A STUDY OF THE EFFECT OF NURSING STUDENT PRECEPTORSHIP PROGRAMS ON THE DEVELOPMENT OF CLINICAL COMPETENCE IN THE SENIOR BACCALAUREATE NURSING STUDENT

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ABSTRACT

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Many new graduate nurses lack clinical competence in the practice setting. The purposes of this study were (a) to examine the differences in the gains in clinical competence between those students who participated in summer preceptorship programs and those students who worked as nursing assistants in noninstructional clinical settings, and (b) to describe how students in each group perceived various factors of their summer work experience relative to their preferences.

Nonprobability convenience sampling was used to obtain a sample of 72 female generic baccalaureate nursing students. A nonequivalent comparison group pretest-posttest design was utilized. Treatment group subjects participated in hospital-based summer preceptorship programs for nursing students. Comparison group subjects worked as nursing assistants in hospitals that did not offer these students a planned instructional program during their employment.

Data were collected utilizing the self-administered Participant Information Survey and Summer Experience Survey. Head nurses utilized the Clinical Competence Rating Scale to rate subjects' clinical competence at the beginning and end of the summer experience.

A chi-square analysis of the Participant Information Survey data indicated that both study groups were similar on most of the extraneous variables of concern in this study.

ANCOVA was performed on mean scores for the Clinical Competence Rating Scale. Both groups achieved gains in clinical competence from pretest to posttest. However, significantly greater gains in clinical competence were achieved by the treatment group subjects.

Descriptive analysis of the Summer Experience Survey data indicated that subjects in both groups enjoyed a "buddy" relationship with either their RN preceptor or an RN staff nurse on their unit. Subjects in both groups indicated that the summer experience was beneficial to them and that they improved their clinical competence.

Since the preceptor-preceptee relationship was either naturally or spontaneously created for most subjects in the study, one must search further to find an explanation for the difference in the gains in clinical competence at the end of the summer work experience. Factors to be considered when examining this difference include other variables inherent in the preceptorship experience. Additionally, organizational variables may have contributed to the differences in the gains in clinical competence.

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TABLE OF CONTENTS

LIST OF TABLES

I--INTRODUCTION

This study focused on a problem widely reported in the literature: the new baccalaureate nurse's lack of competence in the clinical setting. The primary purpose of this study was to investigate the effect of the student preceptorship experience (one proposed solution to the problem) on the development of clinical competence in the senior baccalaureate nursing student.

The student preceptorship experience is defined as a one-to-one intensive clinical work-study experience available to nursing students after completion of their junior year. Student preceptorship programs are sponsored individually by a clinical agency or jointly by a clinical agency and a collegiate nursing program. According to Shamian and Inhaber (1985):

> The student is precepted by an experienced RN who is able to effectively provide a one-to-one teaching experience because he or she can easily modify the teaching process according to the needs of the learner, provide immediate responses to questions, and correct errors before they become habits (p.79).

These programs are variously referred to as student externships, student internships, clinical assistantships, and student preceptorships. While these programs have gained popularity in recent years, there is little empirical evidence documenting their effectiveness.

Problem

In the years following the exodus of nursing education from the hospital into the university setting, nursing administrators began to realize that their traditional orientation programs were inadequate to prepare the new graduate to assume the role of a staff nurse (Goldsberry, 1977; Roell, 1981; Shamian & Inhaber, 1985). Unlike traditional hospital diploma nursing programs, baccalaureate nursing curricula emphasize a broad knowledge base and a theoretical framework for nursing practice. The clinical laboratory experience in baccalaureate programs has been less extensive than it had been in the hospital diploma programs.

Reports in the literature indicate that while most new baccalaureate graduates have an adequate theoretical base, they lack competence in the clinical practice setting. This lack of competence is manifested by their difficulty in applying theory to practice, problem solving, and awkwardness when performing psychomotor skills (Goldsberry, 1977; Hammerstad, Johnson, & Land, 1977; Shamian & Inhaber, 1985).

The literature indicates that both nursing educators and nursing administrators are striving to resolve the problem (Dear, Celentano, Weisman, & Keen, 1982; Everson, Panoc, Pratt, & King, 1981; Goldsberry, 1977; Shamian & Inhaber, 1985). Both individual and joint efforts by these groups have resulted in a number of strategies to improve the clinical competence of new graduate nurses.

Nursing student preceptorship programs have been described as one strategy to develop clinical competence beyond the level provided by most baccalaureate programs. These programs purport to facilitate the achievement of higher level skills in the cognitive, affective, and psychomotor domains as described by Bloom (1956), Kraftwohl, Bloom, and Masia (1964), and Harrow (1972). Students in these programs gain experience in problem solving, applying theory to practice, and performing psychomotor skills.

Student preceptorship experiences vary somewhat in length and structure. Many of those reported in the literature and surveyed by this author are offered to baccalaureate nursing students between the junior and senior year of their nursing program. Others are offered as a special practicum during the senior year. They have the following two goals in common:

1. To ease the transition from the educational setting to the work setting.

2. To improve clinical competence (Allison et al., 1984; Fire, Bozett, & Dearner, 1984; Limon, Bargagliotti & Spencer, 1981; Stuart-Sidall & Haberlin, 1983).

Claimed benefits of these programs include:

1. The opportunity for the student to synthesize and apply knowledge and skills in a practice setting.

2. A decrease in the required orientation time to the staff nurse role upon graduation.

3. A decrease in turnover and an increase in job satisfaction as a new graduate.

4. Professional growth of the registered nurse (RN) preceptor (Allison et al., 1984; Arlton, 1984; Aydellotte, 1985; Cress-Ingebo, 1985; Limon, Spencer, & Waters, 1981; Shamian & Inhaber, 1985).

Significance

A lack of clinical competence in the new graduate is significant in view of the limited financial resources available to nursing administrators and the current nurse shortage. Because many new graduates experience difficulty in problem solving, applying theory to practice, and performing psychomotor skills, the learning time for them to reach peak efficiency is increased. Hinshaw and her colleagues (1987) reported that the cost of orienting each new graduate ranges from $5000-10,000. Freisen and Conahan (1980) further noted that the quality of patient care is reduced during the time that a new graduate is being oriented and is developing to peak efficiency and full assumption of nursing responsibilities.

Shamian and Inhaber (1985) made the following assumption about the preceptorship experience:

> Learning can proceed very effectively when guided by the appropriate person interacting with the learner in a one-to-one situation . . . and that for certain subject matter . . . this is clearly the most efficient way to learn (p. 79).

The key concepts in this assumption about the preceptorship experience are effectiveness and efficiency. The preceptorship experience is assumed to be an effective method of developing clinical competence in the baccalaureate nursing student. Preceptorship experiences are also assumed to be efficient in terms of time and financial resources (Shamian & Inhaber, 1985).

A review of the literature yielded few empirical studies to substantiate the assumption that the student preceptorship experience is an effective method of developing clinical competence or an efficient method in terms of time and financial resources. This study is significant in that it provides empirical data concerning the effectiveness of the student preceptorship experience in the development of clinical competence. These data can be utilized by nursing administrators and educators as a basis for decision making in an era of cost containment.

Potential benefits of the preceptorship experience to the nursing administrator are numerous: a strategy to recruit future nurses for employment in a particular hospital, a reduction in the required orientation time for those students who return as new graduates, an increased retention rate among the new graduates (related to a smoother transition from the student role to the staff nurse role), and staff nurse preceptors who are more satisfied because of the intrinsic rewards of the preceptorship experience. Potential benefits to nursing educators include improved agency relationships, students who are more confident in

their abilities, a decreased need for student remediation in the clinical setting, and a marketing strategy to recruit students into the profession. Therefore, if the summer student preceptorship experience can be empirically documented to be an effective method of developing clinical competence in the baccalaureate nursing student, nursing administrators and educators might be wise to invest the time and money in the planning, implementation, and evaluation of these experiences in order to reap the potential benefits.

Purposes

The primary purpose of this study was to examine the differences in the gain in clinical competence between senior baccalaureate students who participated in nursing student preceptorship programs and those students who worked as nursing assistants in noninstructional clinical settings. A secondary purpose was to describe how students in each group perceived various factors of their particular summer work experience relative to their preferences. Factors related to the summer work experience which were examined included both the structure and process of the summer work experience as well as the outcomes of that experience.

Theoretical Framework

According to Reilly (1975), Bloom (1956), and Kraftwohl and his colleagues (1964), learning is expressed as behaviors in three

domains: cognitive, affective, and psychomotor. Clinical competence in nursing practice demands the acquisition of higher level behaviors in the cognitive, affective, and psychomotor domains of learning (Boss, 1985; Field, Gallman, Nicholson, & Dreher, 1984; Infante, 1975; Reilly, 1975).

The extensive work of Bloom, Kraftwohl, and their colleagues provides a theoretical framework for describing the intellectual and affective processes that are required for the development of clinical competence in nursing practice. Bloom's taxonomy of the cognitive domain offers a relatively concise model for the analysis of intellectual skills in the areas of problem solving and application of theory to practice. Kraftwohl's taxonomy of the affective domain describes the emotive basis for learning. Bloom noted that behaviors in both the cognitive and affective domains develop interdependently.

As the literature indicates (Boss, 1985; Field et al., 1984; Nelson, 1978; Reilly, 1975), development of skills in the psychomotor domain is germane to competent nursing practice. Harrow (1972) developed a taxonomy of behaviors in the psychomotor domain which provides a theoretical model for the development of clinical competence in this area of nursing practice.

Cognitive and Affective Domain Behaviors

Bloom's and Kraftwohl's taxonomies of behaviors in the cognitive and affective domains reflect their philosophy that learning occurs in a sequential, hierarchical manner. Development

of behaviors in these taxonomies proceeds from simple to complex. Therefore, development of behaviors at each subsequent level of the taxonomies requires the acquisition of lower level behaviors.

Bloom's taxonomy of the cognitive domain includes six levels of intellectual skills: knowledge, comprehension, application, analysis, synthesis, and evaluation. Acquisition of behaviors in the first two levels reflects the student's ability to know and understand information. Acquisition of behaviors at subsequent levels of the cognitive domain requires the student to develop skill in applying concepts, analyzing relationships, arranging elements to form a new whole, and making quantitative and qualitative judgments regarding outcomes.

Kraftwohl's taxonomy of the affective domain includes five levels of behaviors that reflect an emotional component based on cognition. These levels reflect an increasing internalization of beliefs, attitudes, and values. The five levels of the affective domain include: receiving, responding, valuing, organization, and value complex. Receiving and responding imply attention and subsequent reaction to stimuli. Valuing is described as the appreciation or acceptance of a value to the degree that the individual's behavior is motivated by that value. At the level of organization the individual compares and synthesizes values to form his own value system. At the highest level of the affective domain the individual's behavior is guided and predicted by his value system.

Kraftwohl, Bloom, and Masia (1964) address the affective domain and its relationship to the cognitive domain. Behavior at each of the five levels of the affective domain includes corresponding intellectual skills from the cognitive domain. The relationship between the cognitive and affective domains is illustrated below:

cognitve	affective
knowledge	receiving
comprehension	responding
application	valuing
analysis,synthesis	organization
evaluation	value complex

Development of Problem Solving Skills

When one examines the nature of the problem solving process defined in nursing literature, the parallel between that process and Bloom's cognitive levels of application, analysis, synthesis, and evaluation becomes evident. Potter and Perry (1985) described the following steps of problem solving: encountering a problem, collecting data, specifying the exact nature of the problem, identifying alternative solutions, determining a plan of action, implementing the plan, and evaluating the plan.

Bloom (1956) described the individual functioning at the level of analysis as being able to recognize relevant parts of a situation, to detect cause and effect relationships, and to detect general principles of the organizational structure of the situation. Thus, the level of analysis corresponds to the first

three steps of the problem solving process, that is, encountering a problem, collecting data, and specifying the exact nature of the problem.

At the synthesis level, "the student must draw upon elements from many sources and put them together into a structure or pattern not clearly there before" (Bloom, 1956, p. 162). The synthesis level corresponds to the act of identifying alternative solutions and determining a plan of action (the fourth and fifth steps of the problem solving process).

The sixth step of the problem solving process, that is, implementing the plan, corresponds to Bloom's cognitive level of application, whereby one applies principles known from one situation to an unknown situation.

According to Bloom (1956), at the evaluation level the student makes judgments about the value of methods, ideas, solutions, and so forth. The judgment may be quantitative or qualitative and is made against internal or external criteria. The cognitive level of evaluation corresponds to the evaluation of outcomes, the last step of the problem solving process.

Application of Theory to Practice

The ability to apply theory to practice, another indicator of clinical competence, requires the individual to utilize relevant theoretical knowledge and scientific principles as a basis for nursing practice. Learning at the cognitive level of application, described by Bloom, enables the individual to transfer familiar concepts and principles to an unfamiliar situation.

Psychomotor Domain Behaviors

Harrow's (1972) taxonomy of the psychomotor domain assumes learning in the cognitive and affective domains as a requisite to the correct implementation of a technical skill. The hierarchical structure of the domain reflects progress in the acquisition of a psychomotor skill. The six levels of the psychomotor domain are: perception, set, guided response, mechanism, complex overt response, and adaptation. The simplest level, perception, involves the awareness of properties by the sense organs. The next level, set, indicates a readiness for a particular action. Guided response, the third level, requires an action of the learner guided by the teacher. Mechanism, the fourth level, requires the learner to demonstrate a guided response in a variety of situations. The complex overt response level indicates that the skill has been acquired and can be performed efficiently. Adaptation, the highest level of psychomotor behavior, requires the learner to demonstrate flexibility of motor behavior to meet the needs of a given situation.

Psychomotor Skill Performance

To perform a psychomotor skill efficiently and effectively, the individual must demonstrate learning at the fourth level of Harrow's taxonomy (mechanism) or higher. If such is the case, the individual is able to perform the skill in a variety of situations with ease. The performance of the psychomotor skill merely becomes a means to an end, not an end in and of itself.

Development of Clinical Competence

The foregoing discussion describes behaviors in the three domains that are necessary for the development of clinical competence. Bloom's (1981) model of mastery learning prescribes an instructional process which maximizes learning. Bloom stated that the student can achieve higher levels of learning and mastery of educational outcomes when the following conditions exist: (a) instruction is individualized to meet the needs of the learner, (b) behavioral objectives are identified for the learning experience, (c) formative and summative evaluation of objectives are provided, (d) the student is given adequate time to complete the learning task, (e) alternative learning resources are available to the student, and (f) the quality of instruction approaches the optimum for the learner.

Preceptorship Experiences

Since the nature of the student preceptorship experience is a one-to-one relationship between the student and an RN preceptor, the learning experience is individualized to meet the student's needs.

The majority of behavioral objectives of the student preceptorship experiences are at the higher levels of the cognitive, affective, and psychomotor domains. Examples of behavioral objectives described by student preceptorship programs include:

1. Develop an increased ability to apply learned theory to practice.

2. Use nursing process as a framework for providing continuity of care.

3. Develop increased skill in prioritizing and organizing nursing care.

4. Develop increasing skill in clinical judgment.

5. Develop and refine technical skills.

6. Utilize human and material resources appropriately for professional problem solving.

7. Demonstrate accountability for nursing actions consistent with professional standards.

8. Participate with the preceptor in assuming professional responsibility related to nursing care planning, delivery of care, and patient teaching.

9. Carry out direct patient care and perform clinical skills under the supervision of an RN.

10. Demonstrate increased ability to develop, implement, and evaluate nursing care plans using systematic assessment skills and appropriate research findings.

Formative evaluation, in the form of ongoing feedback, is a central feature of the student-preceptor relationship. Summative evaluation is done at the conclusion of the preceptorship experience.

The student preceptorship experiences are intensive work-study experiences which provide adequate time for learning.

Most of the summer programs offer an average of 450 hours of work-study experience over 10-12 weeks. The student preceptorship programs offered during the academic year provide an average of 175 hours of work-study experience during a 15 week period. Therefore, they may be less effective with regard to allowing adequate time to complete the task.

Alternative learning resources are provided by most programs to enhance the one-to-one mode of instruction. Classroom experiences are required in all preceptorship programs described in the literature. Audiovisual materials, learning packages, and textbooks are available to supplement instruction. Independent study is also encouraged.

The quality of instruction is a central concern when developing and implementing preceptorship programs. Most programs have preceptor training sessions prior to implementation of the experience. Preceptors are taught principles of teaching, learning, and evaluation. Preceptors are selected on the basis of their own demonstrated clinical competence and their interest in teaching and working with students.

Preceptorship Experiences and Clinical Competence

From the foregoing discussion, it can be seen that the works of Bloom (1956), Kraftwohl and his colleagues (1964), and Harrow (1972) describe a hierarchy of learning that provides a theoretical framework for understanding the development of clinical competence. Bloom, Madaus, and Hastings (1981) also

prescribed six conditions necessary for the development of the mastery that is necessary for clinical competence to occur. The student preceptorship experiences described in the literature profess to provide a work-study experience intended to increase clinical competence. The experiences provided by these programs afford the student an opportunity to develop the skills of problem solving, application of theory to practice, and improved psychomotor skill performance which many nursing administrators report is lacking in new baccalaureate nursing graduates. Student preceptorship programs include the conditions that Bloom and his colleagues (1981) prescribed as essential for mastery learning, that is, individualized instruction, behavioral objectives, adequate time for learning, formative and summative evaluation, alternative learning resources, and a quality of instruction that approaches the optimum for the learner.

Research Questions

Thus, the relationship between student preceptorship programs and the development of clinical competence described in the previous discussion has lead to the generation of the following research questions for this study:

1. Do baccalaureate nursing students who participate in summer preceptorship experiences develop a greater gain in clinical competence than baccalaureate nursing students who work as nursing assistants in noninstructional clinical settings?

2. How do students in each group perceive various factors about the summer work experience relative to their preferences?

Definitions

Variables:

1. type of summer work experience between the junior and senior year of a baccalaureate nursing program
   a. nursing student preceptorship program: an intensive clinical work-study experience available to students following completion of their junior year in a National League for Nursing (NLN)-accredited baccalaureate nursing program. These programs meet the following criteria:
      1. have identified behavioral objectives for the experience
      2. assign an RN preceptor to work with the student
      3. require student participation in classroom experiences
      4. provide 30-40 hours per week of preceptor-guided clinical work experience for the student
      5. are 10-12 weeks in length
      6. include formative and summative evaluation of student performance
   b. noninstructional clinical setting: paid work experience in a hospital that employs students as nursing assistants or nursing technicians following completion of the junior year in an NLN-accredited baccalaureate nursing program. This setting does not provide the student with structured

learning opportunities.

2. clinical competence: the ability to utilize the problem solving process, to apply theory to practice, and to perform psychomotor skills. Clinical competence reflects learning at or above the second levels of the cognitive and affective domains, and at or above the fourth level of the psychomotor domain. Clinical competence was measured by the Clinical Competence Rating Scale (Scheetz, in press).

Delimitation

Subjects chosen for this study were enrolled in NLN-accredited generic baccalaureate nursing programs that grant a bachelor of science degree with a major in nursing. Those preceptorship programs included in this study were summer preceptorship programs available to students who were entering their senior year of study in an NLN-accredited baccalaureate nursing program. These programs included behavioral objectives for the summer experience, assigned a registered nurse preceptor to work with the student, required student participation in classroom experiences, provided 30-40 hours per week of preceptor-guided clinical work experience for the student, were 10-12 weeks in length, and included formative and summative evaluation of student performance.

Limitation

The subjects participating in this study were self-selected into treatment and comparison groups. Therefore, generalizations

can only be made to baccalaureate nursing students, comparable to the study sample, who particate in preceptorship programs which meet the criteria defined in this study.

II--LITERATURE REVIEW

Preceptorship Experiences

Preceptorship experiences in nursing evolved as a solution to the problem of inadequate clinical competence of new graduate nurses. While most of the programs reported in the literature were developed in the 1970s and 1980s, there are a few programs that were initiated during the 1960s (Lewison & Gibbons, 1980; Strauser, 1979). Interestingly, in spite of the existence of many of these programs for nearly a decade or more, there is a paucity of research reported describing the effectiveness of these programs. Most of the literature relating to the preceptorship experience in nursing is anecdotal and the evaluation of these programs has been subjective. There have been several published research studies of graduate nurse and nursing student programs (Limon, Spencer, & Waters, 1981; McGrath & Princeton, 1987; Rosetti, 1986; Shamian & Lemieux, 1984; Weiss & Ramsey, 1977). The findings of these studies are discussed on subsequent pages. Additionally, two literature reviews of preceptorship programs in nursing have been published (Lewison & Gibbons, 1980; Shamian & Inhaber, 1985).

Program Classification

The literature generally classifies preceptorship experiences in the following three ways: educational level of the preceptee

(nursing student versus graduate nurse), general purpose (remedial versus accelerative), and sponsorship (health care agency alone versus collaborative sponsorship by a health care agency and an educational institution) (Dear et al., 1982; Lewison & Gibbons, 1980).

The literature review done by Lewison and Gibbons (1980) described 18 programs for new graduate nurses. Of these programs, the majority accept baccalaureate, associate degree, and diploma graduates. The more recent literature review done by Shamian and Inhaber (1985) described 21 programs for new graduates as well as students. Ten of the programs were designed for senior year nursing students; no distinction was made as to nursing education program type. Eleven of the programs described were for new graduates.

Dear and her colleagues (1982) categorized preceptorships as being either supportive programs for role transition or remedial programs. Lewison and Gibbons (1980) categorized preceptorship programs similarly. They described compensatory programs as those programs which provide further education and clinical experience for graduate nurses who have received inadequate clinical exposure during their basic education program. Acceleration programs, according to Lewison and Gibbons, are designed for graduate nurses who want to advance their knowledge and skills in a particular clinical speciality, such as critical care or obstetrics. They also described a third category, exposure programs, which orient the new graduate to a wide variety of clinical areas. Of the

three program types, compensatory programs predominate (Lewison & Gibbons, 1980; Roell, 1981).

The literature also classifies preceptorship programs according to sponsorship. Those programs which are designed for new graduates are sponsored by the health care agency. They may be optional or required for new graduates. Programs for students may be sponsored entirely by a hospital or other health care agency, or cosponsored by a health care agency and a college or university school of nursing. Programs cosponsored by a college or university are frequently credit-bearing. They may be offered as a required or an elective course. Students are usually paid an hourly wage or program stipend, regardless of the sponsorship. If the program is credit-bearing, the student would be required to pay tuition to the educational institution that co-sponsors the program.

Rosetti (1986) surveyed 26 colleges and universities in New York which cosponsor preceptorship programs for nursing students. The most frequent responses indicated that generic and RN baccalaureate programs usually require the experience for their students, while associate degree programs usually offer the experience as an elective.

Most of the programs described in the literature are sponsored or co-sponsored by an acute care hospital or medical center, as opposed to other types of health care agencies (Lewison & Gibbons, 1980; Shamian & Inhaber, 1985). A few preceptorship programs are offered by community health nursing agencies for both

new graduates and students (Arlton, 1984; Goldsberry, 1977; Lewison & Gibbons, 1980; Predhomme, 1985). One preceptorship program described in the literature is an occupational health program for senior baccalaureate nursing students (Wheeler, 1984).

Focus of this Study

The types of preceptorship programs focused on in this study are those programs designed for nursing students and sponsored by either a health care agency or jointly sponsored by a health care agency and collegiate school of nursing. The ensuing discussion of preceptorship experiences is limited to these programs.

Structure of Preceptorship Programs

The following factors are considered when describing the structure of preceptorship experiences for nursing students: selection of preceptors and students, role descriptions, program objectives, program length, and teaching strategies.

Criteria for Preceptor Selection

Most reports in the literature that address the selection of preceptors indicated that there are numerous criteria used in the selection of preceptors. All programs which addressed this issue indicated that the preceptor must be an RN, must have demonstrated clinical expertise, must have at least one year of full-time experience, must show an interest in working with students, and must role model professional values and attributes (Fire et al., 1984; Predhomme, 1985; Shamian & Inhaber, 1985; Wheeler, 1984).

Additional preceptor criteria mentioned included: good communication skills, leadership skills, an interest in professional growth, skills of conflict management, willingness to negotiate, the capacity to admit fallibilities, and the ability to nurture while promoting independence (Fire et al., 1984; Shamian & Inhaber, 1985). Only Rosetti (1986) addressed the bachelor of science degree in nursing as a criterion for selection of preceptors, even for preceptorships for baccalaureate nursing students.

Criteria for Student Selection

The criteria used to select students for participation in these programs appear to be uniform. All programs described in the literature indicated that students must be seniors or ready to enter their senior year. Additionally, students must have demonstrated previous satisfactory clinical and classroom performance, must have completed courses in medical-surgical nursing (or common health problems) and basic skills, and must have good communication skills (Fire et al., 1984; Predhomme, 1985; Rosetti, 1986). Grade point average does not appear to be a prime consideration as one might expect. While the program sponsors are certainly recruiting students with the potential to succeed, it does not appear that they are recruiting only the "cream of the crop."

Role Descriptions

Limon, Bargagliotti, and Spencer (1981) and Shamian and Inhaber (1985) emphasized the importance of clear role

descriptions for those individuals involved in the preceptor program. For most programs, there are three people involved in each preceptorship experience: the student being precepted, the RN preceptor, and a nurse educator (collegiate faculty or staff education instructor).

Frequently cited requirements of the student role included: defining individualized objectives for the experience, keeping a log of activities, mandatory participation in seminars or classes, working with the preceptor to care for patients, and self-evaluation (Dobbie & Karlinsky, 1982; Harkins, Schambach, & Brodie, 1983; Hartin, 1983; Predhomme, 1985; Wheeler, 1984).

The preceptor role generally has four components: planning, teaching, role modeling, and evaluation of students (Predhomme, 1985; Rosetti, 1986; Shamian & Inhaber, 1985). The preceptor usually plans or helps to plan the student's patient assignment, based on program objectives and the student's learning needs. The primary role of the preceptor is teaching. As Shamian and Inhaber (1985) noted, the nature of the preceptor role is the one-to-one teaching-learning relationship between the student and preceptor. The preceptor also provides direct supervision of the student's activities and provides constructive feedback. As a role model, the preceptor helps inculcate professional values and socializes the student to the world of professional practice. In all of the programs reported in the literature, the preceptor also participates in the the evaluation of the student (Arlton, 1984; Dobbie & Karlinsky, 1982; Fire et al., 1984; Harkins et al., 1983;

Limon, Spencer, & Waters, 1981; Predhomme, 1985; Rosetti, 1986; Shamian & Inhaber, 1985; Wheeler, 1984).

The nurse educator role most often described in the literature is largely one of support and guidance for the preceptor and the student. The nurse educator acts as a resource person, evaluates the student, and teaches or coordinates the classroom or seminar presentations (Limon, Spencer, & Waters, 1981; Rosetti, 1986). Unlike the preceptor, the nurse educator does not spend much time on the unit. The frequency of visits varies, but the usual frequency ranges from once daily to once weekly, with additional visits as needed (Limon, Spencer, & Waters, 1981; Predhomme, 1985; Wheeler, 1984).

Preceptor training is an important structural characteristic of the program. The success of any preceptorship program hinges on the preceptor's implementation of his or her role. Shamian and Inhaber (1985) devoted a considerable portion of their literature review to preceptorship training. They noted (as do other reports in the literature) wide variations in the content included, length of training, and teaching strategies used. In programs having collegiate affiliation, preceptor training is usually done by the college nursing faculty and includes, in addition to role description, content related to teaching-learning theory, evaluation concepts, and communication theory (Shamian & Inhaber, 1985). Limon, Bargagliotti, and Spencer (1981) also noted the importance of preceptor training to the success of the program.

Preceptor training offered by the health care agency focuses on the preceptor role and may or may not include content on teaching-learning principles and evaluation concepts (Shamian & Inhaber, 1985).

Methods of preceptor training include self-instruction learning packages, didactic presentation, audiovisual media, small group interaction, case studies, and one-to-one interaction (Limon, Bargagliotti, & Spencer, 1981; Shamian & Inhaber, 1985). The length of the training period ranges from several hours to several weeks (Shamian & Inhaber, 1985).

Objectives for the Experience

Since preceptorship experiences occur in a service setting, the importance of relevant, measurable objectives for the experience cannot be overemphasized. As Infante (1975) discovered, even in a well-structured clinical laboratory setting with a faculty member present, student activities frequently assume a task-oriented service direction. While preceptorship experiences are educational experiences for the student, they also meet service needs, to a degree, for the health care agency. In addition to precepting the student, the RN preceptor may have additional patient care responsibilities (Shamian & Inhaber, 1985). Well-defined, relevant, and measurable objectives will help keep the student's activities focused in a meaningful, constructive manner (Limon, Spencer, & Waters, 1981).

Program objectives for preceptorships are necessarily broad to afford the flexibility to meet the individual student's

learning needs. Lewison and Gibbons (1980) noted that nearly all programs have essentially the same objective--to increase the individual's clinical competence, knowledge, and self-confidence.

In many of the programs described in the literature, students or faculty develop specific learner objectives for the preceptorship experience (Allison et al., 1984; Arlton, 1984; Dobbie & Karlinsky, 1982; Hartin, 1983; Limon, Bargagliotti, & Spencer, 1982; Predhomme, 1985; Wheeler, 1984). In addition to structuring the learning experience, these objectives provide a basis for evaluation of student performance.

Additional noneducational program objectives cited relate to developing a resource pool for recruitment of staff nurses, improving patient care, decreasing the orientation time and cost of hiring new graduates, and facilitating the growth of the present staff members by exposing them to students (Harkins et al., 1983).

Program Length

The length of the student preceptorship programs varies according to whether they are offered during the summer or during a regular academic semester. The summer programs offer a more intensive experience than do the academic year programs. Harkins and her colleagues (1983) described a summer program at a medical center in Georgia which was 14 weeks in length. Programs described by Hartin (1983) and Fire and her colleagues (1984) were 12 weeks long. Each summer program was a full time preceptorship experience. The total average number of hours of clinical and

classroom experience was 450. Of those hours, approximately 80 percent were spent in the clinical area with the remaining 20 percent spent in classroom and seminar experiences.

The preceptorship programs offered during the academic year provide less clinical experience than the summer programs. The occupational health preceptorship included 100 hours of clinical experience and approximately 50 hours of seminar participation during a 14-week semester (Wheeler, 1984). The preceptorship described by Limon and her colleagues (1982) provided 160 hours of clinical experience during a 4-week period. The rural health nursing preceptorship experience described by Predhomme (1985) was an optional 8-week or 16-week experience. Students in that program had a 40-hour orientation followed by 112 or 224 hours of clinical experience depending upon the option selected. The second rural health preceptorship program, described by Arlton (1984), provided 240 hours of clinical experience during a 6-week period.

Process of Preceptorship Programs

Teaching Strategies

The teaching-learning process of the preceptorship experience is vitalized by the teaching strategies used. As the name implies, the major teaching strategy in a preceptorship program is the one-to-one preceptor-student relationship. Shamian and Inhaber (1985) stated:

> The assumption underlying the use of preceptors is that the one-to-one situation provides a most effective mechanism

> for learning . . . and, that the person who is already successful in an occupation knows exactly what knowledge and skills are necessary for the profession in question (p.79).

During the preceptorship experience, the student is guided by the preceptor in caring for assigned patients. Initially, the student and preceptor work closely together. The emphasis in the beginning is to orient the student to the unit and to the role of the nurse. As the student develops greater confidence and competence, he/she is allowed more independence (Shamian & Inhaber, 1985). The preceptor supervises and assists the student when needed. He/she also provides feedback to the student regarding patient care, organizational skills, psychomotor skills, and problem solving (Harkins et al., 1983; Stuart-Sidall & Haberlin, 1983).

Formal classroom and/or seminar experiences are required in all preceptorship programs described in the literature. Classroom and seminar presentations range from 3 hours per week (Harkins et al., 1983) to 8 hours per week (Fire et al., 1984). Content presented during these experiences varies, but for the most part, no new content is presented. The usual purpose of the classes or seminars is to help the student integrate previously learned content with current clinical experiences.

Psychomotor skills are demonstrated by the instructor and then practiced by students in the program described by Harkins and her colleagues (1983). Their classroom content included instruction in psychomotor skills as well as emphasis on creative

problem solving. Case studies and audiovisual media were used in several programs (Harkins et al., 1983; Backenstose, 1983).

Studies of Preceptorship Programs

The perceived outcomes of those preceptorship programs described in the literature are favorable. However, the evaluation of these programs has been highly subjective in nature. Many programs reported that students have developed competence in clinical nursing, specifically, in the areas of problem solving and psychomotor skill performance. Other outcomes reported by students and educators are professional role identification and a sense of independence and self-confidence. Several empirical studies of preceptorship programs for students and new graduates have been reported in the literature and are discussed in the following pages.

Weiss and Ramsey (1977) reported a study of 32 baccalaureate degree and associate degree graduates who were randomly assigned to participate in an internship program in a California Hospital. The new graduates were divided into an experimental and control group of baccalaureate degree graduates and an experimental and control group of associate degree graduates. Educational modules focusing on professional role adjustment, clinical competency, pragmatics of the hospital system, and other areas of interest were conducted over a 16 week period for the interns. Both control groups received the traditional orientation to the hospital but did not participate in the learning modules. All

groups were pretested and posttested. The variables of the study were measured by: Munson's Job Satisfaction Index, Seeman's Powerlessness Scale, the Employee Stability Questionnaire, Benner's Clinical Skills Inventory, and Corwin's Role Conception Scale.

Findings indicated that the baccalaureate degree interns demonstrated a greater significant increase in interpersonal satisfaction, role identification, adaptation, and work satisfaction than the other groups in the study. The associate degree control group demonstrated an increased sense of powerlessness and job dissatisfaction. The associate degree intern group showed no significant increase in their adaptation. Limitations of the study included an absence of psychometric data for the measurement instruments and small sample size.

Limon, Spencer, and Waters (1981) have been collecting data in a longitudinal study regarding total program outcomes for associate degree nursing students. However, a final data report is not available at this time. Interim reports have indicated that the preceptorship program for this group of subjects seems to be an effective method of socializing the student into the role of the graduate.

Shamian and Lemieux (1984) conducted a study to determine the effectiveness of the preceptorship experience to enhance the knowledge base of 316 RNs working in a hospital. They compared the use of a preceptor teaching model with a formal teaching model to teach two groups of staff nurses about the use of restraints on

patients. They administered an immediate posttest and a delayed posttest (3 months after the teaching experience). Their findings indicated no significant difference (p=.05) on the immediate posttest scores between the preceptor group and the formally taught group. However, the scores on the delayed posttest indicated that the preceptor group retained the content better than the control group which was taught using the formal teaching model. A limitation of their study was their lack of pretesting since a nonequivalent control group design was used. The use of a pretest and subsequent data analysis using analysis of covariance (ANCOVA) techniques would have enhanced the validity of their findings.

McGrath and Princeton (1987) reported a research project that evaluated the effectiveness of a preceptor program for new graduates at a hospital in North Carolina. The purposes of their study were to identify (a) outcomes of the preceptor program specific to assisting nurses' role transition from student to graduate, (b) the feelings and attitudes of new graduates toward their preceptors, and (c) whether or not there was a perceived relationship between the preceptor program and nurse recruitment and retention. Qualitative and quantitative methods yielded data to answer the research questions. Tape-recorded interviews were conducted with 21 registered nurses upon their completion of the program during the 7 previous years. Also interviewed were eight head nurses and six preceptors involved with the program. A third group of 12 new graduates were interviewed prior to their

enrollment in the program and again several months after completing the program. Quantitative data were obtained from program documents, records, and observation.

Findings were reported for each of the three groups. The registered nurse alumni of the preceptor program described their preceptors as resource persons, available to guide, support, teach, and mentor. They indicated that the program helped to develop their self-confidence, increase their knowledge base, and provided a gradual and orderly orientation to the work role. The preceptor/preceptee ratio, brevity of the program, too much didactic content, and no skills lab were identified weaknesses of the program by this group. The head nurse and preceptor group identified positive preceptor/preceptee relationships, the opportunity for a thorough clinical orientation, decreased anxiety, and increased self-confidence in the new graduate as program strengths. They believed that the increased self-confidence in the new graduate resulted in an increased retention rate. They also perceived the program as a cost-effective method of increasing retention. The third group, new graduates, reported feeling frightened and apprehensive about beginning work. They felt unable to apply knowledge to a clinical situation and lacked clinical experience which left them with inadequate technical skills. They identified communication skills as their strength. Their expectations of the preceptor program were that the program would provide (a) a smooth transition from the role of a student to that of a graduate, (b) an opportunity

for practice and improvement of nursing skills, (c) nursing care experiences with different types of patients, (d) a good orientation, and (e) an opportunity to gain self-confidence. Their composite expectations of the preceptor were that the preceptor would be trusting, friendly, nonjudgmental, supportive, offer guidance, be available for consultation, act as a role model, be a confidant, and offer constructive criticism of their performance. This group cited the existence of the preceptor program as a major factor in their selection of that hospital for employment. Subsequent interviews with this group several months later indicated that the graduates felt more confident and adjusted to the graduate role. They believed that the program helped them to develop clinical competence, although they still felt inadequate in the performance of technical skills. The general conclusion of the investigators was that the preceptor program objectives were being met.

Clinical Competence

A review of the literature from the early 1970s until the present revealed that clinical competence is generally defined as effective and efficient performance in several skill areas: problem solving, applying theory to practice, and performing psychomotor skills. Boss (1985) noted that clinical competence implies more than knowledge and skill. Critical thinking abilities, clinical judgment, values, attitudes, and the integration of theories from the arts, humanities and science are also components of clinical competence. She further stated that competence directs and insures learning in the higher levels of the cognitive, affective, and psychomotor domains.

In a recent article Primm (1986) noted the discrepancy between what nursing service personnel and nurse educators expect of baccalaureate graduates. Her summary of the issue of expected performance of new graduates by nursing service administrators and nursing educators reflects the perspectives reported in the literature for the past decade. While a discussion of the evolution of differing expectations of baccalaureate graduates is beyond the scope of this discussion, it is important to note Primm's subsequent involvement in this issue. She served as project director for two regional projects sponsored by the Midwest Alliance in Nursing (MAIN). This project represents a major step in the resolution of the issue of expected performance of baccalaureate graduates. The nursing service administrators and nursing educators who participated in the project developed

consensus regarding expected competencies for both associate degree and baccalaureate degree graduates.

The competency statement developed for baccalaureate graduates focuses on skills in the areas of direct care, communication, and management. It is interesting to note that the list of competencies for baccalaureate graduates reflects skills at the higher levels of the cognitive, affective, and psychomotor domains described by Bloom (1956), Kraftwohl and his colleagues (1964) and Harrow (1972).

In a related project also sponsored by the Midwestern Alliance in Nursing (Stull, 1986), over 100 nursing educators and nursing service administrators identified entry level skills appropriate for the new baccalaureate graduate. The skills are directed to five areas of nursing practice and reflect the baccalaureate degree competency statements developed in Primm's (1986) project. The entry level skills relate to the areas of teaching and collaboration, planning and evaluation, interpersonal relations and communications, leadership, and critical care. In addition to identifying the skills, mention was made of the degree of supervision and practice required for effective and efficient performance of the skills. A second phase of Stull's project included the identification of plans to facilitate the development of entry level skills in new graduates. One of the methods identified was the student preceptorship experience.

Studies of Baccalaureate Graduates

Several studies of clinical competence of baccalaureate graduates have been reported in the literature. Christman (1971) studied the clinical performance of baccalaureate graduates relative to the structure of the practice setting. She compared the performance of baccalaureate graduates in a functional setting with those in a unit management setting. The Slater Nursing Competencies Rating Scale was used to collect data. Her findings indicated that (a) the quality of performance of baccalaureate graduates is negatively correlated with the time spent in a setting where a functional method of patient care was used, and (b) the quality of performance of baccalaureate graduates working in a functional patient care setting is lower than that of those employed in a unit management setting. Due to the lack of operational definitions, lack of control of extraneous variables, small sample size (n=42), and unequal numbers in the two groups, it is difficult to come to any valid conclusions regarding her findings.

Shukla (1981) hypothesized that there would be no statistical differences in the quality of nursing care based on unit structure (primary versus team nursing), provided the quality (nursing competency) and quantity (hours per patient day) of the nursing staff on the two units are equal. Data were collected from 17 primary nurses and 12 team nurses using the Slater Nursing Competencies Rating Scale to measure nurse competency. The

Qualpac Scale measured the quality of patient care given to 30 patients on two medical-surgical units. Nurses in both groups were graduates of all three basic educational programs and had been employed a mean of 4.5 years. A two-tailed t-test yielded data to support the hypothesis. Shukla suggested that the variable of nurse competence had a greater impact on the quality of patient care than the structure of the nursing unit per se.

A widely published qualitative study of clinical competence was reported by Benner and Benner (1979). Their study focused on skill acquisition of RNs in general and did not specifically focus on baccalaureate graduates. They reported five levels of skill acquisition among RNs and attributed the differences in each level to the RNs' perceptual grasp of the clinical situation. RNs demonstrating more highly skilled levels of performance rapidly perceived the gestalt of the situation and identified salient aspects of the situation, whereas, RNs demonstrating lower levels of skilled performance relied on abstract principles and expended more time analyzing bits and pieces of the situation without perceiving the gestalt. Benner's study was large and utilized the critical incident approach to describe skill acquisition. In a later report, Benner (1984) identified the preceptorship experience as an appropriate method to develop skill acquisition in the novice RN.

Bolin and Hogle (1984) reported a retrospective study of baccalaureate graduates one year after graduation. They correlated American College Testing (ACT) scores and clinical

grades with employer competency ratings. The purpose of their study was to determine which measures of academic performance predicted the graduates' competence as measured by their employers. They reported a weak positive relationship (r=.34, p= .03) between the mean composite ACT score and the mean employer competency rating. Clinical grades were also significantly and positively correlated with employer competency ratings (Adult Health Nursing I, r=.358, p=.029; Leadership in Nursing, r=.47, p=.007). It is important to note that their sample size was only 18 RNs. Also, the competency measurement instrument was developed by the faculty and no psychometric data were reported.

Another study of RNs conducted by Schroeder, Cantor, and Kurth (1981) examined a somewhat different perspective of clinical competence. They studied 146 new graduates from all three types of educational programs who were employed at one hospital. The purpose of their study was threefold: to identify essential knowledge and skills which were present or absent among the graduates, to determine how learning needs may vary according to educational preparation, and to identify diagnostic testing methods which can be used to discover learning deficiencies.

Their sample consisted of 91 baccalaureate degree graduates, 19 associate degree graduates, and 36 diploma graduates. Three pencil and paper tests were developed utilizing hypothetical situations to measure requisite skill and knowledge. These tests included a test of emergency situations, a medication test, and a test of patient complications. From a discussion of the tests

provided by the authors, it appears that the cognitive skills of knowledge and problem solving were tested. An experience survey collected demographic and student experience data from the subjects.

The authors (Schroeder et al., 1981) reported some alarming findings which have implications for nursing faculty and hospital staff development educators. Their demographic data indicated a lack of core clinical experiences between and among graduates of all three educational programs. Pediatrics was the only clinical practice area experienced consistently by all graduates. Additionally, there were no psychomotor skills that all graduates had performed more than four times as students. Intramuscular injections, enemas, and cardiopulmonary resuscitation were the only skills that all new graduates had performed as students in either the clinical laboratory or college laboratory.

Data reported from their three measurement instruments were equally dismal. Mean scores on the emergency test indicated that graduates were able to identify potential emergencies. However, the results indicated that students do not learn a standard procedure for dealing with emergencies. The results of the medication test indicated that overall, respondents did not exhibit the knowledge or judgment needed for nursing actions having the best effects on patients. All groups performed better on medication preparation questions than on medication administration questions.

On the patient complications test, baccalaureate graduates scored significantly higher than diploma graduates in the identification of complications and appropriate nursing activity. The authors reported that in only two situations did 90% of the graduates correctly identify the complication, with 80% identifying the correct nursing activity. The authors noted that the new graduates did not appear to understand the concept of patient related outcomes and viewed nursing tasks as an end in and of themselves.

Schroeder and her colleagues (1981) also correlated the test scores with the subjects' student clinical experience. They found, overall, that student clinical experiences did not appear to contribute to the knowledge necessary to make clinical decisions. In only three areas were there significant positive correlations and these were among diploma school graduates. These correlations were surgical experience with performance on the patient complications exam ($r=.47$, $p=.01$) surgical experience with performance on the medication exam ($r=.43$, $p=.01$), and medical experience with performance on the medication exam ($r=.37$, $p=.05$). The baccalaureate graduates showed a significant negative correlation between surgical experience and performance on the patient complications exam ($r=-.27$, $p=.05$).

An additional finding was that the number of hours of paid student employment in a hospital outside the school setting provided even less evidence of a positive influence on the

acquisition of clinical knowledge. No correlation coefficient was noted.

Del Bueno (1983) reported similar findings in a 4-month study of 85 RNs and students in New Jersey, New York, and Pennsylvania. The purposes of her study were to determine if there was a measurable difference among nurses' clinical decision making skills and to evaluate an audiovisual simulation technique developed by her.

The simulations developed by del Bueno represented common patient complications or emergencies. Each vignette included relevant and irrelevant cues. The subjects were asked to prioritize the patient's problem, to identify and prioritize appropriate nursing actions, and to indicate rationale for the actions. Del Bueno found that there was a consistent difference between knowing what the problem was and what to do about it. She also found that experienced RNs performed better than inexperienced RNs in problem identification and appropriate action. (This finding supports the concept of skill acquisition presented by Benner.) A third conclusion was that experienced baccalaureate graduates performed best. The number of students participating in the study was so small (n=5) that no conclusions were drawn about their performance.

Nelson (1978) reported a study of 246 baccalaureate, diploma, and associate degree graduates. Her survey compared the graduates' perceptions of their competence with their supervisors'

perceptions. The areas of competence that were examined included competence in technical, communication, and administrative skills.

Nelson developed the Nurse Competency Inventory which consisted of 35 items rated on a 5-point Likert-type scale and three free response items. The instrument measured competence in each of the three areas. An overall competence score was also obtained. The measurement instrument was completed by graduates and their immediate supervisor. A one-way analysis of variance was performed ($p=.05$) to compare mean differences between groups. The results of Nelson's study indicated the following: (a) diploma graduates rated their overall competence higher than did baccalaureate degree and associate degree graduates; (b) baccalaureate degree graduates rated their overall competence higher than did associate degree graduates; (c) diploma graduates rated themselves more competent in technical skills than did baccalaureate degree and associate degree graduates; (d) baccalaureate degree graduates rated themselves higher in communication skills than did associate degree and diploma graduates; (e) diploma graduates rated themselves more competent in administrative skills than did baccalaureate degree and associate degree graduates; (f) supervisors rated baccalaureate degree graduates highest in overall competence; and (g) supervisors rated baccalaureate degree graduates highest in each of the three areas of technical, administrative, and communication skills.

Nelson did not report reliability and validity data for the Nurse Competency Inventory. A critique of the instrument in Ward and Fetler's (1979) Instruments for Use in Nursing Education Research noted the lack of psychometric data and unclear directions for completing and scoring the free response items. Specifically, the critique identified the need to establish reliability and criterion-related validity of the scale. Nelson's conclusions regarding the competence of nursing graduates are questionable since psychometric data for her instrument were not estimated prior to her study.

Prescott, Dennis, and Jacox (1987) reported a qualitative study done to examine the satisfaction of nurses with clinical decision making, nurses' involvement in the process of decision making, and factors that influenced decision making. Subjects in their study included 150 staff nurses, 68 head nurses, 49 supervisors, and 111 physicians. Data were obtained from questionnaires, taped interviews, and hospital records.

Their findings indicated that nurses were satisfied with their roles in clinical decision making when (a) they had input into the process, (b) physicians listened to their input and considerfed their suggestions, (c) they believed that they had a certain amount of decision making freedom, (d) they thought that decision making autonomy was not related to job satisfaction and turnover rate. A second finding of the study indicated no identifiable patterns or clearly delineated rules about which decisions could be made independently and which required physician

interaction. Physicians reported that they would support nurses' decision making autonomy in matters that involved activities of daily living or psychosocial aspects of patient care. Additionally, staff nurses in critical care settings were more satisfied with their decision making role than were nurses on general medical-surgical nursing units.

Studies of Nursing Students

Several studies have been reported in the literature related to clinical competence of nursing students. Clinical competence of nursing students has been studied relative to factors affecting the development of clinical competence. Intrinsic factors such as self-concept and intellectual skills including creativity, critical thinking, and cognitive style have been studied. Extrinsic factors including variables of the teaching-learning experience have been studied and will be discussed in the following pages. Several studies are also presented which relate to the various domains of clinical competence (problem solving, application of theory, and psychomotor skill performance).

While not directly related to clinical competence, Paynich (1971) reported an exploratory study done to determine reasons why generic baccalaureate nursing students work in paid clinical settings outside of the educational experience and what benefits they derived from this employment. Her sample included 66 generic baccalaureate students who had worked on a salaried basis for a minimum of 80 hours. Eighty-eight percent of the subjects worked

in general hospitals. Thirty-seven percent of the subjects selected evening or night employment. A 13-item free response questionnaire was administered to the subjects.

Paynich's findings indicated that students worked for the following reasons (rank-ordered): to gain experience in nursing, to gain self-confidence, to make extra money, because they enjoy working, to gain independence, and to help finance college studies. Perceived benefits of their experiences included (rank-ordered): gained confidence in giving nursing care, gained independence in a real work situation, learned to assume responsibility, gained experience in providing consecutive day-to-day nursing care, and performed technical skills not performed at school. This was the only study found in the literature that related to students working in noninstructional settings.

Frederickson and Mayer (1977) examined the problem solving process among associate degree and baccalaureate degree nursing students. The purpose of their study was to identify differences in problem solving skills between the two groups of subjects. A sample of 55 subjects (associate degree = 27, baccalaureate degree = 28) were shown a film from Verhonick's nursing problem series. Subjects were asked to verbalize their thought processes for problem solving which were tape recorded. Additionally, the subjects completed a standardized pencil and paper test to assess general problem solving ability.

A content analysis was done to analyze the tape-recorded data. Problem solving patterns were then summarized. Analysis of variance was performed on the written measure of problem solving scores to determine mean differences between the two groups. The authors reported that students used three of the four steps in problem solving. The step least often used was that of evaluation. However, the three steps of defining the problem, collecting the data, and postulating solutions were used in a random fashion, indicating that the subjects did not use these steps consciously. Their findings indicated that subjects from both groups performed similarly. These findings are similar to those reported by Schroeder and her colleagues (1981) in a study of registered nurses, previously discussed.

Frederickson and Mayer (1977) as well as Schroeder and her colleagues (1981) expressed the concern that students who do not evaluate outcomes are not aware of the implications and ramifications of their actions and are subsequently not accountable for their actions. An additional concern expressed by Frederickson and Mayer was that baccalaureate degree students, who have spent four years in a professional educational program, are not any better at problem solving than associate degree students who are educated in two years for a technical role. Given the complexities of the baccalaureate graduate's role expectations and responsibilities, this is a serious concern.

The use of Bloom's cognitive domain as a framework for developing, implementing, and evaluating a chemistry laboratory

curriculum was described by Ophardt (1978). Ophardt identified ten learning outcomes for his laboratory class of prenursing students. These outcomes reflected learning at each of the six levels of Bloom's cognitive domain. Twelve laboratory experiments were designed by Ophardt as instructional modes to enable students to develop higher level intellectual skills.

Ophardt's evaluation of learner achievement was accomplished through an analysis of differences in pretest and posttest item difficulty. The pretest and posttest consisted of 10 items which measured achievement of the 10 student learning objectives. Internal validity of the test was estimated by analysis of the discriminating power of test items. All questions on the test showed a positive discrimination and all except one were .40 or more. Reliability of the test was .58 as determined by the Kuder-Richardson formula.

A notable area of student achievement appeared to be at the level of analysis. Ophardt indicated a significant improvement in the students' abilities to do the following: (a) analyze material or data to recognize key parts, patterns of arrangement, or assumptions; (b) control variables in experiments and work problems to determine cause and effect relationships at concrete and molecular levels; and (c) solve proportional problems. Ophardt noted that while only one fifth of the students demonstrated a statistically significant improvement, most students demonstrated some improvement in intellectual skills.

Burgess (1980) conducted a study of baccalaureate nursing students (n=101) to determine the relationship of self-concept to clinical performance, attrition, and selected demographic variables. She hypothesized that there would be a significant relationship between the self-concept of undergraduate nursing students and their clinical performance (as measured by their clinical course grades). The Tennessee Self-Concept Scale was used to measure self-concept. Burgess (1980) performed a Pearson Product Moment Correlation to test her hypothesis. Her data indicated no relationship between self-concept and clinical performance of the students ($r=.1$, $p=.05$).

Kissinger and Munjas (1981) theorized that cognitive factors such as perceptual functioning and convergent-divergent thinking are necessary for the successful use of the problem solving and nursing processes. Their study of 201 baccalaureate nursing students at the beginning and end of their first clinical course attempted to identify those variables that would predict problem solving abilities. They also examined the influence of teaching strategies employed by 77 faculty members on changes in the students' abilities from the beginning to the end of the semester. No variables emerged as strong predictors of students' ability to problem solve. However, there was a moderate correlation between Scholastic Aptitude Test (SAT) scores, convergent-divergent thinking, and problem solving. A significant predictive relationship was found between the ability to use nursing process

and inference ability, locus of control, and minimal time spent in small group discussions.

Olson (1983) studied baccalaureate students' perceptions of factors assisting knowledge application in the clinical laboratory. Included among those learning factors that she studied were: goal direction of clinical activities, learning readiness, sequencing of learning experiences, frequency of practice, application of principles, discrimination of learning, verbalization, variety, and parallel classroom and clinical experiences. She utilized a self-administered rating scale to collect data from 229 randomly selected junior and senior generic baccalaureate students. All of the learning factors identified by Olson were perceived by the students as being statistically significant in assisting knowledge application in the clinical laboratory.

Field and his colleagues (1984) surveyed 64 baccalaureate nursing programs to determine the present state of clinical objectives and performance evaluation criteria for students. Clinical objectives and performance evaluation criteria were submitted to the researchers who then classified them according to cognitive, affective, and psychomotor domains. They also classified objectives and evaluation criteria according to the hierarchical level within each domain.

They found that performance evaluation criteria were written in nearly all levels of all three domains. However, they reported that a disproportionately large number of objectives were written

at the highest level of the cognitive domain without any indication of a pyramiding affect to develop learning at that level. They also found a disproportionately small number of objectives written in the psychomotor domain. The researchers suggested that the perception by students that they are inadequately prepared to perform nursing skills upon graduation may be indicative of the fact that a disproportionately small number of clinical objectives and performance evaluation criteria are written in the psychomotor domain.

Acknowledged limitations of Field's study are the small sample size and the lack of control over whether or not the schools submitted all of their clinical objectives as requested. The researchers expressed concern that so many of the clinical objectives were written at the higher levels of the cognitive domain.

Lee and Strong (1985) reported a study that was done to compare perceptions of clinical competence of professional and technical nursing students with the expectations of their faculty using a nursing diagnosis framework. For the purpose of their study, clinical competence was defined as the ability to use the nursing process to provide care, based on the diagnosis and treatment of human responses to actual or potential health problems. Nursing diagnoses were used as descriptors of clinical practice on a 5-point Likert-type questionnaire. Students (n=75) were asked to rate their competence to practice as a beginning practitioner. Faculty (n=27) were given the same questionnaires

and asked to identify expected levels of performance for their graduates.

In a longitudinal study Cassells, Redman, and Jackson (1986) surveyed a sample of senior baccalaureate nursing students (n=432) to determine their satisfaction with their personal and professional development during their nursing program. Mailed questionnaires were used to elicit data. Subjects were asked to provide general descriptive data about the course work in their academic programs and their level of satisfaction with support services, as well as particular information about the development of clinical nursing skills and computer skills. Of the findings that are of interest to this study, a substantial majority (77-91%) felt that their clinical skills in the five major areas of nursing practice (medical, surgical, obstetrical, pediatric, and psych-mental health) were strong or very strong. Fewer students (48-50%) reported having strong or very strong clinical skills in critical care areas such as the neonatal intensive care unit, regular intensive care unit, and emergency room. Seventy-one percent to eighty-six percent of the students reported strong or very strong clinical skills in nonacute care settings such as outpatient clinics, extended care facilities, nursing homes, and hospice settings.

A follow-up survey one year after graduation indicated that 13% of the subjects felt very prepared, 59% felt adequately prepared, 20% felt minimally prepared, and 3% felt unprepared. The subjects were also asked to reflect back to their level of

preparation upon assuming their first clinical position as a new graduate. Most responded that they felt well prepared in interpersonal and communication skills, and generally well prepared in clinical decision making and organizational skills. More than one third of the respondents felt unprepared in the psychomotor skill area. In general, the subjects expressed satisfaction with their baccalaureate preparation for a career in nursing.

The findings of Cassells and her colleagues on the students' level of satisfaction with their development of communication skills as new graduates are consistent with the findings reported by Nelson (1978). However, their findings that the new graduates felt well prepared in interpersonal skills seems to contradict the body of literature on reality shock and job satisfaction among new graduates. Difficulties related to reality shock and job satisfaction among new graduates have been partly attributed to interpersonal relationships with colleagues and administrators in the work environment (Crout & Crout, 1984; Everson et al., 1981; Kramer, 1974).

Cassells' finding that new graduates feel adequately prepared in clinical decision making and organizational skills has been repeatedly contradicted by reports in the literature (Goldsberry, 1977; Hammerstad et al., 1977; McGrath & Princeton, 1987; Roell, 1981). One must also speculate about the effect of time in diminishing the perception of preparation for practice. Since the subjects in Cassells' study were asked to reflect back one year to

their experiences as new graduates, time itself may have mollified their perceptions.

There is consistency between Cassells' findings and the literature regarding the poor psychomotor skill preparation of new baccalaureate graduates (Field et al., 1984; Goldsberry, 1977; Roell, 1981). The findings of Field and his colleagues and Infante (1975) led them to imply empathy for new baccalaureate graduates and to hold educators accountable for examining their teaching methods in the clinical arena.

Windsor's (1987) qualitative study examining students' perceptions of their clinical experiences identified factors that facilitated learning in the clinical area as well as those factors that were perceived to be detrimental to learning in the clinical area. Students (n=9) admitted to using their clinical time (a) to practice nursing skills, (b) to organize content, (c) to improve time management, and (d) for professional socialization. Students revealed that they learned knowledge and skill acquisition as well as time management in the clinical area. Additionally, they were able to develop professionally. Factors that facilitated their learning in the clinical setting included adequate student preparation, supervision style and structure, and the variety and type of assignment. Factors identified as detrimental to learning in the clinical setting included a lack of preparation, supervision structure and lack of support from the instructor, the type of assignment, and personal problems. While it is difficult to generalize from such a small, nonrandom sample, one must wonder

if these perceptions are shared by other baccalaureate nursing students. If these are common expectations among baccalaureate nursing students, nursing educators must consider the implications of these expectations in the way they structure clinical learning experiences for their students. Clearly, more research is needed in this area.

Sullivan (1987) conducted a study of registered nurse students (n=51) enrolled in a registered nurse baccalaureate degree completion program at a large midwestern university. The purpose of her study was to determine if critical thinking, creativity, and clinical performance improved during nursing program enrollment. Additional purposes of her study were to determine (a) if academic performance increased, and (b) if there was a significant relationship among the three abilities and academic performance at the beginning and end of a baccalaureate program. Three instruments were used to collect data: the Watson-Glaser Critical Thinking Appraisal, the Torrance Test of Creative Thinking, and the Stewart Evaluation of Nursing Scale. Data were analyzed using a t-test to compare mean scores on all measures. Pearson Product Moment Correlations were obtained for intercorrelations of subjects' scores on all measures. Significant differences in entry and exit scores were found on all criteria except critical thinking. Overall critical thinking scores were lower upon exit from the program than at entry. Significant positive correlations were found between subjects' entry and exit scores on critical thinking, grade point average,

and creativity measures. A significant negative correlation was found between the length of time since graduation from the basic nursing program and entry critical thinking scores. It would have been interesting to examine the relationship between critical thinking and clinical performance of these subjects since the investigator discussed this in her literature review. However, this relationship was not examined in her study.

Teissen (1987) conducted a study to determine which of eight variables contributed most strongly to baccalaureate nursing students' abilities to think critically (problem solve). She employed multiple regression analysis techniques to examine intercorrelations between the criterion variable (critical thinking) and the predictor variables (SAT verbal scores; SAT quantitative scores; grade point average; age; and total number of credit hours taken in the natural and social sciences, arts and humanities, and nursing). The Watson-Glaser Critical Thinking Appraisal was used to measure the dependent variable. Studying a sample of 150 BSN students, she found that the total number of credit hours in the arts and humanities, grade point average, and SAT quantitative scores accounted for one-fourth of the total variance. Of these variables, SAT quantitative scores contributed most strongly. Teissen emphasized that the full value of the academic experience should not be underestimated as preparation for graduating students capable of effective problem solving in the increasingly complex health care system.

Frisch's (1987) study of cognitive maturity in baccalaureate nursing students yielded data that gives rise to concern regarding the development of higher level skills in the cognitive, affective, and psychomotor domains that are imperative for professional nursing practice. Using Perry's model of young adult cognitive development as the framework for her study, she evaluated the level of cognitive development of two groups of junior level baccalaureate nursing students (n=42). The subjects were evaluated at the beginning and end of an academic semester during which they were exposed to numerous academic experiences that could have an impact on cognitive development.

Allen's paper and pencil essay test was used to measure cognitive development based on Perry's theory. Data were independently analyzed by two raters who placed each subject in one of Perry's cognitive levels according to defined criteria. Independent interrater agreement was 86.5%. The raters then came together to reach a consensus on the Perry level most reflective of the students' abilities. The findings indicated that most students were operating at levels two and three of the Perry model. (Their thinking was primarily dualistic with beginning movement to a multiplistic mode of thinking.) Frisch noted that this level of cognitive development is considerably less than that which would be required of a professional nurse (level seven, relativistic thinking). Furthermore, she reported no differences in the students' level of thinking from the beginning to the end of the semester. In essence, students operating at Perry levels

two or three do not perceive the gestalt of the situation and are unable to define and acknowledge the legitimacy of thinking that differs from their own. Students operating at this level have a very simplistic view of right and wrong and do not understand that all knowledge and values are contextual.

Frisch suggested that the reality shock phenomenon may not result from clinical inexperience and lack of technical expertise as many believe. Rather, she stated that "an equally likely explanation is that professional nursing in any setting requires individuals to consider events from multiple points of view and to make independent judgments based on an assessment of the complexities of each situation" (p. 27). Therefore, any nurse operating at a Perry level of two or three may have difficulty adjusting to professional practice.

Drawing a parallel between the findings of Frisch's study and the cognitive and affective operations described by Bloom (1956) and Kraftwohl and his colleagues (1964), it appears that the subjects in Frisch's study are operating at the lower levels of the cognitive and affective domains. They do not appear to be able to interpret and analyze phenomena in relation to unfamiliar situations. Additionally they have not developed the affective level of understanding or appreciation for attitudes, values, and beliefs that differ from their own.

Conclusions

The perceptions of nursing administrators reported in the literature indicate that new bacclaureate (and associate degree) graduates are not adequately prepared for practice. As voiced repeatedly, there are differing expectations for clinical competence of the new graduate expressed by nursing administrators and nursing educators. The Midwest Alliance in Nursing (Primm, 1986; Stull, 1986) has made strides to reach a consensus among nursing professionals regarding beginning competencies for both professional and technical practitioners. In addition to this strategic move, preceptorship programs for nursing students and new graduates as well as noninstructional clinical work experiences for students offer a solution to the issue of clinical competence.

Anecdotal reports of student preceptorship programs found in the literature suggest that these programs are an effective means of developing clinical competence in the baccalaureate nursing student. Since clinical competence is germane to professional nursing practice, this investigator undertook this study to provide empirical evidence of the effectiveness of these programs in the development of clinical competence in baccalaureate nursing students.

III--METHOD

This quasi-experimental research study examined the differences in the gain in clinical competence between those students who participated in summer preceptorship programs and those students who worked as nursing assistants in noninstructional clinical settings. A second purpose of the study was to describe how students in each group perceived various factors of their particular summer work experience relative to their preferences.

Sample

The sample consisted of two groups of senior generic nursing students from NLN-accredited baccalaureate nursing programs in the eastern United States. The treatment group consisted of 36 students who participated in nursing student preceptorship programs. The comparison group consisted of 36 students who worked as nursing assistants in noninstructional clinical settings.

Nonprobability convenience sampling was used to obtain subjects for each group. Hospitals selected for the treatment and comparison groups were private hospitals offering acute care services. These hospitals were matched for size, geographical setting, and teaching affiliation. The hospitals included in the treatment group offered student preceptorship programs for baccalaureate nursing students. The hospitals included in the comparison group hired baccalaureate nursing students for summer

employment as nursing assistants but did not offer these students a planned instructional program during their employment. All subjects were female, between the ages of 18 and 23 years old, to control for possible effects of gender and age. A limitation of the sampling method was that the subjects were neither randomly selected nor randomly assigned to the treatment and comparison groups.

Instruments

Three instruments were used to collect data.

The Participant Information Survey yielded the following data: age, description of nursing courses completed, clinical laboratory experiences completed, previous work experience in a clinical setting, grade point average, and reason for choosing a summer preceptorship experience or work experience as a nursing assistant (Appendix A). There are two forms of the Participant Information Survey: form T for the treatment group and form C for the comparison group. The forms elicited the same data from both groups. The only difference in the forms is the question relating to the reason for selecting a particular type of summer work experience. These data were used to determine the similarity of the groups on extraneous variables.

The Summer Experience Survey was developed to address the secondary purpose of this study described on page 6. This instrument is a self-administered 28-item 5-point Likert-type questionnaire that yielded data to determine the students' perceptions of various factors relating to the summer work

experience relative to their preferences. The items on the questionnaire were derived from a theoretical perspective of the preceptor/preceptee relationship and the anticipated outcomes of a student preceptorship experience. One purpose of the instrument was to determine whether or not the preceptor/preceptee relationship existed within the treatment group as described in the literature. A second purpose of this questionnaire was to determine whether or not an informal preceptor/preceptee type of relationship had developed between students and staff nurses in the comparison group. A third purpose of this questionnaire was to determine whether or not the outcomes of the summer work experience were consistent with the students' preferences. Two forms of this survey were used, form T for the treatment group and form C for the comparison group (Appendix C).

The Clinical Competence Rating Scale (CCRS), developed by this investigator, yielded data to measure the dependent variable, clinical competence. The CCRS consists of 53 measurable nursing behaviors utilizing a 6-point Likert-type scale (Appendix B). The student's level of competence for each behavior is rated as follows: independent, supervised, assisted, marginal, dependent, or not observed.

The statements of nursing behaviors on the CCRS were derived from the National League for Nursing's 1978 statement of characteristics of baccalaureate graduates and Primm's (1986) competency statements for baccalaureate graduates. The behavioral statements reflect the higher level cognitive, affective, and

psychomotor skills required for the three dimensions of clinical competence: problem solving, application of theory to practice, and psychomotor skill performance.

The descriptive rating scale labels were developed by Bondy (1984). Each of the five descriptive rating scale labels reflects behavior according to standards of practice, quality of performance, and the amount of assistance needed. Point values for each of the rating scale labels are:

Independent = 5 points
Supervised = 4 points
Assisted = 3 points
Marginal = 2 points
Dependent = 1 point

Summative scoring yielded a total clinical competence score as well as subscale scores for problem solving, application of theory to practice, and psychomotor skill performance. Behaviors rated as not observed were assigned the mean score for the respective subscale (Battenfield, 1986). Bondy noted that her descriptive rating scale is useful for measuring behaviors in the cognitive, affective, and psychomotor domains.

Reason for Instrument Development

A review of the published instruments measuring clinical competence did not yield a measurement instrument that met the following criteria for use in this study: consistency with the identified theoretical framework, acceptable psychometric data,

ease of administration, and ease of scoring. For this reason, this investigator developed the Clinical Competence Rating Scale.

Reliability

Interrater Reliability

Interrater reliability was estimated through field testing on two occasions. The first field study was conducted during the fall of 1986 with 10 senior baccalaureate nursing students on a medical surgical nursing unit. Pairs of registered nurse raters independently and simultaneously observed the students over a two day period of time. Spearman Rank Order Correlation coefficients were obtained for each subscale as well as for the total instrument. The problem solving subscale yielded a Spearman r = .83. The application of theory to practice subscale yielded a Spearman r = .84. The psychomotor skill performance subscale yielded a Spearman r = .66 The total CCRS yielded a Spearman r = .80. The second estimate of interrater reliability was obtained from a sample of scores from the subjects for this dissertation research. The resulting Spearman coefficients were: problem solving subscale, r = .91; application of theory to practice subscale, r = .93; psychomotor skill performance subscale, r = .80; and CCRS total scale, r = .86.

Internal Consistency

The internal consistency of each subscale was measured on two occasions using the alpha coefficient. The first estimate of internal consistency was obtained during a study conducted in the

fall of 1986. The alpha coefficients from this study for each subscale were: problem solving = 0.93, application of theory to practice = 0.91, psychomotor skill performance = 0.92. The alpha coefficient for the total CCRS was 0.96. The second estimate of internal consistency was obtained from a sample of scores from the subjects for this dissertation research. The resulting alpha coefficients for each subscale from this sample were: problem solving = .98, application of theory to practice = .96, psychomotor skill performance = .98. The alpha coefficient for the total CCRS was .97.

Sensitivity to Change

A study was conducted during the Spring of 1987 to determine the sensitivity to change of the CCRS over a five week period for each of two groups of subjects. The groups consisted of 27 junior nursing students and 37 senior nursing students from an NLN-accredited baccalaureate nursing program. Within both groups of subjects, significant differences in the level of clinical competence from week one (pretest) to week five (posttest) were detected using one-way analysis of variance procedures for each subscale as well as for the total CCRS measure. An F value of 15.20 ($p = .0005$) was obtained for the junior students on the total CCRS. An F value of 9.96 ($p = .0028$) was obtained for the senior students on the total CCRS.

Validity

Content Validity

Content validity was estimated using the procedures described by Lynn (1986) and Waltz, Strickland, and Lenz (1984). Items for the CCRS were generated from each content domain. A panel of ten masters and doctorally prepared content experts was given the list of items and instructed to rate the relevance of each item to its identified dimension of clinical competence, using the following 4-point rating scale:

1 = not relevant

2 = somewhat relevant

3 = quite relevant

4 = very relevant

Raters were also asked to judge whether or not they believed the items on the instrument adequately represented the behaviors in the domain of interest. The resulting content validity index was 0.90.

Concurrent Validity

Concurrent validity was estimated for the problem solving and application of theory to practice subscales. The criterion measure used was the nursing process subscale of the NLN Comprehensive Nursing Achievement Test, 1986 edition. Spearman Rank Order correlations between the mean subscale scores for the problem solving and application of theory to practice subscales and the mean nursing process subscale scores on the NLN

Comprehensive Achievement Test were estimated. The sample consisted of 27 senior generic nursing students from an NLN-accredited baccalaureate nursing program. The resulting Spearman coefficient for the problem solving subscale and the NLN Comprehensive Achievement Test, nursing process subscale mean score, was r = .68. The Spearman correlation coefficient for the application of theory to practice subscale with the NLN Comprehensive Achievement Test, nursing process subscale mean score, was r = .65.

Construct Validity

Construct validity was estimated using the contrasted groups approach described by Waltz and her colleagues (1984). The contrasted groups consisted of two groups of generic nursing students in an NLN-accredited baccalaureate program. A group of junior nursing students (n=28) formed the group low in the characteristic of clinical competence. A group of senior nursing students (n=36) formed the group high in the characteristic. The clinical competence of each subject was measured at midsemester by the subjects' clinical instructors. One-way analysis of variance procedures were performed on mean subscale and total scale scores to compare differences between the low and high groups of subjects. Significant between-group differences were found on all subscales as well as on the total clinical competence measure. An F value of 4.20 (p = .0419) was obtained for the problem solving subscale. An F value of 7.96 (p = .0064) was obtained for the application of theory to practice subscale. An F value of 6.94

(p = .0103) was obtained for the psychomotor skill performance subscale. An F value of 6.15 (p = .0151) was obtained for the total CCRS measure.

Procedures

Subjects

Permission to collect data was obtained from institutional review boards and the department of nursing in the hospitals selected for the study. This investigator met with the students in both groups during the first week of the summer work experience. The purpose of the study was explained, anonymity of all participants was assured, written permission for participation in the study was obtained, and the Participant Information Survey was administered. A total of 158 students agreed to participate in the study. After meeting with the students and obtaining their informed consent, the investigator met with the head nurses either individually or in small groups to explain the purpose of the study, to assure anonymity of participants, and to explain the use of the data collection instruments.

Head nurses on the units to which the treatment group subjects and comparison group subjects were assigned were asked to observe the subjects on days 1, 2, and 3 of the second week of the preceptorship or nursing assistant experience. All head nurses were asked to rate the student's clinical competence utilizing the CCRS at the end of the third day of observation (pretest). Completed rating scales were mailed to the researcher. Follow-up

post card reminders were sent to the head nurses whose rating scales had not been received within a ten-day period of the assigned rating date. A total of 124 completed rating scales were returned, for a response rate of 78%.

Those head nurses who returned the initial (pretest) rating scale were mailed a follow-up rating scale and again asked to observe the students (treatment group and comparison group) on days 1, 2, and 3 of the tenth week of the preceptorship experience or nursing assistant experience. They were asked to complete the CCRS at the end of the third day of observation (posttest). The completed CCRSs were mailed to the researcher. A follow-up post card reminder was sent to those head nurses whose rating scales had not been received within a ten-day period of the assigned rating date. A total of 72 completed rating scales were returned, for a final response rate of 60%.

Two weeks before the completion of the summer preceptorship experience or noninstructional work experience, the Summer Experience Survey was mailed to all students for whom pretest Clinical Competence Rating Scales were received. Students were instructed to complete the survey during the last week of their summer work experience and to return their completed surveys to the researcher. A total of 75 surveys were received for a student response rate of 60%. Of those surveys, only 54 were included in the final data analysis since posttest Clinical Competence Rating Scales were not received for the other 21 subjects.

Protection of Human Subjects

No physical testing was done on any human subject in this study. The only protection offered was that of anonymity to the participants.

IV -- RESULTS

The purpose of this study was to examine the differences in the gain in clinical competence between those students who participated in summer preceptorship programs and those students who worked as nursing assistants in noninstructional clinical settings. A second purpose of the study was to describe the students' perceptions of the summer work experience as they related to their preferences.

This study was designed to answer the following research questions:

1. Do baccalaureate students who participate in summer nursing student preceptorship experiences develop a greater gain in clinical competence than baccalaureate students who work as nursing assistants in noninstructional clinical settings?
2. How do students in each group perceive various factors about the summer work experience relative to their preferences?

Subjects

The sample for this study consisted of 72 female nursing students between the ages of 18 and 23 from NLN-accredited generic baccalaureate nursing programs in the eastern United States. All subjects in the study had selected a summer work experience in a hospital setting either in a nursing student preceptorship program or as a nursing assistant in a noninstructional setting.

The treatment group consisted of 36 subjects who participated in student preceptorship programs. The comparison group consisted of 36 subjects who were employed as nursing assistants in noninstructional clinical settings. Students in both groups were considered temporary summer employees by the hospitals participating in the study. As such, the students received monetary compensation for their work.

Preliminary Analyses

Participant Information Survey

The Participant Information Survey elicited data relative to the subjects' educational and hospital work-related backgrounds, grade point average, and their reasons for selecting their particular summer work experience. These data were analyzed to estimate the similarity of the study groups on these variables. A chi-square analysis was performed to estimate differences in proportions of responses to questionnaire items between the two study groups on all items except grade point average. An independent t-test was performed to determine differences in group means on grade point average.

Table 1 illustrates the percentage of students in each group who have previously taken the identified clinical courses at their respective colleges. The data analysis revealed no significant differences between the treatment and comparison groups relative to previously taken clinical courses in fundamental skills of nursing, adult health nursing, and psych-mental health nursing.

More students in the treatment group reported having taken a clinical course in adult health nursing. While this difference was not statistically significant (p=.08), it was borderline, and worth noting. As indicated in Table 1, there was a significant difference between the study groups in maternal-child health and community health nursing courses previously taken. However, this was not considered to be a concern since only a few of the subjects in this study were working on obstetrical and pediatric units during the study. No subjects were working in a community health setting during the study.

Table 1

Clinical Courses Previously Taken (% Students)

	Treatment	Comparison	$\bar{x}$	df	P
Fundamental Skills	44.4	47.2	.73	1	.40
Adult Health	48.6	43.0	2.91	1	.08
Maternal-Child Health	50.0	44.4	4.24	1	.04
Psych-Mental Health	18.0	18.0	2.98	1	.95
Community Health	8.3	19.4	4.43	1	.03

A chi-square analysis was also performed to examine the differences in the study groups on the variables of previous paid and volunteer work experience. As indicated in Table 2, there were no significant differences between the treatment and

comparison groups relative to the number of years of previous paid work experience in health care settings.

Table 2

Years of Previous Paid Work Experience (% Students)

	None	<1	1-2	3-4	>4
Treatment Group	26.3	13.8	8.3	1.3	0
Comparison Group	20.8	20.8	6.9	1.3	0
N=72	x^2=1.56		d.f.=4		p=.82

Table 3 illustrates the number of hours per week previously worked by subjects in each group in a paid clinical setting. There were no significant differences between the groups on this variable.

Table 3

Hours per Week Worked in a Paid Clinical Setting (% Students)

	none	<8	8-15	16-23	24-31	32-40
Treatment Gp.	26.3	0	6.9	5.5	2.7	8.3
Comparison Gp.	20.8	2.7	6.9	2.7	2.7	13.8
N=72	x^2 =4.14			d.f.=5	p=.54	

Many of the subjects reported previous volunteer work experience in a hospital setting. Table 4 illustrates the

percentage of subjects in both groups who have had previous volunteer work experience in a hospital setting. The number of years of previous volunteer work experience varied from none to three to four years for both groups. There were no significant differences between the treatment and comparison groups on this variable.

Table 4

Years of Previous Volunteer Work Experience (% Students)

	none	<1	1-2	3-4	>4
Treatment Group	26.3	15.2	2.7	4.1	1.3
Comparison Group	29.1	6.9	9.7	4.1	0
N=72	x^2=6.13		d.f.=4		p=.19

Responses to the number of hours per week of previous volunteer work experience ranged from none to 32 to 40 hours per week (Table 5). There were no significant differences between the groups on this variable.

Table 5

Hours per Week of Previous Volunteer Experience (% Students)

	none	<8	8-15	16-23	24-31	32-40
Treatment Group	26.3	12.5	4.1	4.1	0	2.7
Comparison Group	27.7	9.7	8.3	2.7	1.3	0
N=72	x^2=4.48		d.f.=5		p=.48	

Grade point averages for all subjects at the end of the Spring 1987 semester were calculated by the students' colleges on a 0-4.0 scale. Table 6 illustrates the comparison of grade point averages between the study groups. An independent t-test revealed no significant differences between the treatment and comparison groups on grade point average (t=.27, p=.78).

Table 6

Comparison of Grade Point Averages

	Range	$\bar{x}$	SD
Treatment Group	2.3-3.85	3.01	.38
Comparison Group	2.3-3.90	3.03	.38
Total Sample	2.3-3.90	3.02	.38

N=72 t=.27 p=.78

Students' reasons for selecting either the summer preceptorship experience or employment as a nursing assistant in a noninstructional clinical setting revolved around several themes. The reasons for seeking summer work experience in either type of setting were categorized as follows: to gain experience, to improve clinical competence, to learn new information, to earn money, to advance career opportunities, to gain confidence, and other miscellaneous reasons. The category of "other miscellaneous reasons" included infrequently reported responses such as networking, to develop a perspective of reality, recommended by another student or faculty member, to seek a new opportunity, and

geographically close to home (Table 7). Significant differences between the groups were noted for the stated reason of gaining experience. The groups were similar on all other reasons for selecting a particular summer work experience. Since this was a free response item, many subjects listed several reasons for selecting a particular summer work experience. To maintain consistency, only the first response was counted when tabulating the data. Four subjects did not respond to this item.

Table 7

Reasons for Selecting a Summer Work Experience (% Subjects) *

	Treatment	Comparison	$\bar{x}$	df	P
Gain experience	36	64	5.56	1	.02
Improve clinical competence	25	14	1.42	1	.23
Learn new information	8	6	.21	1	.65
Earn money	0	3	1.01	1	.31
Career opportunities	0	3	1.01	1	.31
Gain confidence	11	3	1.93	1	.16
Other miscellaneous	14	6	1.42	1	.23
Total**	94	99			

*Figures rounded to nearest whole number

**Not all subjects responded

Research Questions

Clinical Competence Rating Scale

The Clinical Competence Rating Scale was used to obtain data to answer the first research question. This instrument yielded subscale scores for each subject in the areas of problem solving, application of theory to practice, and psychomotor skill performance. A total clinical competence score for each subject was also obtained. A summative scoring system was used, with higher subscale and total scores representing higher levels of competence on any subscale and/or on the total measure. Thus, the higher the score, the higher the level of clinical competence. The possible range of total scores for the Clinical Competence Rating Scale is 53-265. Appendixes F and G illustrate the percent responses of the raters to these items on the posttest rating scale for the treatment and comparison groups respectively.

A pretest-posttest design was used to compare the gain in the level of clinical competence between study groups. The pretest clinical competence rating was obtained during the second week that the subjects were in the clinical area. The posttest clinical competence rating was obtained during the tenth week that the subjects were in the clinical area. Table 8 illustrates the range and mean for each subscale as well as for the total scale. While the raw scores indicated that the comparison group obtained higher pretest mean scores on each subscale as well as on the

total scale, the difference in these scores was not statistically significant.

Table 8

Pretest-Posttest Descriptive Statistics - CCRS

	Pretest $\bar{X}$	Range	Posttest $\bar{X}$	Range
Problem Solving				
Treatment Group	3.60	1.61-4.88	4.53	3.46-5.9
Comparison Group	3.69	2.10-4.91	4.11	2.55-5.0
Application of Theory				
Treatment Group	3.56	1.43-4.93	4.60	3.58-5.0
Comparison Group	3.62	2.21-4.64	4.04	2.50-5.0
Psychomotor Skill Performance				
Treatment Group	3.72	1.33-5.00	4.71	3.38-5.0
Comparison Group	3.81	1.67-5.00	4.36	2.80-5.0
CCRS Total				
Treatment Group	3.61	1.69-4.85	4.58	3.52-5.0
Comparison Group	3.69	2.28-4.77	4.14	2.58-5.0

One-way analysis of variance procedures were used to determine pretest differences between the treatment and comparison groups on each of the CCRS subscales as well as on the total scale. Table 9 illustrates the F value, degrees of freedom, and

significance level for each measure. As previously noted, the difference in these scores was not statistically significant.

Table 9

ANOVA - Pretest CCRS Subscale and Total Scores

	F	df	P
Problem Solving	.93	1,70	.3390
Application of Theory to Practice	1.87	1,70	.1714
Psychomotor Skill Performance	.93	1,70	.3379
CCRS Total	1.02	1,70	.3157

A Spearman Rank Order correlation was performed using the total pretest clinical competence mean score and grade point average for each subject to determine the nature and direction of the relationship between the subjects' initial level of clinical competence and grade point average. The resulting correlation of $r = -.02$ indicated that no statistically significant relationship existed. Grade point average had no significant relationship to the pretest level of clinical competence in this sample.

An analysis of covariance was performed for each subscale as well as for the total CCRS measure to compare changes in clinical competence within and between study groups, using the pretest score as the covariate. The results indicated that the subjects in the treatment group demonstrated a greater gain in clinical competence in all three domains of problem solving, application of

theory to practice, and psychomotor skill performance at the completion of the preceptorship program.

The analysis of covariance data are illustrated in Table 10 (problem solving subscale), Table 11 (application of theory to practice subscale), Table 12 (psychomotor skill performance subscale), and Table 13 (CCRS total measure).

Table 10

ANCOVA - Problem Solving Subscale

EFFECT	SS	d.f.	MS	F	P
Covariate	2.35	1	2.35	8.68	.0046
Between	3.51	1	3.51	12.94	.0009
Within	18.71	69	.27		

Table 11

ANCOVA - Application of Theory to Practice Subscale

EFFECT	SS	d.f.	MS	F	P
Covariate	1.59	1	1.59	5.24	.0236
Between	5.96	1	5.96	19.68	.0001
Within	20.89	69	.30		

Table 12

ANCOVA - Psychomotor Skill Performance Subscale

EFFECT	SS	d.f.	MS	F	P
Covariate	3.99	1	3.99	15.84	.0003
Between	2.56	1	2.56	10.14	.0025
Within	17.40	69	.25		

Table 13

ANCOVA - CCRS Total

EFFECT	SS	d.f.	MS	F	P
Covariate	2.51	1	2.51	9.83	.0028
Between	3.86	1	3.86	15.16	.0004
Within	17.59	69	.25		

Thus, to answer the first research question, these data indicate that the subjects who participated in a summer preceptorship work experience demonstrated a significantly greater gain in the level of clinical competence than did the subjects who participated in a summer work experience in a noninstructional clinical setting.

Summer Experience Survey

A third instrument, the Summer Experience Survey, was administered to the subjects during the last week of their summer work experience and yielded data to answer the second research

question. Data elicited by this instrument indicated the subjects' perceptions of various factors of the summer work experience relative to their preferences. The subjects' responses, selected in relation to their preferences, were reported on a 5-point Likert-type scale. Table 14 (Appendix D) illustrates the treatment group subjects' responses to these items. Table 15 (Appendix E) illustrates the responses of the comparison group to items on this questionnaire.

To answer the second research question, subjects in both the treatment and comparison groups responded favorably to the items on the Summer Experience Survey. The majority of subjects within the treatment group perceived the preceptor's role and abilities as being almost always or usually adequate. The majority of subjects within the comparison group developed a special relationship with one or more registered nurses on their unit and perceived the role of the RNs as being almost always or usually adequate.

The majority of the subjects in each group indicated that the summer work experience was beneficial to them and that they improved their ability to problem solve, apply theory to practice, and improved their performance of psychomotor skills. Additionally, many of the subjects in both groups reported that they had gained self-confidence in a nursing role.

V--DISCUSSION

Meaning of Findings

Clinical Competence

The results of the data analysis revealed a significant difference in the gain in clinical competence between the two groups of students at the completion of their summer work experiences. While the level of clinical competence within each group improved at the end of the experience, the students in preceptorship programs demonstrated a significantly greater gain than the students working as nursing assistants in noninstructional clinical settings. That the findings are significant is not surprising. The literature describing preceptorship programs, while largely anecdotal, touts the success of these programs in assisting the student to apply theory to practice, to improve decision making and priority setting, and to improve psychomotor skill performance.

It would seem that the success of these programs is attributable to both their structure and process. The primary characteristics of the preceptorship programs in this study that facilitated the subjects' learning were those relating to the preceptor/preceptee relationship and classroom content. Students also perceived their patient assignments as challenging but not overwhelming. The majority of the subjects in the treatment group

indicated that their assignments were based on their learning objectives.

Bloom's later work (1981) prescribed the conditions necessary for the development of higher level skills in the cognitive and affective domains. The preceptorship programs included in this study were characterized by those conditions described by Bloom for learning at higher levels of the hierarchies.

Furthermore, the literature suggests that students do not necessarily improve their performance by the mere passage of time in the clinical area. In fact, Schroeder and her colleagues (1981) documented an inverse relationship among baccalaureate students between time spent in the clinical area and clinical competence. Infante (1975) was adamant that clinical experiences must be structured to meet the student's individualized learning needs.

Subjects' Perceptions of the Summer Work Experience

The items on the Summer Work Experience Survey were derived from factors that are theoretically present in both the structure and process of the preceptorship experience. Some of the items related to the role of the preceptor and the relationship between the preceptor and preceptee. Other items on the survey related to anticipated outcomes of the summer work experience. The difference in the surveys given to each group primarily reflected the wording of the items (the use of the term "preceptor" for the treatment group and the phrase "staff nurse" for the comparison

group). The underlying concept of all except two items (20, 21) was the same for each form of the survey. Subjects were asked to rate each item according to their preferences. An attempt was made to determine if factors that were a part of the structure and process of the preceptor/preceptee relationship were (a) preferred by the subject, and (b) present informally (or developed spontaneously) in the comparison group clinical setting. The results of the survey revealed that not only did the subjects prefer that these factors be present, when they were not present by formal arrangement, they tended to develop by informal arrangement. The preferences expressed by the subjects in this study are consistent with those of the subjects in Windsor's (1987) study.

Data collected from the subjects at the beginning of their summer work experience indicated that most of them had chosen a particular summer work experience because they wanted to improve their clinical competence, wanted to gain more clinical experience, and wanted to develop a greater level of self-confidence in their abilities as nurses. It was their expectation that the summer work experience would enable them to achieve these goals. Data collected at the completion of the summer work experience indicated that subjects in both groups perceived the summer work experience as facilitating their goal achievement.

The unique difference between the structure of the two types of summer work experiences examined in this study is the existence

of the preceptor/preceptee relationship of the treatment group. Shamian and Inhaber (1985) indicated that the nature of this relationship is a very effective and efficient way to learn. End of program data from the subjects indicated that they preferred to have a "buddy" relationship with at least one staff nurse. Interestingly enough, while the subjects in the treatment group had this relationship structured for them by virtue of their participation in the preceptor program, subjects in the comparison group developed this relationship with one or more staff nurses during the course of their summer work experience.

Since this preceptor/preceptee relationship was either naturally or artificially created for most subjects in the study, one must search further to find an explanation for the differences in the gain in clinical competence at the end of the summer work experience. Other structural differences in the two summer work experiences can be attributed to the educational nature of the preceptorship experience, such as the inclusion of learner objectives for the experience, the formative and summative evaluation processes, and the supplementary classroom experiences for the students.

Additionally, organizational differences in the clinical settings may have contributed to the study results. For example, Arlton (1984) and Turnbull (1983) noted that registered nurse preceptors frequently experience both extrinsic and intrinsic rewards for their preceptor role. These rewards often include a differential in pay, a decreased work load, an academic

appointment, tuition waivers, recognition of the preceptor's clinical competence, perceived status related to the preceptor role, self-satisfaction of helping a student, increased self-esteem, and professional development of the preceptor. Motivation theory and studies of job satisfaction (Cronin-Stubbs, 1977; Crout & Crout, 1984; Dell & Griffith, 1977) suggest that performance and productivity are enhanced when the individual is rewarded for his or her efforts. Even though the registered nurses in the comparison group frequently assumed the informal role of preceptor to the student, this role was not formally acknowledged by the organization. As such, one might speculate that they probably did not experience the same degree of extrinsic and intrinsic rewards as the acknowledged preceptors in the treatment group. Therefore, the quality and quantity of their feedback, supervision, and assistance to the student may have been less adequate than that of those preceptors in the treatment group who were formally acknowledged in their role.

Additionally, the organizational climate of those hospitals in the treatment group may have been such that clinical competence was highly valued by the organization. If this was so, then that value may have motivated the staff as well as the students to higher levels of performance. In addition, the preceptors may have been more highly motivated to help their preceptees develop a greater level of clinical competence.

When examining reasons for the differing levels of clinical competence at the completion of the summer work experience between

subjects in the treatment and comparison groups, one must also acknowledge the students' capacity for self-assessment. Subjects were self-selected into treatment and comparison groups. Data from the Participant Information Survey indicated that significantly more subjects in the comparison group selected a noninstructional work experience to gain clinical experience than did subjects in the treatment group. Perhaps the subjects who selected a noninstructional summer work experience felt that a less structured program would provide them with a greater diversity of clinical experience.

It would be interesting to examine the effect of each of the structural and process variables of the preceptorship experience, alone and in combination, to determine their impact on the treatment variance. Depending upon which variable or combination of variables contributes most to between group variance, it may be possible to develop less expensive modifications of student preceptorship programs which would still enable the student to develop a greater degree of clinical competence.

Significance of the Findings and Implications for Nursing

The findings of this study are significant because they suggest that summer student preceptorship experiences might be an effective method of developing clinical competence in the baccalaureate nursing student. To date, there has been a paucity of published empirical data documenting the effectiveness of both types of summer work experiences in the development of clinical

competence in the baccalaureate nursing student. While the generalizability of these findings is limited, they are valid for a certain group of students. Within the parameters delimited by this study, the findings can be used as a basis for decision making for nursing administrators and nursing educators.

Nursing administrators report their goal of offering summer student preceptorship programs as a strategy for recruiting future registered nurses. Given these baseline data regarding the effectiveness of the summer preceptorship programs in developing the student's level of clinical competence, the next step would be to determine the effectiveness of the programs as a recruitment strategy. Of additional interest to administrators might be whether or not the needed amount of new graduate orientation for these individuals is shorter and less expensive than it would have been had they not been alumni of the student preceptorship program.

The significance to nursing educators of the effectiveness of the summer preceptorship programs in developing the clinical competence of their students cannot be overemphasized. With students feeling more confident of their abilities, being more competent at problem solving, being better able to apply theory to the practice situation, and being better able to perform psychomotor skills, one would expect that they would exhibit an improved readiness for learning new information and integrating that information in a clinical setting.

If student alumni of summer preceptorship programs demonstrate a smoother transition to the role of a graduate nurse, the improvement in relationships between schools and health care agencies would benefit the profession as a whole. The negative stereotyping of nursing educators by nursing administrators and vice versa relative to beginning competencies and role definitions for new graduates should decrease. If educators and administrators continue to collaborate to invest the resources necessary to develop, implement, and evaluate summer preceptorship programs for nursing students, they will have engaged in a united effort to "bridge the gap" between the student role and the practice role of the nurse.

A study by the American Academy of Nursing (1983) revealed that staff nurses in hospitals able to recruit and retain nurses viewed themselves as being free to make decisions about the nursing care needs of patients. Studies of job satisfaction among nurses indicate that as decision making autonomy increases, so does job satisfaction. One might hypothesize, then, that if nurses are competent decision makers and are afforded the opportunities for autonomous decision making, that job satisfaction would increase. Documented improvement in professional autonomy and job satisfaction might be the marketing strategy needed to recruit able students into the nursing profession.

Directions for Future Research

The findings of this study provided baseline information regarding the effectiveness of summer work experiences, particularly summer preceptorship programs, on the development of clinical competence in the senior baccalaureate nursing student. The analysis and interpretation of these findings suggests that additional research is needed relative to the variables of interest in this study. Specifically, there is a need for research in the following areas:

1. An examination of the preceptor role.

2. The effectiveness of student preceptorship programs as a strategy for the recruitment of graduate nurses.

3. The effectiveness of student preceptorship programs in decreasing the time and cost of orienting new graduate nurses.

4. The effectiveness of student preceptorship programs as a strategy to facilitate role transition from the student role to the graduate nurse role.

5. Preceptors' perceptions of the value of that role on their own professional development.

6. An examination of the relationship between clinical competence, time spent in the clinical setting, and grade point average for students employed in noninstructional clinical settings.

7. An examination of the relationship between participation in a summer student preceptorship program, job satisfaction as a

graduate nurse, decision making autonomy as a graduate nurse, and the effect on retention of nursing staff.

8. The effectiveness of other teaching strategies (college laboratory simulations, computer simulations) on the development of clinical competence in the baccalaureate nursing student.

9. Replication of this study with a larger sample.

In conclusion, the need for additional research related to the development and evaluation of clinical competence in baccalaureate graduates is imperative. In light of skyrocketing health care costs, a decreasing supply of nurses, increasing educational costs, and declining baccalaureate nursing enrollments, the profession must demonstrate that a baccalaureate nursing education produces a practitioner who is clinically competent in the professional nursing role.

REFERENCES

Allison, S., Anderson, B., Balmat, C., Hinton, P., Keheley, P., King, F., & Shoptaw, M. (1984). Externship programs: the Mississippi model. Nursing Outlook, 32(4), 207-209.

American Academy of Nursing. (1983). Magnet hospitals: attraction and retention of professional nurses. Kansas City: Author.

Arlton, D. (1984). The rural nursing practicum. Nursing Outlook, 32(4), 204-206.

Aydelotte, M. (1985). Approaches to conjoining nursing education and practice. In McCloskey, J. & Grace, N. Current issues in nursing, 2nd. ed. Boston: Blackwell Scientific Publications.

Backenstose, A. (1983). The use of clinical preceptors. In Stuart-Sidall, S. & Haberlin, J. Preceptorships in nursing education. Rockville: Aspen Systems Corp.

Battenfield, B. (1986). Designing clinical evaluation tools: the state of the art. New York: National League for Nursing.

Benner, P. (1984). From novice to expert. Menlo Park, CA: Addison- Wesley Publishing Co.

Benner, P. & Benner, R. (1979). The new nurse's work entry: a troubled sponsorship. New York: Tireslas Press.

Bloom, B. (1956). Taxonomy of educational objectives: handbook I: cognitive domain. New York: David McKay Company, Inc.

Bloom, B., Madaus, G. & Hastings, J. (1981). Evaluation to improve learning. New York: McGraw-Hill Book Co.

Bolin, S. & Hogle, E. (1984, January). Relationship between college success and employer competency ratings for graduates of a baccalaureate nursing program. Journal of Nursing Education, 23(1), 15-20.

Bondy, K. (1984, March). Clinical evaluation of student performance: the effects of criteria on accuracy and reliability. Research in Nursing and Health, 7(1), 25-33.

Boss, L. (1985, July/August). Teaching for clinical competence. Nurse Educator, 10(4), 8-12.

Burgess, G. (1980, March). The self-concept of undergraduate nursing students in relation to clinical performance and selected biographical variables. Journal of Nursing Education, 19, 37-44.

Cassells, J., Redman, B. & Jackson, S. (1986, March/April). Generic baccalaureate nursing student satisfaction regarding professional and personal development prior to graduation and one year postgraduation. Journal of Professional Nursing, 2(2), 114-127.

Christman, N. (1971, January). Clinical performance of baccalaureate graduates. Nursing Outlook, 19, 54-56.

Cress-Ingebo, R. (1985). Nursing externships: what are they? Imprint, 32, 65-74.

Cronin-Stubbs, D. (1977, December). Job satisfaction and dissatisfaction among new graduate staff nurses. Journal of Nursing Administration, 44-49.

Crout, T. & Crout, J. (1984). Care plan for retaining the new nurse. Nursing Management, 15(12), 30-33.

Dear, M., Celentano, D., Welsman, C., & Keen, M. (1982, November). Evaluating a hospital nursing internship. Journal of Nursing Administration, 16-20.

del Bueno, D. (1983, Autumn). Doing the right thing: nurses' ability to make clinical decisions. Nurse Educator, 7-11.

Dell, M. & Griffith, E. (1977, January). A preceptor program for nurses' clinical orientation. Journal of Nursing Administration, 37-38.

Dobbie, B. & Karlinsky, N. (1982). A self-directed clinical practicum. Journal of Nursing Education, 21(9), 39-41.

Everson, S., Panoc, K., Pratt, P. & King, A. (1981). Precepting as an entry method for newly hired staff. Journal of Continuing Education in Nursing, 12(5), 22-26.

Field, W., Gallman, L., Nicholson, R., & Dreher, M. (1984). Clinical competencies of baccalaureate nursing students. Journal of Nursing Education, 23(7), 284-293.

Fire, N., Bozett, F., & Dearner, J. (1984). The Presbyterian program. Nursing Outlook, 32(4), 209-211.

Frederickson, K. & Mayer, G. (1977, July). Problem solving skills: what effect does education have? American Journal of Nursing, 77(7), 1167-69.

Friesen, L. & Conahan, B. (1980, April). A clinical preceptor program: strategy for new graduate orientation. Journal of Nursing Administration, 18-23.

Frisch, N. (1987, Spring). Cognitive maturity of nursing students. Image: Journal of Nursing Scholarship, 19(1), 25-27.

Goldsberry, J. (1977, March). From student to professional. Journal of Nursing Administration, 46-49.

Hammerstad, S., Johnson, S. & Land, L. (1977). New graduate orientation program. Journal of Continuing Education in Nursing, 8(5), 5-11.

Harkins, S., Schambach, A., & Brodie, K. (1983). Summer externs: easing the transition. Nursing Management, 14(7), 37-39.

Harrow, A. (1972). A taxonomy of the psychomotor domain. New York: David McKay Company, Inc.

Hartin, J. (1983). Nursing apprenticeship. Nursing Management, 14(3), 28-29.

Hinshaw, A., Smeltzer, C. & Atwood, J. (1987, June). Innovative retention strategies for nursing staff. Journal of Nursing Administration, 17, 8-16.

Infante, M. (1975). The clinical laboratory in nursing education. New York: John Wiley & Sons, Inc.

Kissinger, J. & Munjas, B. (1981, July/August). Nursing process, student attributes, and teaching methodologies. Nursing Research, 30(4), 242-246.

Kraftwohl, D., Bloom, B. & Masia, B. (1964). Taxonomy of educational objectives: the classification of educational goals: hankbook II: affective domain. New York: David McKay Company, Inc.

Kramer, M. (1974). Reality shock: why nurses leave nursing. St. Louis: C.V. Mosby.

Lee, H. & Strong, K. (1985, Summer). Using nursing diagnosis to describe the clinical competence of baccalaureate and associate degree graduating students: a comparative study. Image: Journal of Nursing Scholarship, 18(3), 82-85.

Lewison, D. & Gibbons, L. (1980). Nursing internships: a comprehensive review of the literature. Journal of Continuing Education in Nursing, 11(2), 32-38.

Limon, S., Bargagliotti, L., & Spencer, J. (1981, October). Who precepts the preceptor? Nursing & Health Care, 433-436.

Limon, S., Bargagliotti, L., & Spencer, J. (1982, June). Providing preceptors for nursing students: what questions should you ask? Journal of Nursing Administration, 16-19.

Limon, S., Spencer, J. & Waters, V. (1981, May). A clinical preceptorship to prepare reality-based ADN graduates. Nursing & Health Care, 267-269.

Lynn, M. (1986, November-December). Determination and quantification of content validity. Nursing Research, 35, 382-385.

McGrath, B., & Princeton, J. (1987, July/August). Evaluation of a clinical preceptor program for new graduates--eight years later. Journal of Continuing Education, 18, 133-136.

Nelson, L. (1978, March-April). Competence of nursing graduates in technical, communicative, and administrative skills. Nursing Research, 27, 121-125.

Olson, E. (1983). Baccalaureate students' perceptions of factors assisting knowledge application in the clinical laboratory. Journal of Nursing Education, 22, 18-21.

Ophardt, C. (1978, August). Development of intellectual skills in the laboratory. Journal of Chemical Education, 55, 485-488.

Paynich, M. (1971, April). Why do basic nursing students work in nursing? Nursing Outlook, 19, 242-245.

Potter, P., & Perry, A. (1985). Fundamentals of nursing. St. Louis: C. V. Mosby Co.

Predhomme, J. (1985). Bringing baccalaureate nursing education to the rural setting. Journal of Nursing Education, 24 (3), 123-125.

Primm, P. (1986, May/June). Entry into practice: competency statements for BSNs and ADNs. Nursing Outlook, 334, 135-137.

Reilly, D. (1975). Behavioral objectives in nursing: evaluation of learner attainment. NY: Appleton-Century-Crofts.

Roell, S. (1981, October). Nurse-intern programs: how they're working. Journal of Nursing Administration, 33-36.

Rosetti, G. (1986). Results of the survey of preceptorships in nursing education programs registered by the New York State Education Department. NY: New York State Education Department, Office of the State Board of Nursing, Nursing Education Unit.

Scheetz, L. (in press). Development of an instrument to measure clinical competence in the baccalaureate nursing student. In C. Waltz (Ed.), Proceedings of the Second Measurement of Outcomes in Nursing Education and Practice Conference. University of Maryland School of Nursing.

Schroeder, D., Cantor, M., & Kurth, S. (1981, November). Learning needs of the new graduate entering hospital nursing. Nurse Educator, 10-17.

Shamian, J. & Inhaber, R. (1985). The concept and practice of preceptorships in contemporary nursing: a review of pertinent literature. International Journal of Nursing Studies, 22(2), 79-88.

Shamian, J. & Lemieux, S. (1984). An evaluation of the preceptor model versus the formal teaching model. Journal of Continuing Education in Nursing, 15(3), 86-89.

Shukla, R. (1981, July/August). Structure versus people in primary nursing: an inquiry. Nursing Research, 30(4) 236-241.

Strauser, C. (1979). An internship with academic credit. American Journal of Nursing, 79(6), 1071-72.

Stuart-Sidall, S. & Haberlin, J. (1983). Preceptorships in nursing education. Rockville: Aspen Systems Corp.

Stull, M. (1986, May/June). Entry skills for BSNs. Nursing Outlook, 34, 138,153.

Sullivan, E. (1987, March/April). Critical thinking, creativity, clinical performance, and achievement in RN students. Nurse Educator, 12(2), 12-16.

Teissen, J. (1987, March/April). Critical thinking and selected correlates among baccalaureate nursing students. Journal of Professional Nursing, 3(2), 118-123.

Turnbull, E. (1983, January). Rewards in nursing: the case of nurse preceptors. Journal of Nursing Administration, 10-13.

Waltz, C., Strickland, O. & Lenz, E. (1984). Measurement in nursing research. Philadelphia: F. A. Davis.

Ward, M. & Fetler, M. (1979). Instruments for use in nursing education and research. Boulder, CO: Western Interstate Commission for Higher Education.

Weiss, S. & Ramsey, E. (1977). An interagency internship: a key to transitional adaptation. Journal of Nursing Administration, 36-42.

Wheeler, J. (1984, August). Preceptorship in occupational health nursing. Occupational Health Nursing, 410-411.

Windsor, A. (1987, April). Nursing students' perceptions of clinical experience. Journal of Nursing Education, 26(4), 150-154.

Appendix A

PARTICIPANT INFORMATION SURVEY (T)

Directions: Place a check mark on the appropriate line(s) of each category.

NURSING COURSES COMPLETED: (check all that apply)

		CLINICAL COMPONENT (yes)	(no)
Fundamental Skills of Nursing	____	____	____
Adult Health Nursing	____	____	____
Maternal-Child Health Nursing	____	____	____
Psych-Mental Health Nursing	____	____	____
Community Health Nursing	____	____	____

PREVIOUS WORK EXPERIENCE: (check one)

Have you ever worked as a nursing assistant or a nurse's aide for pay?

Yes ____ No ____

If yes, how long? (check one)

Less than 1 year ____
1 to 2 years ____
3 to 4 years ____
more than 4 years ____

If yes, approximate number of hours/week (check one)

Less than 8 hours ____
8 to 15 hours ____
16-23 hours ____
24-31 hours ____
32-40 hours ____

Have you ever done volunteer work in a hospital (without pay)?

Yes ____ No ____

If yes, how long? (check one)

Less than 1 year ____
1 to 2 years ____
3 to 4 years ____
more than 4 years ____

If yes, approximate number of hours/week (check one)

Less than 8 hours ____
8 to 15 hours ____
16 to 23 hours ____
24 to 31 hours ____
32 to 40 hours ____

WHAT WAS YOUR CUMULATIVE GRADE POINT AVERAGE AT THE END OF THE SPRING 1987 SEMESTER? _____

IS YOUR GRADE POINT AVERAGE CALCULATED ON A 0-4.0 SCALE OR A 0-5.0 SCALE?

WHAT IS YOUR AGE? _____

WHY DID YOU CHOOSE TO PARTICIPATE IN A SUMMER NURSING STUDENT PRECEPTORSHIP PROGRAM (INTERNSHIP, EXTERNSHIP, CLINICAL ASSISTANTSHIP)?

PARTICIPANT INFORMATION SURVEY (C)

DIRECTIONS: Place a check mark on the appropriate line(s) of each category.

NURSING COURSES COMPLETED: (check all that apply)

		CLINICAL COMPONENT (yes)	(no)
Fundamental Skills of Nursing	____	____	____
Adult Health Nursing	____	____	____
Maternal-Child Health Nursing	____	____	____
Psych-Mental Health Nursing	____	____	____
Community Health Nursing	____	____	____

PREVIOUS WORK EXPERIENCE:

Have you ever worked as a nursing assistant or a nurse's aide for pay?

Yes ____ No ____

If yes, how long? (check one)

- Less than 1 year ____
- 1 to 2 years ____
- 3 to 4 years ____
- more than 4 years ____

If yes, approximate number of hours/week? (check one)

- Less than 8 hours ____
- 8 to 15 hours ____
- 16 to 23 hours ____
- 24 to 31 hours ____
- 32 to 40 hours ____

Have you ever worked as a volunteer in a hospital (without pay)?

Yes ____ No ____

If yes, how long? (check one)

- Less than 1 year ____
- 1 to 2 years ____
- 3 to 4 years ____
- more than 4 years ____

If yes, approximate number of hours/week? (check one)

- Less than 8 hours ____
- 8 to 15 hours ____
- 16 to 23 hours ____
- 24 to 31 hours ____
- 32 to 40 hours ____

WHAT WAS YOUR CUMULATIVE GRADE POINT AVERAGE AT THE END OF THE SPRING 1987 SEMESTER? _____

WAS YOUR GRADE POINT AVERAGE CALCULATED ON A 0-4.0 SCALE OR A 0-5.0 SCALE?

WHAT IS YOUR AGE? _____

WHY DID YOU CHOOSE EMPLOYMENT AS A NURSING ASSISTANT FOR THE SUMMER?

Appendix B

CLINICAL COMPETENCE RATING SCALE

DIRECTIONS: Observe the clinical performance of the nursing student for three days before rating her on this performance scale. Place a check mark in the column that most accurately describes the performance which you observed.

Definitions of the six rating scale labels* are provided below:

I (independent): Safe, accurate performance according to accepted standards; the desired outcome is obtained each time; affect is appropriate; the student is proficient, coordinated, confident; occasional expenditure of excess energy; task completed within a reasonable time period; no supporting cues are needed

S (supervised): Safe, accurate performance according to accepted standards; the desired outcome is obtained each time; affect is appropriate; the student is efficient, coordinated, confident; some expenditure of excess energy; task completed within a reasonable time period; occasional supporting cues are needed

A (assisted): Safe, accurate performance according to accepted standards; the desired outcome is obtained most of the time; affect is appropriate most of the time; skillful in parts of the behavior; inefficient and uncoordinated; expends excess energy; task completed within a delayed time period; frequent verbal and occasional physical directive cues are needed in addition to supportive cues

M (marginal): Safe, but not alone; performs at risk; not always accurate; the desired outcome is obtained only occasionally; affect is appropriate only occasionally; unskilled, inefficient; considerable expenditure of energy; task completed within a prolonged time period; continuous verbal and frequent physical directive cues needed

D (dependent): Unsafe; unable to demonstrate behavior; lacks confidence, coordination, efficiency; continuous verbal and physical cues needed

NO (not observed): There was no opportunity to observe the student perform this behavior

*Rating scale labels developed by Bondy (1984)

CLINICAL COMPETENCE RATING SCALE

	I	S	A	M	D	NO
PROBLEM SOLVING						
Collects relevant health data from client and other sources	_	_	_	_	_	_
Assesses client's ability to communicate verbally	_	_	_	_	_	_
Assesses client's physical status	_	_	_	_	_	_
Assesses client's psychosocial status	_	_	_	_	_	_
Assesses client's developmental level	_	_	_	_	_	_
Assesses client's environmental safety needs	_	_	_	_	_	_
Assesses impact of illness on client and significant others	_	_	_	_	_	_
Assesses learning needs of client and significant others	_	_	_	_	_	_
Differentiates subjective and objective client data	_	_	_	_	_	_
Interprets client's nonverbal behavior	_	_	_	_	_	_
Formulates nursing diagnoses and/or problem list	_	_	_	_	_	_
Seeks client input to develop a plan of care	_	_	_	_	_	_
Considers client's cultural background when planning care	_	_	_	_	_	_
Formulates a plan of care consistent with client's values	_	_	_	_	_	_
Consults with other members of the health care team	_	_	_	_	_	_
Supports client's right to a personal philosophy, lifestyle	_	_	_	_	_	_
Develops rapport with client and health team members	_	_	_	_	_	_
Recognizes signs and symptoms of physical distress in client	_	_	_	_	_	_
Documents nursing interventions and client responses	_	_	_	_	_	_
Reports pertinent client information to appropriate health team members	_	_	_	_	_	_
Seeks assistance when needed	_	_	_	_	_	_
Evaluates client's response to therapeutic interventions	_	_	_	_	_	_
Evaluates client's progress toward desired outcomes	_	_	_	_	_	_

	I	S	A	M	D	NO
Revises plan of care when indicated	_	_	_	_	_	_
Allows client to choose freely among alternative actions	_	_	_	_	_	_
Incorporates client's significant others into plan of care when appropriate	_	_	_	_	_	_
Schedules nursing activities to promote client comfort	_	_	_	_	_	_
Organizes activities to promote efficiency	_	_	_	_	_	_
Acts as an advocate for the client	_	_	_	_	_	_
APPLICATION OF THEORY TO PRACTICE						
Utilizes therapeutic communication skills with client	_	_	_	_	_	_
Develops a plan of care for client based on assessment data	_	_	_	_	_	_
Plans nursing activities that will facilitate the achievement of client outcomes	_	_	_	_	_	_
Plans nursing activities that are congruent with the prescribed medical regimen	_	_	_	_	_	_
Anticipates client's responses to therapeutic interventions	_	_	_	_	_	_
Anticipates client's needs after discharge	_	_	_	_	_	_
Implements nursing activities to meet client's needs	_	_	_	_	_	_
Detects salient aspects of client's behavior	_	_	_	_	_	_
Incorporates theoretical knowledge and scientific principles into nursing care	_	_	_	_	_	_
Reacts to signs and symptoms of physical distress in client	_	_	_	_	_	_
Carries out patient teaching	_	_	_	_	_	_
Conveys an attitude of acceptance and empathy toward client	_	_	_	_	_	_
Acts in a non-judgmental manner toward client	_	_	_	_	_	_
Maintains client/family confidentiality	_	_	_	_	_	_

	I	S	A	M	D	NO
PSYCHOMOTOR SKILL PERFORMANCE						
Demonstrates manual dexterity with equipment	_	_	_	_	_	_
Adapts psychomotor skill performance to client situation	_	_	_	_	_	_
Performs psychomotor skills with minimal discomfort to client	_	_	_	_	_	_
Gathers necessary equipment and supplies prior to performing a psychomotor skill	_	_	_	_	_	_
Recognizes hazards to client	_	_	_	_	_	_
Maintains client safety	_	_	_	_	_	_
Maintains medical asepsis	_	_	_	_	_	_
Maintains surgical asepsis when indicated	_	_	_	_	_	_
Documents nursing interventions on client's chart	_	_	_	_	_	_
Documents client's response to nursing interventions on client's chart	_	_	_	_	_	_

Appendix C

SUMMER EXPERIENCE SURVEY (T)

DIRECTIONS: Circle the response that most accurately reflects your feelings about your preceptorship experience. The descriptors are as follows:

5 = almost always
4 = usually
3 = occasionally
2 = seldom
1 = almost never

I had adequate contact with my preceptor	5	4	3	2	1
My preceptor helped my plan my assignment based on my capabilities	5	4	3	2	1
My preceptor helped me organize my patient care activities	5	4	3	2	1
My preceptor was available to answer my questions	5	4	3	2	1
My preceptor gave me positive feedback about my work	5	4	3	2	1
My preceptor worked closely with me	5	4	3	2	1
My preceptor taught me new knowledge, skills, and/or techniques	5	4	3	2	1
My preceptor was a positive role model	5	4	3	2	1
My preceptor provided adequate supervision for me	5	4	3	2	1
My preceptor evaluated my performance	5	4	3	2	1
My preceptor encouraged me to act independently	5	4	3	2	1
My preceptor was nurturing	5	4	3	2	1
My preceptor oriented me to the unit	5	4	3	2	1
My preceptor introduced me to other members of the nursing staff	5	4	3	2	1

5 = almost always
4 = usually
3 = occasionally
2 = seldom
1 = almost never

In relation to what I would prefer,

My preceptor was clinically competent	5	4	3	2	1
My preceptor had a good working relationship with other members of the nursing staff	5	4	3	2	1
My preceptor encouraged me to express my opinions about patient care activities	5	4	3	2	1
My preceptor respected my opinions about patient care activities	5	4	3	2	1
I developed positive relationships with other staff members	5	4	3	2	1
Other nurses on the unit provided helpful feedback about my performance	5	4	3	2	1
The seminars for students in the preceptor program enhanced my learning	5	4	3	2	1
I felt challenged by my patient assignments	5	4	3	2	1
I felt overwhelmed by my patient assignments	5	4	3	2	1
This preceptorship experience was beneficial	5	4	3	2	1
This preceptorship experience helped me to develop problem solving skills	5	4	3	2	1
This preceptorship experience helped me to apply theory to practice	5	4	3	2	1
This preceptorship experience helped me to improve my psychomotor (technical) skills	5	4	3	2	1
This preceptorship experience helped me to gain confidence in my abilities as a nurse	5	4	3	2	1

SUMMER EXPERIENCE SURVEY (C)

DIRECTIONS: Circle the response that most accurately reflects your feelings about your summer work experience. The descriptors are as follows:

5 = almost always
4 = usually
3 = occasionally
2 = seldom
1 = almost never

In relation to what I would prefer,

I had adequate contact with the nursing staff	5	4	3	2	1
My patient assignment was based on my capabilities	5	4	3	2	1
The nursing staff helped me organize my patient care activities	5	4	3	2	1
The nursing staff was available to answer my questions	5	4	3	2	1
The nursing staff gave me positive feedback about my performance	5	4	3	2	1
The nursing staff worked closely with me	5	4	3	2	1
The nursing staff taught me new knowledge, skills, and/or techniques	5	4	3	2	1
The nursing staff were positive role models	5	4	3	2	1
The nursing staff provided adequate supervision for me	5	4	3	2	1
The nursing staff evaluated my performance	5	4	3	2	1
The nursing staff encouraged me to act independently	5	4	3	2	1
The nursing staff was nurturing	5	4	3	2	1
The nursing staff oriented me to the unit	5	4	3	2	1
I was introduced to all members of the nursing staff on my unit	5	4	3	2	1

5 = almost always
4 = usually
3 = occasionally
2 = seldom
1 = almost never

In relation to what I would prefer,

The nursing staff was clinically competent	5	4	3	2	1
The nursing staff had good working relationships with each other	5	4	3	2	1
The nursing staff encouraged me to express my opinions about patient care activities	5	4	3	2	1
The nursing staff respected my opinions about patient care activities	5	4	3	2	1
I developed positive relationships with other nurses on the unit	5	4	3	2	1
I developed a special relationship with one or two nurses who acted as my "buddy"	5	4	3	2	1
I had one or two nurses to whom I could always turn for help	5	4	3	2	1
I felt challenged by my patient assignments	5	4	3	2	1
I felt overwhelmed by my patient assignments	5	4	3	2	1
This summer work experience was beneficial	5	4	3	2	1
This work experience helped me to develop problem solving skills	5	4	3	2	1
This work experience helped me to apply theory to practice	5	4	3	2	1
This work experience helped me to improve my psychomotor (technical) skills	5	4	3	2	1
This work experience helped me to gain confidence in my abilities as a nurse	5	4	3	2	1

Appendix D

Table 14
Summer Experience Survey - Treatment Group (% Students) *

(The following descriptors were used: 5=almost always; 4=usually; 3=occasionally; 2=seldom; 1=almost never)

	5	4	3	2	1
I had adequate contact with my preceptor	73	23	0	0	4
My preceptor helped my plan my assignment based on my capabilities	42	31	19	4	4
My preceptor helped me organize my patient care activities	35	31	27	4	4
My preceptor was available to answer my questions	85	8	8	0	0
My preceptor gave me positive feedback about my work	62	23	12	4	4
My preceptor worked closely with me	62	12	23	4	0
My preceptor taught me new knowledge, skills, and/or techniques	62	23	12	4	0
My preceptor was a positive role model	85	12	4	0	0
My preceptor provided adequate supervision for me	77	19	4	0	0
My preceptor evaluated my performance	62	23	12	4	0
My preceptor encouraged me to act independently	70	20	12	0	0
My preceptor was nurturing	62	20	16	4	0
My preceptor oriented me to the unit	81	16	0	0	4
My preceptor introduced me to other members of the nursing staff	81	15	0	4	0
My preceptor was clinically competent	100	0	0	0	0

(5=almost always; 4=usually; 3=occasionally; 2=seldom; 1=almost never)

	5	4	3	2	1
My preceptor had a good working relationship with other members of the nursing staff	85	15	0	0	0
My preceptor encouraged me to express my opinions about patient care activities	54	35	12	0	0
My preceptor respected my opinions about patient care activities	77	20	4	0	0
I developed positive relationships with other staff members	81	19	0	0	0
Other nurses on the unit provided helpful feedback about my performance	62	27	12	0	0
The seminars for students in the preceptor program enhanced my learning	38	31	27	4	0
I felt challenged by my patient assignments	35	42	19	4	0
I felt overwhelmed by my patient assignments	0	4	50	31	15
This preceptorship experience was beneficial	92	8	0	0	0
This preceptorship experience helped me to develop problem solving skills	58	38	4	0	0
This preceptorship experience helped me to apply theory to practice	54	35	8	4	0
This preceptorship experience helped me to improve my psychomotor (technical) skills	81	12	8	0	0
This preceptorship experience helped me to gain confidence in my abilities as a nurse	88	12	0	0	0

*May not total 100% due to rounding of figures

Appendix E

Table 15
Summer Experience Survey - Comparison Group (% Students) *

(The following descriptors were used: 5=almost always; 4=usually; 3=occasionally; 2=seldom; 1=almost never)

	5	4	3	2	1
I had adequate contact with the nursing staff	89	11	0	0	0
My patient assignment was based on my capabilities	36	29	29	4	4
The nursing staff helped me organize my patient care activities	25	32	18	7	18
The nursing staff was available to answer my questions	75	18	4	4	0
The nursing staff gave me positive feedback about my performance	43	32	18	0	7
The nursing staff worked closely with me	25	43	18	7	7
The nursing staff taught me new knowledge, skills, and/or techniques	64	21	7	4	4
The nursing staff were positive role models	50	32	14	4	0
The nursing staff provided adequate supervision for me	54	25	7	14	0
The nursing staff evaluated my performance	29	25	25	18	4
The nursing staff encouraged me to act independently	64	29	4	4	0
The nursing staff was nurturing	29	40	29	4	0
The nursing staff oriented me to the unit	82	11	4	0	4
I was introduced to all members of the nursing staff on my unit	50	36	11	0	4
The nursing staff was clinically competent	79	18	4	0	0

(5=almost always; 4=usually; 3=occasionally; 2=seldom; 1=almost never)

	5	4	3	2	1
The nursing staff had good working relationships with each other	36	54	11	0	0
The nursing staff encouraged me to express my opinions about patient care activities	39	32	21	4	4
The nursing staff respected my opinions about patient care activities	54	21	25	0	0
I developed positive relationships with other nurses on the unit	82	11	7	0	0
I developed a special relationship with one or two nurses who acted as my "buddy"	64	18	7	11	0
I had one or two nurses to whom I could always turn for help	79	11	0	11	0
I felt challenged by my patient assignments	46	21	25	0	7
I felt overwhelmed by my patient assignments	4	0	32	25	40
This summer work experience was beneficial	82	18	0	0	0
This work experience helped me to develop problem solving skills	82	8	8	0	4
This work experience helped me to apply theory to practice	61	32	4	0	4
This work experience helped me to improve my psychomotor (technical) skills	82	7	11	0	0
This work experience helped me to gain confidence in my abilities as a nurse	96	0	4	0	0

* May not total 100% due to rounding of figures

Appendix F

CCRS Rater Responses - Treatment Group (% Responses)*

PROBLEM SOLVING	I	S	A	M	D	NO
Collects relevant health data from client and other sources	64	31	3	0	0	3
Assesses client's ability to communicate verbally	86	14	0	0	0	0
Assesses client's physical status	50	44	6	0	0	0
Assesses client's psychosocial status	50	42	8	0	0	0
Assesses client's developmental level	46	40	9	0	0	6
Assesses client's environmental safety needs	78	19	3	0	0	0
Assesses impact of illness on client and significant others	56	33	11	0	0	0
Assesses learning needs of client and significant others	39	44	11	0	0	6
Differentiates subjective and objective client data	53	36	8	0	0	3
Interprets client's nonverbal behavior	53	44	3	0	0	0
Formulates nursing diagnoses and/or problem list	56	25	11	0	0	8
Seeks client input to develop a plan of care	47	33	6	0	0	14
Considers client's cultural background when planning care	47	36	8	0	0	8
Formulates a plan of care consistent with client's values	58	28	6	0	0	8
Consults with other members of the health care team	64	30	8	0	0	0
Supports client's right to a personal philosophy, lifestyle	67	28	0	0	0	6
Develops rapport with client and health team members	89	11	0	0	0	0

	I	S	A	M	D	NO
Recognizes signs and symptoms of physical distress in client	72	25	3	0	0	0
Documents nursing interventions and client responses	61	28	3	0	0	8
Reports pertinent client information to appropriate health team members	89	8	3	0	0	0
Seeks assistance when needed	94	6	0	0	0	0
Evaluates client's response to therapeutic interventions	64	33	3	0	0	0
Evaluates client's progress toward desired outcomes	64	31	6	0	0	0
Revises plan of care when indicated	53	28	17	0	0	3
Allows client to choose freely among alternative actions	50	36	6	0	0	3
Incorporates client's significant others into plan of care when appropriate	53	31	6	0	0	11
Schedules nursing activities to promote client comfort	81	19	0	0	0	0
Organizes activities to promote efficiency	67	31	3	0	0	0
Acts as an advocate for the client	50	39	0	0	0	11
APPLICATION OF THEORY TO PRACTICE						
Utilizes therapeutic communication skills with client	75	25	0	0	0	0
Develops a plan of care for client based on assessment data	58	25	11	0	0	6
Plans nursing activities that will facilitate the achievement of client outcomes	56	42	3	0	0	0
Plans nursing activities that are congruent with the prescribed medical regimen	61	33	6	0	0	0
Anticipates client's responses to therapeutic interventions	47	44	6	0	0	3
Anticipates client's needs after discharge	28	53	11	0	0	8

	I	S	A	M	D	NO
Implements nursing activities to meet client's needs	67	33	0	0	0	0
Detects salient aspects of client's behavior	44	44	8	0	0	3
Incorporates theoretical knowledge and scientific principles into nursing care	81	14	3	3	0	0
Reacts to signs and symptoms of physical distress in client	72	22	6	0	0	0
Carries out patient teaching	64	19	11	0	0	6
Conveys an attitude of acceptance and empathy toward client	86	14	0	0	0	0
Acts in a nonjudgmental manner toward client	86	14	0	0	0	0
Maintains client/family confidentiality	92	8	0	0	0	0
PSYCHOMOTOR SKILL PERFORMANCE						
Demonstrates manual dexterity with equipment	56	39	6	0	0	0
Adapts psychomotor skill performance to client situation	69	28	3	0	0	0
Performs psychomotor skills with minimal discomfort to client	72	22	3	0	0	3
Gathers necessary equipment and supplies prior to performing a psychomotor skill	81	14	6	0	0	0
Recognizes hazards to client	94	3	3	0	0	0
Maintains client safety	94	6	0	0	0	0
Maintains medical asepsis	86	14	0	0	0	0
Maintains surgical asepsis when indicated	75	8	0	0	0	17
Documents nursing interventions on client's chart	70	22	0	0	0	8
Documents client's response to nursing interventions on client's chart	64	28	0	0	0	8

*May not equal 100% due to rounding of figures

Appendix G

CCRS Rater Responses - Comparison Group (% Responses)*

PROBLEM SOLVING	I	S	A	M	D	NO
Collects relevant health data from client and other sources	39	44	17	0	0	0
Assesses client's ability to communicate verbally	70	19	8	3	0	0
Assesses client's physical status	22	56	17	6	0	0
Assesses client's psychosocial status	42	36	19	3	0	0
Assesses client's developmental level	31	31	28	0	0	11
Assesses client's environmental safety needs	47	42	8	3	0	0
Assesses impact of illness on client and significant others	28	47	22	3	0	0
Assesses learning needs of client and significant others	14	47	28	3	0	8
Differentiates subjective and objective client data	31	36	28	3	0	3
Interprets client's nonverbal behavior	42	19	31	6	0	3
Formulates nursing diagnoses and/or problem list	17	28	19	11	0	25
Seeks client input to develop a plan of care	17	28	19	8	0	28
Considers client's cultural background when planning care	25	17	17	8	0	33
Formulates a plan of care consistent with client's values	14	39	17	8	0	22
Consults with other members of the health care team	58	28	14	0	0	0
Supports client's right to a personal philosophy, lifestyle	56	14	25	0	0	6
Develops rapport with client and health team members	71	17	9	3	0	0

	I	S	A	M	D	NO
Recognizes signs and symptoms of physical distress in client	50	36	11	0	0	3
Documents nursing interventions and client responses	44	33	14	6	0	3
Reports pertinent client information to appropriate health team members	64	25	11	0	0	0
Seeks assistance when needed	67	17	11	6	0	0
Evaluates client's response to therapeutic interventions	22	50	28	0	0	0
Evaluates client's progress toward desired outcomes	14	53	33	0	0	0
Revises plan of care when indicated	17	28	28	6	0	23
Allows client to choose freely among alternative actions	31	25	28	3	0	14
Incorporates client's significant others into plan of care when appropriate	19	44	28	0	0	8
Schedules nursing activities to promote client comfort	42	31	22	0	0	6
Organizes activities to promote efficiency	50	31	14	6	0	0
Acts as an advocate for the client	56	17	25	3	0	0
APPLICATION OF THEORY TO PRACTICE						
Utilizes therapeutic communication skills with client	56	28	14	3	0	0
Develops a plan of care for client based on assessment data	17	39	19	8	0	17
Plans nursing activities that will facilitate the achievement of client outcomes	28	33	36	3	0	0
Plans nursing activities that are congruent with the prescribed medical regimen	28	44	28	0	0	0
Anticipates client's responses to therapeutic interventions	19	33	39	3	0	6
Anticipates client's needs after discharge	17	28	31	6	3	17

	I	S	A	M	D	NO
Implements nursing activities to meet client's needs	28	44	25	3	0	0
Detects salient aspects of client's behavior	31	31	25	6	0	8
Incorporates theoretical knowledge and scientific principles into nursing care	31	28	28	3	0	11
Reacts to signs and symptoms of physical distress in client	53	31	14	3	0	0
Carries out patient teaching	17	50	19	6	0	8
Conveys an attitude of acceptance and empathy toward client	58	25	17	0	0	0
Acts in a nonjudgmental manner toward client	58	28	14	0	0	0
Maintains client/family confidentiality	69	22	3	0	0	6
PSYCHOMOTOR SKILL PERFORMANCE						
Demonstrates manual dexterity with equipment	58	28	14	0	0	0
Adapts psychomotor skill performance to client situation	56	19	22	0	0	3
Performs psychomotor skills with minimal discomfort to client	58	25	14	0	0	3
Gathers necessary equipment and supplies prior to performing a psychomotor skill	56	19	19	3	0	3
Recognizes hazards to client	56	36	8	0	0	0
Maintains client safety	64	28	8	0	0	0
Maintains medical asepsis	61	17	17	0	0	6
Maintains surgical asepsis when indicated	50	19	14	0	0	17
Documents nursing interventions on client's chart	47	25	25	0	0	3
Documents client's response to nursing interventions on client's chart	36	36	19	6	0	3

*May not total 100% due to rounding of figures