to what was found in this study. Concerns about methods or design in the studies from the literature were also compared to controls or issues with this study.

Only one study (Scheetz, 1989) found precepted students scored significantly higher than non-precepted students in all areas of competency measured. Scheetz (1989) compared clinical competency of students in a precepted summer experience (n=36) with a control group of students (n=36) who worked as nursing assistants. The subjects were rated by head nurses at the end of 10 weeks. Unlike this study, Scheetz found that the group of students who were precepted scored significantly higher in all areas of the CCRS than the students who were not precepted. There are many potential reasons for the difference in findings. In the Scheetz study, students in the precepted group were in a formal course with learning objectives, unlike the students working as nursing assistants. The focus on learning was seen by Scheetz as one factor that possibly affected this outcome. In this study, students were all in the same required course, with the same learning objectives, and similar clinical settings for both types of clinical experience.

Several studies showed no statistically significant difference between students in a precepted clinical and those in a control group. Olson, Gresley, and Heater (1984), in a study similar to Scheetz's (1989) study of a summer precepted experience, used the Schwirian 6-D Scale to compare three groups of students. The three groups included a precepted group in an eight week clinical summer experience (n=8), students enrolled in the summer diadactic with no clinical experience (n=5), and cohort students not enrolled in summer courses served as the control group (n=36). They found that there were no significant differences from pre-experience ratings to post-experience ratings within groups during the eight week experience. There was no significant difference found between the groups which was the same findings for the problem solving and applying theory to practice variables in this study.

Using the Schwirian 6-D Scale, Yonge and Trojan (1992) compared students in a traditional group (n=19) to a precepted group (n=9) in a three to six week clinical experience. They compared student self ratings within the groups so they reported that the precepted students only increased their ratings significantly in two areas (teaching/collaboration and professional development) compared to the students in a traditional clinical who increased their self ratings significantly in four areas (teaching/collaboration, professional development, planning/evaluation, and interpersonal relationships). There was not a direct comparison between groups for statistical significance performed for the student self ratings. The critical care area of the Schwirian 6-D Scale, which is the most similar to the psychomotor area of the CCRS was not used in the Yonge and Trojan study since some of the students were assigned to psychiatric clinical areas where these skills were not practiced. So no comparison was made to this study related to the psychomotor variable. When the faculty and preceptors rated the students with the Schwirian 6-D Scale and there was comparison between groups, no statistical significance was found similar to findings in this study.

Yonge and Trojan (1992) state that their results should be interpreted with caution. Cautions identified included that different hospital types (rural and more urban) were used and data collection was different with the two groups. The precepted group data was gathered by mail and the traditional group data through personal contact. These two factors were controlled more consistently in this study since all clinical experiences were on medical-surgical units in similar types of units/hospitals and data forms were collected by the researcher from all instructors personally. Even though the Yonge and Trojan study began as a fairly large study, they ended with unequal and small groups.

Myrick and Awrey (1988) used the Schwirian 6-D Scale for part of their analysis. Myrick and Awrey (1988) used a traditional clinical group (n=5) and precepted clinical group (n=7). Like the Yonge and Trojan study, Myrick and Awrey (1988) had the students do self-assessments pre- and post-experience. Myrick and Awrey compared for differences between groups and found no statistically significant pretest to posttest between group differences when the students self-rated. In the Myrick and Awrey study, when the preceptor or instructor rated the students at the end of the rotation, the control group performed significantly better than the experimental group in the area of planning/evaluation. The authors explain that this difference may have been due to factors such as emphasis placed on care planning by faculty and that nursing care plans may not have been used in all settings. The clinical paperwork with emphasis on planning, teaching, evaluation, and reflection on practice was equivalent in this study with no consistent significant differences in problem solving or applying theory to practice which are areas of the CCRS ratings with similarities to the planning and evaluation ratings of the Schwirian 6-D Scale. Myrick and Awrey also compared the two groups by having the investigator and assistant rate the students in the two groups using another instrument (the Slater Nursing Competencies Rating Scale) at the end of the experience and found no significant differences between groups. In summary, Myrick and Awrey found no difference between groups in most of their analysis with the exception of the traditional group scoring significantly higher in the planning/evaluation variable when measured by clinical instructors.

Clayton, Broome, and Ellis (1989) also used the Schwirian's Six-Dimension Scale of Nursing Performance, but as a measure of socialization six months after the clinical experience for a control group (n=33) and a experimental (precepted) group (n=33). They found a significant difference between groups, with the precepted group scoring higher, in four of the subscales (leadership, teaching/collaboration, interpersonal communication, planning/evaluation). No significant difference was found in the areas of professional development or critical care. Again, for this study the critical care area (the one most in common with the psychomotor area of the CCRS) was not found to have a statistically significant difference unlike this study that found the traditional students scored significantly higher than the precepted students in the psychomotor skill development variable.

Brehaut, Turik and Wade (1998) conducted a non randomized, small study (control group n=12, precepted group n=13), in a public health setting, with students either precepted or placed with a nurse manager. Students in both groups demonstrated significant gain in perceptions of total competence. There was no significant difference in the gain in perceptions of overall competence of students between the two groups. This bears little resemblance to this study where the students were either with a nursing faculty in a traditional group on one medical-surgical unit or were one-on-one with a practicing nurse, but they also found no difference between groups as in part of the analysis for this study.

To summarize the comparison of this study to others, several previous studies found no difference between groups including: Brehaut, Turik, and Wade (1998) for student self-ratings, Olson, Gresley, and Heater (1984) for student self-ratings, Yonge and Trojan (1992) when students were rated by faculty and preceptors, and Myrick and Awrey (1988) for student self-ratings and for investigator ratings. This was consistent with what was found in this study for the problem solving and applying theory to practice variables. Others found the precepted model to be more advantageous for competency development including: Scheetz (1989) who found the students in the precepted group scored higher is all areas of the CCRS when evaluated by head nurses, and Clayton, Broome, and Ellis (1989) who found that the precepted students scored higher in self-rating for four areas of the Schwirian 6-D Scale including planning and evaluation. In the present study, the precepted students did not show significantly higher scores in any areas of competency measured. Others found the traditional model as a better model for competence development including: Yonge and Trojan (1992) who found the traditional group improved in four areas while the precepted group improved in two, Myrick and Awrey (1988) who found the traditional students scored higher in planning/evaluation when rated by instructors and preceptors, and this study where the traditional students scored higher in psychomotor skill performance than the precepted group.

Overall, more studies found no significant differences between groups, or they had mixed results with no difference in some areas and significant differences in others. No single variable or theme was identified for types of competency that was improved more for one type of clinical over the other. There is not a preponderance of evidence supporting or rejecting the precepted or traditional models of clinical supervision.

In general, researchers cited reasons to use caution in interpreting their findings such as small samples (Myrick and Awrey, 1988; Olson, Gresley, & Heater, 1984; Yonge & Trojan, 1992;) length of experience (Yonge & Trojan, 1992), no random assignment (Myrick & Awrey, 1988; Scheetz, 1989; Olson, Gresley, & Heater, 1984; 1989; Yonge & Trojan, 1992), and no standard orientation for the preceptors (Yonge & Trojan). Many of the factors mentioned by the authors of other studies were controlled for or were a focus of the planning for this study. There was an attempt to have a large equal size sample, similar hospital sizes, similar types of units (all were medical-surgical units), preceptors were trained or provided with equivalent materials, and the number of hours of the experiences were equal. The length of the experiment in this study was not as long as some of the studies found in the literature, and this may have affected the outcome of this study, since there may have not been enough time for a difference in learning to be fully formed or to be measured. Brehaut, Turik, and Wade (1998) was the longest study found at 12 weeks. To have all of the students have the opportunity for both experiences, six to seven weeks was as long as this study could be conducted.

Implications of Results of This Study for Theory and Practice

The results of this study did not support the expectation that the precepted model was advantageous for developing overall clinical competence through role modeling, observational learning, and specifically situated learning. What are the implications of these results? Were there factors that impeded development of competence in the precepted student group (e.g. length of experience, working conditions on the clinical unit). What could have been done to set up an optimal environment for situated learning to occur and to be tested or evaluated? Some possible implications for theory and practice will be discussed.

Implications for Theory – Situated Learning and Social Learning Theory

In the model developed for this study and depicted in Appendix B, the emphasis was on role modeling with more opportunities for facilitating, guiding, and prioritizing in caring for several patients. Did the students have good role models? Did the preceptors embody all of these skills in working with the students? Did the students perceive similarities to the preceptors or did the students see the preceptor model embodied skills like Benner, Tanner, and Chelsea (1996) suggest can happen with a role model. The answers to these questions are not known in the context of this study since competency of the student was measured quantitatively without measuring performance or evaluation of the preceptors or faculty. Anecdotally, many precepted students came into class on campus during the study excited to tell faculty all the things they had seen or done in clinical. Some students seemed to make real connections with preceptors according to their informal reports. But were the students superficially connected in the clinical site and excited about what they were able to “see” and report back, but maybe they did not relate to the nurse as a role model or internalize the values, roles, or competencies of nursing?

The model, as suggested for this study, depicts precepted students as being involved in the care of many more patients through participating with the preceptor with care than in traditional clinical experiences. The model depicts a less chaotic environment with fewer learners on the unit, but is that what the student experiences? The answers to these questions are also not known from this study as it was designed, but anecdotally some students verbalized liking being the only student on a unit and that they were able to see more, and do more. At other times when faculty visited students, other student groups were present on the same unit.

The situated learning model with the focus on legitimate peripheral participation and community of practice suggests that knowledge acquired in situations is more powerful than abstract knowledge (Lave & Wenger, 1991). While most nursing faculty would likely agree with the importance of the actual practice setting with coaches and guides, whether it be faculty clinical instructors or preceptors, the findings of one study does not support this supposition for developing clinical problem solving ability. Monahan (1991) compared a group of students in clinical with a group of students in no clinical experience and found that clinical did not make a difference in nursing judgment or professional identity for those students. This study is not conclusive about competency development in general, but did show that traditional clinical was better for psychomotor skill development in this study. Were the faculty clinical instructors better at guiding and coaching in the area of psychomotor skill development or were there other factors that differed in the two clinical approaches that led to the improved psychomotor competency ratings in the precepted group over the traditional group? Were the preceptors hesitant in allowing students access to skill performance in the psychomotor area? It did not seem so anecdotally from what faculty said about visits with preceptors or from what students reported. , a student would report difficulty having opportunities to practice skills, but this seemed to be an issue as often with the traditional clinical as with the precepted. Was there an issue with the comfort of faculty completing the psychomotor section of the instrument? Did the precepted faculty score students lower because they did not witness all the skills, but were left to rely on the preceptor and student report of skill development?

Concepts discussed in the situated learning model include legitimate peripheral participation in the community of practice – gaining access to growing involvement (Lave & Wenger, 1991). In the model, this was depicted as the student being almost enclosed in the clinical culture. The precepted experience was planned so the student would have a short period of orientation, a time to start being included in the community of practice, and then would have the opportunities to practice multiple skills and increasingly would take on more responsibility in planning and providing nursing care.

In searching for factors that may impact learning in the clinical model suggested in this study based on the situated learning model, qualitative studies were examined that delved into learning or competency development in the preceptor-student relationship, or in the clinical learning environment in general, as it is experienced today.

Some authors have recently written about issues with the clinical learning environment (Chan, 2002; Edmond, 2001; Hosoda, 2006; O'Connor, 2007; Stanley, Dulaney, & Martin, 2007). Maginnis and Croxon (2007) reported that because of RN shortages and demanding workloads they moved to using a different model of clinical education because the precepted model of clinical supervision was not working for second-year students in acute nursing practice areas in their program in Australia. Others have specifically written about disturbing problems with the clinical learning environment of precepted students or students in field experiences (Dunn, Ehrich, Mylonas, & Hansford, 2000; Myrick, Phelan, Barlow, Sawa, Rogers, & Hurlock, 2006; Vallant & Neville, 2006).

Vallant and Neville (2006) in a qualitative study of the impact of the preceptor-student relationship on learning, found that the students sometimes felt invisible in the relationship with feelings of "being silenced, disempowered, and insulted" (p. 27) which students felt stagnated their learning. In the converse, when students felt the attitudes of the preceptor was inclusive learning was enhanced. This study did not evaluate or have a component that looked at the quality of the preceptor-preceptee relationship or the learning environment. The Vallant and Neville study focused on student perceptions of learning but did not measure or evaluate learning or competency development. In this study there were few overt complaints about the clinical learning environment. There was one complaint regarding a preceptor which led to a student being switched to a different preceptor on a different unit, but this was the exception.

Power and power relationships have not been a strong focus in the literature related to situated learning, but it is a potential problem when access to learning and communities of practice are important to the quality of learning. When Lave and Wenger (1991) described the enabling of legitimate peripheral participation, they described an opening, as "a way of gaining access to sources for understanding through growing involvement" (p. 37). While this and the concept of communities of practice are seen as analytical viewpoints on learning, they are also discussed as more literal notions of the context in which learning occurs. What if a student is not granted access to the community of practice or is not offered any level of participation? According to Hansman and Wilson (2002), not enough attention has been given to the issues of power in learning situations and how power may affect learning. They suggest that this is an ethical issue that should be considered by those who plan learning activities. Contu and Willmott (2003) writing from a corporate setting, and discussing organizational learning, find Lave and Wenger's conception of power in situated learning as underdeveloped. From their perspective, it is difficult if not impossible to learn a practice in a community of practice, when power relationships deny access. Cope, Cuthbertson, and Bernadette (2000) using situated learning as a framework for a clinical practice placement for new nurses in Scotland found access to be a problem in some settings. The problem seemed to be minimal and was attributed to the fact that placement in the setting might be too short to provide time to induct the nurse into the setting.

Was the length of the study too short to see a different in the two groups? As discussed in Chapter One, clinical education is grounded in tradition without research support (DeYoung, 2003). There has not been a length of time, or ratio of faculty to students established for clinical experiences in nursing. Brown, Collins, and Duguid (1989) in discussing the communities of practice suggest that learning is a process of enculturation and that learners are asked to use the tools of a discipline without being able to adopt the culture of the discipline. In a study of novice nurses Forneris and Peden-McAlpine (2007) looked for themes in the development of critical thinking related to a reflective learning intervention. They found that in the first two months the influence of anxiety and power affected their ability to think and they questioned their own knowledge and beliefs. The Forneris and Peden-McAlpine study with new nurses does not relate directly to junior level students, but does give another perspective of time and competence development. This along with the Cope, Cuthbertson, and Bernadette (2000) study support much more time for the learning to occur as described in the situated learning model, and serves as an example of issues in designing learning experiences consistent with situated learning concepts.

This study does not lead to definitive conclusions about the theory, but does bring questions to focus when this theory is considered with this model and these results. What could be changed in the format/creation/organization of precepted and traditional clinical to improve the clinical setting for competence development? What would lead to a more inclusive practice setting for students? Was the clinical environment not conducive to learning and did the presence of the faculty ensure access to the community of practice, even if it is only in a marginal way? Does the faculty serve as a buffer in difficult or stressful environments so the students see the best of the setting and are somewhat protected from the worst?

Implications for Practice

Based on this study and other studies that have been reviewed, the use of the precepted model of clinical education should not be universally adopted or rejected. Several implications for practice should be considered including: improving psychomotor skill development in precepted experiences, preparing preceptors further in teaching and supervising for all skills, but particularly psychomotor skills, improving faculty evaluation consistency, and dealing with possible clinical learning environment issues.

Measures should be taken to formally prepare preceptors for the role in all instances where preceptors are used. Preceptors for this study either attended preceptor training or were given self-study modules to complete. In this study, 72% of the preceptors had five years, or less experience as a preceptor. An associate degree was the highest degree in nursing for 72.3% of the preceptors. While continuing to use the preceptor model for part of the junior level clinical experiences, those responsible for arranging the experience should continue to attend to preparing preceptors for the role. Phillips and Duke (2001) found that clinical instructors asked greater numbers of questions in response to patient care scenarios involving undergraduate students and questioned from a higher level than preceptors. Preceptors as primarily clinicians and not teachers, may have expectations that differ from the course objectives (Bonnel, Gomez, Lobodzinski, & West, 2005; DeYoung, 2003). The preceptor may have little preparation for participating in student evaluations (Ferguson &

Calder, 1993). Preceptors may be reluctant to give negative feedback/evaluation about students. The program should provide preparation of the preceptors for development of teaching/supervision skills.

Preceptors should be explicitly prepared to supervise students in psychomotor skill development. They should be oriented to the skills the students are prepared to perform and should know the level of supervision and assistance students require. Faculty who supervise the precepted experience students should monitor for factors related to psychomotor performance development. Faculty, when arranging precepted clinical experiences and when making site visits, should discuss strategies for competence development in all areas of practice, but especially psychomotor skill development.

Another implication for practice is the issue of inconsistent faculty evaluation of students. Were the results of the whole data set in this study skewed by faculty, particularly parttime faculty, who are less accustomed to rating students? Allison-Jones and Hirt (2004) suggested that "experience may enable full-time faculty to better judge students' abilities in the clinical setting" (p. 242). Also skills in giving feedback to students appropriately are many times learned over time. This skill as discussed by Allison-Hones and Hirt (2004) could also relate to completing a rating scale like the one used in this study. All faculty should be better prepared to critically rate students using instruments/tools being used in clinical settings for evaluation of student performance.

One practical improvement to help in faculty ratings with the particular evaluation tool in this study would be to provide a copy of the rating scale descriptions (i.e. the descriptions from the first page of the instrument) of the CCRS for the rater to keep in view while completing the ratings. The descriptions for each of the five levels were very descriptive on the first page, describing the "label name and performance according to accepted standards of performance and quality of assistance required" (See Appendix G). On the pages where the actual ratings were completed only the letter representing each level was at the top of each column. Faculty may forget the defining characteristics of performance at each level or become complacent when rating individual students.

Given the issues discussed in the nursing literature over the last few years, faculty supervising the precepted clinical experiences should monitor for possible issues with the clinical environment. Are the stresses of the clinical setting for preceptors just too overwhelming to add the learner into the environment? Does the junior level student add to the stress or not? In the current stressful clinical setting, does the traditional clinical experience with the faculty member continually form a sort of cocoon or protection from the stress of the setting? The traditional clinical may not provide the variety and numbers of experiences for students, but may provide a better learning environment if the student is feeling marginalized or ignored in the precepted model. The faculty should make frequent visits and monitor to see if the student is actively engaged in the clinical environment, and reports opportunities for skill performance. Student written work and post-conference meetings could be designed to provide a time and place for evaluation of the clinical learning environment. If the learning environment is not supporting learning, then students need to be reassigned to a more traditional setting.

Recommendations for Future Research

This study was intentionally designed to minimize many of the issues seen in the literature about research of precepted clinical experiences. This was a large study (n=107), with similar settings, preceptors preparation, equivalent length of time for both types of clinical experiences, and all ratings were completed by nursing faculty. Although this study was designed to control for several variables cited as possible problems in past research, additional measures could be taken to control further and to measure student competency in other ways. This study should be repeated with the same type of experimental design, with random assignment and large groups, with the addition of other measures of competence development and a quantitative measure of the clinical learning environment. This would allow for measurement of clinical competency outcomes while simultaneously measuring the clinical learning environment that could be a useful combination in examining the use of the situated learning model.

Other improvements to this study would be to carry out the research in multiple sites in multiple geographic areas. Also, the time of the clinical experience could be lengthened for comparison. The length of the clinical experiences might have been too short for a measure of the effectiveness of the two types of clinical experiences to show a difference. Clinical education has been more grounded in tradition and common sense than on research (DeYoung, 2003). A recommended time for clinical skill development has not been established in the literature.

Watson, Stimpson, Topping, and Porock (2002) suggest that competence assessment is problematic and that multiple assessment methods be used along with self-assessment as an adjunct to other measures. In future studies, the ratings of the faculty could be compared with ratings of students themselves. Certainly, student self-ratings have been used by several other researchers and thus this information could be compared to the findings of other studies.

In future studies, faculty experience should be controlled as much as possible. Specifically more training for faculty related to the instrument and encouraging them to be realistic about student level of performance for the level of the student in the program would be helpful. Consideration of giving faculty a separate coding sheet of the rating categories to have side by side with each page of the rating scale would be helpful with the CCRS tool. In the current version of the rating scale, the very detailed descriptions of the categories are on the first page, and just one letter indicating the category is at the top of each column on subsequent pages.

The instrument used in this study was developed in the late 1980's and was based on practice standards at that time. Several aspects of validity was reported for the rating scale but some of the measures were with fairly small groups of students (e.g. concurrent validity estimated with using CCRS scores and *NLN Comprehensive Nursing Achievement Tests, 1986 edition* as the criterion reference measure, with 27 senior nursing students). A new rating scale should be developed for research purposes using newer competencies developed for current practice. This would be time and labor intensive, but given the changes in the practice environment and practice standards, newer instruments with rigorously tested psychometric properties would benefit researchers. Redfern, Norman, Calman, Watson, and Murrells (2002) suggest that competence rating scales are not highly valid and reliable and can become dated, needing revisions.

Adding a more objective measure of performance of clinical competence would provide another level of information about the students' skills. At the completion of the clinical rotation, all students could be asked to complete a computerized clinical simulation exam similar to the exam described by Finke, Messmer, Spruck, Gilman, Weiner, and Emerson (2001). The clinical simulation reported by Finke, et al. (2001) was used to test the nurse's ability to gather pertinent data and to make appropriate patient care decisions based on this data. Appropriate simulation scenarios would need to be developed for the level of the student in the program. Another option for a observable performance, more objective measure would be to use high-fidelity simulation in the nursing skills lab for the students to demonstrate assessment, communication, critical thinking, and technical skills observed by faculty evaluators (Todd, Manz, Hawkins, Parsons, & Hercinger, 2008).

Including a qualitative component to the research would allow for a more comprehensive approach to simultaneously examine the differences in the precepted and traditional models of clinical education with the effects of the clinical learning environment. Focus groups for each type of clinical experience would add the qualitative data to enrich these findings.

A third type of clinical experience – the Dedicated Education Unit (DEU) – could also be added in a study as another comparison to the traditional and precepted clinical experiences. This type of clinical arrangement involves a unit that is dedicated to a particular school of nursing with the staff serving as preceptors or instructors (Mascato, Miller, Logsdon, Weinberg, & Charpenning, 2007). This type of model with a faculty member on location more than in a typical precepted clinical experience, could address issues such as mentoring of preceptors by faculty, keeping nurses prepared with current pedagogy related to clinical teaching/learning, and possible clinical learning environment issues since the staff would identify with the school and the students would more likely be integrated into the community of practice as intended in using the Situated Learning Model. Ranse and Grealish (2007) used a 'communities of practice' framework in studying student learning experience on a dedicated education unit and found student felt accepted and engaged in nursing work.

Conclusion

The results of this study add to the body of knowledge related to clinical competence development for two types of clinical models. While results of this study suggest that the traditional model was advantageous for psychomotor skill development, this is not supported widely by other studies. These results should not be generalized beyond the school of nursing involved in the study but should be used in designing other studies of clinical learning. As we seek to use more evidence-based practice in healthcare, nursing education needs to continue to strive to seek evidence that either supports long held practices or evidence that guides us in newer, more advantageous ways to prepare future nurses who will enter a dynamic practice arena.

As suggested by Cope, Cuthbertson, and Stoddart (2000) clinical placements are complex, including social and cognitive aspects. The explicit use of situated learning as a model might be useful. Future studies comparing the traditional and precepted clinical experiences, including the processes of learning and the outcome of the learning through the competency development that occurs, would be beneficial.

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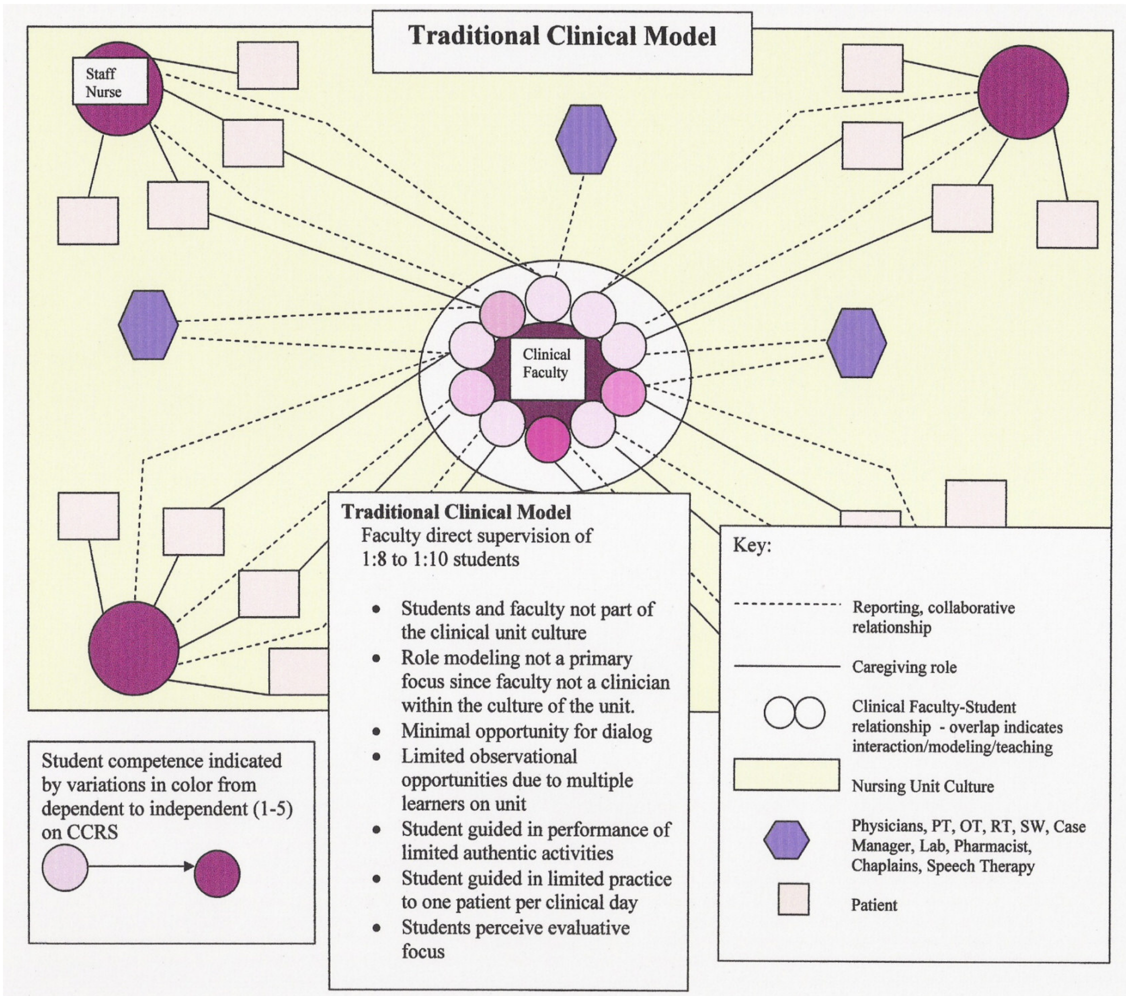
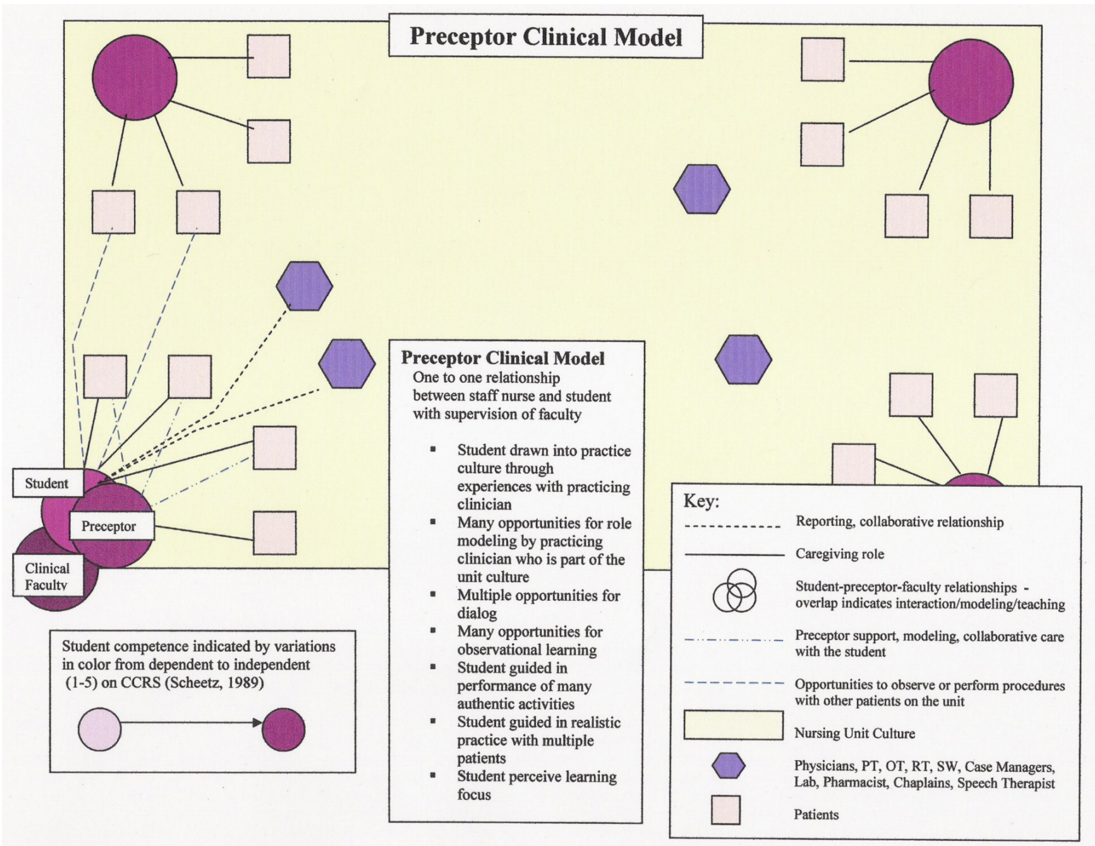
APPENDICES

APPENDIX A


Traditional Clinical Model
Staff Nurse
Clinical Faculty
Traditional Clinical Model
Faculty direct supervision of 1:8 to 1:10 students
• Students and faculty not part of the clinical unit culture
• Role modeling not a primary focus since faculty not a clinician within the culture of the unit.
• Minimal opportunity for dialog
• Limited observational opportunities due to multiple learners on unit
• Student guided in performance of limited authentic activities
• Student guided in limited practice to one patient per clinical day
• Students perceive evaluative focus
Student competence indicated by variations in color from dependent to independent (1-5) on CCRS
Key:
Reporting, collaborative relationship
Caregiving role
Clinical Faculty-Student relationship - overlap indicates interaction/modeling/teaching
Nursing Unit Culture
Physicians, PT, OT, RT, SW, Case Manager, Lab, Pharmacist, Chaplains, Speech Therapy
Patient

APPENDIX B



Preceptor Clinical Model
Student
Preceptor
Clinical Faculty
Student competence indicated by variations in color from dependent to independent (1-5) on CCRS (Scheetz, 1989)
Preceptor Clinical Model
One to one relationship between staff nurse and student with supervision of faculty
▪ Student drawn into practice culture through experiences with practicing clinician
▪ Many opportunities for role modeling by practicing clinician who is part of the unit culture
▪ Multiple opportunities for dialog
▪ Many opportunities for observational learning
▪ Student guided in performance of many authentic activities
▪ Student guided in realistic practice with multiple patients
▪ Student perceive learning focus
Key:
Reporting, collaborative relationship
Caregiving role
Student-preceptor-faculty relationships - overlap indicates interaction/modeling/teaching
Preceptor support, modeling, collaborative care with the student
Opportunities to observe or perform procedures with other patients on the unit
Nursing Unit Culture
Physicians, PT, OT, RT, SW, Case Managers, Lab, Pharmacist, Chaplains, Speech Therapist
Patients

APPENDIX C

Western Carolina University
Department of Nursing
Participant Demographic Information

This information is confidential and will not be reported in any way that could link this information to you as an individual.

Name:________________________________ Age:________________________

Current GPA:_______________________

Previous health care experience: (check all that apply)

Position	Months/Years of Experience
______ NA I	________________________
______ NA II	________________________
______ LPN	________________________
______ Other type of position (specify)	________________________

APPENDIX D

Western Carolina University
Department of Nursing
Preceptor Educational and Experiential Information

Name of Preceptor:________________________________ Clinical Agency__________

Type of Unit Where Student Was Precepted____________________________________

Degrees Earned Institution Year

_____ Diploma ____

_____ ADN ____

_____ BSN ____

_____ MSN ____

_____ Doctoral (specify type)____

_____ Other (specify) ____

Years of clinical practice experience:

_____ 1-2 years _____ 2-5 years _____ 5-10 years _____ 10-15 years

_____ 15-20 years _____ 20+ years

Previous type of preceptor experience:

_____ None _____ Precepted WCU student(s) _____ Precepted new graduates

_____Precepted students from other nursing programs

Years of precepting experience:

_____ 1-2 years _____ 2-5 years _____ 5-10 years _____ 10-15 years

_____ 15-20 years _____ 20+ years

APPENDIX E

Western Carolina University
Department of Nursing

Name of Faculty Clinical Instructor:_________________________________

Type of Clinical Supervised: ______ Precepted _______ Traditional

Clinical Agency Supervised______________________________

Highest Nursing Degree Completed__________________________________

Highest Non-Nursing Degree Completed______________________________

Years of Experience as a Nurse____________________

Years of Teaching Experience_____________________

APPENDIX F

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March 8, 2006 Our ref: PutnamThesisML3-06

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APPENDIX G

Clinical Competency Rating Scale

CLINICAL COMPETENCE RATING SCALE (CCRS)
DEFINITION OF THE RATING SCALE LABELS*

Directions: Observe the clinical performance of the nursing student and rate him or her on this performance scale. Place a check mark in the column that most accurately describes the performance which you observe.

Label Name and Performance According to Accepted Standards of Performance and Quality of Assistance Required

Independent	Safe, accurate Appropriate affect each time Desired outcome each time	Proficient, coordinated, confident Occasional expenditure of excess energy	None
Supervised	Safe, accurate Appropriate affect each time Desired outcome each time	Efficient, coordinated Some expenditure of excess energy Task completed within a reasonable time	Occasional supporting cues needed
Assisted	Safe, accurate Affect appropriate most of the time Desired outcome most of the time	Skilled in parts of the behavior Inefficient and uncoordinated Excess energy expended to accomplish task Requires delayed time to complete task	Supportive cues Occasional physical cues needed Frequent verbal cues needed
Marginal	Safe, but not alone Desired outcome some of the time Affect appropriate occasionally	Unskilled, inefficient Considerable expenditure of excess energy Requires prolonged time to complete task	Continuous verbal and physical cues needed
Dependent	Unsafe Unable to demonstrate behavior	Lacks confidence Uncoordinated, inefficient	Continuous verbal and physical cues needed
Not applicable			
Not observed			

Scoring. To assign a numerical grade for clinical performance, the following values may be used:

Independent (I)	5
Supervised (S)	4
Assisted (A)	3
Marginal (M)	2
Dependent (D)	1

Problem Solving	I	S	A	M	D	NO NA	Comments
1. Collects relevant health data from client and other sources.							
2. Assesses client's ability to communicate verbally.							
3. Assesses client's physical status.							
4. Assesses client's psychosocial status.							
5. Assesses client's developmental level.							
6. Assesses client's environmental safety needs.							
7. Assess impact of illness on client and significant others.							
8. Assesses learning needs of client and significant others.							
9. Differentiates subjective and objectives client data.							
10. Interprets client's nonverbal behavior.							
11. Formulates nursing diganoses and/or problem list.							
12. Seeks client input to develop a plan of care.							
13. Considers client's cultural background when planning care.							
14. Formulates a plan of care consistent with clients' values.							
15. Consults with other members of the health care team.							
16. Supports clients' right to a personal philosophy and lifestyle.							
17. Develops rapport with client and health team members.							
18. Recognizes signs and symptoms of physical distress in clients.							
19. Documents nursing interventions and client responses.							
20. Reports pertinent client information to appropriate health team members.							
21. Seeks assistance when needed.							
22. Evaluates client's responses to therapeutic interventions.							
23. Evaluates client's progress toward desired outcomes.							
24. Revises plan of care when indicated.							
25. Allows client to choose freely among alternative actions.							
26. Incorporates client's significant others into plan of care when appropriate.							
27. Schedules nursing activities to promote client comfort.							
28. Organizes activities to promote efficiency.							

	I	S	A	M	D	NO NA	Comments
29. Acts as an advocate for the client.							
Application of Theory to Practice	**I**	**S**	**A**	**M**	**D**	**NO NA**	**Comments**
30. Utilizes therapeutic communication skills with client.							
31. Develops a plan of care for client based on assessment data.							
32. Plans nursing activities that facilitate the achievement of client outcomes.							
33. Plans nursing activities that are congruent with the prescribed medical regimen.							
34. Anticipates client's responses to therapeutic interventions.							
35. Anticipates client's needs after discharge.							
36. Implements nursing activities to meet client's needs.							
37. Detects salient aspects of client's behavior.							
38. Incorporates theoretical knowledge and scientific principles into nursing care.							
39. Reacts to signs and symptoms of distress in client.							
40. Carries out patient teaching.							
41. Conveys an attitude of acceptance and empathy toward client.							
42. Acts in a nonjudgmental manner toward client.							
43. Maintains client/family confidentiality.							
Psychomotor Skill Performance							
44. Demonstrates manual dexterity with equipment.							
45. Adapts skill performance to client situation.							
46. Performs skills with minimal discomfort to client.							
47. Gathers necessary equipment and supplies prior to performing a skill.							
48. Recognizes hazards to client.							
49. Maintains client safety.							
50. Maintains medical asepsis.							
51. Uses sterile techniques when indicated.							
52. Documents nursing interventions in client record.							
53. Documents client's response to nursing interventions in client record.							