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THE DEVELOPMENT AND VALIDATION OF A SCALE FOR
MEASURING CLINICAL PERFORMANCE OF NURSING STUDENTS

DISSERTATION
Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University
by
June Elaine O'Connell, R.N., B.S., M.Ed.

* * * * *
The Ohio State University
1981

Reading Committee:
Robert Bargar, Ph.D.
Paul Klohr, Ph.D.
Donald Sanders, Ph.D.

Approved By

Adviser

Robert Bargar
Department of Educational Foundations and Research
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The contribution of others makes possible the writing of a dissertation. It cannot be done in isolation. Many individuals have contributed to this dissertation effort in ways that range from academic advising and scholarly critique to expressions of moral support and affection. And so, it is with "happy heart" that I acknowledge:

Gram

Robert Bargar          Jane Lutz
Barbara Chapman       Henry Miller
Mary Lou Docter       Donald Sanders
Paul Klohr           Frieda Shirk

John Underwood
VITA

July 20, 1933. . . . . . Born - Detroit, Michigan

1954 . . . . . . . . . . Diploma in Nursing, Henry Ford Hospital
Detroit, Michigan

1954-1967. . . . . . Staff Nurse, Assistant Head Nurse,
Medical-Surgical Supervisor, Henry
Ford Hospital, Detroit, Michigan

1968 . . . . . . . . . . B.S., Wayne State University, Detroit,
Michigan

1969 . . . . . . . . . . Director, Nursing Research Projects,
Henry Ford Hospital, Detroit, Michigan

1970 . . . . . . . . . . M.Ed, Wayne State University, Detroit,
Michigan

1970-1973. . . . . . Assistant Professor of Nursing, Capital
University, Columbus, Ohio

1974-1978. . . . . . Associate Professor of Nursing, Capital
University, Columbus, Ohio

1978-present . . . . . Chairperson, Nursing, Columbus Technical
Institute, Columbus, Ohio

FIELDS OF STUDY

Major Field: Educational Development and Research

Minor Field: Curriculum

Studies in Educational Development and Research. Professor
Robert Bargar and Professor Donald Sanders

Studies in Curriculum. Professor Paul Klohr
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Chapter I
INTRODUCTION

BACKGROUND OF PROBLEM

The evaluation of nursing students in the clinical area evokes a gamut of feelings in both the nursing instructor and the nursing student. For the instructor, the feelings range from irritation and frustration to just plain, "Why am I spending so much of my time doing this? It has such little meaning." Litwack, Sakata and Wykle (1972) wrote, "that the process of evaluation in the clinical area is, perhaps, the most difficult task faced by most nursing educators." and Kennedy, (1961) wrote "instructors run off on educational leaves and never come back." Clinical evaluation can, indeed, be a most annoying problem.

For the nursing student, clinical evaluation is often seen as a one-way street. The way is that of the instructor, and it is often paved with trepidation of the unknown. Nursing students' feelings regarding clinical evaluation are manifested in such statements as, "I am afraid to find out what my instructor thinks of me" or, "I wish she would have told me earlier that I was doing everything wrong." Kennedy (1961) wrote that the evaluator is often both the judge and the jury and the one being evaluated, the nursing student, is on trial. If such is the case, little wonder then, that students perceive clinical evaluation as a one-way street.

However, there are nursing educators who would believe that clinical evaluation should not be a one-way street and they seek ways in which
students can become an active part in the evaluation process. A common way of achieving student participation in clinical evaluation is that of having students write their own objectives for clinical experience. Although this appears to be a sound idea, in actual practice, students have difficulty in doing this because of lack of skill and experience in this area. And so, the process begins and probably ends in frustration for both student and instructor.

Yet, as frustrating and distasteful as clinical evaluation can be, interest in it is quite prevalent among nursing educators. Woolley (1977) suggested that if one wants to be guaranteed an over capacity crowd for a meeting or conference, one just needs to plan such an event titled "Evaluation of Nursing Students in the Clinical Area." Not only will one hear of the various methods or means of clinical evaluation, but one will also be told of a variety of definitions of this phenomenon, called clinical evaluation. Litwack, Sakata and Wykle (1972) gave the following description, "clinical evaluation refers to a student's ability to provide safe, competent nursing care, under supervision, to patients." Fivars and Gosnell (1969) spoke of evaluation in terms of tasks in nursing. These tasks, such as that of taking a patient's blood pressure, are broken down into steps, written into a "performance description" and then used to evaluate laboratory or clinical performance.

Regardless of which definition one uses of clinical evaluation, the technique most widely used is that of direct observation of the student. However, the tools or instruments to collect data in order to make judgments about student clinical performance are varied. Checklists, critical incident reports and anecdotal notes are but a few among the list.
Even though there is not one data collection instrument that could be described as perfect, nursing educators would be wise to use a variety of measurement methods as they look for patterns of behavior in student performance. Although many nursing educators would agree with this, they still continue to think about and search for that one "better" measurement instrument. They are looking for something that would simplify the task of student clinical performance evaluation, and still accurately portray this performance. Unfortunately, what is being searched for will probably not be found.

As nursing educators consider evaluation of students' clinical performance, they must also consider the nature of the nursing courses in which students are enrolled. Most nursing education courses involve two components. One, is the nursing theory or knowledge component which is usually transmitted in the classroom. The other component involves nursing skills which are first learned in the school laboratory. The application of these skills are demonstrated by the student in actual patient or client situations in hospitals or community health care clinics. Clinical performance which is operationally defined later in this chapter deals primarily with the application of nursing knowledge and skills. In pragmatic terms, nursing educators and nursing students frequently conceptualize clinical performance as the provision of "nursing care" to the patient or client.

As students provide nursing care for patients, much value is placed on the "what" and the "how" and the "why" of doing "it" (nursing care). Even though the provision of nursing care or clinical performance is highly valued by most nursing educators, the evaluation results of clinical performance are not always used in ways which could benefit the student and the instructor as well as the nursing program.
True, the students' clinical performance is recorded in some fashion and is used to generate course grades. Frequently, clinical performance is graded as satisfactory or unsatisfactory. The theory component is assigned a letter grade.

Somehow, the "3" grade of clinical performance is not the same as the "3" grade theory. And so, there are faculty who feel the need to recognize clinical performance in a more tangible fashion, but cannot. Also, there are students who "know" their clinical performance should be recognized in a more tangible way. Some students would like to earn points for "clinical." For a variety of reasons, the significance of clinical performance evaluation results are lost in the scheme of curriculum design and program development. A great deal of agonizing and time is spent over the evaluation of clinical performance. Its' value should not be underestimated. Perhaps the results should be used in ways more significant than generating course grades or completing employment reference forms. One such use could be in the area of predicting future performance of the nursing student or of the new graduate nurse.

STATEMENT OF THE PROBLEM

Nursing educators recognize the need for using a variety of measurement instruments to collect data for the purpose of making judgements about nursing students' clinical performance. They also recognize the difficulties which prevail in making sound evaluative judgements no matter what measures are used.

The common practice of using checklists, anecdotal notes and self study reports to collect data results in data that are both qualitative and subjective in nature. There is a need for measurement
instruments of a quantitative nature which are specific to nursing students' performance in the clinical area. The use of a combination of qualitative as well as quantitative measures to collect evaluative data would allow for a more comprehensive evaluation and perhaps, to a degree, reduce subjectivity. Also, if valid and reliable instruments were used, the possibility of using clinical evaluation results in significant ways could increase.

The purpose of this study is to construct and validate through field testing, a quantitative instrument for measuring the clinical performance of nursing students. An attempt will be made to determine the instrument's ability to predict performance on the State Board Test Pool Examination (SBTPE) for Registered Nurse licensure.

SIGNIFICANCE OF THE STUDY

The study is significant in several ways:

1. Clinical performance comprises a substantial part of the nursing student's education. In many nursing programs, clinical experience is integrated throughout and students can find themselves providing nursing care very early in their program. Therefore, the appropriate evaluation of their clinical performance from the beginning is essential to the evaluation design of the program as well as to student progress in the program.

2. Learning experiences for the clinical performance component are designed from simple to more complex competencies. The progression or building on of learning experiences dictates that student clinical performance evaluation be representative of this. Measurement instruments must be such that evaluative judgements can be made that will indicate to both the student and the clinical instructor to what degree this progression of competencies have been demonstrated.
3. Nursing education is no longer apprentice in nature. Nursing students are not engaged in "training", but rather are being prepared to practice as nurses. Nursing knowledge is communicated in an educational environment. And thus, the measurement and evaluation of nursing students' performance must be demonstrated in ways that are consonant with sound educational principles.

4. The reality of the work situation tells us that the new graduate nurse must be able to "perform" on the job from the very beginning of his or her employment. Orientation sessions for beginning practitioners of nursing are not very long. The expectation of employers is that nurses should be able to nurse. State Boards of Nursing have another expectation of new graduates. They must first show evidence that they will be safe practitioners by passing the State Board Test Pool Examination (SBTPE) for Registered Nurse licensure. This then, is the new nurse's ticket of entry into nursing practice.

Along with this, the goal of nursing programs is to prepare nurses to practice nursing. The passing of the State Board Examination for nursing licensure can be seen as implicit in this goal. Nursing programs generally do not overtly announce that they are preparing their students to, "pass State Boards." However, predictive knowledge about SBTPE performance would provide essential information regarding possible changes and or improvements in nursing programs so that the primary goal of preparing nurses to practice nursing can be met.

DEFINITION OF TERMS

Measurement

The determination, usually expressed in numerical terms, of the degree to which an individual possesses a certain defined trait or attribute.
Evaluation

The judgement of the worth or value of behaviors in relation to defined criteria. In this study, the behaviors are specific to nursing practice.

Clinical Performance

The application of nursing knowledge and nursing skills to patients in health care agencies. Health care agencies can include the traditional hospital as well as community clinics and mental health care facilities.

Clinical Evaluation

The judging of the adequacy or worth of the nursing students' demonstration of nursing knowledge and skills in health care agencies.

Clinical Performance Measuring Scale

A Likert type scale developed by the investigator listing 60 behaviors of nursing students' performance in clinical health care agencies.

State Board Test Pool Examination (SBTPE)

A series of five tests in which the graduate nurse must obtain a minimum score on each test in order to become licensed to practice as a Registered Nurse.

The tests include:

Medical Nursing    Psychiatric Nursing
Surgical Nursing   Child Nursing
Obstetric Nursing

The construction of the five separate tests of the SBTPE is done in the following manner. The Executive Committee of the Council of State Boards of Nursing select nurses from the various clinical speciality areas to be item writers. These persons then meet for a period of time with members of the Testing Services Division of the National League for Nursing for the purpose of guidance and orientation.
to the major task of item writing for the SBTPE. The items to be written are expected to measure basic understanding of safe and effective nursing practice at a minimum level of acceptance.

Guidelines for the content of the test items is provided to the test item writers by the Committee on Blueprint, Council of State Boards of Nursing. These guidelines include a test plan which indicates the broad categories of abilities to be tested as well as the percentage of test items to be included in each category. This test plan is reviewed annually by the Committee on Blueprint.

Each year, new items are evaluated by each State Board of Nursing by the use of item analysis statistical procedures. Reliable items are then placed into the test pool to be used as needed when new tests are formed.

The validity and adequacy of the SBTPE has been questioned in regard to it's ability to measure safe and effective practice. Questions regarding it's ability to test for the application of knowledge specific to clinical performance ability remains a vital concern to nursing.

**NLN Achievement Tests**

A group of tests representing course content in such areas as medical nursing, surgical nursing, fundamentals of nursing, obstetrical nursing, sick children nursing, and psychiatric nursing. These achievement tests compare an individual students' mastery of course content with a norm group of students throughout the United States. Every school does not use each of the NLN achievement tests. The tests are useful in identifying the students' level of achievement in different areas. They also allow students to gain experience in taking standardized tests which are similar in format and content to the SBTPE.
These achievement tests are developed by the testing service of the National League for Nursing, the agency responsible for the accreditation of nursing programs.
Chapter II

DESIGN OF THE STUDY

Overview of the Study

The study involves a two part focus. First, the study focuses on the need for the use of quantitative measurement instruments in the evaluation of nursing students' performance in the clinical area.

The second focus pertains to the possibility that the results of the evaluation of nursing students' performance in the clinical area could be used to predict future performance of students or of new graduate nurses.

The study design deals with the following three major objectives:

1. To construct a quantitative instrument to measure nursing students' clinical performance.

2. To field test the instrument's use in three nursing programs.

3. To determine if the instrument is predictive of success on the State Board Test Pool Examination (SBTPE) for Registered Nurse licensure.

METHODS AND PROCEDURES

Scale Construction

The investigator was enrolled in a class concerned with Measurement and Scaling taught by Dr. Robert Bullock, Professor Emeritus, Sociology Department, The Ohio State University. The scale used in this study to measure the clinical performance of nursing students was constructed under his direction.
PROCEDURE

1. Definition of the Variable to be Scaled

The variable (clinical performance) described below was selected for the purpose of scale construction.

Clinical Performance

Clinical performance is defined as the application of nursing skills to patients in health care agencies. Health care agencies shall include the traditional hospital as well as community clinics and mental health facilities.

The performance component shall include the following four areas:

1. Nursing process (problem solving)
2. Knowledge base
3. Interpersonal relations (IPR)
4. Technical or psychomotor skills

2. Selection of Items

The investigator wished to establish content validity by insuring as much as possible that the items in the scale were representative of behaviors associated with clinical performance evaluation. And so, the strategy used was to examine nursing students' records to glean what was actually being written as evaluative judgements of students clinical performance.

Records of 55 nursing students were read by the investigator. Each record contained from six to eight evaluations of clinical performance in the form of a written summary based upon anecdotal notes. The number of summaries read was 380 and varied in length from a short paragraph to a complete type written page.

Initially 100 statements were selected by the investigator to be arranged into a scale format. Some editing and rephrasing of the
statements was done in order to compile a pool of 50 positive and
50 negative statements.

3. Creation of the Scale Format

The 100 statements or items were placed into a Likert scale
format with five indicator responses. They are:

\begin{itemize}
  \item SA = Strongly Agree
  \item A = Agree
  \item U = Undecided
  \item D = Disagree
  \item SD = Strongly Disagree
\end{itemize}

A table of random numbers was used to position the items in the scale.

4. Editing of the Scale

This first draft of the scale was given to Dr. Bullock and to the
16 graduate students who were enrolled in the class on Measurement
and Scaling. They edited the scale. Their primary response to the
scale was that it was too long. Dr. Bullock recommended that the
number of items be reduced from 100 to 75 items. Other suggestions
dealt with minor grammar revisions.

Also, four nursing faculty members were given a copy of the scale
for editing as well as for determination of content validity. Their
response also indicated that the scale was too long. Other than for
clarification of a few terms, the four nursing faculty indicated that
the items were representative of behaviors of students' clinical
performance and that they would be able to use a scale such as this
for clinical performance evaluation.

5. Revision of the Scale

In response to the editing comments and recommendations, the scale
was revised to reflect corrections in grammar and clarification of terms.
The scale was also reduced from 100 to 75 items.

6. **Pilot Test and Sample**

Six nursing faculty members were asked to each evaluate ten nursing students using the revised scale of 75 items. The six faculty and 60 students represented three different nursing programs in the Columbus area. The 60 students who were evaluated were currently enrolled in a clinical nursing course.

7. **Scoring of the Scale**

Positive items (those behaviors that faculty considered should be demonstrated by students) were weighted 5, 4, 3, 2, 1 for indicator responses of SA=strongly agree, A=agree, U=undecided, D=disagree and SD=strongly disagree, respectively. Therefore, the more strongly the evaluator agreed with the response to a particular positive item, a greater weight was earned by the student for that item of behavior.

Negative items (those behaviors that faculty considered should not be demonstrated by students) were scored in the opposite direction. Thus, negative items were weighted 1, 2, 3, 4, 5 for indicator responses of SA=strongly agree, A=agree, U=undecided, D=disagree and SD=strongly disagree. Therefore, the more strongly the evaluator agreed to a particular negative item, a lesser weight was earned by the student for that item of behavior. The lowest possible score that could be obtained was 75. The highest was 375.

8. **The Establishment of Scale Reliability**

The responses from the 60 scales of 75 items each were scored with the most negative responses earning a value of one and the most positive responses earning a value of 5. These responses were then typed on to IBM cards and an item analysis was performed using an internal consistency analysis based on the Kuder-Richardson formula.
20 for scale reliability. This formula calculates an item reliability for each statement or item as well as an overall scale or questionnaire reliability.

Joyce Johnson and June McCabe developed the computer program for the item analysis at the College of Administrative Science, The Ohio State University and Roger Kobel revised it in 1975. The item analysis for the scale of 75 items generated an overall test reliability of 0.9762. (See Table 1) Fifteen of the 75 items were considered to be unreliable as their coefficients were 0.45 or less. These 15 items were discarded from the original scale of 75 items and a second scale reliability analysis was performed using the Kuder-Richardson formula 20. The item analysis for the 60 item scale received an overall test reliability of 0.9789. (See Table 2) This 60 item scale with a 0.97 overall reliability was used in this study to measure nursing students clinical performance.

10. **Summary of Steps in the Construction of the Scale**

1. Definition of the Variable to be Scaled (clinical performance)

2. Selection of Items

3. Creation of Scale Format

4. Editing of the Scale for Content Validity

5. Revision of the Scale

6. Pilot Test and Sample

7. Scoring of the Scale

8. Establishment of Scale Reliability

   A. Kuder-Richardson analysis for item reliability and overall scale reliability on the original 75 item scale.

   B. Kuder-Richardson analysis for item reliability and overall scale reliability of original scale, edited and reduced from 75 to 60 items.
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Overall K-R Test Reliability 0.9789
SAMPLE SELECTION

Students from three nursing programs in the Columbus area were used as the subjects in this study. One hundred twenty-three students from a Baccalaureate Program comprised Group One. Forty-five subjects from an Associate Degree Nursing program comprised Group Two and 25 students from another Associate Degree Nursing program comprised Group Three for a total N of 194.

Brief Description of the Two Types of Nursing Programs

Baccalaureate Program, B.S.N.

A baccalaureate nursing program is usually four years in length and upon completion, leads to the degree of Bachelor of Science in Nursing. Students generally are involved in two years of liberal arts education with the following two years focused on nursing studies which include the learning of nursing theory and nursing skills. Baccalaureate nursing programs prepare graduates for beginning practice as Registered Nurses as well as providing the basis for graduate study. Baccalaureate graduates practice nursing which is professional in nature and which includes the care of individuals, groups and families in a variety of health care settings.

Associate Degree Nursing Program, A.D.

An Associate Degree nursing program is usually two years in length and upon completion, leads to an Associate Degree in Nursing. This two year program of education provides studies in both technical and general education. Associate degree nursing programs prepare graduates to practice as Registered Nurses. The provision of direct technical nursing care to patients in health care settings such as hospitals and nursing homes is generally where the Associate Degree graduate nurse practices. The care of individuals with recurring and non-complex
health problems is carried out under the supervision and guidance of the more experienced and/or registered professional nurse. Graduates of both Baccalaureate Nursing Programs and Associate Degree Nursing Programs write the same SBTPS for Registered Nurse licensure.

DATA COLLECTION PROCEDURES

Instrumentation

1. Subjects in the study were evaluated by their instructor using the "Scale for Measuring Clinical Performance of Nursing Students." This evaluation occurred at the end of the particular nursing course in which the student was enrolled.

2. Subjects in Group One (total N=124) were evaluated in four areas: Sixty-three subjects were evaluated in a clinical course that dealt with Obstetric nursing and nursing of Children. These same 63 subjects were evaluated twice, but by different nursing instructors. They received a scale score for nursing of Children and another scale score for Obstetric nursing. The 61 other subjects of Group One were evaluated in a clinical course that dealt with Medical nursing and Surgical nursing. These 61 subjects, however, received only one scale score for both areas. Traditionally these areas of nursing are thought of as one—Medical-Surgical nursing and thus, clinical performance was evaluated as such. (See Data Matrix)
## DATA MATRIX

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TOTAL N=194 Subjects were counted only once, since the same subjects in Group I were measured in more than one clinical performance area.

3. Subjects in Group Two (N=45) were evaluated in a clinical course that dealt with Psychiatric nursing. Each subject received one scale score.

4. Subjects in Group Three (N=25) were evaluated in a clinical course that dealt with Psychiatric nursing. Each subject received one scale score.
5. State Board Test Pool Examination (SBTPE) scores were collected on all subjects for the following areas:

- Medical Nursing
- Psychiatric Nursing
- Surgical Nursing
- Obstetrical Nursing
- Nursing of Children

Treatment of the Data

Using SAS, Statistical Analysis System, the data were treated in the following ways:

1. A Pearson Product Moment correlation coefficient was generated between the score subjects received on the scale for a particular clinical nursing course and the scores subjects received on the five SBTPE areas. This determined the magnitude of relationship between the two sets of scores.

2. A general linear simple regression analysis was performed on the five dependent or criterion variables, SBTPE and the predictor or independent variable, measuring scale score. A one-way analysis of variance procedure was used.

LIMITATIONS OF THE STUDY

The study has the following limitations:

1. As with any measure of attitude or judgement, there will be differences in the evaluator's response to the items on the scale. Although the scale reliability is very high, differences in interpretation will always exist.

2. Halo effect could be present since the evaluator may have had the subject in previous courses and evaluation in the course pertaining to this study may be affected by what the evaluator remembers of the subject's previous performance.

3. The sample size is relatively small, since only three nursing programs are used.
Chapter III

REVIEW OF THE LITERATURE

INTRODUCTION

The first section of chapter III will focus on literature reflecting the dimensions or issues of measurement and evaluation that are significant to nursing education. The second section of the chapter will focus on literature concerned with the measurement and evaluation of the clinical performance of nursing students. Included in this will be a review of related literature concerning the evaluation of clinical performance in selected areas of allied health education.

The third section will focus on a review of studies predictive of nursing students' performance on the State Board Test Pool Examination (SBTPE) for Registered Nurse licensure. The last section of chapter III will focus on the methodology of scale construction.

MEASUREMENT AND EVALUATION

The concepts of measurement and evaluation are widely described in the literature and the dimensions of each are complex. As one considers evaluation and measurement from a general perspective, a number of factors surface, such as, the purpose and function of evaluation and measurement, the approaches to evaluation and measurement, the need or non-need for precisely defined objectives, the validity and reliability of evaluation and measurement procedures as well as the objectivity versus subjectivity concern.
As one considers evaluation and measurement from the nursing educators' perspective, there are a number of factors or issues that have significance for nursing education. One such issue is the basic difference between the two concepts, evaluation and measurement. Evaluation deals with making value judgements or decisions (Scriven, 1972 and Sax, 1974) whereas, measurement involves collecting data either of a qualitative or quantitative nature so that value judgements or decisions can be made (Summers, 1971 and Popham, 1975). Although this basic distinction may appear obvious to some, writers on the subject initially clarify this distinction before further pursuit of the topic. Schweer and Gebbie (1976) who have great interest in creative methods for teaching in the clinical area wrote that knowledge about basic differences in the concepts of measurement and evaluation would diminish the tendency of nursing instructors' use of measurement devices which are not always adequate for clinical performance evaluation. Another evaluation and measurement issue facing nursing education is one that deals with the format in which nursing courses are developed and taught. Most nursing courses are composed of a didactic as well as an application or clinical component. Generally, the didactic component can be measured by the use of some type of paper and pencil test, whereas, the clinical component cannot. The technique most widely used to measure the clinical component is that of direct observation of the student. Although direct student observation is useful for clinical evaluation, it is not without problems. This will be further described in the section regarding clinical performance evaluation.

Subjectivity in evaluation is another issue which concerns many nurse educators. Attendance at a workshop or conference on nursing
evaluation will quickly make one aware of how much time and "soul searching" is spent on this issue.

Litwack, Sakata and Wykle (1972) wrote that evaluation has a degree of subjectivity as judgements are made even though there are attempts to use well defined behavioral objectives. Scriven (1972) wrote that evaluation involves the making of value judgements which are essentially subjective. There are those who would worry that this is "unscientific." However, Scriven asserted that the process of establishing value judgements does not show it is "right" or "wrong" to hold these values; it only shows that somebody does or does not hold them. Kelly, cited by Wooley (1977) stated that evaluation is both intuitive and subjective and further suggests that recognition of this would probably reduce one's frustration and increase one's honesty in the evaluation process.

The issue of timing or when to evaluate has significance for nursing education. Nursing instructors as well as students must deal with this. The instructor is often hard pressed for time, either due to lack of planning, lack of clearly defined objectives for the clinical experience as well as lack of opportunity to observe students in specific patient care activities. Scriven (1972) dealt with the issue of when to evaluate by perceiving evaluation in terms of roles. The role of formative evaluation is operative when the entity to be evaluated is still fluid or changing or is still amenable to modification. This implies that nursing instructors should evaluate student clinical performance at different times throughout the experience. Summative evaluation is operative when the entity to be evaluated has already been completely used or demonstrated. Such as, the opportunity to describe a patients' situation is no longer available. This implies that evaluation should also occur at the end of the clinical experience.
The use of summative evaluation rather than a combination of both summative and formative provides stress for both the student and the instructor. Some nursing instructors have serious difficulty in responding to students who become frustrated and upset over final evaluation results which do not show evidence of actual student performance along with the lack of opportunity to work toward progress in specific areas. Morgan and Irby (1978) wrote, "that the teacher-learner relationship can be destroyed due to lack of recognition by teachers that learners, at all levels, need to receive feedback that is both ongoing as well as constructive and systematic."

Another issue which affects nursing education is in the area of the type of measurement which should be used in the collection of data to make evaluative judgements about students' performance. Generally, there are two broad categories of measurement. One is norm-referenced and the other is criterion-referenced. We shall first speak of norm-referenced measurement.

This type of measurement involves assessment of student performance in relationship to other persons measured by the same instrument. Popham cited by Bower (1973) spoke of "normative referenced evaluation" as comparing the performance of one individual with the performance of established norm groups.

Learner achievement can be compared to other learner's achievement in a variety of ways. Students in the same class can be compared with their peers or with students in another section of the same course. Also, student achievement can be compared to standarized test groups or to national norms such as is done with the results of SBTPE.
There are a number of common measuring devices used in norm-referenced measurement. The aptitude test, ratings, performance test, achievement tests and other paper and pencil tests of ability are but a few.

Norm-referenced measurement has been in use for a long time and there are some obvious advantages to this measurement focus. Bower (1974) suggested that it is useful in predicting potential success or failure since most evaluative systems are norm-referenced and use the classic bell shape distribution curve for interpreting test results. Also, norm-referenced measurement involves competition for the learner. For some this is seen as an advantage if competition promotes motivation.

A disadvantage seen by Bower in norm-referenced measurement is that of the sense of failure students feel when they are judged against their peers.

Popham (1975) spoke of the "defects" of norm-referenced measurement. One such defect is the considerable lack of congruence between what the test measures and what is stressed or taught in the particular curriculum. Commercial testing firms design their tests to serve the entire nation. What one region such as the Mid-West stresses in curricula, can differ from what is stressed on the West Coast. Nursing faces a similar problem. To some, the SBTPE seems to be focused on the medical model—or disease orientation to nursing care, rather than on an orientation to nursing care based on individual patient needs. The SBTPE cannot always represent what nursing knowledge is being communicated and learned in different nursing curricula throughout the nation.

Criterion-referenced measurement, according to Gronlund (1976) concerns the measuring of performance by judging the individual's behavior against specific criteria. During the past decade there has
been a shift from norm-referenced to criterion-referenced testing in educational programs. As a result of this, commercial test writers and publishers have produced and marketed a considerable amount of criterion-referenced testing materials.

Medical schools and areas of allied health have been attracted to this measurement strategy and are incorporating it into their programs. Some nursing programs are moving toward criterion-referenced measurement. Bower (1974) uses a mixed strategy in her nursing program. Krumme (1975) advocated the use of criterion-referenced measurement especially for clinical performance evaluation rather than norm-referenced.

Berk (1980) in reviewing the beginning stages of research in criterion-referenced measurement indicated research was sparse and done independently during the 1960's and 1970's; thus the problem of terminology again arises. Other terms used to refer to "criterion-referenced test" are competency-based test, proficiency test, and mastery test. These terms will be found interchanged in the literature.

One advantage of criterion-referenced measurement over norm-referenced measurement is that test specifications for content domains, or what the learner is supposed to be able to do, are more clearly defined. Also, the meaning of a score has a different connotation. The score is no longer compared to others' achievement. But rather, the score indicates whether or not the learner has met the criteria of performance.

A disadvantage seen in criterion-referenced testing is that it takes away creativity from test writing due to its rigidity in defining content. And also, competency-based learning suggests that everyone will come out "doing the same thing" or "looking the same."
The decision to make the change from norm-referenced to criterion-referenced measurement is one that indeed requires a lot of thought and planning by educators and evaluators of nursing education. The decision to change is by no means an insignificant one.

Along with the issue of what type of measurement should be used, the question or issue of specific instrumentation or devices to collect data is significant to nursing educators. Granted, part of this question can be answered by making the decision to use norm-referenced or criterion-referenced measurement. However, the fact that there are so many measuring devices available and that nursing seems to have sampled a great many of them, gives little comfort or support to those who are still hoping to find "just the right one". The recognition that a variety of measurement devices have been developed and are in use will be more clearly identified in the section concerning evaluation of clinical performance.

In summary, issues or concerns of measurement and evaluation which are significant to nursing education are, the differences between the concepts of measurement and evaluation, the format in which nursing courses are developed and taught (didactic and clinical component), the subjectivity of evaluation, the use of direct observation as a data collection technique, the timing of evaluation and its affect upon teacher-student relationships, the type of measurement to be used, as well as the use of specific instrumentation or measurement devices.

In the review of literature which follows concerning evaluation of nursing students' clinical performance, it will be shown that clinical evaluation also has specific concerns or issues for nurse
educators. Some of these include the nature of the clinical agency, the responsibilities of faculty involved in clinical teaching, the use of observation as a primary technique for data collection and the variety of approaches used for clinical evaluation performance.

**EVALUATION OF CLINICAL PERFORMANCE**

A brief look into the history of American nursing education reveals that the clinical performance component or what students commonly call, "clinical" was a most substantial part of nursing education. And, it remains so today. The first nursing schools in the United States were established between 1872 and 1873. Among these were, The Johns Hopkins School of Nursing in Maryland, Bellevue in New York and Yale in Connecticut. They were patterned after Florence Nightingale's plan of education and were known as the "Nightingale Schools." These schools were either affiliated with or under the aegis of a hospital. According to research done by Barritt (1971) on Florence Nightingale's values on nursing education, "nurses were trained to train" and as such, the status of nursing education was apprentice in nature. Therefore, the clinical component or clinical experience involved students' learning at the bedside from a more experienced nurse. In Miss Nightingale's school of nursing, St. Thomas, London, England the more experienced nurse was usually the superintendent of the school. She was responsible to the hospital, the patients, and to the students she was helping educate.

These early beginnings focused the concept of nursing education as "nurses training" in a work type setting rather than nursing education in an academic environment. Also, the work type setting of apprenticeship dictated the sending of students into homes to provide nursing care.
This has rudiments of public health or community nursing as we know it today. However, in exchange for the student going into the home to nurse, a fee was collected by the hospital.

Since early schools were affiliated with well established hospitals, the amount and variety of experiences for students were in abundance. However, a conflict of interests arose between the hospitals and the nursing schools. Hospitals felt that the primary interest of nursing schools should be to provide improved nursing service to patients. But nursing schools saw as their primary goal, a well prepared graduate nurse. It is interesting to note that this conflict of interests has not yet been settled today.

In an attempt to move away from this service oriented and apprenticeship characteristic, The Johns Hopkins School of Nursing re-routed nursing instruction into the classroom. Along with this, a few "nursing arts" instructors were hired on a full time basis to teach nursing procedures. The primary mode of instruction was demonstration on the instructor's part and practice on the student's part. Most schools of nursing had moved their instruction into the classroom by 1915, allowing students to practice their nursing skills without trauma to the patient.

Ward or unit teachers, head nurses and teaching supervisors were appointed to supervise students on the hospital units and to correlate theory and practice more closely. It was felt that clinical instruction could be accomplished by cooperation between the classroom instructors and ward or unit personnel.

So, historically the clinical instructor of nursing has moved from bedside to classroom to a combination of bedside and classroom. This is the pattern seen today; the clinical instructor moving between
the classroom and bedside in our nursing schools, of which a clinical teaching program is an integral part. This clinical teaching program has as one of its major responsibilities the evaluation of the clinical performance of its nursing students.

The clinical laboratory (health care agency such as the hospital) is still the primary setting used in the teaching-learning process of nursing. The clinical laboratory as well as the clinical instructor's function has become very complex. In considering the clinical instructor, one wonders how she is affected by her self expectations as well as the expectations of her students. Too often the clinical instructor is expected to be "all knowing, all giving and all doing." Iafolla (1969) suggests that the nursing instructor has been expected to, "embody the clinical expertise of a nurse specialist, the theoretical mastery of a professorial academician, the teaching artistry of a classroom methodologist, and, not infrequently, the counseling competence of clinical psychologist." Of course, these expectations are highly unrealistic and have implications for both the student and instructor in the evaluation process.

On the other hand, Jourard (1964) has challenged the "genuineness" of nursing instructors when he stated, "Many nurses go into nursing education because they cannot stand nursing patients." Another person to question the genuineness of the instructor was Quint (1967) when she stated, "The nursing model of the therapeutic agent is a theoretical model prescribed by the teacher but infrequently demonstrated by her." Barritt (1971) found in her research that according to Miss Nightingale, faculty were to be role models.

A look at some characteristics of the clinical nursing laboratory or the hospital unit, and how these relate to the instructor's
responsibilities seems necessary. Little and Carnevali (1972) suggested that laboratory courses exist, "side by side" and there are factors in the clinical nursing situation which allow for stresses and responsibilities which are not present in either theory or laboratory classes. They have defined the following as components in the clinical instructor's teaching role:

1. Preparing the environment and the student for the learning experience.
2. Facilitating learning during the experience.
3. Follow-up, including evaluation and modification of planning for subsequent learning experiences.

The above can be seen as both ideal and paramount to quality instruction of any type or in any setting. One has to further look to the complexities and the dynamics of the clinical setting and how this affects the instructor's ability to function both as a facilitator of learning as well as the evaluator of students' clinical achievement.

Little and Carnevali (1972) also wrote that before embarking upon the first day of clinical study, the nursing instructor must consider a number of factors and or questions such as, (1) The distance from the school to the clinical laboratory and (2) Will the data needed by she and the students for patient assignments and nursing care plans be easily obtained? (3) What resources are available to the instructor such as adequate library facilities and other teaching resources? (4) Will she have to "pack with her" needed resources? (5) The nursing instructor also needs to consider the type and number of patients available to students as well as the size and physical layout of the unit where patients are hospitalized. And so, much planning has to be done long before nursing students go off to "perform clinically."

Assuming that the instructor is fairly well equipped with answers
to some of these questions, there are still unique stressors in the clinical nursing unit, which can impede the instructor's facilitation of student learning. Although hopefully, she continues to strive to formulate questions that will increase the students' perception of the situation, and is involved in decisions of when to help and when to deny help to the student, the clinical instructor is dealing with students who have high risk responsibility which can be overwhelming. In a very short time after entrance into the clinical component of nursing, the neophyte nursing student can be dealing with the critically ill and or dying patient. In this, stress runs high for both student and instructor.

Also, like the school superintendent, nursing students' have obligations other than to themselves. Often, they are in conflict as to whom shall they owe allegiance. Do they follow hospital policy or the physician, or do they do what "their instructor wants?" Is it possible to have help from another student while caring for a patient? Would it be possible to choose their own patient or does their instructor always have to do this? For the neophyte student, these are extremely important and frustrating dilemmas which the student in the clinical laboratory can find himself. In a study by Treece (1969) about baccalaureate nursing students' opinions related to patient assignments in the clinical area, it was found that a majority (66.5%) of the sample indicated a desire to assume at least some responsibility for patient selection.

Although the clinical laboratory is indeed complex due to both human interaction among patients and a variety of health care givers, the desire to provide nursing care which is safe and appropriate to
patients remains a paramount goal for nursing educators. In order for this to be achieved, the evaluation of clinical performance of students remains a vital role of the nursing educator and a major goal of the nursing program.

The literature reveals that the evaluation of nursing students' clinical performance was deemed important from the very beginnings of nursing education. According to Barritt (1971), Florence Nightingale indicated that "each student should be continually evaluated and that the quality of the program could be measured by the success or failure of the graduates." Again, Barritt (1971) in her study of Miss Nightingale's values about education indicated that "graduates were to be certified by the matron or faculty—not by an outside body of independent examiners." Gilman (1921) in her article from Hospital and Training School Administration, reported on "Efficiency Records for Student Nurses". She stated the following:

"In some of the schools of nursing throughout the country there exists a system of checking up the practical work of the student nurse in a very definite way which results, not only in a more complete record for the files of the school, but which gives the student an idea of the quality of work she is doing, what her weak points are, and which encourages her to put forth her best effort for a better showing. This system is called the Students' Efficiency Record."

"This sheet goes to the ward with the student nurse; every treatment which she gives is recorded upon it, a general summary being made of her executive ability, reliability, neatness, etc. On the reverse side are printed the professional qualifications and those of personal fitness, given in detail."

This was seen as a much improved evaluation system and replaced the Nurse Record Card" previously used.

Eickman (1934) in an article describing her research on "Rating Student Practice Objectively" reported about a scale which she constructed in order to measure students in the following areas:
She called this the Experimental Objective Scale and reported a high reliability of 0.89. The areas are similar in some ways to the present SBTPE.

Not only does the literature indicate that evaluation of clinical performance was seen as important in the beginnings of nursing education, it also reviews a multitude of approaches to this task. One wonders if this does not help reinforce the confusion and frustration that exists among those responsible for evaluation of nursing students.

A method frequently used in the evaluation of nursing students is that of direct observation. Observation becomes an essential technique in the evaluation of nursing students' clinical performance because behavior can be recorded as it occurs.

According to Sellitz, et al (1966) observation is a scientific technique to the extent that it:

1. serves a formulated research purpose.
2. is planned systematically.
3. is recorded systematically.
4. is subjected to checks and controls on validity and reliability.

Medley and Nitzel (1964) in describing observational technique used to measure classroom behavior, wrote that the what is to be observed can create problems. In speaking about the preservation of reliability and validity in observational procedures, they thought unreliability occurred due to lack of agreement among observers as
well as the fact that different items to be observed lack consistency. Along with this, they indicated that validity would probably be preserved if, "a representative sample of behaviors are observed, if accurate records of the observed behaviors are kept and if the scoring or tallying of records is done so as to reflect differences in behavior."

The reliability of the instrument used to record observations is of concern to clinical instructors. The question of does the instrument measure what it is supposed to measure can create confusion and inaccurate evaluative judgements if the instrument is not reliable.

While observing behaviors and then recording or rating these behaviors, the possibility for error in rating always exists. Some errors pertain to leniency and frugality in rating. In some instances raters tend to rate those being rated either very high, while other raters, rate individuals very low. Also prejudice can occur among some raters. Projection of the rater's dislike for particular student's dress style, hair style or dislike of male students can occur. Errors of bias can occur when one rater gives greater weight to one attribute than to another. For instance, some nursing instructors might feel that the physical care of patients is much more important than the emotional care and thus rate students accordingly. And of course Halo effect is commonly present. An individual who is known to have positive traits of calmness and pleasant affect can be rated high in an area such as inter-personal communications even though he or she may have only minimally met the objectives or performance standards in that area.

Observation of students in the clinical setting according to Litwack, Sakata and Wykle (1972) is advantageous because the instructor
is readily available to give assistance to the student if he or she becomes involved in a difficult situation. However, Komorita (1965) found in her research on students' opinion about evaluation and supervision that as long as the instructor was not continually watching them or "breathing down their necks", the students liked having the instructor available. Some students seemed to feel however, that someone was always watching them.

Strang (1949) wrote that the process of observation could be delineated into a number of steps which include, (1) decide on the kinds of significant behavior that may be observed in a given situation, (2) get a good vantage point for observing the individual—for noting both the exceptional and typical behavior, (3) record the significant behavior either at the time or immediately after observation, (4) record exact descriptions of behaviors—avoid reading own feelings into what was observed, (5) avoid interpretation of observations.

The complexity of the clinical situation makes it next to impossible to observe students in such a step wise fashion. Common problems which arise deal with (a) what student to observe and at what time, (b) how much time can the instructor spend observing a particular student—high instructor-student ratio dictates that the time will probably be short, and (c) what is the best course of action to take when an emergency patient situation occurs and the observation of student performance is interrupted. Along with these concerns is the frequent occurrence of having one's patient "whisked" off the unit to the X-ray department or cardiology clinic just when the nursing student and instructor are deeply involved in specific nursing intervention for that patient. The question of what to observe in that particular student-patient situation is now clearly not the same.
In answer to the problem of what is to be observed, Schweer and Gebbie (1976) stated that, "while the clinical nursing setting provides unlimited opportunity for observation, this does not automatically assure one's ability to become skilled in making selected observations." For certain, it is impossible to observe everything, although nursing instructors find themselves caught up in this dilemma.

Another approach to the evaluation and measurement of nursing students' clinical performance is that of the Critical Incident Technique. This technique developed by John C. Flanagan has as its basis, observation. During World War II observation of effective and ineffective behaviors of aviation personnel were recorded to determine the requirements needed to be selected for certain wartime jobs. These behaviors were analyzed and categorized and then used as critical job elements. The work of Flanagan gave impetus to the development of the Critical Experience Record for Nursing Students described by Flanagan, Gosnell, Pivars (1965). This critical incident approach based on actual observations of nursing behaviors is seen as highly useful for evaluation as the facts of observation rather than opinions or interpretations of what has been observed are recorded. Although subjectivity in evaluation is difficult to avoid, it is felt that the critical incident technique does minimize subjectivity.

O'Shea (1967) developed a guide for the evaluation of clinical performance. Her guide is based on broad principles that can be applied to a variety of patient care situations rather than focusing on specific details of procedures or diseases. The behaviors to be considered for evaluation of clinical performance are arranged in a table format consisting of Table I, The Student Performs in a Safe Manner, Table II, The Student Understands the Reasons Underlying
Patient Care, Table III, The Student Develops Patient Centered Relationships and Table IV, The Student Possesses Personal and Intellectual Qualities Important to Nursing.

Scales for the use of evaluating clinical performance are well represented in the literature. The Slater Nursing Competencies Rating Scale (1967) is an 84 item instrument in which the evaluator is asked to compare the individual's performance with some kind of ideal representation of the "best nurse" or "average nurse" or "poorest nurse". The scale has a five point range used to indicate the position on the scale of the one being evaluated, based on a comparison by the evaluator of those nurses identified by the evaluator as best, average, or poor in performance. Wandelt (1970) developed a scale patterned after the Slater Scale. Nursing performance is evaluated according to the quality of nursing care given such as best care or average care. The Slater Scale and the Wandelt Quality Care Scale seem to be focused toward the evaluation and measurement of nurses' performance as opposed to the clinical performance of nursing students. Rines (1963) suggested that not only should nursing students behaviors be observed and recorded in a variety of ways, but that these behaviors (learner behaviors) should not be used as a comparison of graduate nurse behaviors.

Moritz and Shield (1970) developed a scale to appraise behavior in five areas which includes interpersonal relations, communication, planning, implementation and evaluation.

A method of evaluation used by some nursing educators for clinical experience is that of student self-reports. This type of activity involves the student recording in some fashion, what actually occurred during the clinical experience.
Since learning occurs for both the student and instructor, some nursing instructors engage in the practice of having students assume some of the responsibility for their clinical evaluation. Palmer (1965) described a method in which students are required to write anecdotal records or notes as a part of their self evaluation. During their course in medical-surgical nursing, at least one anecdote in writing was required each week that focused on such areas as communication, personal feelings and student-patient interaction. An interesting result of this was that some students became aware that they really were not suited for nursing. Hamm and Hartsfield (1970) in their research on motivation of learning in psychiatric nursing found that the self-reporting of students' reaction to the clinical experience every week identified behaviors in instructors that students' felt decreased their motivation to learn.

While reviewing the literature on evaluation of clinical performance, it was realized that nursing was not alone in its search for solution to problems in the measurement and evaluation of students. The Allied Health Professions are also involved in similar problems. They too are looking for that one "better" way or method to deal with evaluation of their students. Slaymaker (1978) in her research on evaluation of occupational therapy students, indicated that "observation has traditionally been used to evaluate clinical competence." The first attempt for a standard procedure to evaluate occupational therapy students was realized in 1953. At this time an instrument was developed titled, "Report of Performance In Student Affiliation (RPSA). A rating scale format was used in which 66 behaviors were to be rated on a six-point scale ranging from failing to excellent. This scale was used until 1973 at which time an official performance evaluation tool of the American Occupational Therapy Association was adopted.
This evaluation instrument is called, The Field Work Performance Report (FWRP).

Bemis, et al (1970) described in their research about the clinical evaluation of Physical Therapy students, an instrument developed using the forced-choice method of response. The areas for student evaluation include, patient evaluation, program planning, implementation of treatment program, inter-personal relations and professional behavior.

Lynch (1977) developed a behaviorally anchored rating scale for the evaluation of student performance in Medical Technology. Behaviors were gleaned from critical incident reports and expected behaviors perceived by medical technology programs.

Synder and Willis (1980) used the process skills approach in the development of an instrument for evaluating clinical performance in allied health settings. Process skills approach for their research involved the consideration of the interaction of two or more behavioral domains, rather than separate evaluation of the cognitive, psychomotor and affective domain.

The literature suggests that many programs in the allied health fields have moved their evaluation methods from the traditional use of anecdotal notes based on observation to a less cumbersome form of measurement instruments such as rating scales which are hopefully unique to specific allied health programs.

**PREDICTION OF STATE BOARD PERFORMANCE**

One of the objectives of this study was to determine the instrument's ability to predict performance on the SBTPE for Registered Nurse licensure. According to Michael (1969) "prediction represents an effort to describe what will be found concerning an event or outcome
not yet observed on the basis of data or information considered to be relevant to this unobserved event." Lavin (1965) in his book, *The Prediction of Academic Performance*, provides an extensive review and analysis of studies concerning prediction of academic performance. He includes not only intellective factors as predictors, but also delves into personality as well as sociological factors as predictors.

However, for the purpose of this study, the investigator will deal with the literature that speaks to the prediction of performance or success on State Board Test Pool Examination for Registered Nurse licensure.

To reiterate, it is the investigator's opinion, that the results of clinical performance evaluation should be used in ways significant to nursing education. And, one such use of clinical performance evaluation results could be in the prediction of performance on the SBTPE. In reviewing the literature on studies predictive of performance on SBTPE, little was found involving clinical evaluation performance as a predictor. However, one study indicated a need for this. Ledbetter (1968) in her research on SBTPE of graduates of selected baccalaureate nursing programs studied the relationship between the National League for Nursing Achievement Tests (NLN), ACT and the SBTPE. A very interesting finding was that the achievement of nursing students on the NLN achievement tests and the SBTPE sub tests was different from their clinical performance evaluation as determined by faculty members of the nursing program. According to this study then, the NLN achievement test and the SBTPE have little relation to clinical evaluation. What implications do these findings have for the SBTPE and clinical evaluations by faculty members? Litwack, Sakata and Wykle (1972) wrote
that "there is a strong need for additional research to verify Ledbetter's results."

The study, "Examining the Validity of the State Board Test Pool Examination for Registered Nurse Licensure" published in 1979 by the Council of State Boards of Nursing, American Nurses' Association used written clinical simulations to investigate whether the SBTPE measures only recall of knowledge or a combination of knowledge recall as well as application of this knowledge in clinical decision making. The results of the study indicated that the subjects' scores on SBTPE were highly correlated with the written clinical simulations in all content areas of the SBTPE except Psychiatry. Also, the findings of this study indicated a high correlation between grades in clinical courses and SBTPE. However, again Psychiatry was an exception with a low correlation. These results support the validity of SBTPE especially where measuring of clinical performance ability is concerned. Also, these results then challenge Ledbetter's findings (1968) that clinical performance evaluation results and SBTPE performance are unrelated.

Michael, et al (1965) in a study about success in nursing school indicated that there was a need to evaluate "nursing performance in the wards" as well as cognitive and non-cognitive variables.

Muhlenkamp (1971) in her research concerning prediction of SBTPE scores in a baccalaureate nursing program found that the grade point average in the seventh semester of study was the best predictor of SBTPE performance. And Papcam (1971) studied the use of the NLN achievement tests as a predictor of SBTPE performance in an Associate Degree nursing program. She found that the best predictor was the NLN comprehensive achievement test in Maternal and Child Nursing.
Burgess (1969) in his research on prediction of success among students in collegiate nursing programs reported that pre-nursing GPA was the best single significant predictor. Shelley, et al (1976) reported that the NLN achievement test scores are still significant predictors of student performance on SBTPE. Research by Baldwin, et al (1968) indicated a relationship between theory course grades and NLN test scores and reported these scores could be used for predicting SBTPE performance. Deardorff, et al (1976) used NLN achievement test scores to formulate regression equations for prediction of performance on SBTPE. Their prediction equations were validated empirically as they found a correlation between predicted SBTPE scores and actual scores achieved on SBTPE by the subjects in their study. Outtz (1979) in her study concerning the establishment of predictors of success on SBTPE for Blacks, reported that college cumulative GPA was the best predictor of SBTPE and that the SAT-Verbal examination was found to be the second best predictor of success on SBTPE.

The literature as identified here lends support to the concern nursing educators have regarding their programs' graduates performance on the SBTPE.

**METHODOLOGY OF SCALE CONSTRUCTION**

The use of scales or scaling procedures is very much a part of the measurement process. According to Maranell (1974) scaling and measurement are important especially to behavioral scientists and other researchers because (1) scientific research involves measuring or scaling the same property in all the units, subjects or phenomena being studied (2) scaling and measurement are important to the development of science in that they provide standardization, and thus research
can be replicated (3) scaling as part of measurement provides for increased precision and (4) scaling and measurement can increase conciseness.

There are a variety of procedures or methods available for scale construction. What type scale one wishes to construct or use is dependent upon what one wants to measure. Thurstone (1960) referred to "subjective measurement". His contribution to scale development has been substantial as represented in his techniques to study food preferences, attitudes toward the church and war as well as social values. His scales were constructed using an equal appearing intervals technique.

Likert (1932) also developed scales to measure subjective phenomena. He specifically was concerned with the measurement of attitude and opinions. The Likert scale is considered a summated rating technique as it involves the summing of weighted responses.

The Remmer's Master-Type Scales were developed to measure attitudes toward a class or category of objects such as vocations or institutions.

The Guttman scales also deal with the measurement of attitudes but the main purpose of Guttman scales is to determine if the attitude being studied has more than one dimension.

One of the objectives of this study was to construct a Likert type scale. The major reason for choosing the Likert technique was due to the advantages inherent in such a technique. According to Remmers, et al (1965) the advantages are: (1) construction time is relatively short, (2) requires no judges such as is necessary in the Thurstone technique of equal appearing intervals in which judges are asked to sort into categories, statements concerning opinions about an object, according
to equal steps or points on a continuum of favorability, (3) can be rapidly scored (4) validity and reliability of obtained results are quite comparable as those obtained on Thurstone scales. Another advantage of the Likert scale is that it is easily administered.

In chapter II, the investigator described the procedural steps that were used in the construction of the scale for this study and so this will not be again described here. However, the theoretical basis of the Likert scale construction technique as described by Likert (1932) will be discussed. The selection of statements was a primary concern for Likert in that he insisted that the statements should express desired behaviors rather than facts. Statements should also avoid ambiguity by having a high degree of clarity and conciseness. Statements should be equally distributed along either end of the continuum and these statements should be worded so that individuals with differing viewpoints toward what is being measured will respond differently.

Likert also advised that the number of statements selected for the scale should be more than will probably be used, because after item analysis, many items will not be reliable and will need to be discarded.

The statements should next be placed in a scale format with the assignment of a numerical value to each statement or item. Likert suggested using a 5 point scale with the value of one assigned to the negative end of the scale and the value of five assigned to the positive end of the scale.

At this point in the scale construction process Likert states, "it is quite immaterial what the extremes of the attitude are called; the important fact is that persons do differ quantitatively in their
attitudes, some being more toward one extreme, some more toward the other."

The scale should then be administered to a pilot or sample group for purposes of measuring the specific attitude or value.

Likert then suggested that a determination must be made as to the differentiating of statements. An item analysis procedure is used for this. Those items that do not differentiate should be discarded from the scale.

According to the results of the item analysis, items can then be selected for use in the final form of the scale.

A shorter version of the Likert Scale construction technique is found in Attitude Measurement, G.F. Summers (ed.) 1970. This summary of steps includes the following:

1. Specification of attitude variable to be measured.

2. Collection of a wide variety of opinions relating to the specified attitude variable.

3. Editing this material and developing attitude scale items where the general form of the response is strongly approve, approve, undecided, disapprove, strongly disapprove.

4. Administer the items to a population of respondents.

5. Score the items by rating the response reflecting the most favorable attitude as 5 and the least favorable attitude 1, making possible a score on each item of 1, 2, 3, 4, or 5.

6. Select a high and low group on the basis of total scores and through item analysis determine the 20 or so items to be used in the final test.

7. Elimination of ambiguous and irrelevant items can be accomplished during steps 5 and 6.

In general, the Likert technique of scale construction was used in the construction of "A Scale for Measuring Clinical Performance of Nursing Students", which was used in this study.
SUMMARY AND DISCUSSION OF THE LITERATURE

An attempt was first made to identify some of the dimensions of evaluation and measurement. Next issues of concern of nursing education regarding evaluation and measurement were discussed. Next the nature of clinical performance was described as well as methods and approaches used in the measurement and evaluation of nursing students. Also identified were similar evaluation methods used among selected allied health professions. The use of clinical evaluation results for prediction of SMTPE was next considered with a review of literature pertaining to prediction of success on SMTPE. And finally, scale construction with specific attention focused on the Likert technique was reviewed.

The literature in these areas points out a number of relative factors for this study. The problems of measurement and evaluation as well as the positive aspect are shared by most academic disciplines.

The evaluation of nursing students however does present a more complex problem in the area of clinical performance because of the high-stressors and complexity of the clinical environment. However, students and faculty in allied health probably are subjected to similar stressors. It should be emphasized though, that nursing education is one of the few educational programs in which students function in the clinical area from almost the very beginning of their nursing program and continue in clinical placements till the end of the program.

And so, not only are the stressors great, but they can be continuous for the nursing instructor and student.

In reviewing the literature on predictive studies, the investigator is reinforced in her opinion that there is an implicit goal of nursing
programs which is to "insure students pass State Boards." It should also be emphasized that very few professional programs rely on outside examiners to license their graduates. Law, Medicine, Dentistry and Nursing are among this group. And so, the passing of the "Bar" or the "Boards" is emphasized either directly or indirectly. Almost every piece of research reviewed by the investigator immediately spoke to this need.

The use of norm-referenced versus criterion-referenced measurement does seem to be in flux as far as nursing education is concerned. It appears that some programs are taking steps in the direction of criterion-referenced measurement, but a great deal of the literature suggests that nursing, in general, is still clinging to norm-referenced strategies.

The review of literature on scale construction, although quite extensive, reveals an interesting phenomenon especially in the areas of allied health. A measurement device used very frequently is that of a rating scale of some type. Perhaps they learned much earlier than nursing that the writing and keeping of anecdotal notes is very time consuming. Nursing seems to continue to use a variety of "almost anything." It was also interesting to note that occupational therapy programs have adopted one instrument as official in the evaluation of their students.
Chapter IV

RESEARCH FINDINGS

The results reported in this chapter are organized around the three objectives of this study which are:

1. To construct a quantitative instrument to measure nursing students' clinical performance.
2. To field test the instrument's use in three nursing programs.
3. To determine the instrument's predictive validity as measured by performance on the State Board Test Pool Examination (SBTPE) for Registered Nurse licensure.

The data are organized into two sets; one, data describing the total samples' scores on the instrument and the SBTPE using measures of central tendency and variability and two, data obtained as a result of statistical procedures used to determine the predictive validity of the instrument. The construction of the scale and the establishment of scale reliability has already been described in Chapter Two and the reader is referred back to that chapter, which includes Table 1 and Table 2.

SUBJECTS' CLINICAL EVALUATION PERFORMANCE AND SBTPE PERFORMANCE

The subjects in this study were 194 nursing students from three nursing programs in the Columbus area. Group One consisted of 124 subjects, Group Two consisted of 45 subjects and Group Three consisted of 25 subjects. Scores were obtained for each subject on the five
sub-tests of the SBTPE. These are, Medical Nursing, Psychiatric Nursing, Obstetrical Nursing, Surgical Nursing and Child Nursing. Each subject was evaluated clinically through the use of the instrument developed by the investigator. Clinical evaluation performance scores were obtained on subjects enrolled in specific nursing courses which dealt with selected sub-test areas of the SBTPE.

The means and standard deviations for clinical performance evaluation scores and SBTPE scores by groups are presented in Tables 3, 4 and 5. In Table 6 are presented the means and standard deviations for clinical performance evaluation scores and SBTPE scores for total groups.

In examining these descriptive statistics for each of the three groups, one can first see the scale means for the three groups had a range of 29.93, the lowest mean was 222.28 belonging to Group Three and the highest, 258.2 belonging to Group One.

Standard deviations for the three groups had a range of 26.83 of which the lowest was 15.09 for Group Two and the highest, 41.92 for Group Three.

For the three groups, as the mean scale score drops and the standard deviation becomes expanded or more spread out, a higher correlation is produced between scale scores and SBTPE.

These data indicate that much of the statistical significance seems to be coming from one group, Group Three, a two year associate degree program. This group also comprises the smallest among the three groups (N=25).

A possible explanation for this groups' performance may deal with the fact that Group Three subjects were evaluated by the same instructor.
TABLE 3

Means and Standard Deviations of Clinical Performance Evaluation Scale Score and State Board Test Pool Examination (SBTPe) Scores.

Group One (N=124)

Baccalaureate Nursing Program

<table>
<thead>
<tr>
<th>Measurement Device</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Scale</td>
<td>258.21</td>
<td>22.67</td>
</tr>
<tr>
<td>Medical Nursing - SBTPe</td>
<td>495.91</td>
<td>98.19</td>
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<tr>
<td>Psychiatric Nursing - SBTPe</td>
<td>514.02</td>
<td>86.65</td>
</tr>
<tr>
<td>Obstetrical Nursing - SBTPe</td>
<td>531.35</td>
<td>35.60</td>
</tr>
<tr>
<td>Surgical Nursing - SBTPe</td>
<td>519.89</td>
<td>94.25</td>
</tr>
<tr>
<td>Child Nursing - SBTPe</td>
<td>528.50</td>
<td>83.11</td>
</tr>
</tbody>
</table>
Table 4


Group Two (N=45)
Associate Degree Nursing Program

<table>
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<tr>
<th>Measurement Device</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Scale</td>
<td>230.53</td>
<td>15.09</td>
</tr>
<tr>
<td>Medical Nursing - SBTPE</td>
<td>465.82</td>
<td>100.76</td>
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<tr>
<td>Psychiatric Nursing - SBTPE</td>
<td>487.73</td>
<td>115.29</td>
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<tr>
<td>Obstetrical Nursing - SBTPE</td>
<td>447.55</td>
<td>115.23</td>
</tr>
<tr>
<td>Surgical Nursing - SBTPE</td>
<td>485.44</td>
<td>102.69</td>
</tr>
<tr>
<td>Child Nursing - SBTPE</td>
<td>460.82</td>
<td>99.62</td>
</tr>
</tbody>
</table>
Table 5


Group Three (N=25)

Associate Degree Nursing Program

<table>
<thead>
<tr>
<th>Measurement Device</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Scale</td>
<td>22.28</td>
<td>41.92</td>
</tr>
<tr>
<td>Medical Nursing - SBTPE</td>
<td>484.24</td>
<td>89.93</td>
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<td>Psychiatric Nursing - SBTPE</td>
<td>545.12</td>
<td>99.23</td>
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<tr>
<td>Obstetrical Nursing - SBTPE</td>
<td>490.00</td>
<td>97.25</td>
</tr>
<tr>
<td>Surgical Nursing - SBTPE</td>
<td>484.20</td>
<td>77.41</td>
</tr>
<tr>
<td>Child Nursing - SBTPE</td>
<td>533.92</td>
<td>86.91</td>
</tr>
</tbody>
</table>
Table 6


Total Groups (N=194)

<table>
<thead>
<tr>
<th>Measurement Device</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Scale</td>
<td>246.95</td>
<td>29.23</td>
</tr>
<tr>
<td>Medical Nursing - SBTPE</td>
<td>489.21</td>
<td>96.72</td>
</tr>
<tr>
<td>Psychiatric Nursing - SBTPE</td>
<td>511.54</td>
<td>97.22</td>
</tr>
<tr>
<td>Obstetrical Nursing - SBTPE</td>
<td>506.58</td>
<td>100.57</td>
</tr>
<tr>
<td>Surgical Nursing - SBTPE</td>
<td>507.30</td>
<td>95.36</td>
</tr>
<tr>
<td>Child Nursing - SBTPE</td>
<td>513.50</td>
<td>91.92</td>
</tr>
</tbody>
</table>
who indicated she knew the students very well. Also, Group Three means on SBTPE scores were the highest among the three groups of subjects in three areas. They are, Psychiatric, Surgical, and Child Nursing.

In Groups One and Two, each subject was not evaluated by the same instructor as the courses in these programs were team taught and so each instructor evaluated a portion of the total number of students in the course. Depending on the course, three to four instructors could have evaluated a portion of the number of students in the course.

**INSTRUMENT PREDICTIVE VALIDITY**

In order to determine the degree of relationship between the independent variable, scores on clinical evaluation performance, and the dependent variable, scores on SBTPE, a Pearson Product Moment correlation coefficient was generated for each group. The results of this analysis for Group One indicated that the correlation coefficients between the scale score and all five sub-tests of the SBTPE were too low to reach statistical significance at the .05 level. These results are presented in Table 7.

The results of the correlational analysis for Group Two also indicated that the coefficients between the scale score and all five sub-tests of the SBTPE were too low to reach statistical significance at the .05 level. These results are presented in Table 8.

For Group Three (Table 9) correlational analysis results indicated statistical significance at the .05 level in three of the SBTPE sub-tests. They are Obstetrical Nursing, Surgical Nursing and Child Nursing.

The intercorrelation between the clinical evaluation scale and the SBTPE in Obstetrical Nursing is accounting for 15 percent of the
Table 7

Correlation of Clinical Performance Evaluation Scores with State Board Test Pool Examination Scores

<table>
<thead>
<tr>
<th>Group One N=124</th>
<th>Medical Nursing</th>
<th>Psychiatric Nursing</th>
<th>Obstetrical Nursing</th>
<th>Surgical Nursing</th>
<th>Child Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Score</td>
<td>-.01</td>
<td>-.06</td>
<td>.01</td>
<td>.03</td>
<td>.01</td>
</tr>
</tbody>
</table>
### Table 8

**Correlation of Clinical Performance Evaluation Scores with State Board Test Pool Examination Scores**

<table>
<thead>
<tr>
<th>Group Two N=45</th>
<th>Medical Nursing</th>
<th>Psychiatric Nursing</th>
<th>Obstetrical Nursing</th>
<th>Surgical Nursing</th>
<th>Child Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Score</td>
<td>.09</td>
<td>-.17</td>
<td>.15</td>
<td>.06</td>
<td>.10</td>
</tr>
</tbody>
</table>
Table 9

Correlation of Clinical Performance Evaluation Scores with State Board Test Pool Examination Scores

<table>
<thead>
<tr>
<th>Group Three N=25</th>
<th>Medical Nursing</th>
<th>Psychiatric Nursing</th>
<th>Obstetrical Nursing</th>
<th>Surgical Nursing</th>
<th>Child Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Score</td>
<td>.29</td>
<td>.33</td>
<td>.36 *</td>
<td>.42 *</td>
<td>.42 *</td>
</tr>
</tbody>
</table>

* *p < .05
shared variance and is significant at .075 percent level.

The intercorrelation between the clinical evaluation scale and the SBTPE in Surgical Nursing is accounting for 18 percent of the shared variance and is significant at the .032 percent level.

The intercorrelation between the clinical evaluation scale and the SBTPE in Child Nursing is also accounting for 13 percent of the shared variance and is significant at the .032 percent level.

The above indicates a positive, but low relationship between clinical evaluation scores and SBTPE scores. These data are presented in Table 9.

The correlational analysis for total groups (Table 10) indicated that the coefficients between the scale score and the SBTPE sub-tests in Obstetrical, Surgical and Child Nursing reached statistical significance.

The intercorrelation between the scale score and the SBTPE in Obstetrical Nursing is accounting for 6 percent of the shared variance and is significant at the .0005 percent level.

The intercorrelation between the scale score and the SBTPE in Surgical Nursing is accounting for 3 percent of the shared variance and is significant at the .011 percent level.

The intercorrelation for the scale score and SBTPE in Child Nursing is accounting for 2 percent of the shared variance and is significant at the .018 percent level.

Again, the results indicate a low positive relationship between clinical evaluation scores and SBTPE scores.

In order to determine the instruments' predictive validity, simple regression analysis using a general linear model was performed. This produced a one-way analysis of variance to test significance of intercorrelations.
Table 10

Correlation of Clinical Performance Evaluation Scores with State Board Test Pool Examination Scores

<table>
<thead>
<tr>
<th>Total Groups N=194</th>
<th>Medical Nursing</th>
<th>Psychiatric Nursing</th>
<th>Obstetrical Nursing</th>
<th>Surgical Nursing</th>
<th>Child Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evaluation Scores</td>
<td>.12</td>
<td>.03</td>
<td>.24 *</td>
<td>.18 *</td>
<td>.16 *</td>
</tr>
</tbody>
</table>

* p < .05
The analysis of variance results for each of the five sub-test areas of the SBTPE are presented in Table 11 through 15. Medical Nursing and Psychiatric Nursing as indicated by the F test results did not reach statistical significance at the .05 level. However, Obstetrical Nursing reached statistical significance ($F=12.41; PR=.0005$), Surgical Nursing reached statistical significance ($F=6.58; PR=.011$), and Child Nursing was also statistically significant ($F=5.60; PR=.019$).

An attempt was made to determine if the institution contributed to the relationship. By adding institutions as an independent variable with the evaluation scale, a significant multiple correlation was not produced.
Table 11

General Linear Models Procedure
Analysis of Variance of Achievement Scores by State Board Examination
Sub Tests (Medical Nursing)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Scale</td>
<td>1</td>
<td>29209.926</td>
<td>29209.926</td>
<td>3.16</td>
</tr>
<tr>
<td>S/A</td>
<td>192</td>
<td>1776316.408</td>
<td>9251.647</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>1805526.334</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12

General Linear Models Procedure
Analysis of Variance of Achievement
Scores By State Board Examination
Sub Tests (Psychiatric Nursing)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Scale</td>
<td>1</td>
<td>1834.720</td>
<td>1834.720</td>
<td>0.19</td>
</tr>
<tr>
<td>S/A</td>
<td>192</td>
<td>1822717.362</td>
<td>9493.319</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>1824552.082</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13

General Linear Models Procedure
Analysis of Variance of Achievement Scores by State Board Examination Sub Tests (Obstetrical Nursing)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Scale</td>
<td>1</td>
<td>118518.123</td>
<td>118518.123</td>
<td>12.41 *</td>
</tr>
<tr>
<td>S/A</td>
<td>192</td>
<td>1833736.886</td>
<td>9550.712</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>1952255.009</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
Table 14

General Linear Models Procedure
Analysis of Variance of Achievement Scores By State Board Examination Sub Tests (Surgical Nursing)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Scale</td>
<td>1</td>
<td>58136.365</td>
<td>58136.365</td>
<td>6.58 *</td>
</tr>
<tr>
<td>S/A</td>
<td>192</td>
<td>1697002.691</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>1755139.056</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
Table 15

General Linear Models Procedure
Analysis of Variance of Achievement
Scores by State Board Examination
Sub Tests (Child Nursing)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Scale</td>
<td>1</td>
<td>46237.820</td>
<td>46237.820</td>
<td>5.60 *</td>
</tr>
<tr>
<td>S/A</td>
<td>192</td>
<td>1584620.679</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>1630858.499</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
Chapter V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

The evaluation of nursing students' clinical performance continues to be a major problem for nursing educators. Issues in nursing evaluation range from lack of knowledge regarding basic dimensions of measurement and evaluation, to the environment in which students are observed as well as the seeking of the appropriate or "best" instrument for data collection.

An earlier assumption was made that the process of evaluation should include the collection of data through the use of a variety of measurement instruments which are quantitative and qualitative in nature. Patterns of behavior, not isolated behaviors should be determined as a result of the evaluation process. It was also stated at the beginning of this study that the results of clinical performance evaluation should be used in significant ways other than what is presently being done. The use of clinical evaluation performance results to predict performance on the State Board Test Pool Examination for Registered Nurse licensure was seen as significant.

And so, the primary objective of this study was to develop a quantitative instrument to measure the clinical performance of nursing students as well as to determine the instruments' usefulness in prediction of State Board Examination performance.
Conclusions

The following conclusions are made as a result of the research findings in this study.

1. Of the three groups of subjects in the study, Group Three (N=25) scores indicated a low but positive relationship between clinical performance evaluation and SBTPE performance in Obstetrical, Surgical and Child Nursing. This conclusion confirms the findings of the American Nurses' Association's study (1979) that clinical performance evaluation and performance on SBTPE are related. The other two groups' scores in this study indicated that clinical performance evaluation and SBTPE performance are not related. This conclusion confirms Ledbetter's findings (1968).

2. The instrument used in this study to measure the clinical performance of nursing students has low predictive power for performance on the SBTPE. Although the intercorrelations for Group Three were low and were limited to three sub-tests of the SBTPE, this does not imply that clinical performance evaluation results as measured by other means or instruments could not be reliable predictors of SBTPE performance. This conclusion confirms the thinking of Litwack, Sakata and Wykle (1972) that a strong need for additional research in this area is needed.

3. There is an apparent lack of consensus as to what the SBTPE is actually measuring. Some would suggest that the SBTPE is measuring safe and effective practice through tests of knowledge as well as tests of application of this knowledge. Others suggest that only recall of knowledge is measured by SBTPE.
Factors Related to the Instrument's Predictive Validity

Several factors need to be considered regarding possible reasons for the instrument's low predictive power. First, one needs to ask the question, "are the two measures, clinical evaluation scale and SBTPE measuring the same thing?" According to the SBTPE validity study, American Nurses' Association (1979) both cognitive ability as well as the application of knowledge are being measured. Likewise, the scale used in this study was constructed to measure similar concepts. Since there is an overlapping of these concepts in both the SBTPE and the clinical performance scale, one would expect significant correlations to occur. However, the correlations were low. One needs to question the use of paper and pencil tests such as multiple choice questions or written simulations as the format to be used on the SBTPE to measure clinical performance ability for safe and effective practice.

A second factor for consideration deals with the instrument itself. Is it even possible to measure clinical performance using only one instrument such as used in this study? Although the scale has high internal consistency and was judged by peers to have content that was significant for measuring clinical evaluation, predictive power was limited in relation to SBTPE. In again returning to the complexity of the clinical agencies where students are observed and measurements of their performance obtained, a question arises as to the lack of standardization of procedures in health care agencies. Generally, there is no "one way" in any hospital or other health care agency of performing nursing interventions. Consequently, the perception of what is being measured is different among individual instructors as they move from one clinical health care agency to another.
Another concern about the instrument deals with the notion of what does the instrument predict. Is there another measure other than SBTPE performance that would establish greater predictive validity of the instrument? Could a reliable measure of on the job performance be used for this?

A third factor deals with the consistency of the instructor's evaluation of the subjects. The instructor who evaluated subjects in Group Three indicated that she "really knew these students." This factor regarding the instructor's knowledge of the student is pertinent for this study. As the instructor's knowledge of the student increases, does the consistency of the evaluation results also increase? And, is a subsequent increase in predictive power more likely to occur?

A fourth factor for consideration is that of the process of clinical instruction. Specifically, the expertise and experience of instructors does vary. With high costs of education, differences in length of programs and differences in course sequencing, nursing instructors can be involved in clinical areas of three to four different types in one academic year without specific preparation in that area. This certainly would allow for variance in the measurement and evaluation of students. As Iafolla (1969) indicated, the nursing instructor who is expected to be "all knowing" cannot possibly meet this high expectation.

A fifth factor deals with the institution in which the nursing program is established. When institution was added as an independent variable to the scale, no significant multiple correlation was generated, however the question of instructor's values as prescribed by the institution's goals and philosophy needs to be considered. It is the investigator's observation that schools in a religious setting such as two of the three schools in this study tend to be interested
in student self esteem and potential ability even though this may have no direct relationship to the student's actual performance. Perhaps subjects from at least one of these schools, Group One were not evaluated as stringently as subjects in Group Two, a state supported school.

**Recommendations**

1. The 33TPC should continue to be studied to determine improved methods for measuring the clinical performance ability of candidates for licensure.

2. Accountability in nursing education strongly suggests that new graduates ought to be able to pass the licensing examination and be able to perform on the job. Nursing faculty and program directors should examine their evaluation systems for better assurance that this will occur. Minimal or safe competency should be replaced by some level closer to mastery performance.

3. This study should be replicated using a larger sample of programs to determine if differences in programs affect the predictive power of the clinical evaluation scale.

4. Another study should be done relating the results of this study with other kinds of predictors such as SAT or course grades.

5. Further research should be done in areas directly related to clinical performance evaluation, such as a study of the clinical instruction process.
Original 100 Item Scale - Nonedited

This scale is to be used as a means of evaluating the clinical performance of nursing students.

You will find statements which describe different behaviors of nursing students while they are in the health care agencies, i.e.; hospitals, community clinics, etc.

There are five possible responses for each statement.

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

For each statement please circle the response that you feel comes closest to describing the students behavior.

1. This student's interaction with faculty and other students is annoying and distracting. SA A U D SD
2. This student's nursing care plans are comprehensive. SA A U D SD
3. This student has good problem solving ability. SA A U D SD
4. This student continually questions everything that is said to her/him. SA A U D SD
5. This student is not organized when providing nursing care. SA A U D SD
6. This student would be highly recommended by me, to work in my specialty area of nursing after graduation. SA A U D SD
7. This student contributes little verbally in a group situation. SA A U D SD
8. This student uses a variety of sources to collect data for nursing care plans. SA A U D SD
9. This student knows why specific treatments or procedures are being performed on the patient/client. SA A U D SD
10. This student is beginning to incorporate professional behavior into her own behavior. SA A U D SD
11. This student is an active participant in clinical conferences. SA A U D SD
12. This student needs to increase his/her knowledge of Pharmacology. SA A U D SD
13. This student has adequate knowledge of psycho-social pathology.

14. This student made excellent use of his/her time during this clinical experience.

15. This student is able to appropriately use medical and nursing terminology.

16. This student should not be recommended for a job after graduation.

17. This student enjoys the challenge of new nursing situations.

18. This student's greatest strength is his/her ability to share experiences.

19. This student has difficulty with theoretical nursing content.

20. This student accepts responsibility for his/her actions.

21. This student is making good progress at relating the patients/clients symptoms to his treatment modality.

22. This student shows little evidence of preparation for clinical study.

23. This student is on the defensive a great deal of the time.

24. This student does not seek out his/her own learning experiences.

25. This student is usually late in submitting required written work.

26. This student takes immediate and appropriate action in the case of an emergency.

27. This student needs to work on the application of knowledge of pathophysiology to patient care situations.

28. This student can verbally explain the principles inherent in a treatment or procedure.

29. This student performs nursing assessments which are accurate and detailed.
30. This student's nursing care plans reflect the patient/clients needs.

31. This student makes excuses for his/her behavior.

32. This student does not allow the client/patient freedom of choice in his care, when this is appropriate.

33. This student adapted to this clinical health care agency with minimal stress.

34. This student shares freely in group discussions.

35. This student will probably not be a safe practitioner when on his own.

36. This student comes to the clinical setting with well established goals for the day.

37. This student has little understanding of the nursing process.

38. This student will be able to make the transition from student role to professional practitioner role without difficulty.

39. This student is the best I have had in being able to apply knowledge of anatomy and physiology to the client/patient situation.

40. This student usually recognizes non verbal behavior cues of the client/patient.

41. This student seeks help when needed.

42. This student is slow in taking hold and moving into experiences.

43. This student jumps to conclusions about situations.

44. This student frequently sits idle at the desk while in the clinical agency.

45. This student is careful in the administration of medications and treatments.

46. This student inflicts her own values on others.

47. This student establishes effective therapeutic relationships with clients/patients.
48. This student provides thorough nursing care.  
49. This student plans alternate ways to provide nursing care.  
50. This student needs to expand his/her use of resources in planning nursing care.  
51. This student's performance is of high quality in the clinical area.  
52. This student frequently seeks instructor support when it is not warranted.  
53. This student is insensitive to the socioeconomic cultural orientation of others.  
54. This student is energetic and enthusiastic.  
55. This student shows genuine interest in patients/clients and their care.  
56. This student admits his/her limitations in the clinical situation.  
57. This student is more interested in technical skills than in the emotional needs of patients/clients.  
58. This student is reliable.  
59. This student needs to improve in her problem solving ability.  
60. This student is insecure in the clinical area.  
61. This student is not self directive.  
62. This student has had positive things said about his/her performance by patients.  
63. This student does not make systematic observations about client/patients.  
64. This student needs to develop in greater depth the scientific rationale underlying nursing care.  
65. This student clearly and appropriately communicates information to patients/clients.
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>66.</td>
<td>This student is lazy in the clinical area.</td>
</tr>
<tr>
<td>67.</td>
<td>This student asks questions when needed.</td>
</tr>
<tr>
<td>68.</td>
<td>This student is the best I have seen in performing technical skills.</td>
</tr>
<tr>
<td>69.</td>
<td>This student has very limited writing skills.</td>
</tr>
<tr>
<td>70.</td>
<td>This student is not afraid to say he/she does not know something.</td>
</tr>
<tr>
<td>71.</td>
<td>This student continues to perform effectively even when unanticipated interruptions occur.</td>
</tr>
<tr>
<td>72.</td>
<td>This student makes him/herself readily available to clients/patients.</td>
</tr>
<tr>
<td>73.</td>
<td>This student will do poorly in the real work situation after he/she graduates.</td>
</tr>
<tr>
<td>74.</td>
<td>This student cannot determine what data about clients/patients should be reported to other health care personnel.</td>
</tr>
<tr>
<td>75.</td>
<td>This student is too dependent on views of others in the health care agency.</td>
</tr>
<tr>
<td>76.</td>
<td>This student is interested in what he/she is doing in the clinical situation.</td>
</tr>
<tr>
<td>77.</td>
<td>This student still has difficulty with initiating a conversation with a client/patient.</td>
</tr>
<tr>
<td>78.</td>
<td>This student's written nursing care plans are some of the worst I have read.</td>
</tr>
<tr>
<td>79.</td>
<td>This student enjoys nursing.</td>
</tr>
<tr>
<td>80.</td>
<td>This student depends too heavily on what the instructor thinks of his/her performance.</td>
</tr>
<tr>
<td>81.</td>
<td>This student cannot decide on a plan of care for clients/patients.</td>
</tr>
<tr>
<td>82.</td>
<td>This student actively participates in weekly seminars.</td>
</tr>
<tr>
<td>83.</td>
<td>This student knows next to nothing about nursing.</td>
</tr>
<tr>
<td>84.</td>
<td>This student has limited knowledge of nursing research literature.</td>
</tr>
</tbody>
</table>
85. This student discriminates between fact and inferences.

86. This student has exceptionally well developed observational skills.

87. This student cannot verbally recall pertinent information about client/patient.

88. This student still requires a great deal of help while performing technical skills.

89. This student can work with all age groups in the clinical setting.

90. This student hides from the instructor in the clinical situation.

91. This student functioned independently in this health care setting.

92. This student is still all thumbs when doing a treatment or procedure.

93. This student should be encouraged toward graduate study.

94. This student shows interest in expanding his/her knowledge of the professional nurse role.

95. This student speaks before she thinks in the clinical area.

96. This student looks at client/patient situations superficially.

97. This student is not one who I would want to take care of me in the clinical setting.

98. This student uses good judgement about her/his clients/patients nursing needs.

99. This student is hesitant to initiate nurse action.

100. This student is not suited for nursing.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Name of Course</th>
<th>Semester Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

102. ____________________________

Name of Evaluator

103. ____________________________

Student Name
Edited and Revised Scale

This scale is to be used as a means of evaluating the clinical performance of nursing students.

You will find statements which describe different behaviors of nursing students while they are in the health care agencies, i.e.; hospitals, community clinics, etc.

There are five possible responses for each statement.

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    A = Agree
    U = Undecided
    D = Disagree
    SD = Strongly Disagree

For each statement please circle the response that you feel comes closest to describing the students behavior.

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   SA A U D SD

2. This student's nursing care plans are comprehensive.  
   SA A U D SD

3. This student is not organized when providing nursing care.  
   SA A U D SD

4. This student would be highly recommended by me, to work in my specialty area of nursing after graduation.  
   SA A U D SD

5. This student uses a variety of sources to collect data for nursing care plans.  
   SA A U D SD

6. This student knows why specific treatments or procedures are being performed on the patient/client.  
   SA A U D SD

7. This student is beginning to incorporate professional behavior into his/her behavior.  
   SA A U D SD

8. This student is an active participant in clinical conferences.  
   SA A U D SD

9. This student has adequate knowledge of psycho-social pathology.  
   SA A U D SD

10. This student made excellent use of his/her time.  
    SA A U D SD

11. This student is able to appropriately use medical and nursing terminology.  
    SA A U D SD
12. This student should not be recommended for a job after graduation.

13. This student accepts responsibility for his/her actions.

14. This student is making good progress at relating the patients/clients symptoms to his treatment modality.

15. This student shows little evidence of preparation for clinical study.

16. This student is on the defensive a great deal of the time.

17. This student does not seek out his/her own learning experiences.

18. This student is frequently late in submitting required written work.

19. This student takes immediate and appropriate action in the case of an emergency.

20. This student performs nursing assessments which are accurate and detailed.

21. This student's nursing care plans reflect the patient/clients needs.

22. This student makes excuses for his/her behavior.

23. This student does not allow the client/patient freedom of choice in his care, when this is appropriate.

24. This student adapted to this clinical health care agency with minimal stress.

25. This student will probably not be a safe practitioner when on his own.

26. This student comes to the clinical setting with well established goals for the day.

27. This student has little understanding of the nursing process.

28. This student will be able to make the transition from student role to professional practitioner role without difficulty.
29. This student is the best I have had in the ability to apply knowledge of anatomy and physiology to the client/patient situation.

30. This student usually recognizes non verbal behavior cues of the client/patient.

31. This student is slow in taking hold and moving into experiences.

32. This student jumps to conclusions about situations.

33. This student frequently sits idle at the desk while in the clinical agency.

34. This student is careful in the administration of medications and treatments.

35. This student inflicts his/her own values on others.

36. This student establishes effective therapeutic relationships with clients/patients.

37. This student provides thorough nursing care.

38. This student plans alternate ways to provide nursing care.

39. This student needs to expand his/her use of resources in planning nursing care.

40. This student's performance is of high quality in the clinical area.

41. This student frequently seeks instructor support when it is not warranted.

42. This student is insensitive to the socio-economic cultural orientation of others.

43. This student is energetic and enthusiastic.

44. This student is reliable.

45. This student needs to improve in his/her problem solving ability.

46. This student is not self directive.

47. This student has had positive things said about his/her performance by patients.
48. This student does not make systematic observations about client/patients.

49. This student needs to develop in greater depth the scientific rationale underlying nursing care.

50. This student clearly and appropriately communicates information to patients/clients.

51. This student is lazy.

52. This student is one of the best I have seen in performing technical skills.

53. This student has very limited writing skills.

54. This student is not afraid to say he/she does not know something.

55. This student continues to perform effectively even when unanticipated interruptions occur.

56. This student makes him/herself readily available to clients/patients.

57. This student will do poorly in the real work situation after he/she graduates.

58. This student cannot determine what data about clients/patients should be reported to other health care personnel.

59. This student is too dependent on views of others in the health care agency.

60. This student still has difficulty with initiating a conversation with a client/patient.

61. This student's written nursing care plans are some of the worst I have read.

62. This student enjoys nursing.

63. This student depends too heavily on what the instructor thinks of his/her performance.

64. This student cannot decide on a plan of care for clients/patients.

65. This student has limited knowledge of nursing research literature.

66. This student has exceptionally well developed observational skills.
67. This student cannot verbally recall pertinent information about client/patient.

68. This student still requires a great deal of help while performing technical skills.

69. This student functioned independently in this health care setting.

70. This student is still all thumbs when performing a treatment or procedure.

71. This student should be encouraged toward graduate study.

72. This student shows interest in expanding his/her knowledge of the professional nurse role.

73. This student is not one who I would want to take care of me in the clinical setting.

74. This student is hesitant to initiate nurse action.

75. This student is not suited for nursing.
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77. Name of Evaluator

78. Student Name
A SCALE FOR MEASURING THE CLINICAL PERFORMANCE OF NURSING STUDENTS

This scale is to be used as a means of evaluating the clinical performance of nursing students.

You will find statements which describe different behaviors of nursing students while they are in the health care agencies.

There are five possible responses for each statement.

- **SA** = Strongly Agree
- **A** = Agree
- **U** = Undecided
- **D** = Disagree
- **SD** = Strongly Disagree

For each statement please circle the response that you feel comes closest to describing the student's behavior.

1. This student's interaction with faculty and other students is annoying and distracting.  
   - SA A U D SD

2. This student's nursing care plans are comprehensive.  
   - SA A U D SD

3. This student is not well organized when providing nursing care.  
   - SA A U D SD

4. This student would be highly recommended by me, to work in my specialty area of nursing after graduation.  
   - SA A U D SD

5. This student uses a variety of sources to collect data for nursing care plans.  
   - SA A U D SD

6. This student knows why specific treatments or procedures are being performed on the patient/client.  
   - SA A U D SD

7. This student is beginning to incorporate professional behavior into his/her behavior.  
   - SA A U D SD

8. This student is an active participant in clinical conferences.  
   - SA A U D SD

9. This student has adequate knowledge of psycho-social pathology.  
   - SA A U D SD
10. This student made excellent use of his/her time during this clinical experience.

11. This student is able to appropriately use medical and nursing terminology.

12. This student should not be recommended for a job after graduation.

13. This student accepts responsibility for his/her actions.

14. This student is making good progress at relating the patients/clients symptoms to his treatment modality.

15. This student shows little evidence of preparation for clinical study.

16. This student does not seek out his/her own learning experiences.

17. This student performs nursing assessments which are accurate and detailed.

18. This student's nursing care plans reflect the patient/clients needs.

19. This student makes excuses for his/her behavior.

20. This student allows the client/patient freedom of choice in his care, when this is appropriate.

21. This student adapted to this clinical health care agency with minimal stress.

22. This student will probably not be a safe practitioner when on his own.

23. This student comes to the clinical setting with well established goals for the day.

24. This student has little understanding of the nursing process.

25. This student will be able to make the transition from student role to nursing practitioner role without difficulty.
26. This student is the best I have had in the ability to apply knowledge of anatomy and physiology to the client/patient situation.

27. This student usually recognizes non verbal behavior cues of the client/patient.

28. This student is slow in taking hold and moving into experiences.

29. This student jumps to conclusions about situations.

30. This student frequently sits idle at the desk while in the clinical agency.

31. This student inflicts his/her own values on others.

32. This student establishes effective therapeutic relationships with clients/patients.

33. This student provides thorough nursing care.

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35. This student's performance is of high quality in the clinical area.

36. This student frequently seeks instructor support when it is not warranted.

37. This student is energetic and enthusiastic.

38. This student needs to improve in his/her problem solving ability.

39. This student is not self directive.

40. This student has had positive things said about his/her performance by patients.

41. This student does not make systematic observations about clients/patients.

42. This student clearly and appropriately communicates information to patients/clients.

43. This student is lazy.

44. This student continues to perform effectively even when unanticipated interruptions occur.
45. This student makes him/herself readily available to clients/patients.

46. This student will do poorly in the real work situation after he/she graduates.

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