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PERCEIVED IMPORTANCE OF CLINICAL TEACHING CHARACTERISTICS FOR NURSE ANESTHESIA CLINICAL FACULTY

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Dissertation Approval Certificate

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Abstract

PERCEIVED IMPORTANCE OF CLINICAL TEACHING CHARACTERISTICS FOR NURSE ANESTHESIA CLINICAL FACULTY

William Hartland Jr., Ph.D.

Virginia Commonwealth University, 1993.

This study examined the perceived importance of the 22 characteristic of effective clinical instructors as identified by Katz in 1982. The effect of various demographic variables on these perceived values of importance was also investigated.

Data were collected by means of a questionnaire survey instrument. A random sample of 354 nurse anesthesia program directors, CRNA clinical instructors and nurse anesthesia students from across the United States participated in this study. A 73 percent return rate was achieved.

Characteristic mean scores of importance demonstrate that respondents perceived all 22 characteristics as either "very important" or "highly important." When all 22 characteristic mean scores for each group were arranged in descending order by the researcher, no significant difference was found between groups. Chi-square tests were significant between the professional groups and the perceived values of importance for four of the characteristics: **Evaluation / Counseling, Positive Role**

Model, Flexibility, and **Timely Feedback**. No significant relationships were found among the demographic variables and the perceived importance of the 22 characteristics. Multiple regression analysis indicated that the demographic variables accounted for only an extremely small percent of the variance.

In conclusion, since many of the mean scores were relatively close to each other, it seems reasonable to conclude that all four professional groups highly valued these characteristics and perceived them as critically important to clinical instruction. There was no significant difference in the way each professional group rank ordered the 22 characteristics. No previously reviewed study exhibited this same level of homogeneity among respondents. The researcher suggests that this homogeneity may be the result of previous clinical nursing experience and/or the nature of the anesthesia clinical environment itself.

Findings in this study have implications for the continuing education and evaluation of nurse anesthesia faculty along with possible impacts on employment decisions.

Chapter One

Introduction

The profession of Nurse Anesthesia is a strenuous but rewarding profession. Daily, the nurse anesthetist administers potentially lethal drugs in the quest to alleviate pain so that various surgical procedures can be performed. Any carelessness or laxness on the part of the health care provider could result in catastrophic consequences (Depaolis, 1980).

The education of a nurse anesthetist begins with the successful completion of a baccalaureate program from an accredited school of nursing. After passing the nursing board examination, the registered nurse must work a minimum of 1 year in a hospital intensive care unit. Once these requirements have been met, the registered nurse is eligible to apply for admission to 1 of 82 nurse anesthesia programs throughout the country. These programs encompass 2 to 3 continuous years of intense education and training in the field of anesthesiology.

A major portion of the nurse anesthetist's education involves working with patients under actual operating room conditions. This operating room instruction, also known as clinical instruction, is performed under the watchful eyes of a nurse

anesthesia clinical instructor. Depaolis (1980) states that health care professionals once believed that the clinical area was only good for on-the-job training. Now these professionals have come to the realization that not only are psychomotor skills learned in the clinical setting, but cognitive and affective objectives must be successfully accomplished as well. In order to achieve these objectives, nurse anesthesia educational programs must have clinical instructors who are competent practitioners and effective teachers.

Statement of the Problem

The nurse anesthesia instructor plays a key role in the education of the nurse anesthesia student. Katz (1984) stated that nurse anesthesia clinical instructors find themselves in the precarious situation of being responsible for the life, welfare and anesthetic management of a patient while meeting the educational needs of a nurse anesthesia resident. It is quite evident that it takes a very skilled instructor to operate effectively under these conditions.

In 1982, Katz conducted a study that identified various behavioral characteristics thought to be indicative of effective clinical teaching by anesthesia clinical instructors. These factors were: empathy/respect, scholarly teaching, clinical competence/ judgment, evaluation/ counseling, appropriately encourages independence, ego strength/ self assurance, use of student care plan, motivates students, calm, stimulates effective discussions, individualizes teaching, open-minded, enjoys teaching, stimulates students' involvement, actively teaches, positive role

model, sensitivity, flexibility, timely feedback, accessibility, engenders confidence, and communication skills. Katz conducted her study in a very thorough manner. One question she did not pursue was the perceived importance of these characteristics. Was one characteristic perceived as being more important than another? Are the importance of these characteristics perceived the same by nurse anesthesia program/school directors, clinical instructors, and students? It was the intent of this research to answer these questions.

Purpose of Study

There were primarily two purposes to this study: 1) to determine the perceived importance of the effective clinical anesthesia instructor characteristics as identified by Katz in 1982; 2) to determine if these perceived levels of importance vary among nurse anesthesia program directors, CRNA clinical instructors, and students in relation to various demographic factors. In order to achieve these objectives, the following questions were proposed and directed this study.

Research Questions

The following questions assisted in providing the focus of this study:

1. What is the perceived importance of the effective clinical anesthesia instructor characteristics as identified by Katz in 1982?

2. Does the perceived importance of these characteristics hold for nurse anesthesia program/school directors, clinical instructors, and students?

Hypotheses

In order to test these general research questions, the following null hypotheses ($Ho:u_1 = u_2$) were presented.

1. There is no significant difference between **nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors.

2. There is no significant difference between the **different program types with which nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students are affiliated** and their perceived importance for the 22 characteristics of effective clinical instructors.

3. There is no significant difference between the **years nurse anesthesia program directors and CRNA clinical instructors were clinical instructors** and their perceived importance for the 22 characteristics of effective clinical instructors.

4. There is no significant difference between the **number of years nurse anesthesia program directors served as program directors** and their perceived importance for the 22 characteristics of effective clinical instructors.

5. There is no significant difference between the **age of nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors.

6. There is no significant difference between the **gender of nurse anesthesia program directors, CRNA clinical instructors, first-years students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors.

7. There is no significant difference between **nurse anesthesia CRNA clinical instructors who were once program directors and CRNA clinical instructors who were never program directors** and their perceived importance for the 22 characteristics of effective clinical instructors.

8. There is no significant difference between the number of **hours per week that nurse anesthesia program directors and CRNA clinical instructors teach in the clinical area** and their perceived importance for the 22 characteristics of effective clinical instructors.

9. There is no significant difference between the **number of weekly hours first-year and second-year nurse anesthesia students spend in the clinical area** and their perceived importance for the 22 characteristics of effective clinical instructors.

10. There is no significant difference between the **months of nurse anesthesia school first-year and second-year nurse anesthesia students have completed** and their perceived importance for the 22 characteristics of effective clinical instructors.

Definition of Terms

In order to aid the reader in understanding certain technical terminology, the following definitions were used in this study.

Anesthesia. A loss of sensation induced by a pharmacological agent limited to a specific area of the body or the total body.

Anesthesiology. The science and study of anesthesia.

Clinical instruction. The instruction of students that occurs during the examination and treatment of actual patients usually performed in a health care facility setting. In this study, the term "clinical instruction" is used interchangeably with the term "clinical teaching."

Clinical instructor. A nurse anesthetist who teaches nurse anesthesia students in a clinical setting on an average of eight hours per week. In this study, clinical instructor is used interchangeably with the term clinical faculty or clinical faculty member.

Didactic teaching. The instruction of students performed in the classroom or laboratory setting.

Effective clinical instructor. A clinical instructor who exhibits those teaching behaviors, actions, activities, and verbalization that facilitates student learning in the clinical setting.

Nurse anesthetist / certified registered nurse anesthetist (CRNA). A registered nurse who has successfully graduated from a Council on Accreditation approved nurse anesthesia program and has successfully passed the certification examination offered

by the Council on Certification, American Association of Nurse Anesthetists. This person must also be licensed by his/her respective State Board of Nursing and have maintained his/her recertification through continuing education by the Council on Recertification, American Association of Nurse Anesthetists.

Nurse anesthesia school/program. An educational program in nurse anesthesia accredited by the Council of Accreditation for Nurse Anesthesia Programs/Schools.

Program type. There are presently three basic nurse anesthesia program types: 1) the certificate program; 2) the baccalaureate program; and 3) the master's program.

Significance of Study

In order for the profession of nurse anesthesia to survive in the future it must be vigilant and discerning in its involvement with the profession's schools and departments in institutions of higher learning. One critical aspect of this involvement concerns the educational process of actual hands on experience in the clinical area. Clinical teaching has long enjoyed a well deserved reputation of being a difficult teaching challenge (Wood, 1987). The value a student gains from this clinical experience is contingent on the teaching effectiveness of the clinical instructor.

Katz (1982) identified perceived characteristics of teachers in nurse anesthesia educational programs. Now that these characteristics have been identified, it is essential to determine their importance. Once their importance has been identified several developmental processes may occur: (1) more effective faculty development

programs can be designed that emphasize the more critical characteristics of effective clinical instructor; (2) clinical faculty evaluation procedures can be developed that better reflect a clinical instructor's teaching performance; (3) the information could serve as a guideline for employers searching for potential clinical faculty instructors; and (4) it may help nurse anesthetists to determine whether or not they wish to become clinical instructors.

Methodology and Analysis of Responses

The data for this study were collected using a statified random sample design of all nurse anesthesia program directors, CRNA clinical instructors, and students in accredited civilian nurse anesthesia programs/schools in the United States. These samples were obtained from the Office of Education and Research at the headquarters for the American Association of Nurse Anesthetists. Data collection was obtained by means of a five point Likert type questionnaire. This questionnaire was developed by the researcher with the assistance of six experts in nurse anesthesia education. Questionnaires were mailed to program directors, CRNA clinical instructors, and students from all 82 accredited programs/schools of nurse anesthesia.

Data was analyzed using descriptive statistics, Friedman analysis of variance, chi-square, Pearson correlation analysis, and multiple regression. A $p = < .05$ level of statistical significance was used to test each of the hypotheses.

Delimitations of the Study

The study was limited to nurse anesthesia program/school directors, CRNA clinical instructors and nurse anesthesia students. It examined the perceived importance of the 22 characteristics of the effective clinical instructor according to these groups.

Chapter Summary Overview of Succeeding Chapters

This chapter provided a brief overview of the study. The introduction discussed the purpose of this study. Research questions were tested by 10 Hypotheses. The significance of the study was discussed. The final section of this chapter outlined the methodology and analysis of responses.

Chapter Two presents an organized discussion of all literature pertinent to the topic area. Chapter Three discusses the methodology and analysis of data for this study. Data yielded by the questionnaires are presented in Chapter Four. Chapter Five examines the results and compare the findings of this study to the literature review findings in Chapter Two. Chapter Five concludes with recommendations for future investigations and implications for training.

Chapter Two

Review of the Literature

This review of research is intended to provide the reader with a comprehensive overview of the medically related clinical instruction literature. The chapter is divided into six sections. Section one defines clinical instruction and explores various differences between clinical and didactic instruction. Section two examines some of the historical highlights in the development of clinical instruction. Section three examines the importance of clinical teaching, while section four examines the various problems and difficulties of teaching in the clinical arena. Section five focuses on research from various health care professions including medicine, dentistry, nursing, and nurse anesthesia with respect to the identification of characteristics associated with effective clinical instructors. Section six provides a summary review of the chapter.

Definition and Importance of Clinical Instruction

Stritter, Hain, and Grimes (1975) defined clinical instruction as teaching in an individual or group setting that occurs near a patient. Stritter, Baker, and Shahady

(1986) added that clinical instruction is an interaction between the instructor and a learner that occurs in the proximity of a patient encounter. This interaction primarily focused on the patient or a clinical problem involving the patient.

All authors appeared to acknowledge the importance of clinical instruction and its role in the health care professions. MaCabe (1985) described the clinical learning experience as the "heart" of professional education. Wong and Wong (1987) maintained that the clinical learning experience provides students with an opportunity to consolidate knowledge and apply this knowledge to actual patient care situations. It allows the student to socialize into a professional role, acquire professional and personal skills, as well as acquire attitudes and values thought to be essential for entering the health care system.

Differences between Clinical and Didactic Instruction

Although there are some similarities between classroom and clinical instruction, differences between them are significant. The classroom teacher, in the health care professions, is primarily characterized by subject matter specialization. This subject matter is usually formally organized, presented, and often very detailed. Objectives in the classroom are usually heavily based in the cognitive domain, emphasizing knowledge and understanding and the ability to solve problems on a theoretical basis. The classroom teacher and learner can hide their personalities and assume a different personal role as the social distance between the lecturer and student is greater than in the clinical arena (Berg, 1967).

Students in the classroom setting, are more prone to listen, watch, take notes, and occasionally question and respond. The student operates in an impersonal and passive manner with little active participation in the environment and little emotional involvement (Wong & Wong, 1987).

Clinical instruction is characterized by diversity in instructional methodologies and is characterized primarily by a generalization of subject matter. This subject matter is usually fluidly organized and often lacks rigidity. Objectives emphasize manual skills, clinical judgment, the ability to diagnose, plan and carry out treatments, and to get along with actual patients (Berg, 1967). Clinical instructors need not only lecturing skills but also skills in communication, learner assessment with small groups, one on one conferences with students, and clinical supervision (Meleca, Schimpfhauser, Witteman, & Sachs 1983). The personalities of the instructor and student learner are very difficult to suppress and are usually revealed at the very early stages of clinical instruction. This is primarily the result of the close social relationship among the clinical instructor, learner, and patient (Berg, 1967).

Quinn (1980) stated that clinical instruction contains an element of risk, while at the same time it presents faculty with a situation in which they have limited control over the major factors that affect the student's learning. Full student involvement is characteristic of the clinical setting in which the student must initiate, respond and react. Students must learn actively and demonstrate skills in an extremely emotional environment.

Irby (1986) stated that clinical education has the following three positive characteristics: (1) a problem-centered approach in the context of professional practice, (2) an experienced-based learning model, and (3) a combination of individual and team learning. Clinical education is a problem-centered approach since actual patient problems provide the teaching opportunities for the student. The quality of learning depends in large measure on the faculty member's instructional skills and the kind of patient problems that are available. In such a relevant setting, the student's motivation is usually high.

Clinical education is experienced-based learning because it is the process of learning by doing. Irby (1986) explained that this form of experiential learning differs from the classroom setting where a symbolic medium language is used to transmit information. Experiential learning generates information through a series of steps or phases. In the first step, the student responds to a particular situation and experiences the consequences. Secondly, the student then infers the effects of action on a particular case. Thirdly, the student generalizes this new understanding to a wider range of circumstances. Finally, the student operates in these new circumstances, anticipating the consequences.

Experiential learning is time consuming, since it requires sufficiently replicated actions for proper experience assimilation to occur. Irby (1986) viewed the strengths of this learning process as intrinsic motivation and stronger recall than found with learning through information processing associated with classroom teaching.

Although clinical education relies heavily on experiential learning, it also depends on information processing for knowledge acquisition as well (Irby, 1986).

Irby (1986) suggests another positive characteristic of clinical education is the combination of individual and team learning. Although the individual is responsible for his/her clinical learning, this learning is accomplished in the context of the work team. He explains that as individual members of the team learn, each individual appears to contribute more to the team and better use the contributions of others. As teams develop cohesiveness, they appear to promote more learning among their individual members. Irby states that "clinical education is a challenging experience for most students because it allows them to participate actively in the health care team, seeking solutions to real problems, and learn by doing while caring for patients." (p. 37)

Stritter et al. (1986) add that clinical instruction focuses primarily on learners who are striving to become the type of professionals they are observing or whose role they are practicing. These learners have a greater responsibility for their education than they would in the classroom. They also have specific patient care assignments that serve as the major vehicles for their learning. These actual patient care assignments are carried out under the supervision of an instructor who maintains the final responsibility for care that is delivered. Unlike the classroom environment, incorrect decisions made in the clinical environment could result in grave, life threatening consequences.

History of Clinical Instruction

Historically, in the health care professions, students have been educated in the didactic and clinical settings (Depaolis, 1980). After a short period of formal classroom instruction, students were assigned to a clinical area, usually involving a hospital based setting, where they had the opportunity to integrate classroom material with actual hands on experience. Practitioners from each discipline acted as clinical instructors. Operating under the philosophy of see one, do one, teach one, the clinical instructor demonstrated various techniques to the student. It was the student's responsibility to develop needed technical skills, read appropriate materials, and ask appropriate questions (Depaolis, 1980).

Upon examining the profession of nursing, it is evident that nursing education was primarily conducted under the system of apprenticeship. Nursing students were part employee and part learner. Students were assigned a full day's share of work learning primarily by trial and error. Most teaching was carried out at the patient's bedside by an experienced practical nurse. With the establishment of schools of nursing in the late nineteenth century, teaching tended to move from the bedside to the classroom. The resulting gap between the classroom and actual hospital practice created a major inconsistency in the nursing educational process. Attempts to span this gap finally lead to the concept of clinical instruction (Wong & Wong, 1987).

The concept of clinical teaching flourished further with the admission of schools of nursing into institutions of higher learning. University nursing programs concentrate on the quality and quantity of educational experiences. When students

started to pay for their tuition and the clinical experience was seen purely as a teaching experience, the role of the clinical instructor changed. Clinical instructors became responsible to not only their patients but also to their students as well. Students now demanded quality teaching from their clinical instructors, instead of mere supervision in the clinical setting. Clinical instructors witnessed the expansion of their roles into those of counselor for the students, evaluator for the school, liaison between the agency and school, and that of a practitioner (Wong and Wong, 1987). Today's clinical instructor is frequently called upon to make difficult decisions concerning student learning and patient care, to counsel anxious students, and to smooth out conflicting relationships between staff and students (Quinn, 1980).

Problems Associated with Clinical Instruction

There are numerous problems associated with clinical instruction. Irby (1986) identifies a few of the more glaring problems as: (1) limited emphasis on problem solving opportunities, (2) lack of clear expectations for student performance, (3) inadequate feedback to students, and (4) inappropriate role models and clinical settings.

In the area of limited problem solving opportunities, many students are not given the opportunity to be active participants in the clinical learning process. Clinical instructors often questioned these students for the sole purpose of obtaining factual information from the patient's chart. Questions requiring a student to explain

his/her reasoning, to propose alternatives, or to suggest implications for action are usually non-existent (Irby, 1986).

Another complaint centering around clinical teaching concerns the massive work demands that are placed on the student. Irby (1986) states: "Students rarely can find the time to reflect on their learning, make connections to basic science information that they already have, and engage in real problem-solving of patients under their care" (p. 37). There is too much work and too little time to analyze or assimilate why and how it should be done.

Another problem with clinical instruction is the lack of clear expectations for student performance. Students frequently encounter conflicting and differing expectations for their behavior. This usually results from a lack of clearly defined objectives and descriptions of work responsibilities. Such students also encounter problems from inadequate feedback. Meaningful feedback from the faculty by way of written or oral evaluations is usually very poor or non-existent. Students are left wondering as to their progress and areas in need of improvement (Irby, 1986; Stafford & Graves, 1978).

Another problem identified with clinical teaching involves role models and clinical settings. Many faculty fail to serve as good role models for their students. This failure may be due to inadequate clinical abilities and competencies, a lack of attention to a patient's psychosocial needs, or various ethical issues of patient care. This problem is further compounded by an apparent lack of interest and preparation, by faculty, in various clinical teaching opportunities and responsibilities (Irby, 1986).

It is also possible that the actual physical setting in which clinical teaching is conducted may not be conducive to the learning needs of the student. Learning opportunities often depend on the type of patient problems that are available at any given time. In the classroom, for example, a student may be studying about a particular type of neurological disorder. If no clinical patients presented with such a disorder, the student will not be able to apply this classroom knowledge. It could conceivably be weeks before an appropriate patient becomes available. A similar problem is found frequently in tertiary care university teaching hospitals. In such institutions, few opportunities are made available for students to work with basically healthy patients on ambulatory services. Students are usually only exposed to the most critical patients. This can place a student at a great disadvantage when placed in a setting with basically healthy patients (Irby, 1986). This is especially true in the profession of anesthesia where anesthetic techniques can drastically differ between the seriously ill and the healthy patient.

Another problem with clinical instruction involves the task of teaching students the concept of clinical decision making. It is here that the student learns how to assimilate everything that he/she has learned so as to be able to make competent decisions. Balla and Edwards (1986) point out that clinical decision making is a very illusive concept. Although it is a process that is used daily by every clinician, it is extremely difficult to explain and teach. For example, a clinical instructor may be presented with a particular patient problem. The instructor, drawing upon a sound knowledge base, research, experience, or instinct, makes a diagnosis and prescribes a

treatment tailored to the patient. The student is often left bewildered, wondering what actual process the instructor used to arrive at this appropriate clinical decision.

Up until this point the concept of clinical teaching has been explored by looking at definitions, historical beginnings, positive attributes, and problem areas. It would appear that clinical teaching is a major component of many medical and medically related professions. Before clinical teaching effectiveness can be improved upon, one must determine what characteristics an effective clinical instructor should possess.

Research on Identifying Characteristics of Effective Clinical Instructors

Research involving characteristics of clinical instructors that apparently results in effective clinical instruction have been identified in many of the health care professions. The following literature will concentrate on the professions of medicine, dentistry, allied health, nursing and nurse anesthesia.

Medical research on effective clinical instructor characteristics. In 1975, Stritter et al. performed a study to investigate which behaviors or teaching approaches, practiced by a clinical instructor, students felt contributed most to their learning. A questionnaire was developed from the literature identifying 77 possible behaviors that might be indicative of effective clinical teaching. The instrument was reviewed by a panel of experts and pretested by senior medical students at the University of North Carolina. Measures of validity and reliability were not disclosed. The final instrument was distributed to all third- and fourth-year medical students at

the University of North Carolina and all third-year medical students at the University of Alabama. A total of 265 students (85%) responded.

All items were factor analyzed, resulting in the identification of six general teaching dimensions. These six dimension are presented in order from most helpful to least helpful, based on mean behavior rating: (1) active student participation, (2) preceptor attitude toward teaching, (3) emphasis on applied problem-solving, (4) a student-centered instructional attitude, (5) humanistic orientation, and (6) emphasis on content and research. More specific behaviors that loaded under each dimension were also examined. The most significant factor, identified by the students, was the student's desire to be an active participant in the learning process (Stritter et al., 1975).

Irby (1978) conducted a study investigating clinical teaching. Based on a review of the literature, the author identified seven major factors or dimensions of effective clinical teaching. The first three factors were applicable to both the clinical and classroom setting. These seven factors were: (1) organization and clarity - clear explanations, organizes presentations, communicated expectations, good summaries, (2) group instructional skills - encourages participation, establishes rapport, respectful, interest, accessible, attentive listening, appropriate questioning, (3) enthusiasm and stimulation - enthusiastic, dynamic, energetic, interesting presentation style, stimulates subject interest, (4) knowledge - discusses current developments, reveals broad readings, relates topics to other disciplines, (5) clinical supervision - demonstrates procedures, provides practical opportunities, frequently observes student

performance, provides constructive feedback, offers professional support and encouragement, (6) clinical competence - defines and synthesizes problems, demonstrates good technical skills, manages emergencies, works effectively with health care team, maintains rapport with patient, and (7) modeling professional characteristics - self critical, takes responsibility for, recognizes own limitations, not arrogant, respects others. These seven factors served as the seven hypothesized dimensions for Irby's (1978) study.

His study identified characteristics of the best and worst clinical instructors in medicine as determined by medical school faculty, residents, and third- and fourth-year students at the University of Washington. The inclusion of faculty members and residents in this study expanded prior research in this area which was primarily concerned with just student perceptions. The sample population consisted of 160 randomly selected subjects from three student groups for a total sample of 480 students. Data were collected by a mail questionnaire which contained 61 clinical teacher behaviors. These items were derived from previous studies on clinical teacher effectiveness and were viewed as samples of teacher behaviors within the seven dimensions previously listed. Respondents were then asked to identify their best and worst clinical instructors and rate them in relation to the 61 identified clinical instructor behaviors. Responses were factor analyzed to determine if the ratings were systematically influenced by professional role, faculty department, and teaching method (Irby, 1978).

Respondents described the best clinical teachers as being those that were enthusiastic, clear, and well organized in their presentation of material and skillful in their interactions with students. The worst clinical instructors were identified as lacking those skills associated with the best clinical instructors. Six of the seven hypothesized dimensions of clinical teaching were confirmed and accounted for 49.7% of the variance. These included: (1) group instructional skill (25.4% of the variance); (2) clinical competence (7.5%); (3) clinical supervision (5.3%); (4) enthusiasm and stimulation (4.3%); (5) organization and clarity (3.7%); and (6) knowledge (3.6%). Modeling was found to be subsumed under the first category (Irby, 1978).

In 1981, Irby and Rakestraw conducted another study examining medical student ratings of clinical teaching in an obstetric and gynecology clerkship program. A Clinical Teaching Assessment Form was designed utilizing the six factors of clinical teaching effectiveness the author identified in 1978. Data for this study were collected from junior and senior medical students enrolled in the six-week University of Washington obstetrics and gynecology clerkship from July 1977 to June 1979. A total of 1,567 ratings were collected from 230 faculty members and residents and 320 students.

The following factors correlated most strongly with overall teaching effectiveness: (1) is enthusiastic and stimulating, (2) establishes rapport, (3) actively involves students, and (4) provides direction and feedback. Four of the six previously identified components of clinical teaching effectiveness were found to correspond with the student's perceptions of clinical teaching. These four components, accounting for

86.7 % of the variance, were: (1) clinical supervision skills, (2) knowledge and clarity, (3) interpersonal relations; and (4) demonstration of clinical skills (Irby & Rakestraw, 1981).

Gjerde and Coble (1982) identified teaching behaviors that family practice faculty and residents perceived to be the most and least effective. A list of 58 specific teaching behaviors was complied from the behaviors reported by Stritter in 1975. These behaviors were then organized into a questionnaire. The questionnaire was mailed to faculty and residents at each of 7 university affiliated family practice residency programs in Iowa. Completed questionnaires were received from 69 residents (48%) and 47 faculty (47%).

Results indicate that residents and faculty perceived the most effective clinical teacher to have three broad areas of teaching skills. These were: (1) two-way communication skills, (2) creating an environment that facilitates learning, and (3) providing feedback. Items rated lowest by residents and faculty were also grouped into three major areas. These three areas were: (1) negative attitude toward residents, (2) lacks skill in providing feedback, and (3) inaccessibility. The results of this study appear to correlate closely to Stritters' et al. study in 1975 in that the mean factor ratings had almost the same relative order. Both studies appear to concur on what skills and behaviors are characteristic of effective clinical teaching (Gjerde & Coble, 1982).

Wolverton and Bosworth (1985) conducted a study to develop a concise list of specific teaching behaviors found by family practice residents to most effectively

facilitate their learning. A questionnaire was developed consisting of 38 teaching behaviors derived from a list of 126 behaviors identified from studies by Stritter et al. (1975); Irby (1978); and Gjerde and Coble (1982). No specific information was provided as to how this questionnaire was developed. The questionnaire was distributed to 376 family practice residents in the 24 residency programs in Ohio. Completed questionnaires were returned by 159 residents (42%). Mean ratings, standard deviations, analysis of variance, and factor analysis were calculated from the returned questionnaires.

The top 10 teaching behaviors identified as most helpful were: (1) corrects resident mistakes without belittling, (2) demonstrates competent care to own patients, (3) demonstrates adequate breath of current medical knowledge, (4) approaches teaching with enthusiasm, (5) demonstrates self-confidence in patient care and teaching, (6) logically explains basis for actions/decisions, (7) listens attentively, (8) frequently provides constructive feedback, (9) works effectively with other health care team members, and (10) is pleasant and helpful when called on after hours. Factor analysis indicated that clinical competence, provided constructive feedback, and demonstrated a positive attitude toward teaching residents was perceived as a necessary attributes of the most effective clinical teachers.

In 1989, Wolf and Turner examined the literature for similarities and differences between what students and instructors perceived representative of effective clinical teaching skills. A questionnaire was derived from the literature. No specific details were offered concerning the development of this questionnaire's development.

One hundred and three faculty members and 97 students from the Department of Pediatrics at Ohio State University were given a copy of the questionnaire. Seventy-four faculty and 96 students completed and returned the instrument.

Both faculty and students felt the following skills to be important for effective clinical teaching: (1) feedback and positive reinforcement, (2) shows personal interests in students, (3) effectively communicates knowledge and learning objectives, (4) motivates students, (5) exhibits current knowledge of practice and physical diagnosis, (6) spends time reviewing histories and demonstrating and supervising physical examinations. This sixth skill was thought less important than the other skills by both faculty and students. In general, there was a great deal of consistency and reliability among student and faculty perceptions of these effective clinical teaching skills. Interestingly, faculty believed they used each of these skills significantly more than the students perceived they did. The more important the faculty believed a skill to be, the more the faculty reported they used that skill in their own teaching.

Researchers in the medical profession have conducted many studies to identify characteristics of effective and non-effective clinical instructors. These studies have primarily involved the perceptions of students, residents and faculty. Results varied from the identification of dimensions, broad categories and specific behaviors of effective clinical instruction. Few of these studies examined the perceived importance of these characteristics.

Dentistry research on effective clinical instructor characteristics. Bolender and Guild (1967) reported on the development and results of a system of clinical evaluation that used dental students as raters. The authors devised a very simple open format questionnaire consisting of open-ended questions. These questions asked the respondent to record what a faculty member does that results in effective and ineffective clinical instruction. Student comments were collected from third- and fourth-year dental students enrolled in classes in the Department of Prosthodontics at the University of Washington. The authors stated that there were approximately 60 students in each class. The total number of classes or number of students surveyed was not disclosed.

Faculty were counseled by the department chairman concerning students' comments pertaining to the faculty members' teaching effectiveness. Data from the questionnaire were not subjected to statistical scrutiny. Following data collection the chairman and faculty drafted a description of an effective and ineffective clinical dental instructor. This description included: (1) instructor has full command of the procedure being taught, (2) present when scheduled in the clinic, (3) instills confidence in both student and patient, (4) circulates among his students well, (5) does not let students get by with mediocre work, and (6) informs students of their mistakes, offering constructive criticisms freely in a friendly diplomatic manner. No attempt was made to organize the identified behaviors into basic dimensions. Although very limited, this study was valuable as one of the first attempts to identify characteristics of the effective dental clinical instructor (Bolender & Guild, 1967).

Walker (1971) conducted a study to determine what characteristics and behaviors dental students associated with good and poor clinical/didactic teachers and to determine if the behavior cited varied between classes. A questionnaire was developed similar to Bolender and Guild's (1967). The questionnaire consisted of two parts, the first in which the student was asked to describe the characteristics of the best instructor he/she had in dental school, and the second part to describe the worst instructor. Questionnaires were distributed to 167 undergraduate dental students at the University of Iowa, College of Dentistry.

A thorough analysis of 20 selected questionnaires was performed to establish categories that would be used to analyze the remaining 147 questionnaires. No reference was made concerning how this "thorough analysis" was conducted nor on what basis the selection of these 20 specific questionnaires was made. The four basic categories selected were: (1) teacher characteristics (physical appearance and personal characteristics), (2) course organization and content (lecture and examination), (3) in-class behavior, and (4) teacher-student interaction (Walker, 1971).

It appeared that students were more aware of what they liked about dental instructors than what they disliked. Favorable responses were almost always more prevalent than unfavorable ones. Disorganized and poorly prepared lectures seemed to be the most universal identified traits pointed out by the students. Senior class members reacted most unfavorably to destructive criticism such as being criticized in

the presence of patients. It appeared that these senior students were much more concerned about interpersonal relations than their under class counterparts (Walker, 1971).

Evans and Massler (1977) performed a study to determine the behavioral characteristics of the effective clinical dental instructor. Two years before the study, 47 faculty from the Department of Restorative Dentistry at Tufts University School of Dental Medicine met weekly to clarify the behavioral characteristics of the effective clinical instructor. At the end of six months, all agreed that an effective clinical instructor was a master of his/her subject, possessed superior clinical skills, was willing to demonstrate his/her knowledge and skills, and exercised a positive influence on the student's learning in the clinic. These characteristics were supposedly tested for validity by including them in a questionnaire given to each dental student, at the end of every clinical course, and at the end of each clinical phase of study. Specific details and methods of this analysis were not disclosed. The authors simply stated that from these results a list of 10 behavioral characteristics was made. A questionnaire derived from this list of 10 characteristics was given to a total of 455 students enrolled in three graduating dental classes.

The authors found that both students and staff listed "consistency of the instructors' presence in the clinic" and "immediately availability to student" as contributing most to the learning process. "Technical competence" was also determined to be very important. When students were asked to rank-order clinic

instructors from whom they learned the most, full-time instructors with average skills rated higher than part-time instructors with higher technical skills (Evans & Massler, 1977).

Results of this study indicated that the following areas of behavioral characteristics conducive to effective clinical instruction included: (1) consistency and dependability in attendance, (2) technical skills, (3) clinical judgment, and (4) professional attitude and habits. Data also indicated that effective teaching was not synonymous with popularity of the teacher. Liking a teacher because of his/her friendly behavior and learning from the same teacher are different attributes (Evans & Massler, 1977)

Myers (1977) performed a study to identify criteria that discriminated among less effective and more effective clinical instructors at the College of Dentistry at The Ohio State University. In the first stage of this study 150 dental school faculty and 375 dental students were asked to complete a questionnaire for the College of Dentistry. The questionnaire asked the respondents to list clinical instructor behaviors that contributed and inhibited learning. Responses were provided by 87 faculty and 95 students. Data from the responses were organized into a checklist. In the second stage of this study subjects were asked to indicate the importance of each of the items on the checklist with respect to what clinical instructors should do when teaching. Of the 340 students and 150 faculty who received the checklist, 101 students and 88 faculty members completed and returned them. The responses were factor analyzed, yielding seven dimensions of effective clinical teaching. These seven dimensions

were: (1) maintaining conditions for clinical learning, (2) knowledge of dentistry, (3) concern for teaching, (4) consideration for students, (5) evaluating student performance, (6) liking to teach, and (7) application of knowledge of dentistry. Since the author did not indicate the actual contribution of each of these factors with respect to the total variation in the data, it is hard to determine their actual importance.

Romberg (1984) conducted a study to identify what students perceived to be the underlying dimensions of clinical teaching. A 14 item evaluation form was developed by a group of faculty, students, administrators, and an evaluation specialist. Two hundred and twenty six students (88% response rate) produced 1,796 ratings on 104 full and part time clinical dental faculty from the University of Maryland School of Dentistry.

Factor analysis revealed four factors that were basic to effective clinic instruction and accounted for 92.1% of the total variance. These four factors were: (1) meeting teaching responsibilities (accounting for 73.8% of the variance), (2) behaving in a manner conducive to clinical learning, (3) being technically competent, and (4) enjoying your job (Romberg, 1984).

Researchers in the profession of dentistry have conducted many studies to identify characteristics of effective and non-effective clinical instructors. These studies have primarily involved the perceptions of students. The conclusions drawn from many of these studies would have had more value if the researchers had paid more attention to methodology and statistical analysis.

Allied health profession research on effective clinical instructor characteristics. Christie, Joyce, and Moeller, (1985) conducted a study to examine the distinguishing characteristics of effective and ineffective occupational therapy supervisors. The author states that an open ended questionnaire was specifically designed for this study. Pilot questionnaires for both the student and supervisor populations were field tested. No further details concerning the development of this questionnaire were reported. This questionnaire was sent to 108 fieldwork centers throughout the country for distribution to occupational therapy students and student supervisors in those centers. Each respondent was asked to define the respective roles of the student and supervisor and to list the primary responsibility of each, together with the distinguishing characteristics of the effective and ineffective supervisor. A return rate of 66% from the 108 centers resulted in a total of 127 student and 188 supervisor responses. The exact methodology of data analysis was not disclosed.

The author reported that both students and supervisors consistently linked certain behaviors with certain attitudes to distinguish the effective from the ineffective supervisor. The most important characteristics reported by both groups were interpersonal and communication skills such as active listening, openness and honesty. Other important characteristics included: (1) feedback that was timely, constructive, consistent, and growth-promoting; (2) flexibility and open-mindedness; (3) availability; (4) competence as a clinician and educator; and (5) a good role model. Attitudinal characteristics included: (1) supportive and empathetic, (2) open-minded, (3) accepting, (4) non-defensiveness, (5) concern for the student's growth,

(6) commitment to the supervisory role, (7) sensitivity to student needs, (8) patience, (9) objectivity, and (10) enthusiasm. The results of this study appeared to indicate a perceived lack of adequate preparation of occupational therapists for the role of a student supervisor (Christie, Joyce, & Moeller, 1985).

Jarski, Kulig, and Olsen (1989) conducted a study to identify those behaviors of clinical instructors perceived as both most effective and most hindering in facilitating learning, to identify and compare these behaviors as perceived by two different allied health groups, and to categorize the identified behaviors into meaningful domains. The authors modified a questionnaire developed by Gjerde and Coble (1982) originally developed for family medicine and family practice medicine. To increase the accuracy and general applicability of the findings, 8 physical therapy programs from 8 different states and geographical regions of the United States, and 10 physician assistant programs from 10 different states and geographic regions were sampled. The questionnaire was completed by 139 physical therapy students, 33 physical therapy instructors, 107 physician assistant students, and 32 physician assistants instructors. Since the questionnaires were distributed by the program directors, an exact return rate was not available. Data were grouped into one of four clinical teaching skills domains which were: (1) interpersonal skills, (2) professional skills, (3) communication skills, and (4) androgogic adult instructional skills. Teaching behavior classification was accomplished by consensus and group discussion by three experienced allied health professors. Data were analyzed by multivariate analysis of variance.

Mean ratings indicated that the most helpful items were in the androgogic and communication skill domains. Most of the behaviors perceived as hindering were found in the interpersonal domain. These findings appeared to support the conclusion that while good teaching and communication skills may facilitate learning, good interpersonal skills may not. Instructor behaviors rated as most helpful included answering questions clearly, taking time for discussion and questions, and providing opportunities for practicing skills. Behaviors found most hindering included asking questions in an intimidating manner and correcting students in front of patients. Although both groups had a number of common characteristics, 13 out of 58, or 22% of the teaching behaviors were perceived as significantly different. For example, the physical therapy students considered the research interests of the instructors more helpful than did the physician assistant students. From this, it appeared that physical therapists and physician assistants differ widely in their perceptions of some clinical teaching behaviors. This indicated that a similar difference may exist among other disciplines as well.

Only two studies related to this research were found in the allied health professions. These studies included only two allied health groups, occupational therapist and physician assistants. One of these studies identified characteristics of the effective clinical instructor, while the other concentrated on domains of clinical teaching skills. Neither of these studies examined which characteristic of domain was considered more important.

Nursing research on effective clinical instructor characteristics. Barham (1965) identified behaviors which differentiated between effective and ineffective nursing instructors in nursing programs at 13 of 24 junior community colleges in California. Both clinical and didactic instruction were examined. Using the critical incident technique, a total of 178 individuals comprising all chairpersons, nursing instructors, first year students, and second year students from these programs responded. A total of 362 written critical incidents were collected from which two unidentified judges apparently extracted appropriate behaviors from the written incidents. Nineteen behaviors were identified in this study. These behaviors were: (1) accepting students as individuals; (2) admitting limitations honestly; (3) avoiding humiliating students in front of others; (4) being available when appropriate; (5) counseling without humiliating; (6) demonstrating confidence in the student; (7) demonstrating flexibility so that learning can take place; (8) demonstrates understanding in working with student; (9) empathizing with students; (10) establishing rapport with students; (11) exhibiting appropriate preparation; (12) explaining for understanding; (13) giving student feeling of importance; (14) going into problem situation with student; (15) producing a defensive response; (16) recognizing individual needs; (17) setting an example; (18) showing restraint so that one's anxiety does not influence a particular situation; and (19) stimulating and involving students.

The four groups could not agree on which teaching behaviors were thought to be most critical. Although agreement was never reached by more than two groups in

any one category, "showing restraint so that ones anxiety does not influence a particular situation" was identified by all groups as their first or second choice. It is likely that some more conclusions could have been drawn from the data if some statistical procedures had been employed (Barham 1965).

Jacobson (1966) identified the effective and ineffective behavior of teachers of nursing as described by undergraduate students enrolled in five university nursing school graduate programs in nursing education. Nine hundred and sixty-one undergraduate students (85.57%) in five of the eight university schools in the Southern Regional Educational Board Compact responded. The methodology consisted of a modified form of the critical incident technique in group interviews. A total of 1,182 usable critical incidents were evaluated.

Data were analyzed by frequencies and percentages. Unlike Barham's (1965) limited number of individual behaviors, Jacobson (1966) identified six major behavioral categories of effective nursing instructors. The six identified behavioral categories were: (1) availability to students, (2) apparent general knowledge and professional competence, (3) interpersonal relations with students and others, (4) teaching practices in classroom and clinical areas, (5) personal characteristics, and (6) evaluation practices. In addition to these general categories, Jacobson also identified 58 specific behaviors of effective nursing instructors. It appeared that Jacobson (1966) attempted to conceptualize the behavior categories and to list specific behaviors for each of these categories (Zimmerman & Waltman 1986).

Jacobson (1966) let each student determine the definitions of effectiveness and ineffectiveness. It is possible that different definitions of these terms could have affected the results. It would have been interesting to find out how many different perceptions of the meaning of effectiveness and ineffectiveness were actually being used.

Kiker (1973) compared the characteristics of effective teaching behaviors considered essential by three different groups of students. These three groups of students consisted of junior level nursing students, junior level education students, and graduate level nursing students. Data were obtained at two Texas Universities by means of a written questionnaire. The author offered no explanation as to why or how these universities were chosen. The written questionnaire tested 12 characteristics that were identified as desirable by previous effective teaching research. The author offered no further information concerning the nature of these past studies.

A non-random sample of students (107 total) were asked to rank characteristics in the order of most essential to least essential. Data were processed by the percent each characteristic was ranked by groups. The author found that all three groups valued professional competence as being more important than individual personal attributes. The two groups of undergraduate students ranked behavioral characteristics concerned with relationships with students higher than graduate students. Considering the fact that graduate students are usually more independent than their undergraduate counterparts, this result was not surprising (Kiker, 1973).

In 1978, Wong conducted a study to identify student's perceptions of teacher behaviors, which either facilitated or hindered student's learning in the clinical field of nursing. Unlike previous studies, this one focused on clinical teaching.

A sample of eight first-year and six second-year students from a nursing program at the College of Applied Arts and Technology in Ontario participated in the study. The author did not comment on randomization of the sample, why this particular school was chosen, or why such a small sample was used. The tool for collecting data was a modified form of the critical incident technique. The total number of responses that were collected was not reported. Reliability was based on the percent agreement between the investigator and advisor (Wong, 1978).

Those behaviors reported as being helpful to student's learning were: (1) demonstrating willingness to answer questions and offer explanations, (2) being interested in students and respectful to them, (3) giving students encouragement and due praise, (4) informing students of their progress, (5) displaying an appropriate sense of humor, (6) having a pleasant voice, (7) being available to students when needed, (8) giving an appropriate amount of supervision, and (9) displaying confidence in themselves and in the students. Teacher behaviors reported as not helpful to student's learning were: (1) posing a threat, (2) being sarcastic, (3) acting in a superior manner, (4) belittling students, (5) correcting students in the presence of others, (6) supervising students too closely, and (7) laying emphasis only on correcting the student's mistakes or pointing out their weaknesses. The author presented no evidence that the data were subjected to any statistical scrutiny. The

author concluded that "the identification of helpful and hindering teacher behaviors has implications for curriculum planning, in program preparing teachers of nursing, in-service program for new teachers and as potential components in a guide for teachers' self evaluation" (Wong, 1978, p. 372). One may agree with the author if she is referring to all research in the area. However, the generalizability of her results was very limited for reasons already presented.

In 1979, O'Shea and Persons conducted a study that compared effective and ineffective teaching behaviors of clinical nursing instructors. The authors defined effective teaching behaviors as those actions, activities, and verbalizations of a clinical instructor that facilitated student learning in the clinical setting. The authors set out to determine what teacher behaviors students and faculty perceived contributed to learning in the clinical setting. A two-item questionnaire was administered to 24 faculty and 205 students at the Nell Hodgson Woodruff School of Nursing at Emory University. In this questionnaire, each group was asked to list three to five teacher behaviors that interfered with student learning in the clinical area.

Responses were categorized into three behavioral categories: (1) evaluative behaviors, (2) instructive and assistive behaviors, and (3) personal characteristics that were very similar to those presented by Jacobson in 1966. The category of "instructive and assistive behavior" appears to be so broad that nearly all the other behavior categories could have been placed in it. Some of the ineffective teacher behaviors reported by the authors were: (1) authoritarian, (2) intimidating, (3) criticizes in the presence of others, (4) impersonal, (5) takes over assignments, (6)

insufficient feedback, (7) negative feedback, and (8) lack of clearly defined expectations (O'Shea & Parsons, 1979).

The most marked difference of opinion found between faculty and students concerned the behavior of role modeling. The faculty reported role modeling as a facilitative behavior five times more frequently than the students. This could have been the result of differences in opinion between the two groups as to what role modeling actually involved. The authors restricted all their generalizations of the findings to the researched institution itself (O'Shea & Parsons, 1979).

Stuebbe (1980) examined how nursing students viewed the role of nursing instructors and compared this to how instructors viewed their own roles. Eighty nursing students and instructors from the Evanston Hospital School of Nursing participated in the study. All participants filled out the Clinical Instructor Characteristic Ranking Scale (CICRS) at an all school assembly. A statistically significant difference was found in 16 of the instrument's 18 characteristics ranked by different class levels and instructors. The author did not report any statistical data nor did she disclose what statistical tests were used. Results indicated that students from this school valued the learning of observed nursing skills and theory most, while instructors preferred teacher-student relations (Stuebbe, 1980).

Brown (1981) conducted a study to identify those characteristics of the clinical teachers believed to be important by students and faculty and to see how these two groups compared in their perceptions. The instrument used for this investigation consisted of a composite of 20 characteristics of effective clinical instructors found

from a review of the literature. The process of establishing content validity of the instrument was undertaken in a graduate nursing research course. No further information was disclosed concerning validity of the instrument. The sample included 82 senior nursing students and 42 faculty members from East Carolina University School of Nursing. Data were statistically analyzed using simple frequency, percentages, and the Chi Square test for significance.

The results indicated that the baccalaureate nursing students regarded instructor's relationships with students as more important than professional competence. The faculty took the inverse position. Two items that both groups ranked among the top five characteristics were: (1) provides useful feedback on student progress, and (2) is objective and fair in the evaluation of students. The remaining top three characteristics identified by the students included: (1) conveys respect for the student, (2) shows genuine interest in patients and their care, and (3) is realistic in expectations of students. The remaining faculty characteristics ranked most important were related to professional competence. The results of this study appeared to indicate that the students placed a high value on instructor's relationships with students over professional competence which parallels the findings of Kiker, 1972 and Brown, 1981. This study would have been more generalizable if a larger population at more than one school was examined.

Marson (1982) performed a study in England concentrating on the behavioral characteristics of trained nurses perceived as good teachers. Attitudes and perceptions of teaching were investigated by interview, questionnaire, and direct observation. A

stratified random sample of 30 nurse trainees and 22 ward sisters from one school of nursing were interviewed. Data from the interviews were developed into a questionnaire that was administered to an additional 96 students at the same school. Actual details on the development of the questionnaire were not presented. Results from the questionnaires were factor analyzed. The top five characteristics identified as being strongly related to good teaching by more than 80% of the respondents were: (1) sets a good example at all times, (2) displays high standards, (3) shows care and concern for patient's needs, (4) always has time for trainees, and (5) gives hints and tips to help learning.

In the third phase of this study, nurse/trainee verbal communications were observed to determine any relationship between verbal behaviors and effective communication. Four wards were selected for observation by a research assistant. The total number of observations was not disclosed. Verbal communications were analyzed and categorized using Rackham's method for analyzing verbal communication. The author found no significant link between verbal behavior and effective teaching. The statistical methodology that lead to this conclusion was not discussed (Marson, 1982).

In 1983 Mogan and Knox performed a study to identify effective and ineffective aspects of clinical teaching as perceived by students. Four hundred and thirty-five nursing students from the University of British Columbia School of Nursing participated in the study. The survey instrument consisted of three questions, asking the respondent to rate the effectiveness of their instructor, list the most effective aspects of the instructor's teaching, and suggesting how the instructor's

effectiveness could be improved. The authors stated that data were analyzed using a method of constant, comparative analysis. No further details concerning data analysis were offered. The authors placed all the student responses into five categories as identified by content analysis. These categories were: (1) teaching ability, (2) nursing competence, (3) ability to evaluate, (4) interpersonal relationship, and (5) personality. Students appeared to attribute little importance to the instructor's knowledge in nursing. Students appeared to value the instructor who was an expert clinician and good role model. They also appreciated the instructor's theoretical knowledge and communication skill with patients. The most profound criticism was directed at instructors who were intimidating and non-supportive in their behavior toward students.

In another study, Knox and Mogan (1985) identified effective clinical teacher behavior as perceived by university nursing faculty, baccalaureate nursing students, and practicing baccalaureate graduates. The Nursing Clinical Teacher Effectiveness Inventory (NCTEI) was developed and tested for content validity and reliability. The 47-item instrument consisted of five categories of effective clinical teacher behavior: (1) teaching ability, (2) evaluation, (3) interpersonal relationship, (4) personality, and (5) nursing competence. The questionnaire was mailed to all students and faculty at a university school of nursing in Western Canada. In addition, 100 baccalaureate nursing graduates practicing nursing in hospitals and agencies throughout British Columbia were also sent a questionnaire. Of the distributed questionnaires, 487 (73%) were completed by the students; 49 (74%) were completed by the faculty; and 45

(45%) were completed by the baccalaureate nursing graduates. Since the questionnaires had to be sent directly from the nursing registry, follow-up mailings were impossible.

The category of "evaluation" received the highest score (93%) by all three groups. Analysis of variance of responses for the three groups showed no statistically significant difference for all categories of teacher behaviors. These findings were interesting not because of their generalizability but because they were in conflict with previous study results. Two conflicting studies by Stuebbe (1980) and Brown (1981) found differences between faculty and student perceptions of effective clinical teacher characteristics. This was also the first study to include graduates of nursing programs in the sample (Knox & Mogan, 1985).

In 1987 Mogan and Knox conducted another study, this time to identify and compare characteristics attributed to "best" and "worst" clinical teachers as perceived by faculty and students. One hundred and seventy-three undergraduate nursing students and 23 clinical instructors, from seven university schools of nursing located in Canada and western United States participated in the study. The Nursing Clinical Teacher Effectiveness Inventory (NCTEI) developed by the authors was used in this study (Knox & Mogan 1985). Using the NCTEI each participate was asked to rate the "best" and "worst" clinical teachers from past observations.

Results showed faculty and students both agreed that being a role model was the most critical characteristic differentiating the "best" from the "worst" clinical teacher. Analysis of variance of data for the "best" clinical teacher showed significant

differences between the ratings of faculty and students for three of the five categories: (1) personality traits, (2) evaluation, and (3) interpersonal relations. High ratings by students in these three groups accounted for these differences. No statistically significant difference was noted for "worst" clinical teacher characteristics between the two groups. It appeared that faculty and students have fairly similar views regarding specific characteristics of "worst" clinical teacher while less agreement appeared to be present concerning the "best" clinical teacher Mogan & Knox, 1987).

Flager, Loper-Powers, and Spitzer (1988) attempted to determine what clinical behaviors are perceived by students as important in promoting their self-confidence in the clinical area. A questionnaire was developed from a review of the literature. The validity and reliability of the instrument were not reported. This questionnaire was distributed to baccalaureate nursing students attending a university in the Pacific Northwest. The questionnaire was completed by the students upon completion of a maternity nursing course. Over a period of two years, 139 baccalaureate students rated 16 clinical teaching behaviors as to the degree each helped or hindered their self-confidence as nurses. Factor analysis of these behaviors revealed five dimensions of clinical teaching that accounted for 59% of the total variance. These dimensions that appeared to characterize the clinical instructor were: (1) resource, (2) evaluator, (3) encourager, (4) promoter of patient care, and (5) benevolent presence. The authors found behaviors that were helpful to the students in developing their self confidence as nurses included all the above dimensions except evaluation.

The findings in this study gave further support to earlier studies on clinical instruction, including the importance of showing confidence in the student, acceptance of questions, and providing positive feedback. The results also appeared to indicate that if the clinical instructor placed too much emphasis on evaluation, to the exclusion of other aspects of clinical teaching, the student's professional development may be hindered (Flagler, Loper-Powers, & Spitzer, 1988).

In 1988, Pugh conducted a study to determine which clinical behaviors faculty and students believe are important, and how these faculty and student beliefs correlate. Data were obtained from 50 faculty in eight randomly selected State of Illinois baccalaureate nursing programs. A faculty questionnaire and student questionnaire were designed to measure beliefs, attitudes, behavioral intentions, and behavior according to the components of the Ajzen-Fishbein Model. The author stated that the reliability and validity of the questionnaire were tested. The results of these tests were not disclosed. It was found that faculty and students only agreed on the importance of one behavior which appeared in the list of five most highly rated behaviors. The five most highly rated behaviors identified by the faculty were, in order of importance: (1) shows a genuine interest in students; (2) corrects and make comments on written assignments; (3) encourages self-evaluation; (4) gives positive reinforcement and praise; and (5) assumes the role of a resource person. The five most important behaviors as identified by the students were, in order of importance: (1) demonstrates nursing care in a real situation; (2) corrects and makes comments on written assignments; (3) makes specific suggestions for my improvement; (4) offers

me opportunities to meet my own goals; and (5) gives assignments that help me transfer theory to clinical.

Pugh (1988) concluded that faculty needed to become more aware of which clinical teaching behaviors were perceived by students to be more helpful to them in the clinical area. The author also suggested that faculty development should focus on enabling clinical nursing teachers to use the input of their students as a means of individualizing various teaching methods in order to provide an environment that facilitates student learning.

In 1990, Bergman performed a study to determine how baccalaureate nursing students and faculty compared in their identification of characteristics of effective clinical teachers, and how different grade levels of students compared in their identification of characteristics of effective clinical teachers. Data were collected by way of a questionnaire that had been developed by Brown in 1981. The study sample consisted of 134 nursing students and 23 faculty from a university college of nursing in southwestern Ohio.

Bergman (1990) found that both faculty and students favored articulate and knowledgeable clinical instructors who were objective and fair in student evaluations. Faculty appeared to place a higher value on instructor interests in patients while student appeared to emphasize communication-related issues. Contrary to Brown, (1981) faculty identified relationships with students as more important than professional competence. Data analysis also appeared to partially support the hypothesis that student perceptions of characteristics tended to resemble faculty as

grade level increases. Although no broad convergence of views among students as they matured were noticed, a trend did develop in certain characteristics such as showing a genuine interest in patients and their care. This was an interesting study that would have been more valuable if a larger sample of institutions and respondents had been used.

Nehring (1990) examined characteristics of "best" and "worst" clinical teachers as perceived by 121 nursing students and 63 nursing faculty in 11 of the National League of Nursing accredited baccalaureate nursing programs in Ohio. This study was a replication of the study conducted by Mogan and Knox in 1987. The Nursing Clinical Teacher Effectiveness Inventory (NCTEI), developed by Knox and Mogan (1985), was the research instrument used for this study. Two sample t-tests were performed on the five NCTEI scales to test for differences between faculty and students. Results indicated that for both students and faculty, the "best" clinical instructors are good role models, enjoy nursing, enjoy teaching, and demonstrate clinical skills and judgments. The "worst" clinical teachers are not good role models. The primary distinguishing characteristics between the "best" and the "worst" clinical teachers were "being a good role model" and "encouraging mutual respect." These findings agree with Mogan and Knox's findings in 1987.

It appears that the majority of research concerned with the characteristics of effective and non-effective clinical instructors has been conducted in the nursing profession. These studies have primarily involved the perceptions of nursing students and faculty. Data collection techniques have included critical incidents, interviews

and questionnaires. One study rank ordered characteristics of effective clinical instructors and concluded that the most important characteristic was professional competency. Another study found that nursing faculty and students only agreed on the importance of one behavior: corrects and makes comments on written assignments.

Up until this point, research concerning characteristics of effective clinical instructors has dealt primarily with nursing, medicine, and a few isolated health care professions. Only one study was found in the literature concerning characteristics of clinical teachers in the profession of nurse anesthesia and anesthesiology.

Research on effective clinical instructor characteristics in nurse anesthesia. In 1982, Katz conducted a study to identify those characteristics perceived to be indicative of the "best" and "worst" teachers in the specialty of nurse anesthesia. She developed a questionnaire that included items descriptive of clinical teachers in nurse anesthesia. Reliability of both sections of the study instrument, using Cronbach's Alpha, yielded an extremely high 0.98. The study sample consisted of professionals affiliated with the 143 nurse anesthesia educational programs accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs in 1983. The total population of physician and Certified Registered Nurse Anesthetist (CRNA) program directors were included in the survey. A random sample of three physician clinical instructors, three CRNA clinical instructors, three first-year nurse anesthesia students, and three second-year nurse anesthesia students were asked to participate from each program. To select the sample, each program director was asked to use an

alphabetical list of names from each professional group. The director was then instructed to select the first, third and fifth name as participants. If a program had three or less individuals in any group, the total group was to be used. This random selection methodology leaves the principle investigator with few assurances the set protocol was carried out. Each respondent was asked to describe their perception of two specific individuals who had been associated with their program during the past 24 months. These were individuals who the respondent felt had been the "best" and "worst" clinical instructors.

Factor analysis was used to determine the underlying characteristics as perceived by the respondents. Katz (1982) demonstrated that the responses describing the perceived best and worst clinical instructors differed significantly at the $p = .01$ level of probability. Empathy and respect accounted for 71.3% of the variance in the total group description of clinical instructors who were perceived as best. Other factors identified with the perceived best instructor were scholarly teaching and knowledge, clinical competence and judgment, evaluation and counseling, and appropriately encourages independence.

Factors that were identified with clinical instructors that were perceived as "worst" included: empathy and respect, scholarly teaching and knowledge, clinical competence and judgment, evaluation and counseling, appropriately encourages independence, and use of student care plans. Many of these factors identified for instructors perceived as "worst" were the converse of those identified for instructors perceived as "best" (Katz, 1982). Although the author reported the characteristics in

terms of a percentage of the total variance, no actual rank ordering for importance was performed since the question of importance was not asked.

Although many of the identified characteristics corresponded with the results of previous research studies, one main difference was prevalent. The results of this study very strongly emphasized the importance of demonstrating empathy and respect. This characteristics was perceived to be important in previous studies but not to the extent it was in Katz's study. Katz (1982) stated that this finding might have been the result of the stress that was encountered daily in the operating room arena, the requirements of anesthesia, the importance of detail in anesthesia care, and the difficulty of providing a satisfactory educational environment in the operating room.

Summary

In this chapter a comprehensive review of the literature was offered. A general overview of clinical education was discussed to include a historical background and contrasts between clinical and didactic instruction. A review of research, examining characteristics of the effective clinical instructor, was presented for the professions of medicine, dentistry, allied health professions, nursing, and nurse anesthesia. These findings are summarized in Table 1.

Most of the research on characteristics of clinical faculty has been performed by the nursing profession. A total of 15 studies were reported in this literature review. The majority of studies conducted in the professions of nursing, medicine, dentistry, and allied health were carried out at a single university or school. Only a

few studies encompassed more than one school, program, state, or geographic region. The only comprehensive nationwide study was conducted in the profession of nurse anesthesia by Dr. Leah Katz in 1982.

The majority of studies reviewed, concentrated their efforts on the identification of positive or negative characteristics of effective clinical instructors. Data were reported within and across professions in a variety of ways. Some studies reported characteristics of effective and non-effective clinical instructors. Other studies reported factors, behaviors, skills, categories, criteria, domains, or views. Despite the variety of terms used to categorize data, various trends were prevalent. Clinical competence, enthusiasm for teaching, good communication skills, and good student rapport appeared to be reported in most of the studies. The actual importance of these identified items appeared to vary between studies and professions. In general, student responses emphasized interpersonal skills and relations while faculty responses emphasized professional competence. A few characteristics such as "use of student care plans" (Katz, 1982) and "reviews histories" (Wolf & Turner, 1989) appeared to be unique to specific professions.

Kiker (1973) conducted the only study that dealt with the issue of rank ordering characteristics of the effective clinical instructor. In her study, 'professional competence' was ranked higher than individual personal attributes as determined by junior level nursing students, junior level education students, and graduate level nursing students.

Even though a comprehensive review of the literature was performed, there appears to be very little research involving characteristics of the effective nurse anesthesia instructor. The one study that was reported by Katz in 1982 appears to be a good comprehensive research endeavor. The results of this study clearly identified many characteristics of the effective and ineffective nurse anesthesia clinical instructor. The actual importance of these characteristics, however, was not determined. This present study attempts to fill this void.

Table 1

Review of the Literature Summary

Researcher	Year	Characteristics/Behaviors/Categories Identified as Indicative of the Effective Clinical Instructor
MEDICAL RESEARCH		
Stritter, Hain & Grimes	1975	Dimensions: active student participation, attitude toward teaching, applied problem solving, student centered attitude, humanistic orientation, and emphasis on content & research
Irby	1978	Characteristics: group instruction skills, clinical competence, clinical supervision, enthusiasm, organization, and knowledge
Irby & Rakestraw	1981	Factors: enthusiasm, stimulating, establish rapport,active involvement of student, and good feedback.
Gjerbe & Coble	1982	Behaviors: 2 way communication skills, environment to help learning, and feedback.
Wolverton & Bosworth	1985	Behaviors: correction without belittling, competence, current medical knowledge, enthusiasm, self confidence, explain actions, attentive, feedback, good team member, and pleasant and helpful after hours.
Wolf & Turner	1989	Skills: Feedback, interest in student, good communication, motivates student, exhibits current knowledge, and reviews histories
DENTAL RESEARCH		
Bolender & Guild	1967	Characteristics: command of subject, present as scheduled, instills confidence, circulates among students, accepts only quality, and constructive criticism.
Walker	1971	Categories: teacher characteristics, course organization & content, in class behavior, and teacher student interaction.

Table 1 (cont'd)

Review of the Literature Summary

Researcher	Year	Characteristics/Behaviors/Categories Identified as Indicative of the Effective Clinical Instructor
Evans & Massler	1977	Behaviors: consistency & dependability in attendance, technical competence, judgment, and professional attitude.
Myers	1977	Criteria: maintain conditions for clinical learning, knowledge, concern for teaching, consideration, evaluation, likes teaching, application of knowledge.
Romberg	1984	Dimensions: meet teaching responsibility, behavior conducive to clinical learning, technical competence, enjoys job.
ALLIED HEALTH PROFESSION RESEARCH		
Christie, Joyce & Moeler	1985	Characteristics: timely feedback, flexibility,availability, competence, role model, supportive, open-minded, accepting, non-defence, concern, commitment, sensitivity, patience, objectivity, enthusiasm.
Jarski, Kulig & Olsen	1989	Domains: interpersonal skills, professional skills, communication skills & adult teaching skills
NURSING RESEARCH		
Barham	1965	Behaviors: accepting, knows limits, not humiliating, available, counsels, confident in student, flexible, understanding, empathizing, good student rapport, prepared, good explanations, support student ego, helps student, defensive response, recognizes individual needs, sets example, shows restraint, and stimulating.
Jacobson	1966	Categories: availability, general knowledge & competence, interpersonal relations, teaching practices, personal characteristics, evaluation practices.

Table 1 (cont'd)

Review of the Literature Summary

Researcher	Year	Characteristics/Behaviors/Categories Identified as Indicative of the Effective Clinical Instructor
Kiker	1973	Categories: professional competence, individual attributes, behavior characteristics.
Wong	1978	Behaviors: answers questions, interested in student, encourages, gives progress reports, sense of humor, pleasant voice, available, good supervisor, and demonstrates confidence in self and student.
O'Shea & Persons	1979	Categories: evalative, instructive/ assistive behaviors, and personal characteristics.
Stubbe	1980	View: Student relations most important to faculty. Observation skills and theory most important to students.
Brown	1981	Characteristics: Student put relationships first. Faculty put competence first. Both agree on feedback, objectivity and fairness.
Marson	1982	Behaviors: sets good examples, high standards, shows care & concern, has time for student,and give hints & tips to facilitate learning.
Mogan & Knox	1983	Categories: evaluation, teaching ability, competence, interpersonal relations, personality.
Knox & Mogan	1985	Category: #1 = evaluation
Knox & Mogan	1987	Category: #1 = role model
Flager, Loper-Powers & Spitzer	1988	Dimensions: resource, evaluative, encouragement, pt. care promotion, and benevolent presence.

Table 1 (cont'd)

Review of the Literature Summary

Researcher	Year	Characteristics/Behaviors/Categories Identified as Indicative of the Effective Clinical Instructor
Pugh	1988	Behaviors: Interest in students, corrects and comments on assignments, encourages self evaluation, positive reinforcement, role of resource person, demonstrates, constructive criticism, help student meet goals, and assignments from theory to clinical.
Bergman	1990	Characteristics: articulate, knowledgeable, objective, fair evaluations, good relationships.
Nehring	1990	Characteristics: good role model, enjoys teaching, enjoys nursing, and good clinical skills & judgment.
NURSE ANESTHESIA RESEARCH		
Katz	1982	Characteristics: Empathy/Respect, Ego Strength/ Self Assurance, Use of Student Care Plan, Scholarly Teaching/ Knowledge, Motivates Students, Calm, Stimulates Effective Discussions, Clinical Competence/ Judgment, Appropriately Encourages Independence, Evaluation/ Counseling, Individualizes Teaching, Open-Minded, Enjoys Teaching, Stimulates Students Involvement, Actively Teaches, Positive Role Model, Sensitivity, Flexibility, Timely Feedback, Accessibility, Engenders Confidence, and Communication Skills.

Chapter Three

Methodology

Introduction

This chapter presents an overview of the methodology for this study. Included in this overview are the following: a general study design, research questions, study population, procedure, instrumentation, data analysis, and chapter summary.

General Design

This study used a descriptive research approach that describes or assesses the nature of conditions or characteristics that already exist in a given population. It described the perceptions of nurse anesthesia program directors, CRNA clinical faculty and students with respect to the perceived importance of various characteristics of the effective clinical instructor. There was no manipulation of treatments or subjects (McMillan & Schumacher, 1984).

McMillan and Schumacher (1984) point out that descriptive research, may be used to explore relationships between variables. Rosenberg (1968) states that by controlling certain demographic variables it is possible to determine a temporal

sequence of variables that impact upon the dependent variables. This allows the researcher to draw logical conclusions about independent variables that have a causal relationship with the dependent variable.

Research Questions

The following questions assisted in providing the focus of this study:

1. What is the perceived importance of the effective clinical anesthesia instructor characteristics as identified by Katz in 1982?

2. Does the perceived importance of these characteristics hold for nurse anesthesia program/school directors, clinical instructors, and students?

Hypotheses

In order to answer these research questions, the following null hypotheses were tested.

1. There is no significant difference between **nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

2. There is no significant difference between the **different program types with which nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students are affiliated** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

3. There is no significant difference between the **years nurse anesthesia program directors and CRNA clinical instructors were clinical instructors** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

4. There is no significant difference between the **number of years nurse anesthesia program directors served as program directors** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

5. There is no significant difference between the **age of nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

6. There is no significant difference between the **gender of nurse anesthesia program directors, CRNA clinical instructors, first-year students, and second-year students** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

7. There is no significant difference between **nurse anesthesia CRNA clinical instructors who were once program directors and CRNA clinical instructors who were never program directors** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

8. There is no significant difference between the number of **hours per week that nurse anesthesia program directors and CRNA clinical instructors**

teach in the clinical area and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

9. There is no significant difference between the **number of weekly hours first-year and second-year nurse anesthesia students spend in the clinical area** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

10. There is no significant difference between the **months of nurse anesthesia school first-year and second-year nurse anesthesia students have completed** and their perceived importance for the 22 characteristics of effective clinical instructors ($p < .05$).

Study Population

The nation wide population for this study consisted of nurse anesthesia program directors, students and operationally defined CRNA clinical faculty members. The Nurse Anesthesia Educational Program Information Packet, published by the American Association of Nurse Anesthetists, identified 82 nurse anesthesia programs throughout the United States. There were also nine military nurse anesthesia programs listed in the Nurse Anesthesia Educational Program Educational Packet. These nine military programs were excluded from the study because of the nature of their educational design. Unlike their civilian counterparts, the military programs present the didactic phase of their student's education in a few centralized locations. Upon successful completion of this phase of education, the students are

sent to military medical facilities throughout the United States to obtain the clinical phase of their education. In the civilian sector, didactics and clinical are integrated throughout the program.

Program directors from all 82 schools were surveyed. In addition, the office of Education and Research of the American Association of Nurse Anesthetists identified approximately 2,000 CRNA clinical instructors and 1,900 nurse anesthesia students as possible subjects for this study.

Instrumentation

The survey instrument was developed by the author. The first part of the instrument included various demographic questions. The second part of the instrument was developed using a five-point Likert format. This was the primary data collection component of the survey from which the importance of the 22 characteristics of effective clinical teaching was determined. The third part of the instrument was open ended in design and requested the subjects to list the five most important and five least important characteristics of an effective clinical instructor (see Appendix A). This section was included to help further define and describe these findings.

Operational definitions of each characteristic were developed from the items used in Katz's 1982 study. A panel of five nationally known experts in nurse anesthesia education were asked to evaluate these definitions for accuracy and conciseness of scope (see Appendix B & C).

The questions in the first part of the instrument varied depending on the population for which it was intended, i.e. program directors, clinical instructors or students. The second and third part of the instrument remained the same for all groups. The three surveys designated for the three different subject populations were color coded. Surveys designated for programs directors were printed on white paper, those for clinical faculty on green paper and those for students on yellow paper. The survey itself was reduced and printed on both sides of the necessary pages. This was done to make the survey appear less bulky and to increase the return rate.

Instrument Validity and Reliability

McMillan and Schumacher (1984) state that validity is a judgment as to whether a test actually measures what it is supposed to measure. Test validity is a judgment of the appropriateness of a measure for specific inferences. Since it is a situation specific concept, a test can be valid in one situation and invalid in another. Content validity is present when the content of a test is judged to be representative of some appropriate domain of content. With content validity, the test domain should be judged appropriate for the proposed use of the test (McMillan & Schumacher, 1984).

Content validity for this research instrument was derived from the fact that the characteristics of the effective anesthesia clinical instructor were identified in a previous study by Katz in 1982. This present study examined the perceived level of importance various subjects assign these characteristics.

A panel of experts contributed to the validity of the instrument. Five nationally recognized nurse anesthesia educators contributed to the development of definitions for the 22 characteristics identified by Katz in 1982. The definitions were added to the survey for clarification purposes so the respondents would have a clear understanding of each characteristic.

Reliability refers to consistency, stability, and repeatability of measure. A reliable instrument does not respond to chance factors or environmental conditions. Results should be consistent if used by two different investigators or over time on the same subject. If an instrument is unreliable, the information attained is useless (Brink & Wood, 1983).

McMillan and Schumacher (1984) state that one method of testing reliability is to test the stability of the instrument. A stable instrument is one that can be repeated on the same subject more than once and achieve the same results. Stability testing appears appropriate for the present instrument since the variable being measured, perceived level of importance for the characteristics of the effective clinical instructor, is not expected to change over time.

A test-retest procedure was used to test instrument stability. Using a table of random numbers, 24 subjects from a large southeastern master degree program in Nurse Anesthesia were randomly selected. Twelve of the subjects were CRNA clinical instructors and 12 were first and second year nurse anesthesia students. These 24 individuals were administered the same survey instrument at two separate occasions, 2 weeks apart. Subjects used in this pilot study were excluded from the study

population. Data were statistically analyzed yielding a inter-rater reliability coefficient for each of the 22 characteristics. The mean test-retest reliability coefficient was .66 with a range of .45 to .95 (see Appendix D). Only one characteristic, "motivates students" had a coefficient below .50. Consultation with a statistician determined that instrument reliability was overall acceptable. No changes in the instrument were advised or recommended.

Survey Procedures

Upon formulation of the survey, the following procedure was followed in its implementation. Surveys were sent to all program/school directors and a random sample of nurse anesthesia students and CRNA clinical instructors. Sample size was determined by computing the formula $n=4pq/L^2$ (Snedecor & Cochran, 1989). Assuming that the size of the difference in means was small and using a $p = .05$, the sample size that was necessary to achieve a high probability of being statistically significant and representative of the universe being sampled was 120 CRNA clinical faculty and 120 students. Based on a target return rate of 60%, 200 CRNA clinical faculty and 200 students were surveyed. Since all 82 program/school directors were surveyed a grand total of 482 subjects was surveyed with a target return rate of 289 subjects. As a recipient of the AANA Education and Research Foundation Grant, these stratified random samples were provided by the American Association of Nurse Anesthetists' Office of Education and Research (see Appendix E). The Office of Education and Research also provided four sets of mailing labels for each of the

randomly selected subjects. These labels were used for the initial and followup mailings.

Each subject was first sent a letter of introduction. This letter introduced the researcher, the importance of the study, and requested the potential respondent's cooperation (see Appendix F). One week after the letter of introduction, each subject was sent a survey packet mailed to the address provided by the Office of Education and Research of the American Association of Nurse Anesthetists. The packet contained a letter of transmittal, a survey instrument, and a stamped return addressed envelope. The confidentiality of the respondents was stressed in the letter of transmittal. The subjects were asked to return the completed instrument in the self addressed envelope within a two-week period. The return envelope was coded so the researcher could determine who had returned the completed instrument.

One week after the designated deadline non-respondents were sent a follow-up postcard as a reminder (see Appendix G). This technique elicited additional responses. Since a sufficient number of instruments was not returned from all the professional groups two weeks after the follow-up postcard, a second packet containing the same material as the first mailing was sent to all non-respondents. The same code values were printed on this return envelope with an added value that designated the instrument as part of the second mailing.

Data Analysis

Characteristics of the respondents were described using percentages, means, and frequencies. The first research question was: How important are each of the effective clinical anesthesia instructor characteristics identified by Katz (1982) as perceived by nurse anesthesia program directors, CRNA clinical instructors and students? Data were collected from the survey instrument. The overall importance of the 22 characteristics of the effective clinical instructor was determined by first calculating the mean scores for the values of importance assigned to each characteristic by all respondents and for each of the four professional groups. After the mean scores were calculated, the researcher, via computer, arranged the mean scores in a descending order.

The second research question was: does the perceived of the importance of these characteristics the same for nurse anesthesia program directors, clinical instructors, and students in relation to various demographic variables? Data were also collected from the research instrument. The Friedman Two-Way Analysis of Variance was calculated to determined if any significant differences existed between the rank order as determined for each professional group. A Kendall coefficient of concordance was calculated to estimate the degree of association or correlation between the respondents' rankings of the characteristics. A chi-square test of significance was conducted to determine any significant differences in values assigned to each of the 22 characteristics as determined by each of the professional groups. Pearson correlation and multiple regression analysis were performed to examine

relationships between demographic variables and the perceived values of importance assigned to the characteristics. An acceptable level of significance for this study was set at $p < .05$.

Summary

This chapter covered the methodology portion of this prospectus. A brief discussion of the general research design was offered. A list of the research questions and hypotheses was presented. A description of the study population, instrument development and survey procedures was provided. Instrument validity and reliability were presented. A review of the data analysis for the broad research questions was outlined.

It was the intent of this thorough discussion of the methodological aspects of this dissertation to provide other researchers with the necessary information to replicate this study. The results of this study can be used to provide insight as to the importance of the 22 characteristics of an effective clinical instructor. Such information can be used to guide faculty development, faculty evaluation and employment decisions.

Chapter Four

Results and Discussion

Introduction

The purpose of this chapter is to present, analyze, and discuss the data collected from the completed surveys. The survey results include a presentation and discussion of the demographic variables and measures of importance for the 22 characteristics of effective clinical instructors. Descriptive statistics, including means, frequencies, and percent of responses are presented. Means presented in descending order were used to determine the rank order of characteristics by perceived order of importance. Chi-square tests of significance, correlation coefficients, and multiple regression analysis were used to examine relationships between various demographic variables and values of perceived importance for the 22 characteristics of effective clinical instructors.

The review of literature in Chapter Two revealed that only one nursing study examined the order of importance for a few characteristics indicative of an effective clinical instructor. One nurse anesthesia study by Katz (1982) was found that dealt with characteristics of effective instructors. Katz's study was concerned with

identification but not the rank ordering of characteristics. Accordingly, the comparison of findings in this study with earlier studies is somewhat limited. However, Katz's (1982) study was a cornerstone upon which this study was built.

Response to Survey

Surveys were mailed to 82 program directors, 200 CRNA clinical instructors, and 200 nurse anesthesia students. A total of 482 surveys were mailed throughout the United States. After two follow-up mailings, a total of 370 (76.8%) surveys were returned. Sixteen of these surveys were unusable since they were missing the demographic sheet or contained missing data in section two of the survey instrument. This left a total of 354 surveys out of a possible 482 (73.4%) that were used in the final data analysis.

The response rate for the four professional groups varied. The response rate for program/school directors was 93% (n = 76). The response rates for CRNA clinical instructors and nurse anesthesia students were 70% (n =140) and 69% (n = 138) respectfully. The response rate in this study was higher than that obtained by Katz (1982). Katz received a total response rate of 67%.

General Demographic Variables

Age, gender, professional group, and program type were first examined by means and frequencies for all respondents. These variables were then examined within and between each of the four groups by means (x) and frequencies (f).

Age. The ages of all respondents ranged from 23 to 69 years, with a mean age of 38.9 (see Table 2). All ages from 23 to 60 were represented. Ages 64, 65, and 69 were represented by one respondent each. Two individuals did not report their ages. The ages for program directors ranged from 31 to 65 years with a mean age of 45.3. There were no values for age 61, 62, and 63. CRNA clinical instructors ranged in age from 27 to 69 years with a mean age of 42. The ages for all students ranged from 23 to 48 years with a mean age of 32.2. The mean age for first year students was 32.4, while the mean age for second year students was 32.1.

Table 2

Age Distribution of Respondents

GROUP	*N*	*M*	*SD*
Directors	75[a]	45.28	7.59
CRNA Clinical Instructors	139[b]	42.05	8.19
Students - 1st Yr.	53	32.42	5.10
Students - 2nd Yr.	85	32.06	4.97
All Respondents	352	38.88	8.86

Note: Total number of respondents = 354.

[a]One director did not report age. [b]One CRNA clinical instructor did not report age.

Gender. Sixty percent of all the respondents were female and 40% were male (see Table 3). The gender gap was narrower in the director group with 57% female and 43% male. This gap was also narrow between male and female second year students. The gender gap was wider in the CRNA clinical instructor and first year student groups, with females out numbering their male counter parts.

Table 3

Gender Distribution of Respondents

	Male		Female		
Group	*f*	%	*f*	%	Total
Directors	33	43.42	43	56.58	76
CRNA Clinical Instructors	55	39.29	85	60.71	140
Students - 1st Yr.	15	28.30	38	71.10	53
Students - 2nd Yr.	38	44.71	47	55.29	85
All Respondents	141	39.83	213	60.17	354

Program type. The majority of respondents (76.84%) were associated with master's programs. Baccalaureate and certificate programs accounted for 2.54% and 20.62% respectfully (see Table 4). The 1991 Nurse Anesthesia Educational Program

Information Packet, published by the American Association of Nurse Anesthetists, lists 70 nurse anesthesia programs that offer a masters degree. Only four programs are reported as offering a baccalaureate degree and 26 programs award a certificate/diploma. The distribution reported in this study closely represents the national distribution.

Table 4

Program Types and Respondents

	Program Types						
	Certificate		Baccalaureate		Masters		
Group	*f*	%	*f*	%	*f*	%	Total
Directors	14	18.42	1	1.32	61	80.26	76
CRNA Clinical Instructors	29	20.71	4	2.86	107	76.43	140
Students - 1st yr.	15	28.30	1	1.89	37	69.81	53
Students - 2nd Yr.	15	17.65	3	3.53	67	78.82	85
All Respondents	73	20.62	9	2.54	272	76.84	354

General demographic summary. Upon examining the general demographic variables it was found that 76.84% of all respondents were affiliated with masters

programs. Approximately 70% of the masters degree respondents were represented from each professional group. Certificate programs accounted for 20.63 percent of the respondents while only 2.54% of all respondents were affiliated with baccalaureate programs. The nine reporting baccalaureate respondents were distributed among all four professional groups.

The mean ages of the program directors and CRNA clinical instructors, 45 and 42 respectively, were greater than the mean age of 32 found in both student groups. Older CRNA clinical instructors were female while older second year masters' degree students were male. There were approximately the same percentage of females (55-60%) found among the directors, CRNA clinical instructors, and second-year student group. First-year students consisted of 72% females.

Group Specific Demographics

Besides the general demographic data collected for all participants, specific questions were also asked of each group. This section examines these group specific questions.

Demographics specific to directors. Three director specific variables were examined. These three variables were: (1) years as a director, (2) years as a CRNA clinical instructor, and (3) hours/week teaching in the clinical area. Analysis revealed that the length of time respondents served as program directors ranged from 1 to 28 years (see Table 5). The mean length of time they served as program directors was 9 years. Directors worked as CRNA clinical instructors from 0 to 32 years with a

mean of 7 years. Five respondents reported that they never worked as CRNA clinical instructors before becoming a program director.

Program directors spent a mean time of 9 hours teaching in the clinical area. Eleven of the directors reported they did not teach students in the clinical area. The distribution of weekly teaching hours fell primarily at 0, 4, 8, 12, 16, or 20 hours. This is probably the result of translating half days, whole days, and days and a half into teaching hours. Three program directors reported they taught students in the clinical area more than 20 hours per week. All three of these individuals were program directors for less than 7 years. Directors with more than 20 years experience were found in masters degree programs.

Table 5

Demographics specific to Directors

Variables	*N*	*M*	*SD*
Years as a Director	76	9.09	6.8
Years as a CRNA Clinical Instructor	76	7.04	6.11
Hours Teaching Students in the Clinical Area	76	9.01	7.73

Demographics specific to CRNA clinical instructors. The demographic variables specific to CRNA clinical instructors were: (1) hours per week of clinical

teaching, (2) years as a faculty member, and (3) CRNA clinical instructors who were once a program director and how long ago. CRNA clinical instructors spent from 8 to 50 hours per week (*M* = 23 hrs.) teaching students in the clinical area. Table 6 presents the data for this group. The mean teaching time was 23 hours per week. The most frequently reported times were 8, 20 , 30, and 40 hours per week.

The number of years a CRNA worked as a clinical instructor ranged from 1 to 33 years with a mean of 9.9 years. Values for years as a clinical instructor were continuous up to 23 years. There were no clinical instructors with 24, 26, 27, or 29 years experience. Only one CRNA clinical instructor reported 33 years of experience.

Table 6

Demographics specific to CRNA Instructors

Variables	*N*	*M*	*SD*
Years as a CRNA Clinical Instructor	140	9.94	7.36
Hours Teaching Students in the Clinical Area	140	23.04	11.28

Instructors with the most years of teaching experience were female and were associated with masters programs. Instructors with the least amount of teaching

experience were associated with baccalaureate programs. This may have been the result of the small sample size of baccalaureate programs.

Eight CRNA clinical instructors reported they were once directors of nurse anesthesia programs. Seven of the respondents were directors for less than 4 years. One respondent reported he was a director for 10 years. The time lapse since they were formerly directors ranged from 1 to 9 years. Three of the respondents qualified their response by adding the words **temporary**, **interim**, or **assistant** before the word director.

Closer examination of data indicated the more experienced CRNA clinical instructors spent less time per week in clinical teaching. Also, as the years since the respondent was a director increased, the time per week teaching in the clinical area decreased. As the years as a clinical instructor increased, the hours spent teaching in the clinical area also decreased. This may have been the result of the more experienced instructors fulfilling more non-clinical duties in the program such as didactic teaching. It is also possible that these individuals were changing their career focus from student clinical education to research, local and national organization involvement, and personal practice. Further research in this area is needed before specific conclusions can be drawn.

Demographics specific to students. Specific demographic variables for nurse anesthesia students were: (1) hours per week taught in the clinical area and (2) months in the program. These variables were examined for first-year students, second-year students, and all students together. The combined first- and second-year students

spent from 0 to 60 instructional hours (M = 26.4 hrs.) with CRNA clinical instructors in the operating room per week. Table 7 presents the data for this group. The mean time for first- and second-year students in the clinical area was 23.7 and 28.2 hours respectfully. Three first-year students reported no hours in the clinical while three second-year students reported 60 hours per week in the clinical setting.

Table 7

Hours Students are Taught in the Clinical Area

Student Group	*N*	*M*	*SD*
First Year Students	53	23.66	14.73
Second Year Students	85	28.18	15.64
All Students	138	26.44	15.4

Students reported they had been in their programs 4 to 36 months with a mean time of 17.4 months (see Table 8). The most frequent times reported were 11, 12, 23, and 24 months. The reported months in the program was continuous up to 27 months. There was one student at 30 months and two students at 36 months. The mean number of months in a program for first- and second-year students was 10.4 and 21.8 months respectfully.

Table 8

Months of Nurse Anesthesia School Completed by Students

Student Group	*N*	*M*	*SD*
First Year Students	53	10.45	2.13
Second Year Students	85	21.77	4.55
All Students	138	17.42	6.7

Summary of demographic variables. Table 9 provides a summary of the demographic variables that describe the directors, CRNA clinical instructors, first year students and second year students who participated in this study. From this summary, a composite profile of each professional group was provided.

Analysis of Perceived Characteristic Importance

Rank order of characteristics. The primary focus of this study was to determine the perceived order of importance of the 22 characteristics of effective clinical instructors as determined by Katz (1982). This task was accomplished by first calculating the mean scores for the values of importance assigned to each characteristic by all respondents. The range for the values of importance for each characteristic varied from 1 (Somewhat Important) to 5 (Critically Important).

Table 9

Composite Profiles for Directors, CRNA Clinical Instructors, First-Year Students, and Second-Year Students

Variables	Description
Directors (n = 76)	
Gender	Female
Age (Years)	45.28
Program Affiliation	Master's
Years as a Program Director	9.09
Years as a Clinical Instructor	7.04
Hours / Week Teaching in the Clinical Setting	9.01
CRNA Clinical Instructors (n = 140)	
Gender	Female
Age (Years)	42.05
Program Affiliation	Master's
Years as a Clinical Instructor	9.94
Ever a Program Director	No
Hours / Week Teaching in the Clinical Setting	23.04
First-Year Students (n = 53)	
Gender	Female
Age (Years)	32.42
Program Affiliation	Master's
Months in Nurse Anesthesia School	10.45
Hours / Week Taught in the Clinical Setting	23.66
Second-Year Students (n = 85)	
Gender	Female
Age (Years)	32.06
Program Affiliation	Master's
Months in Nurse Anesthesia School	21.77
Hours / Week Taught in the Clinical Setting	28.4

Therefore, each characteristic received a mean score varying from 1 (lowest) to 5 (highest). Once the mean scores were calculated, the researcher arranged the mean scores in a descending order. Table 10 presents the data for these mean and standard deviations. It should be noted there is a fairly tight dispersal pattern as indicated by the standard deviation with the mean of means being 3.7597 and the mean standard deviation being .888. The five characteristics of effective clinical instructors perceived most important by all professional groups were **Clinical Competence/ Judgment, Calm, Ego Strength/ Self Assurance, Flexibility**, and **Appropriately Encourages Independence**. **Clinical Competence / Judgment** ranked first which suggests that the majority of respondents felt it critically important that the clinical instructor be technically skilled, demonstrating sound application of theory and knowledge in practice. It appears that respondents believe that good clinical instructors must first be competent and skilled practitioners.

This result agrees with Kiker (1973) who surveyed junior and graduate level nursing students and junior level education students. Kiker reported that **professional competence** ranked higher than **individual attributes** and **behavior characteristics**. Katz (1982) did not rank order nor determine the perceived importance of the characteristics identified in her study. Based on percent of variance, she reported **Empathy / Respect** as the most important characteristic identified. The present study found **Empathy / Respect** to rank eighth among the 22 characteristics.

Table 10

Mean Score Rank Order of Characteristics Perceived as Indicative of Effective Clinical Instructors by All Respondents

Rank	Characteristic	*M*	*SD*
1	Clinical Competence/ Judgment	4.136	.803
2	Calm	4.105	.826
3	Ego Strength/ Self Assurance	4.066	.861
4	Flexibility	4.017	.782
5	Appropriately Encourages Independence	3.966	.752
6	Engender Confidence	3.929	.806
7	Motivates Students	3.918	.783
8	Empathy/ Respect	3.862	.985
9	Evaluation/ Counseling	3.822	.864
10	Enjoys Teaching	3.793	.956
11	Stimulates Student Involvement	3.788	.816
12	Positive Role Model	3.780	1.005
13	Open-Minded	3.751	.872
14	Sensitivity	3.737	.962
15	Scholarly Teaching/ Knowledge	3.661	.939
16	Accessibility	3.602	.806
17	Communication Skills	3.547	.910
18	Individualizes Teaching	3.542	.958
19	Timely Feedback	3.517	.919
20	Actively Teaches	3.463	.973
21	Stimulates Effective Discussions	3.418	.862
22	Use of Student Care Plans	3.294	.995

The second rank ordered characteristic was calm. The respondents acknowledged the importance of a CRNA instructor remaining poised and composed in the clinical setting even under stressful situations. Stressful situations such as a

failed intubation can occur at the onset of any case. Little is accomplished if the anesthetist loses his/her composure or panics. Depending on the type of situation, this response not only is detrimental to student learning but to the welfare of the patient as well. One of the best methods of resolving an actual or potential medical emergency is to remain calm while approaching it in a professional and skillful manner. The third ranked characteristic was **Ego Strength/ Self Assurance**. Respondents felt clinical instructors should demonstrate confidence in their own abilities and recognize their limitations. Instructors must have confidence in their own abilities before they can effectively teach in the clinical area. Teaching effectiveness is significantly reduced if a student perceives such lack of confidence by the instructor. Equally as important, clinical instructors must recognize and be willing to acknowledge their own limitations and weaknesses. Most students are very astute in recognizing when an instructor is trying to bluff their way through a question or situation.

The fourth ranked characteristic was **flexibility**. Clinical instructors should encourage their students to become familiar with a variety of anesthetic techniques appropriate to a patient's need. Most patients can be anesthetized using a variety of appropriate and safe techniques and procedures. A clinical instructor should guard against the mind set that their way is the only correct way. Such an attitude can only serve to foster a very narrowly educated anesthetist.

The fifth ranked characteristic was **Appropriately Encourages Independence**. Clinical instructors must strive to encourage their students to act and think for

themselves. This must be done according to each student's level of skill and competence.

The results of this study do not appear to agree with Katz' 1982 findings. Upon examination of Katz' study, one must be cognizant of the fact that her purpose was to identify those characteristics indicative of good and bad clinical instructors. It was not the purpose of her study to rank order nor determine the importance of the identified characteristics. During her discussion of the data she emphasized the great importance of **empathy / respect** which had accounted for 73.1% of the variance in the total group description of clinical instructors who were perceived as best. The present study found **empathy / respect** (ranking 8th) to be important, but not as important as indicated by Katz.

The five least important characteristics in descending order were: **individualizes teaching, timely feedback, actively teaches, stimulates effective discussions**, and **use of student care plans**. The respondents perceived these characteristics as being the least important of the 22 identified characteristics of a good clinical instructor. **Individualizes teaching** is concerned with setting objectives and adjusting teaching methods specific to the level and learning needs of each individual student. It is possible that this characteristic was ranked lower in importance because of its often unseen nature. Many experienced instructors set objectives and adjust teaching methods in their minds without actually communicating these objectives to their students. Since these objectives and methodologies are not openly discussed and often hidden, it may be perceived they are not present or very

important. It is also possible that some instructors feel that setting objectives and adjusting individualized teaching methodologies is not necessary for each student. If a student can not learn like everyone else, perhaps they are in the wrong profession. Further research is needed before specific conclusions can be drawn.

Timely feedback is concerned with instructors evaluating a students performance as close to the performance as appropriate. Most individuals will attest to the importance of feedback. Without it students would have little knowledge of their strengths and weaknesses in the clinical arena. Respondents appear to perceive **timely feedback** as less important; assuming that feedback is eventually given. Ideally, an instructor should discuss a student's performance with him/her immediately after the event or case completion. Operating room schedules and the complexity of various anesthesia and surgical procedures usually makes this practice impossible. The first opportunity an instructor may have to give constructive feedback to a student may be at the end of a very busy clinical day. Such a day may be loaded with numerous incidents and occurrences, all worthy of extensive discussion. Usually, however, this extensive discussion is not practical since the student often has to rush to class, complete preoperative visits on the next day's patients, or post operative visits on past patients. It is possible that respondents felt that this characteristic was less important since the hectic work pace inherent to clinical anesthesia made it so difficult to accomplish.

Actively teaches was another characteristic perceived as less important than the others. This characteristic is primarily concerned with the interaction of instructor

and student throughout the clinical period. Constant interaction is very important especially in the early stages of the student development. As the student becomes more competent and comfortable in the clinical environment, the instructor often moves from a very active teaching mode to a more passive role. The instructor allows the students to make more and more decisions on their own. This is further nurtured by the instructor periodically leaving the operating room for short periods of time, leaving the student in charge. Although not physically in the room, there are ways the instructor can still monitor the case such as remaining just outside the door. Depending on the design of the operating room, the instructor can often observe the monitoring devices, the patient, and/or surgery while remaining out side of the student's line of vision.

Another characteristic perceived as less important was **stimulates effective discussions**. The operating room is a very dynamic environment. A student is often overwhelmed by the massive amount of input that must be digested. Discussion topics abound at every turn. It is possible that respondents felt it less important to actively encourage discussions when such discussions are usually so prevalent.

The least important of the 22 characteristics of the good clinical instructor was **use of student care plans**. With this characteristic the instructor analyzes, evaluates and allows the student to implement the student's care plan whenever possible. One requirement for accreditation of nurse anesthesia school/programs is the completion of patient care plans by students on the cases they are assigned. These care plans are usually completed in written format. Aside from the issue of accreditation, the actual

worth and value placed on these care plans appear to vary between different school/programs.

Each hypothesis presented in Chapter One was used as a guide in analyzing and ascertaining an understanding of the factors affecting the perceived level of importance for the 22 characteristics of effective clinical instructors. From this analysis, a better understanding of these factors was obtained.

Characteristic importance and professional groups. Hypothesis 1 examined the relationship between professional groups and the perceived order of importance for the 22 characteristics of effective clinical instructors. This hypothesis was stated in the following manner: **There is no significant difference between nurse anesthesia program directors, CRNA clinical instructors, first year students, and second year students and their perceived importance for the 22 characteristics of effective clinical instructors**. The following data analysis examined this relationship. Based upon this analysis, **the null hypothesis failed to be rejected**. It was determined that no statistically significant difference existed between nurse anesthesia program directors, CRNA clinical instructors, first year students, and second year students and their perceived importance for the 22 characteristics of effective clinical instructors.

The mean value for each characteristic was calculated for each of the individual professional groups. Once the mean scores were calculated for each group a computer was used to arrange them in descending order. Characteristics with the highest mean values were ranked the most important for each of the four professional

groups. Subsequent characteristics listed under each group followed in order of their mean ranked scores. Table 11 present the rank order and means for the characteristics. Program directors perceived **Ego Strength / Self Assurance** as the most important characteristic with **Clinical Competence / Judgment** as a close second. There was a tie for 9th, 16th, and 19th place. CRNA clinical instructors perceived **Clinical Competence / Judgment** as most important followed closely by **Calm**. There was a tie for 13th place within the instructor group. First year students exhibited a three way tie for 1st place. Characteristics tying for 1st place were **Calm**, **Clinical Competence/ Judgment**, and **Flexibility**. There was also a two way tie for 7th and 9th place. Second year students perceived **Calm** as the most important characteristic followed by **Clinical Competence / Judgment**. There was a two way tie for 10th and 18th place. **Ego Strength / Self Assurance**, **Clinical Competence / Judgment**, **Flexibility**, **Calm**, **Engenders Confidence**, and **Appropriately Encourages Independence** were found in the first eight ranks for all groups. **Use of Student Care Plans**, **Actively Teaches**, **Accessibility**, **Stimulates Effective Discussions**, and **Timely Feedback** were found in the last seven ranks for all groups. **Use of Student Care Plans** was found in the 21st or 22nd rank for all groups.

The Friedman Two-Way Analysis of Variance was performed to test the overall rank order agreement among all four professional groups. The Friedman tests the hypothesis that the rankings were random and the respondents in all four groups did not agree in their rankings (Neter, Wasserman, & Kutner, 1985). Analysis of the data indicated a Friedman test statistic of 72.869 ($df = 21$) at a $p <$

.00001. Rejecting the Friedman test hypothesis, there was evidence of consistency for the rankings between groups.

Table 11

Rank Order of Characteristics Perceived as Indicative of Effective Clinical Instructors by Groups

	Characteristics			
Rank Order	Directors (*M*)	CRNA Instructors (*M*)	Students First-Year (*M*)	Students Second-Year (*M*)
1	Ego Strength/ Self Assurance (4.289)	Clinical Competence/ Judgment (4.079)	Calm (4.32075)[a]	Calm (4.094)
2	Clinical Competence/ Judgment (4.184)	Calm (4.057)	Clinical Competence/ Judgment (4.32075)[a]	Clinical Competence/ Judgment (4.071)
3	Positive Role Model (4.171)	Ego Strength/ Self Assurance (4.046)	Flexibility (4.32075)[a]	Appropriately Encourages Independence (4.059)
4	Flexibility (4.092)	Flexibility (3.936)	Engenders Confidence (4.132)	Engenders Confidence (3.988)
5	Calm (4.053)	Motivates Students (3.929)	Appropriately Encourages Independence (4.094)	Empathy/ Respect (3.941)

[a] first-year students - tie for 1st place.

Table 11 Con't

Rank Order of Characteristics Perceived as Indicative of Effective Clinical Instructors by Groups

	Characteristics			
Rank Order	Directors (*M*)	CRNA Instructors (*M*)	Students First-Year (*M*)	Students Second-Year (*M*)
6	Enjoys Teaching (4.039)	Appropriately Encourages Independence (3.836)	Sensitivity (4.057)	Ego Strength/ Self Assurance (3.918)
7	Engenders Confidence (4.026)	Positive Role Model (3.800)	Ego Strength/ Self Assurance (4.03773)[b]	Open-Minded (3.906)
8	Appropriately Encourages Independence (4.013)	Engenders Confidence (3.764)	Empathy/ Respect (4.03773)[b]	Flexibility (3.894)
9	Empathy/ Respect (3.98684)[a]	Evaluation/ Counseling (3.707)	Stimulates Student Involvement (4.00000)[c]	Motivates Students (3.835)
10	Evaluation/ Counseling (3.98684)[a]	Empathy/ Respect (3.679)	Evaluation/ Counseling (4.00000)[c]	Stimulates Student Involvement (3.75294)[d]

[a] directors - tie for 9th place. [b] first-year students - tie for 7th place. [c] first-year students - tie for 9th place. [d] (con't next page) second-year students - tie for 10th place.

Table 11 Con't

Rank Order of Characteristics Perceived as Indicative of Effective Clinical Instructors by Groups

	Characteristics			
Rank Order	Directors (*M*)	CRNA Instructors (*M*)	Students First-Year (*M*)	Students Second-Year (*M*)
11	Motivates Students (3.961)	Enjoys Teaching (3.657)	Motivates Students (3.962)	Evaluation/ Counseling (3.75294)[d]
12	Stimulates Student Involvement (3.934)	Stimulates Student Involvement (3.650)	Enjoys Teaching (3.887)	Enjoys Teaching (3.729)
13	Scholarly Teaching/ Knowledge (3.895)	Scholarly Teaching/ Knowledge (3.62857)[a]	Open-Minded (3.849)	Sensitivity (3.706)
14	Sensitivity (3.789)	Open-Minded (3.62857)[a]	Positive Role Model (3.717)	Individualizes Teaching (3.600)
15	Open-Minded (3.737)	Sensitivity (3.607)	Scholarly Teaching/ Knowledge (3.717)	Communication Skills (3.565)

[a] instructors - tie for 13th place. [d] (con't from previous page) second-year students - tie for 10th place.

Table 11 Con't

Rank Order of Characteristics Perceived as Indicative of Effective Clinical Instructors by Groups

	Characteristics			
Rank Order	Directors (*M*)	CRNA Instructors (*M*)	Students First-Year (*M*)	Students Second-Year (*M*)
16	Timely Feedback (3.71052)[a]	Accessibility (3.600)	Timely Feedback (3.698)	Accessibility (3.541)
17	Stimulates Effective Discussions (3.71052)[a]	Communication Skills (3.453)	Accessibility (3.679)	Scholarly Teaching/ Knowledge (3.471)
18	Individualizes Teaching (3.645)	Individualizes Teaching (3.450)	Communication Skills (3.660)	Positive Role Model (3.43529)[b]
19	Communication Skills (3.61842)[c]	Actively Teaches (3.443)	Individualizes Teaching (3.547)	Timely Feedback (3.43529)[b]
20	Accessibility (3.61842)[c]	Timely Feedback (3.393)	Actively Teaches (3.472)	Actively Teaches (3.424)
21	Use of Student Care Plan (3.566)	Stimulates Effective Discussions (3.350)	Use of Student Care Plan (3.453)	Stimulates Effective Discussions (3.259)
22	Actively Teaches (3.539)	Use of Student Care Plan (3.214)	Stimulates Effective Discussions (3.434)	Use of Student Care Plan (3.082)

[a] directors - tie for 16th place. [b] second-year students - tie for 18th place.

[c] directors - tie for 19th place.

The Kendall coefficient of concordance was calculated to estimate the degree of association or correlation between the respondents' rankings of the characteristics. study the Kendall coefficient was calculated at 0.87 indicating a very high degree of agreement between the groups concerning the rankings of the characteristics.
One possible reason why there were no significant differences between the perceived order of importance of the 22 characteristics and each of the four professional groups is simply that they all tend to view them approximately the same way. As a result of the socialization that occurred in nursing school and continues to occur within nurse anesthesiology, one might assume high levels of homogeneity of value patterns between program directors, CRNA clinical faculty, and students.

Although no significant difference was found between the overall characteristic rankings and the four groups, further analysis was performed to examine each individual characteristic separately. The chi-square test was conducted to see if there was a relationship between the professional groups and the value assigned to each characteristic. Chi-square tests were significant for the following characteristics: **Evaluation / Counseling**, **Positive Role Model**, **Flexibility**, and **Timely Feedback**. Table 12 presents the Pearson chi-square test of significance between the perceived level of importance for each characteristic and the professional groups.

Some interesting relationships were observed upon examination of the chi-square contingency tables for these four characteristics. Program directors considered **evaluation / counseling** more important than the CRNA clinical instructors or student

Table 12

Pearson Chi-square Test of Significance Between the Perceived level of Importance for Each Characteristic and Professional Groups

Characteristics	Pearson Chi-square Statistic	DF	p
Empathy/ Respect	16.390	9	.059
Ego Strength/ Self Assurance	7.888	6	.246
Use of Student Care Plan	14.430	12	.274
Scholarly Teaching/ Knowledge	13.099	9	.158
Motivates Students	5.820	9	.758
Calm	6.793	6	.340
Stimulates Effective Discussions	15.586	9	.076
Clinical Competence/ Judgment	10.204	9	.334
Appropriately Encourages Independence	8.529	9	.482
Evaluation/ Counseling	22.580	9	.007**
Individualizes Teaching	5.061	9	.829
Open-Minded	9.803	9	.367
Enjoys Teaching	18.319	12	.106
Stimulates Student Involvement	14.455	9	.107
Actively Teaches	10.561	12	.567
Positive Role Model	28.480	9	.001**
Sensitivity	14.291	9	.112
Flexibility	15.280	6	.018*
Timely Feedback	19.190	9	.024*
Accessibility	10.152	9	.338
Engenders Confidence	16.697	9	.054
Communication Skills	12.960	12	.372

* $p < .05$. ** $p < .01$.

groups. The directors were the only group that consistently assigned this characteristic a value of three or greater. Table 13 presents the data for the relationships between professional groups and values assigned by respondents to the characteristic **evaluation / counseling**.

Table 13

Chi-Square Contingency Table Between Professional Groups and Values Assigned by Respondents to the Characteristic - **Evaluation / Counseling**

	Values Assigned by Respondents					
	2.000	3.000	4.000	5.000	Total %	*N*
Directors	0 % 0 *f*	30.26 % 23 *f*	40.79 % 31 *f*	28.95 % 22 *f*	100.00	76
Clinical Instructor	11.43 % 16 *f*	25.71 % 36 *f*	42.86 % 60 *f*	28.95 % 28 *f*	100.00	140
First Year Students	3.77 % 2 *f*	22.64 % 12 *f*	43.40 % 23 *f*	30.19 % 16 *f*	100.00	53
Second Year Students	8.24 % 7 *f*	20.00 % 17 *f*	58.82 % 50 *f*	12.94 % 11 *f*	100.00	85
Total %	7.06	24.86	46.33	21.75	100.00	
N	25	88	64	77	354	

Note. $x^2 = 22.58$, $df = 9$, $p = .007$, Table of Groups (Rows) by Characteristic Values (Columns) showing percent and frequency. When 20% of cells have an expected frequency of less than 5, columns 1 and 2 were collapsed for increased accuracy.

Since the formal evaluation and counseling of students is a requirement for accreditation, it is possible that directors are more sensitive to this issue than the other

groups. Perhaps instructors and students view evaluation and counseling as an ongoing informal procedure. This characteristic was assigned a value of five by second-year students half as frequent as the other groups.

Program directors also considered the characteristic **positive role model** as more important than the other three groups. Table 14 presents the data for the relationships between professional groups and values assigned by respondents to the characteristics **positive role model**. Ninety-six percent of the directors assigned this characteristic a value of three or more. Forty percent of the directors assigned a value of five. It is possible that CRNA instructors do not necessary consider themselves to be role models. Instead, they may view themselves as practicing CRNA's who are just contributing a small share to the total education of the students. Perhaps the directors view the instructors in a more idealistic light.

The characteristic **flexibility** was considered to be more important by first year students than the other groups. Ninety-two percent of the first year-students gave this characteristic a score of four or five. This may be attributed to the fact that first-year students are just beginning their anesthesia educations. They know their education has just begun and there is a massive amount of information that must be digested. The student wants to become familiar with a variety of anesthetic techniques before focusing in on their perfection. As such, it may be important to these first year students to be exposed to as many anesthesia techniques as possible early in the educational

Table 14

Chi-Square Contingency Table Between Professional Groups and Values Assigned by Respondents to the Characteristic - **Positive Role Model**

	Values Assigned by Respondents					
	2.000	3.000	4.000	5.000	Total	*N*
Directors	3.95 % 3 *f*	15.79 % 12 *f*	39.47 % 30 *f*	40.79 % 31 *f*	100.00	76
Clinical Instructor	11.43 % 16 *f*	17.86 % 25 *f*	47.86 % 67 *f*	22.86 % 32 *f*	100.00	140
First Year Students	15.09 % 8 *f*	22.64 % 12 *f*	35.85 % 19 *f*	26.42 % 14 *f*	100.00	53
Second Year Students	15.29 % 13 *f*	35.29 % 30 *f*	34.12 % 29 *f*	15.29 % 13 *f*	100.00	85
Total	11.30	22.32	40.96	25.42	100.00	
N	40	79	145	90	354	

Note. $x^2 = 28.48$, $df = 9$, $p = .001$, Table of Groups (Rows) by Characteristic Values (Columns) showing percent and frequency. When 20% of cells have an expected frequency of less than 5, columns 1 and 2 were collapsed for increased accuracy.

process. Table 15 presents the data for the relationships between professional groups and values assigned by respondents to the characteristic **flexibility**.

The characteristic **timely feedback** was considered to be more important by the director group than the other three groups. Only 4% of the program directors assigned the characteristic **timely feedback** a value less than 3. It may be that instructors and students felt that this characteristic was less important since the hectic

Table 15

Chi-Square Contingency Table Between Professional Groups and Values Assigned by Respondents to the Characteristic - **Flexibility.**

	Values Assigned by Respondents				
	3.000	4.000	5.000	Total	*N*
Directors	19.74 % 15 *f*	48.68 % 37 *f*	31.58 % 24 *f*	100.00	76
Clinical Instructor	25.71 % 36 *f*	51.43 % 72 *f*	22.86 % 32 *f*	100.00	140
First Year Students	9.43 % 5 *f*	45.28 % 24 *f*	45.28 % 24 *f*	100.00	53
Second Year Students	28.24 % 24 *f*	50.59 % 43 *f*	21.18 % 18 *f*	100.00	85
Total	22.60	49.72	27.68	100.00	
N	80	176	98	354	

Note. $x^2 =* 15.28$, $df = 6$, $p = .018$, Table of Groups (Rows) by Characteristic Values (Columns) showing percent and frequency. When 20% of cells have an expected frequency of less than 5, columns 1 and 2 were collapsed for increased accuracy.

work pace inherent to clinical anesthesia made it so difficult to accomplish. Directors, however, may be taking a more idealistic view. They may feel that since timely feedback is generally accepted to be beneficial to the learning process it should be performed, whatever the obstacle. Table 16 presents the data for the relationships between professional groups and values assigned by respondents to the characteristic **timely feedback**.

Table 16

Chi-Square Contingency Table Between Professional Groups and Values Assigned by Respondents to the Characteristic - **Timely Feedback.**

	Values Assigned by Respondents					
	2.000	3.000	4.000	5.000	Total	*N*
Directors	3.95 % 3 *f*	34.21 % 26 *f*	48.68 % 37 *f*	13.16 % 10 *f*	100.00	76
Clinical Instructor	17.14 % 24 *f*	33.57 % 47 *f*	41.43 % 58 *f*	7.86 % 11 *f*	100.00	140
First Year Students	11.32 % 6 *f*	28.30 % 15 *f*	37.74 % 20 *f*	22.64 % 12 *f*	100.00	53
Second Year Students	20.00 % 17 *f*	30.59 % 26 *f*	32.94 % 28 *f*	16.47 % 14 *f*	100.00	85
Total	14.12	32.20	40.40	13.28	100.00	
N	50	114	143	47	354	

Note. $x^2 = 19.19$, $df = 9$, $p = .024$, Table of Groups (Rows) by Characteristic Values (Columns) showing percent and frequency. When 20% of cells have an expected frequency of less than 5, columns 1 and 2 were collapsed for increased accuracy.

In summary, it appears that program directors felt the characteristics **Evaluation / Counseling, Positive Role Model,** and **Timely Feedback** possessed a higher value of importance than the other groups. First-year students considered the characteristic **Flexibility** to be more important than the other three groups.

Demographic data and perceived characteristic importance. Null hypotheses 2-10 examined the relationship between demographic data and the perceived order of

importance for the 22 characteristics of effective clinical instructors. Pearson product-moment correlation coefficients were calculated for each group specific demographic variable and characteristic of effective clinical instructors. The Bonferroni-adjusted probabilities were also calculated to provide protection for the error rate when multiple tests are performed (Wilkinson, 1989). These Pearson-Moment correlations are found in Appendix H. No significant relationships were found between any professional group's demographic variables and characteristics. Based on this analysis, null hypothesis 1-6 and 8-10 failed to be rejected. Future research may identify variables that have a closer relationship with the characteristic than the ones examined in this research. Such variables may include pre-anesthesia education and life experiences.

Null hypothesis 7 examined the relationship between CRNA instructors who were once directors and those who were never directors and the perceived order of importance for the 22 characteristics of effective clinical instructors. Of the 140 responding CRNA clinical instructors, only eight stated they were once program directors. Three qualified their response by adding the words **temporary**, **interim**, or **assistant** before the word director on the demographic sheet. This null hypothesis was concerned with full time program directors. Temporary or assistant directors were not considered. Only five of the eight respondents met this criteria. As a result of the small sample size of instructors who were once directors, no statistical analysis was performed.

Although no significant relationship was found between the demographic variables and characteristics, a relationship was found between demographic variables. There was a significant positive relationship ($p < .005$) found between age of directors and the number of years they were program directors. There was also significant positive relationship ($p < .0001$) found between the age of CRNA clinical instructors and the number of years they were clinical instructors. These relationships are not surprising since they follow normal aging and work patterns.

Demographics and prediction of characteristic importance. Multiple regression analysis was performed to determine how well the demographic variables predicted the perceived importance for the 22 characteristics. This analysis provided the best line though the data, providing the least amount of error in prediction. (Neter, Wasserman, & Kutner, 1985) In other words, multiple regression analysis examined the predictive quality of various demographic variables on perceived characteristic importance. Table 17 presents the squared multiple R values for the multiple regression analysis of age, gender, program types, and professional groups for each characteristic of effective clinical instruction. A more complete multiple regression data analysis is found in Appendix I. Analysis indicated that the selected demographic variables were weak predictors of characteristic importance. The predictive capability for the 22 characteristics ranged from a squared multiple R of .012 to .065. The highest squared multiple R was 0.065 for the characteristic **Positive Role Model**. This indicates that age, gender, program types, and professional groups accounts for only 6.5% of the predictive capability for the

Table 17

Squared Multiple *R* Values for the Multiple Regression Analysis of Age, Gender, Program Type, and Professional Group for Each Characteristics of Effective Clinical Instruction

Characteristic	Multiple R^2
Empathy/Respect	.037
Ego Strength/Self Assurance	.030
Use of Student Care Plans	.052
Scholarly Teaching/Knowledge	.033
Motivates Students	.012
Calm	.015
Stimulates Effective Discussions	.044
Clinical Competence	.017
Appropriately Encourages Independence	.041
Evaluation/Counseling	.034
Individualizes Teaching	.020
Open-Minded	.022
Enjoys Teaching	.028
Stimulates Student Involvement	.036
Actively Teaches	.012
Positive Role Model	.065
Sensitivity	.036
Flexibility	.040
Timely Feedback	.028
Accessibility	.013
Engenders Confidence	.035
Communication Skills	.017

importance value associated with the **Positive Role Model** characteristic. Thus 93.5% of the variance of predictive capability was unaccounted for. One or more missing variable(s) were responsible for 93.5% of the variance.

Opened Ended Rank Order of the Most and Least Important Characteristics

The third part of the survey instrument was open ended in design. The respondents were asked to list the five most important and five least important characteristics of an effective clinical instructor. This part of the survey was added for possible verification of the data in the second part of the survey. Of the 354 surveys used in this study, 63 contained missing data in this third section. Many of the respondents commented that they felt this section was redundant, unnecessary, and too hard to fill out. Some responded that they looked at section two of the survey to determine their response to section three. One respondent reported that section one and two of the survey were completed with great interest. Section three, however, became too tedious so an arbitrary answer was written. Therefore, statistical analysis comparing the results of sections two and three was not pursued because it was believed that the results of section three were incomplete, possibly spurious, and therefore contaminated. This was not felt to be detrimental to the overall study, however, since this section was added with the understanding that it might not be used in the final analysis.

Summary

A detailed descriptive statistical analysis of the demographic variable was provided. The 10 hypotheses outlined in Chapters One and Three were examined employing statistical analysis of respondent data. An analysis of this data provided evidence as to whether or not each hypothesis could be rejected. Information obtained from this statistical analysis formed the backdrop for Chapter five. Table 22 provides a summary of the findings.

Table 22

Summary of Relationships for Demographic Variables and Characteristic Importance

Hypothesis	Finding
Characteristic Importance and Professional Groups	NS
Characteristic Importance and Program Types	NS
Characteristic Importance and the Number of Years Directors and CRNA Faculty were Clinical Instructors	NS
Characteristic Importance and Years as a Program Director	NS
Characteristic Importance and Age	NS
Characteristic Importance and Gender	NS
Characteristic Importance and CRNA Instructors Who were Once Directors and Those Who were Never Directors	IS*
Characteristic Importance and Weekly Hours Directors and CRNA Instructors Teach in the Clinical Area	NS
Chacteristic Importance and Weekly Hours Students spend in Clinical	NS
Characteristic Importance and Program Months Completed by Students	NS

Note. IS* = Insufficient sample for analysis. NS = Nonsignificant finding

Chapter Five

Conclusions and Recommendations

Introduction

Based upon the findings in Chapter Four, this chapter provides a discussion of conclusions concerning the perceived importance of the 22 characteristics of effective clinical instructors as identified by Katz in 1982. A summary of the purpose of this study and research procedures is provided. The summary of findings provides the basis for conclusions made about this study.

The conclusions are presented in a two-fold manner, those concerning the perceived importance of the 22 characteristics and those describing the demographic variables and their relationships to the characteristics. A discussion of future research activities is also provided. The final section of this chapter addresses various training implications.

Summary of the Purpose of the Study

The purpose of this study was two-fold. First, it attempted to determine the perceived importance of the 22 characteristics of effective clinical instructors as identified by Katz in 1982. Second, it attempted to identify any relationships that

existed between various demographic variables and the perceived importance of these characteristics. This dual purpose provided the direction in developing the research questions, hypotheses, and procedures.

Summary of the Research Procedures

This study used a descriptive research approach, describing nurse anesthesia program directors, CRNA clinical instructors and student's perceptions of the importance of the 22 characteristics of the effective clinical instructor. There was no manipulation of treatments or subjects. Data were collected by way of a survey instrument designed by the researcher with the assistance of a panel of experts. A random sample population was obtained from the American Association of Nurse Anesthetist's Office of Education and Research. Out of 482 surveys mailed throughout the United States, a total of 354 (73.4%) nurse anesthesia directors, CRNA clinical instructors, and students responded.

Research questions ranged from broad to very specific. The broad research question examined program directors, CRNA clinical instructors, and nurse anesthesia student's perceived importance of the 22 characteristics of effective clinical instructors as identified by Katz in 1982. More specific questions examined the relationships of various demographic variables to the perceived levels of importance of the 22 characteristics.

An overall rank ordering of the importance of the 22 characteristics of effective clinical instructor was determined by the researcher. This was accomplished by arranging the characteristic's mean scores of importance in a descending order.

A rank ordering of importance of the 22 characteristics was established for each of the four individual professional groups (program directors, CRNA clinical faculty, first year nurse anesthesia students, and second year nurse anesthesia students). The Friedman Two-Way Analysis of Variance was calculated to determine if any significant differences existed between the rank ordering for each professional group. In addition, a chi-square test of significance was calculated to determine if any significant differences existed between the values assigned to each individual characteristic by the four professional groups. The relationships that may exist among the four professional group's perceived level of importance of the 22 characteristics and various demographic variables was the focus of the 10 specific hypotheses set forth in this study. Both Pearson Product Moment correlation analysis and multiple regression analysis were performed to examine relationships between various demographic variables and the perceived measures of importance assigned to the characteristics.

Summary of Findings

The summary of findings is presented in two major sections. The first section examines the overall importance of the 22 characteristics of effective clinical

instructors. The second section examines the relationships between demographic data and the 22 characteristics of effective clinical instructors.

Perceived characteristic importance. A mean score for each of the 22 characteristics of effective clinical instructors was statistically computer generated. A list of the 22 characteristic's mean scores is found in chapter 4, Table 10. The mean scores ranged from 3.294 to 4.136. These mean scores suggest that the respondents considered all 22 characteristics as either "very important" or "highly important."

The mean scores for the 22 characteristics were arranged in descending order by the researcher. It appears that even though all 22 characteristics were considered to be important by all the subjects, the mean scores of some characteristics were somewhat higher than others. The characteristic with the highest mean score was **clinical competence / judgment.**

No statistically significant difference was found between the rank ordering of characteristics by directors, CRNA instructors, first-year students, and second-year students. A Kendall coefficient of 0.87 signified a high degree of agreement between the groups concerning the perceived importance of the artificially rank ordered characteristics.

Although no significant difference was found among the overall characteristic rankings and the four groups, a chi-square test of significance was conducted to determine if there was any relationship among the four professional groups and the values of importance assigned to each characteristic. Chi-square tests were found

significant for the following characteristics: **Evaluation / Counseling, Positive Role Model, Flexibility**, and **Timely Feedback**.

It appears that program directors felt the characteristics **Evaluation / Counseling, Positive Role Model**, and **Timely Feedback** possessed a higher value of importance than the other groups. First-year students considered the characteristic **Flexibility** to be more important than the other three groups.

The relationship of characteristic importance and demographic variables. Null Hypotheses 2-10 examined the relationship between demographic data and the perceived importance of the 22 characteristics of effective clinical instructors. Null hypothesis 7, that examined the relationship between CRNA instructors who were once directors and those who were never directors, was not statistically analyzed due to a small and therefore inadequate sample size.

Null hypotheses 1-6 and 8-10 failed to be rejected. No significant relationships were found between the demographic variables and the perceived importance of the 22 characteristics. Multiple regression analysis demonstrated that the demographic variables accounted for an extremely small segment of the overall variance.

Conclusions

Respondents in this study perceived all 22 characteristics of effective clinical instructors to be important. Mean scores appear to indicate that the 22 characteristics

were perceived to be either "very important" or "highly important." This result corresponds very closely with Katz's (1982) study. Katz identified all 22 of these characteristics as important attributes of a good clinical instructor. This present study supports Katz's 1982 conclusions.

When the researcher rank ordered the characteristics for all respondents by mean scores, some characteristics had higher mean scores than others. Many of these mean scores, however, were only separated by hundredths of a percent. This small separation between many of the mean scores re-enforces the premise that all 22 characteristics were perceived as being important by all four groups.

When the mean scores for each individual group were rank ordered by the researcher, many unresolvable ties resulted. For example, the first-year student group had three characteristics tie for first place. This again demonstrates the high value the respondents placed on all 22 characteristics. Consequently, this researcher feels comfortable in concluding that these 22 characteristics are important attributes of an effective CRNA clinical instructor. Since many of the mean scores were relatively close to each other, it seems reasonable to conclude that all four groups valued these characteristics highly and perceive them as critically important to clinical instruction.

When each characteristic was examined individually, **evaluation/ counseling**, **positive role model**, and **timely feedback** were considered more important by the director group. Possibly, directors are more sensitive to the issues of evaluation, counseling, and timely feedback since all are accreditation requirements. It is also

possible that director's academic and administrative experience may have shaped their view concerning the importance of a role model. The director's holistic view of the curriculum and profession may also have had an impact on the ratings this group assigned these three characteristics.

The characteristic **flexibility** was considered more important by the first-year student group. First-year students may value more flexibility from their instructors because of the student's desire to learn a diversity of techniques and procedures. Further research is needed before definitive reasons for these differences can be drawn.

Comparison of the rank order for all characteristics by professional group generated an unexpected finding. Surprisingly, there was no significant difference in the way each professional group rank ordered the 22 characteristics as was originally predicted. This overall agreement among the four professional groups concerning the perceived rank order of the mean scores of importance was a very interesting finding. No previously reviewed study exhibited this same level of homogeneity.

The homogeneity of perceptions found between directors and CRNA faculty was understandable. This is primarily because both groups are actively involved with the clinical teaching process, often working side by side. It is not surprising that they should have similar views concerning the importance of characteristics indicative of effective clinical instructors.

The only study with similar results was conducted in the profession of nursing. In 1985, Knox conducted a study to determine the importance of clinical teaching

behavior as perceived by university nursing faculty, nursing students, and graduates. Contrary to all previous studies, Knox found a basic agreement among the three groups in her study. This result corresponds very closely with the present study. Upon examination of perceptions within the student group, significant differences were recorded. Knox found that students at different levels (years) in the program were not in agreement concerning the importance of clinical teaching behaviors. The results of this present study demonstrate that agreement within the student groups was present. The perceptions shared by first-year students was basically the same as those shared by second-year students.

Findings that separate this study from others concerns this homogeneous perception shared by the two student groups and the faculty/director groups. Most student respondents have very little nurse anesthesia clinical experience. Their exposure to nurse anesthesia clinical instructors is probably almost non-existent. Even though these exposures were limited, results indicate that the students shared similar perceptions with the instructor and director groups.

One possible explanation for this finding involves the student's previous exposure to the clinical setting while attending nursing school. Before an applicant can apply to nurse anesthesia school, they must be a registered nurse. This entails attending an accredited school of nursing which require approximately 1,000 hours of clinical experience before graduation. When a student graduates from nursing school, they have had an abundance of clinical experience and exposure to many different

clinical instructors. It is the researcher's belief that this exposure helped the students form their perceptions of the "effective clinical instructor."

Another explanation, that should also be considered, is that candidates for nurse anesthesia school must have a minimum of one year of intensive care experience. This year of intensive care experience again exposes them to a clinical setting. In addition, many of these nurses are called upon to serve as unit instructors or preceptors. As a result, many of the students entering nurse anesthesia school had experience in the role of a clinical instructor.

This perhaps sheds some light on why the results of other studies differed with this study. Other studies reported significant differences in the perceptions among professional groups, usually students versus faculty and directors. Unlike nurse anesthesia students, students in schools of nursing, dentistry, medicine, and other allied health profession have had very little or no previous clinical teaching exposure. In most cases, this is the students first exposure to clinical instructors and the clinical setting in general. This would explain why their perceptions would probably differ concerning the characteristics of what an effective clinical instructor should be.

Another possible explanation for the group's homogeneous perceptions is the nature of the clinical environment. The anesthesia clinical environment is a very stressful and demanding one. Life or death decisions are made on a daily basis. It is feasible that this environment could have a great effect on the importance placed on these characteristics of the effective CRNA clinical instructor. For example, remaining **calm** was identified as an important characteristic. The calm and composed

attitude exhibited by an instructor during a stressful situation would greatly enhance the students learning ability. Such a characteristic would be invaluable to a student's learning process in such a stressful environment. This characteristic, however, may not be as important in clinical settings that are not as stressful. Exposure to the stressful anesthesia environment in combination with previous clinical experience in nursing could have precipitated this homogeneous perception of clinical instructors found between students and faculty/directors.

This homogeneity among groups may also shed some light on the ongoing disagreement between many nurse anesthesia educators concerning CRNA clinical faculty evaluations. Clinical faculty performance is evaluated in many ways including peer reviews, self evaluation, and student evaluations. Student evaluations are considered, by many, as a very important source of faculty evaluations. It is the belief of some nurse anesthesia faculty, however, that student evaluations of faculty performance are not valid. These faculty believe that students do not have an adequate understanding of a clinical faculty member's responsibilities and duties to perform a valid evaluation. They believe that students are not familiar with the characteristics that make a good CRNA clinical instructor.

Findings from this study appear to dispute this position. These findings indicate that student's perceptions of the importance of the characteristics of an effective clinical instructor are very similar to those of CRNA clinical instructors and directors. As such, it would appear that students have a valuable contribution to make to clinical faculty evaluations.

The following demographic variables were not statistically significantly related to the perceived values of importance assigned the 22 characteristics of effective clinical instructors. These demographic variables were **age, gender, program types, years as a director or instructor, years a director was once an instructor, hours/week directors and instructors spend teaching in the clinical, hours/week students are taught in the clinical,** and **months students have been in their programs**. It appears that all 22 characteristics of effective clinical instructors were perceived as important despite the presence of these demographic variables. This finding, once again, re-enforces the perceived importance of these characteristics.

Recommendation for Future Studies

The importance of the characteristics of effective clinical instructors had never been studied before. The findings of this study provide the foundation for future studies. This exact study could be replicated in five years to determine if the perceived importance of the 22 characteristics has changed. Changes in characteristic importance may reflect future changes in the roles and responsibilities of the clinical instructor or the anesthesia educational process itself.

Another interesting approach would be the replication of this study sampling military affiliated nurse anesthesia programs. It would be interesting to see if military nurse anesthesia programs differed in their perceptions of the importance of the 22 characteristics.

The identification of demographic variables related to the perceived values of importance of the 22 characteristics could form the foundation of another study. The purpose of such a study would be the identification of variables that were predictive of the values of importance assigned to the 22 characteristics of effective clinical instructors. It would be interesting to determine what effect previous clinical nursing experience might have on the values of importance assigned to the characteristics by the students.

Another study might focus on the four characteristics in this present study that were identified as being more important to the directors and first-year student groups. Reason for these differences could be identified and analyzed.

This study opens the door to many additional research endeavors. Other researchers are encouraged to use this study as a basis to further explore the clinical instructor effectiveness. Only through research can instructor effectiveness be understood and improved.

Implications for Training

Based on the data provided by this study and conclusions made by this researcher, certain education and training implications appear appropriate. The first training implications center on clinical instructor education. Based on the importance of the 22 characteristics of effective clinical instructors, assessment tools could be developed that would assist in evaluating an instructor's clinical teaching strengths and weaknesses. The results of such evaluations could be used as a source of data for

performance assessment, promotions, merit pay, and the identification of deficiencies needing improvement. Based on the results of this assessment, various teaching strategies could be employed to help improve the instructor's clinical teaching effectiveness. Faculty development workshops could be organized for local, state, and national meetings. These assessment tools could also be used to assist employers concerning decisions on new and continued employment of clinical instructors.

Results from this study could also be used by the Council on Accreditation of Nurse Anesthesia Schools/Programs. The council could require that CRNA clinical instructors be evaluated regularly in relation to the characteristics of effective clinical instructors. Identified weaknesses could then be approached with appropriate teaching strategies. This requirement could be incorporated into an appropriate standard for accreditation. As a result, failure to meet this requirement could jeopardize a program's/school's accreditation status.

Development of effective clinical instructor characteristics could also be enhanced through the recertification process. Presently, nurse anesthetists must complete 40 CEU's in a two year period. The Council on Certification could designate 10 of these 40 CEU's to involve various topics on clinical education. The Council on Certification, in conjunction with the American Association of Nurse Anesthetist (AANA), could also add such clinical education topics to the agenda of the annual AANA National Meeting, Assembly of Schools Meeting, and various state meetings.

Concluding Remarks

This study is important for two basic reasons. First, the importance of the 22 characteristics of effective CRNA clinical instructors identified by Katz (1982) has never been studied. Findings in this study have laid the foundation for future studies. Second, it appears that the level of homogeneity found among group members in this study has not been previously been reported. This study advances the profession of nurse anesthesia ever closer toward reaching the goal of effective clinical education.

References

References

Agresti, A., & Finlay, B. (1986). Statistical methods for the social sciences (2nd ed.). San Francisco: Dellen Pub. Co.

Balla, J. I. & Edwards, H. M. (1986). Some problems in teaching clinical decision making. Medical Education, 20, 487-491.

Barham, V. Z. (1965). Identifying effective behaviors of the nursing instructor through critical incidents. Nursing Research, 14, 65-69.

Berg, C. R. (1967). Evaluation of clinical teaching and teachers. Journal of Dental Education, 31(2), 235-37.

Bergman, K. (1990). Faculty and student perceptions of effective clinical teachers: An extension study. Journal of Professional Nursing, 6(1), 33-44.

Bolender, C. L. & Guild, R. E. (1967). Student evaluation of clinical faculty: An experiment with encouraging results. Journal of Dental Education. 31(3), 304-312.

Brink, P. J. & Wood, M. J. (1983). Basic steps in planning nursing research, from questions to proposal, (2nd ed.). California: Wadsworth Inc.

Brown, S. T. (1981). Faculty and student perceptions of effective clinical teachers. Journal of Nursing Education, 20, 4-15.

Christie, B. A., Joyce, P. C. & Moeller, P. L. (1985). Fieldwork experience, Part II: The supervisor's dilemma. American Journal of Occupational Therapy, 39, 675-681.

Depaolis, M. (1980). The need for teaching competencies in clinical instructors. Journal or the American association of Nurse Anesthetist, 48, 50-52.

Evans, J. R. & Massler, M. (1977). The effective clinical teacher. Journal of Dental Education, 41(10), 613-617.

Flager, S., Loper-Powers, S. & Spitzer, A. (1988). Clinical teaching is more than evaluation alone! Journal of Nursing Education, 27, 342-348.

Gjerde, C. L. & Coble, R. J. (1982). Resident and faculty perceptions of effective clinical teaching in family practice. The Journal of Family Practice, 14(2), 323-327.

Irby, D. M. (1978). Clinical teacher effectiveness in medicine. Journal of Medical Education, 53, 808-815.

Irby, D. M. (1986). Clinical teaching and the clinical teacher. Journal of Medical Education, 61, 35-45.

Irby, D. M. & Rakestraw, P. (1981). Evaluating clinical teaching in medicine. Journal of Medical Education, 56, 181-186.

Jacobson, M. D. (1966). Effective and ineffective behavior of teachers of nursing as determined by their students. Nursing Research, 15, 218-224.

Jarski, R. W., Kulig, K. & Olsen, R. E. (1990). Allied health perceptions of effective clinical instruction. Journal of Allied Health, 18(5), 469-78.

Katz, L. E. (1982). A study of characteristics of clinical teachers of nurse anesthetists. (Doctoral dissertation. Pepperdine University, 1982). Dissertation Abstracts International, DA8328355.

Katz, L. E. (1984). Characteristics of clinical teachers in nurse anesthesia. Journal or the American association of Nurse Anesthetist, 52, 192-197.

Kiker, M. (1973). Characteristics of the effective teacher. Nursing Outlook, 21, 39-43.

Knox, J. E. & Mogan, J. (1985). Important clinical teacher behaviors as perceived by university nursing faculty, students and graduates. Journal of Advanced Nursing, 10, 25-30.

MaCabe, B. W. (1985). The improvement of instruction in the clinical area: A challenge waiting to be met. Journal of Nursing Education, 24, 255-257.

Marson, S. N. (1982). Ward sister- teacher or facilitator? An investigation into the behavioral characteristics of effective ward teachers. Journal of Advanced Nursing, 7, 347-357.

McMillan, J. H. & Schumacher, S. (1984). Research in education: A conceptual introduction. Little, Brown and Company: Boston.

Meleca, C. B., Schimpfhauser, F., Witteman, J. K. & Sachs, L. (1983). Clinical instruction in nursing: A national survey. Journal of Medical Education, 58, 395-403.

Mogan J. and Knox, J. E. (1983). Students' perceptions of clinical teaching. Nursing Papers, 15, 4-13.

Mogan, J. and Knox, J. E. (1987). Characteristics of 'best' and 'worst' clinical teachers as perceived by university nursing faculty and students. Journal of Advanced Nursing, 12, 331-337.

Myers, B. (1977). Beliefs of dental faculty and students about effective clinical teaching behaviors. Journal of Dental Education, 41(2), 68-76.

Nehring, V. (1990). Nursing clinical teacher effectiveness inventory: a replicative study of the characteristics of 'best' and 'worst' clinical teachers as perceived by nursing faculty and students. Journal of Advanced Nursing, 15, 934-940.

Neter, J., Wasserman, W., & Kutner, M. H. (1985). Applied linear statistical models (2nd ed.). Illinois: Richard D. Irwin, Inc.

O'Shea, H. & Parsons, M. (1979). Clinical instruction: Effective and ineffective teaching behavior. Nursing Outlook, 27, 411-419.

Pugh, E. J. (1988). Soliciting student input to improve clinical teaching. Nurse Educator, 13, 28-33.

Quinn. F. M. (1980). The principles and practice of nurse education. Croon Helm, London.

Romberg, E. (1984). A factor analysis of students' ratings of clinical teaching. Journal of Dental Education, 48(5), 258-262.

Rosenberg, M. (1968). The logic of survey analysis. Basic Books: New York.

Snedecor, G. W., & Cochran, W. G., (1989). Statistical methods (8th ed.). Ames, Iowa: Iowa State Univerity Press.

Stafford, L. & Graves, C. C. (1978, August). Some problems in evaluating teaching effectiveness. Nursing Outlook, 494-497.

Stritter, F. T., Baker, R. M., & Shahady, E. J. (1986). Clinical instruction. In W. C. McGaghie & J. J. Frey (Ed.), Handbook for the academic physician (pp. 99-124). New York: Springer Verlag.

Stritter, F. T., Hain, J. H., & Grimes, D. A. (1975). Clinical teaching re-examined. Journal of Medical Education, 50, 876-882.

Stuebbe, B. (1980). Student and faculty perspectives on the role of a nursing instructor. Journal of Nursing Education, 19(7), 4-9.

Walker, J. D. (1971). Favorable and unfavorable behaviors of the dental faculty as evaluated by dental students. Journal of Dental Education, 35(9), 625-631.

Wilkinson, L., (1989). SYSTAT: The system for statistics. Evanston, Illinois: SYSTAT, Inc.,

Wolf, F. M. & Turner, E. V. (1989). Congruence between student and instructor perceptions of clinical teaching in paediatrics. Medical Education, 23, 161-167.

Wolverton, S. & Bosworth, M. F. (1985). A survey of resident perceptions of effective teaching behaviors. Family Practice, 17(3), 106-108.

Wong, S. (1978). Nurse-teacher behaviors in the clinical field: apparent effect on nursing students' learning. Journal of Advanced Nursing, 3, 369-372.

Wong, J. & Wong, S. (1987). Towards effective clinical teaching in nursing. Journal of Advanced Nursing, 12, 505-513.

Wood, V. (1987), The nursing instructor and clinical teaching. International Nursing Review, 34, 120-125.

Zimmerman, L. & Waltman, N. (1986). Effective clinical behaviors of faculty: A review of the literature. Nurse Educator, 11, 31-34.

APPENDIX A

Demographic Sheets for Directors, Instructors, and Students

with Survey Instrument

(sent to CRNA Instructors only)

DEMOGRAPHIC DATA SHEET

(Please fill out this data sheet as completely as possible. Be sure to return this completed data sheet along with the survey instrument in the self addressed return envelope.)

1. My Age is: _____ years.

2. My gender is:

_____ male
_____ female

3. My professional status is:

_____ Program/School Director
_____ CRNA Clinical Instructor
_____ First Year Student
_____ Second Year Student

4. I am affiliated with the following type of program:

_____ Certificate
_____ Baccalaureate
_____ Masters

5. How many hours per week do you instruct/teach students in the clinical setting?

_____ hours (approximately)

6. How many years have you been a clinical instructor?

_____ years

7. Were you ever a Program Director for a school of nurse anesthesia?

_____ NO
_____ YES

If YES : How many years were you a director?

_____ years

How many years since you were a director?
_____ years

(sent to students only)

DEMOGRAPHIC DATA SHEET

(Please fill out this data sheet as completely as possible. Be sure to return this completed data sheet along with the survey instrument in the self addressed return envelope.)

1. My Age is: _____ years.

2. My gender is:

_____ male
_____ female

3. My professional status is:

_____ Program/School Director
_____ CRNA Clinical Instructor
_____ First Year Student
_____ Second Year Student

4. I am affiliated with the following type of program:

_____ Certificate
_____ Baccalaureate
_____ Masters

5. On the average, how many hours per week do you spend being taught/supervised by a CRNA clinical instructor in the operating room?

_____ hours/ week

6. How many months have you been in your nurse anesthesia school/program?

_____ months

(sent to Program Directors only)

DEMOGRAPHIC DATA SHEET

(Please fill out this data sheet as completely as possible. Be sure to return this completed data sheet along with the survey instrument in the self addressed return envelope.)

1. My Age is: _____ years.

2. My gender is:

_____ male
_____ female

3. My professional status is:

_____ Program/School Director
_____ CRNA Clinical Instructor
_____ First Year Student
_____ Second Year Student

4. I am affiliated with the following type of program:

_____ Certificate
_____ Baccalaureate
_____ Masters

5. How many years have you been a program director?

_____ years

6. How many years were you a clinical instructor?

_____ years

7. How many hours per week do you teach students in the clinical area?

_____ hours/ week

THE PERCEIVED IMPORTANCE OF CLINICAL TEACHING CHARACTERISTICS FOR NURSE ANESTHESIA CLINICAL FACULTY

By
William Hartland Jr. MS. CRNA
Doctoral Candidate
Virginia Commonwealth University

A study examining the importance of various characteristics possessed by the effective nurse anesthesia clinical instructor

July, 1992

INSTRUCTIONS

- The following characteristics have been identified as indicative of an effective clinical instructor (Katz, 1984). In your opinion, using the following 5 point scale, please evaluate each characteristic according to how important you feel these characteristics are for an effective clinical instructor to possess. **Please circle the appropriate number that reflects your feelings.**

    1. Somewhat Important
    2. Important
    3. Very Important
    4. Highly Important
    5. Critically Important

- Please be sure to finish the complete survey.

- **Be assured that your confidentiality will be protected.** The number on the demographic sheet and survey instrument is for essential record keeping purposes only. All data will be statistically analyzed and reported in group scores so **no** individual can be identified.

EXAMPLE

TONE OF VOICE (characteristic)

The clinical instructor's voice is soothing and calming in times of stress

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

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PLEASE BEGIN

1. EMPATHY/RESPECT

The clinical instructor demonstrates sensitivity toward students, understands their needs, supports their self-esteem and relates to them in a non-threatening manner.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

2. EGO STRENGTH/SELF ASSURANCE

The clinical instructor demonstrates confidence in his/her own abilities and recognizes his/her own limitations.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

3. USE OF STUDENT CARE PLAN

The clinical instructor analyzes, evaluates and allows students to implement the student's care plan whenever possible.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

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4. SCHOLARLY TEACHING/KNOWLEDGE

The clinical instructor demonstrates a broad reading and knowledge base, referring and applying pertinent articles and research to patient care, and explains the basis for his/her clinical actions.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

5. MOTIVATES STUDENTS

The clinical instructor expects students to assume an active role in the discussion and problem solving process while encouraging them to perform and communicate at their level of knowledge.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

6. CALM

The clinical instructor is poised and composed in the clinical area and reacts to stress in a very professional and skillful manner.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

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7. STIMULATES EFFECTIVE DISCUSSIONS

The clinical instructor skillfully encourages and facilitates discussions.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

8. CLINICAL COMPETENCE/JUDGMENT

The clinical instructor is technically skilled, demonstrating sound application of theory and knowledge to practice.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

9. APPROPRIATELY ENCOURAGES INDEPENDENCE

The clinical instructor assigns students responsibilities and encourages them to act and think for themselves according to their level of education and competence.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

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10. EVALUATION/COUNSELING

The clinical instructor evaluates and counsels students systematically and objectively with appropriate, constructive, and timely feedback.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

11. INDIVIDUALIZES TEACHING

The clinical instructor sets objectives and adjusts teaching methods specific to the level and learning needs of each individual student.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

12. OPEN-MINDED

The clinical instructor discusses different views relating to anesthesia care and encourages students to develop their own sound viewpoints.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

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13. ENJOYS TEACHING

The instructor conveys interest, motivation, and satisfaction in clinical teaching.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

14. STIMULATES STUDENT INVOLVEMENT

The clinical instructor encourages his/her students to participate actively in all aspects of anesthesia care.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

15. ACTIVELY TEACHES

The clinical instructor interacts with the students throughout the clinical period.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

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16. POSITIVE ROLE MODEL

The clinical instructor serves as an appropriate model of the type of anesthetist students want to emulate.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

17. SENSITIVITY

The clinical instructor demonstrates understanding of others feelings and supports the students' self esteem.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

18. FLEXIBILITY

The clinical instructor encourages his/her students to become familiar with various anesthesia techniques appropriate to the patient's needs.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

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19. TIMELY FEEDBACK

The clinical instructor evaluates students' performance as close to the performance as appropriate.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

20. ACCESSIBILITY

The clinical instructor is available and devotes appropriate time to his/her students.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

21. ENGENDERS CONFIDENCE

The clinical instructor helps students develop self confidence in their own ability to perform appropriately.

Somewhat Important	Important	Very Important	Highly Important	Critically Important
1	2	3	4	5

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22. COMMUNICATION SKILLS

The clinical instructor demonstrates a variety of effective verbal and non verbal communication patterns.

Somewhat Important		Very Important	Highly Important	Critically Important
1	2	3	4	5

In this next section you will be asked to rank order the top five, most important characteristics and the bottom five, least important characteristics.

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Characteristics of the Effective Clinical Instructor

1.	Empathy/Respect	12.	Open-Minded
2.	Ego Strength/ Self Assurance	13.	Enjoys Teaching
3.	Use of Student Care Plan	14.	Stimulates Students Involvement
4.	Scholarly Teaching/ Knowledge	15.	Actively Teaches
5.	Motivates Students	16.	Positive Role Model
6.	Calm	17.	Sensitivity
7.	Stimulates Effective Discussions	18.	Flexibility
8.	Clinical Competence/ Judgment	19.	Timely Feedback
9.	Appropriately Encourages Independence	20.	Accessibility
10.	Evaluation/ Counseling	21.	Engenders Confidence
11.	Individualizes Teaching	22.	Communication Skills

Although all of the above 22 characteristics are important to some degree, which ones do you believe to be the **five <u>most</u> important**. Please rank order them in order of importance starting with the most important. Please list the characteristic's number.

RANK	CHARACTERISTIC NUMBER
1 st	_____
2 nd	_____
3 rd	_____
4 th	_____
5 th	_____

Which of the above 22 characteristics do you believe to be the **five <u>least</u> important**. Please rank order these also. Please list the characteristic's number.

RANK	CHARACTERISTIC NUMBER
18 th	_____
19 th	_____
20 th	_____
21 st	_____
22 nd	_____

Go To Next Page ->>

Thank you
for your valuable time and input.

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Burroughs Welcome Fellowship Grant

APPENDIX B

Letter of Transmittal to Nurse Anesthesia Education Experts with Operational Definition Instrument

June 6, 1991

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William Hartland Jr.
[redacted]

Dear 4~,

In 1984, a study was reported by Leah F. Katz CRNA, Ed.D to assess behaviors of best and worst nurse anesthesia clinical teachers. As you can imagine many characteristics were identified. I am conducting a study designed to build on Dr. Katz's good work. This study will use her characteristics and further refine them by determining which ones are most important to nurse anesthesia clinical instructors. As part of this research process an instrument must be designed and validated to obtain the needed data. A portion of the validation process consists of asking a panel of experts in nurse anesthesia eduction to assess the appropriateness and accuracy of definitions assigned to her previously identified characteristics. As per our telephone conversation, I am asking you to serve as one of these experts because of your expertise in anesthesia education.

I have assigned definitions developed from the extensive item analysis presented in Dr. Katz's study. It is hoped that these definitions will clarify questions a respondent may have concerning the meaning of each characteristic examined. For example, it may be difficult to determine the importance of *empathy* as a characteristic of a good clinical anesthesia instructor if the term is not operationally clear to the respondent.

It is hoped that this study of clinical teaching characteristics will assist in future faculty development, recruitment, and evaluation efforts nationwide. If you have any questions concerning the task please contact me at: [redacted] (work) or [redacted] (home). I sincerely thank you for your time and valuable input in this study.

Sincerely,

William Hartland Jr. MS, CRNA

INSTRUCTIONS

1. The following characteristics identify a good nurse anesthesia clinical instructor. Please read the underlined characteristic of a good clinical instructor. Then read the suggested operational definition immediately following. In your opinion how well, on a scale of 1 to 5, does the operational definition define and/or clarify the meaning of the characteristic? Please circle your response.

   5 = Clear
   4 = Somewhat Clear
   3 = Undecided
   2 = Somewhat Unclear
   1 = Unclear

2. If you circled either a 3 (undecided), 2 (somewhat unclear), or 1 (unclear) please write a more appropriate definition in the space provided directly below the scale.

3. Please be sure to evaluate each of the 23 characteristics and their definitions.

4. At the conclusion of this survey I will ask if you feel that any of the identified characteristics could be appropriately collapsed or combined into one category.

EXAMPLE

TONE OF VOICE (characteristic)

The clinical instructor's tone of voice is good. (definition)

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

(If a 3, 2, or 1 were selected an alternate definition should be written here)

PLEASE BEGIN:

1. EMPATHY/RESPECT

The clinical instructor demonstrates sensitivity toward his/her students while maintaining his/her self-esteem and relating to them in a non-threatening manner.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

2. EGO STRENGTH/SELF ASSURANCE

The clinical instructor demonstrates confidence in his/her own abilities while knowing his/her own limitations.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

3. USE OF STUDENT CARE PLAN

The clinical instructor discusses, assesses, and implements the student's care plan whenever possible.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

4. SCHOLARLY TEACHING/KNOWLEDGE

The clinical instructor demonstrates a broad reading and knowledge base, referring to pertinent articles and research, and explains the basis for his/her clinical actions.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

5. MOTIVATE STUDENTS

The clinical instructor gives students an active role in the discussion and problem solving process while inspiring them to maximum effort.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

6. CALM

The clinical instructor is poised and composed in the clinical area while reacting to pressure in a very professional and skillful manner.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

7. STIMULATES EFFECTIVE DISCUSSIONS

The clinical instructor skillfully encourages and directs discussions.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

8. CLINICAL COMPETENCE/JUDGEMENT

The clinical instructor is a well qualified and capable practicing anesthetist, demonstrating good solid clinical assessment.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

9. APPROPRIATELY ENCOURAGES INDEPENDENCE

The clinical instructor gives students appropriate and additional responsibilities while encouraging them to act and think for themselves.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

10. EVALUATION/COUNSELING

The clinical instructor assesses and counsels students systematically and objectively with appropriate, constructive, and timely feedback.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

11. INDIVIDUALIZES TEACHING

The clinical instructor sets objectives and adjusts teaching methods specific to the level and learning needs of each individual student.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

12. OPEN-MINDED

The clinical instructor contrasts and discusses various divergent views relating to anesthesia care and encourages his/her students to develop their own viewpoints.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

13. ENJOYS TEACHING

The instructor conveys interest, pleasure, and self-satisfaction in clinical teaching.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

14. STIMULATES STUDENT INVOLVEMENT

The clinical instructor encourages his/her students to participate actively in all aspects of anesthesia care.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

15. ACTIVELY TEACHES

The clinical instructor dynamically interacts with the students throughout the clinical period.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

16. POSITIVE ROLE MODEL

The clinical instructor serves as an appropriate model of the type of anesthetist students want to emulate.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

17. SENSITIVITY

The clinical instructor demonstrates a deep understanding of others feelings and supports the students' self esteem.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

18. FLEXIBILITY

The clinical instructor encourages his/her students to become familiar with various anesthesia techniques appropriate to the patient's needs.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

19. TIMELY FEEDBACK

The clinical instructor evaluates students' performance as close to the performance as appropriate.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

20. ACCESSIBILITY

The clinical instructor is available and devotes appropriate time with his/her students.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

21. ENGENDERS CONFIDENCE

The clinical instructor helps students develop a belief and trust in his/her own ability to perform appropriately.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

22. COMMUNICATION SKILLS

The clinical instructor demonstrates a variety of effective verbal and non verbal communication patterns.

Clear	Somewhat Clear	Undecided	Somewhat Unclear	Unclear
5	4	3	2	1

While completing this instrument development process, if you came across any characteristics that you felt should be a subset of another please do the following.

List below the characteristics (Number and Name) which should be the subset of another characteristic.

Make this Characteristic		a *subset* of this Characteristic	
#	Name of Characteristic	#	Name of Characteristic

APPENDIX C

Characteristics Perceived as Indicative of Effective Clinical Instructors and their Operational Definitions

Characteristics Perceived as Indicative of Effective Clinical Instructors and their Operational Definition

Characteristic	Operational Definition
Empathy/ Respect	The clinical instructor demonstrates sensitivity toward students, understands their needs, supports their self-esteem and relates to them in a non-threatening manner.
Ego Strength/ Self Assurance	The clinical instructor demonstrates confidence in his/her own abilities and recognizes his/her own limitations.
Use of Student Care Plan	The clinical instructor analyzes, evaluates and allows students to implement the student's care plan whenever possible.
Scholarly Teaching/ Knowledge	The clinical instructor demonstrates a broad reading and knowledge base, referring and applying pertinent articles and research to patient care, and explains the basis for his/her clinical actions.
Motivates Students	The clinical instructor expects students to assume an active role in the discussion and problem solving process while encouraging them to perform and communicate at their level of knowledge.
Calm	The clinical instructor is poised and composed in the clinical area and reacts to stress in a very professional and skillful manner.
Stimulates Effective Discussions	The clinical instructor skillfully encourages and facilitates discussions.
Clinical Competence/ Judgment	The clinical instructor is technically skilled, demonstrating sound application of theory and knowledge to practice.
Appropriately Encourages Independence	The clinical instructor assigns students responsibilities and encourages them to act and think for themselves according to their level of education and competence.

Characteristic	Operational Definition
Evaluation/ Counseling	The clinical instructor evaluates and counsels students systematically and objectively with appropriate, constructive, and timely feedback.
Individualizes Teaching	The clinical instructor sets objectives and adjusts teaching methods specific to the level and learning needs of each individual student.
Open-Minded	The clinical instructor discusses different views relating to anesthesia care and encourages students to develop their own sound viewpoints.
Enjoys Teaching	The instructor conveys interest, motivation, and satisfaction in clinical teaching.
Stimulates Student Involvement	The clinical instructor encourages his/her students to participate actively in all aspects of anesthesia care.
Actively Teaches	The clinical instructor interacts with the students throughout the clinical period.
Positive Role Model	The clinical instructor serves as an appropriate model of the type of anesthetist students want to emulate.
Sensitivity	The clinical instructor demonstrates understanding of others feelings and supports the students' self esteem.
Flexibility	The clinical instructor encourages his/her students to become familiar with various anesthesia techniques appropriate to the patient's needs.
Timely Feedback	The clinical instructor evaluates students' performance as close to the performance as appropriate.
Accessibility	The clinical instructor is available and devotes appropriate time to his/her students.

Characteristic	Operational Definition
Engenders Confidence	The clinical instructor helps students develop self confidence in their own ability to perform appropriately.
Communication Skills	The clinical instructor demonstrates a variety of effective verbal and non verbal communication patterns.

APPENDIX D

Test-retest Reliability Coefficients for the 22 Characteristics of the Effective Clinical Instructor

Pilot Study Statistical Results
(22 Characteristics of Effective Clinical Instruction)

	Characteristic	Test-retest Reliability Coefficient (2 wk interval)
1	Empathy/Respect	.77
2	Ego Strength/ Self Assurance	.74
3	Use of Student Care Plan	.66
4	Scholarly Teaching/ Knowledge	.66
5	Motivates Students	.45
6	Calm	.57
7	Stimulates Effective Discussions	.58
8	Clinical Competence/ Judgement	.69
9	Appropriately Encourages Independence	.65
10	Evaluation/ Counseling	.56
11	Individualizes Teaching	.50
12	Open-Minded	.61
13	Enjoys Teaching	.56
14	Stimulates Students Involvement	.92
15	Actively Teaches	.50
16	Positive Role Model	.70
17	Sensitivity	.81
18	Flexibility	.61

	Characteristic	Test-retest Reliability Coefficient (2 wk interval)
19	Timely Feedback	.80
20	Accessibility	.67
21	Engenders Confidence	.71
22	Communication Skills	.71

APPENDIX E

Endorsement Letters from the

American Association of Nurse Anesthetists

Education and Research Foundation

American Association
of Nurse Anesthetists
Education and
Research Foundation
[redacted]

December 18, 1991

William Hartland, Jr.
[redacted]

Dear Mr. Hartland:

The American Association of Nurse Anesthetists Education and Research Foundation has reviewed your research proposal entitled, "The Importance of Various Characteristics in the Development of the Effective Clinical Nurse Anesthesia Instructor as Perceived by Nurse Anesthesia Program Directors, Clinical Instructors and Students," and has endorsed your research proposal. The ERF Board of Directors suggested shortening the title of the research for clarity. The proposal is well written and a need to study the topic is important in education.

Best of luck in your research activities!

Sincerely,
[redacted]

John F. Garde, CRNA, MS
Secretary

0004y/32

American Association
of Nurse Anesthetists
Education and
Research Foundation

April 20, 1992

William Hartland, Jr., CRNA
[redacted]

Dear Mr. Hartland:

On behalf of the American Association of Nurse Anesthetists Education and Research Foundation, I am pleased to inform you that you have been awarded an AANA/ERF Fellowship of $1,000.00. The Foundation was impressed with your involvement in a leadership role in education and wishes you the best of luck in your academic endeavors.

Financing of this award was made possible by funding from Stuart Pharmaceuticals, Roche Laboratories and Akzo. The Education and Research Foundation would like to encourage you to express your personal appreciation to the individuals listed below, for their generous support in assisting educational leaders in nurse anesthesia education.

Randall Glick
Product Promotions Manager
Stuart Pharmaceuticals
Division of ICI Americas Inc.
Wilmington, DE 19897

Maria Bergamo, MD
Assistant Director
Roche Laboratories
340 Kingsland Street
Nutley, NJ 07110-1199

David Dingwell
Vice President
Akzo
Organon Inc.
375 Mt. Pleasant Ave.
West Orange, NJ 07052

Congratulations on your Fellowship!

Sincerely,

[redacted]

John F. Garde, CRNA, MS
Secretary

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APPENDIX F

Letters of Transmittal

July 13, 1992

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3~
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William Hartland Jr. CRNA, MS
MCV Station, Box 579
Richmond, VA 23298-0579

Dear 1~,

In a 1982 doctoral dissertation research study, Dr. Leah E. Katz identified 22 characteristics indicative of an effective CRNA clinical instructor. The next step in this research process is to determine the level of importance each of these characteristics possesses. With the assistance of the American Association of Nurse Anesthetists' Education and Research Foundation, you have been randomly selected to participate in a nation-wide study to determine this level of importance.

We are all concerned about the future of the nurse anesthesia profession. One way to ensure the vitality of our profession is through it's educational system. This is the reason I am doing this doctoral study. It is anticipated that this knowledge will assist in faculty development, evaluation, selection and counseling. Ultimately, it should contribute to more effective clinical instruction in nurse anesthesia education.

I am certain that you are aware that any research undertaken is not the effort of one individual. The completion of this study cannot be accomplished without your valuable assistance. As such, I am requesting your assistance in this research project. When you receive the forth coming questionnaire please take a few minutes to complete and return it as soon as possible. The results of a pilot study indicate that completion of the questionnaire should take an average of 10 minutes.

This study has been endorsed by the American Association of Nurse Anesthetists Education and Research Foundation (ERF). It is partially funded by the AANA/ERF Burroughs Welcome Fellowship Grant.

Thank you for your cooperation and time.

Sincerely,

William Hartland Jr. CRNA

July 20, 1992

2~
3~
4~, 5~ 6~

William Hartland Jr. CRNA, MS
MCV Station, Box 579
Richmond, VA 23298-0579

Dear 1~,

In a 1982 doctoral dissertation research study, Dr. Leah E. Katz identified 22 characteristics indicative of an effective CRNA clinical instructor. The next step in this research process is to determine the level of importance each of these characteristics possesses. With the assistance of the American Association of Nurse Anesthetists' Education and Research Foundation, you have been randomly selected to participate in a nation-wide study to determine this level of importance.

We are all concerned about the future of the nurse anesthesia profession. One way to ensure the vitality of our profession is through it's educational system. This is the reason I am doing this doctoral study. It is anticipated that this knowledge will assist in faculty development, evaluation, selection and counseling. Ultimately, it should contribute to more effective clinical instruction in nurse anesthesia education.

I am certain that you are aware that any research undertaken is not the effort of one individual. The completion of this study cannot be accomplished without your valuable assistance. As such, I am requesting your assistance in this research project. The results of a pilot study indicate that completion of the questionnaire should take an average of 10 minutes.

The enclosed questionnaire contains two parts. The demographic sheet is concerned with necessary demographic data. The survey instrument concerns your perceptions of the importance of characteristics of the effective CRNA clinical instructor. It is important that both parts be carefully completed. After completion of both parts, please return the demographic sheet and questionnaire in the enclosed self-addressed, stamped envelope.

I assure you that this information will be treated with the strictest of confidentiality. The number listed on the demographic sheet and survey instrument is for essential record keeping purposes only. There is no need to supply your name. All data will be statistically analyzed and reported in group scores so no individual can be identified.

This study has been endorsed by the American Association of Nurse Anesthetists Education and Research Foundation (ERF). It is partially funded by the AANA/ERF Burroughs Wellcome Fellowship Grant.

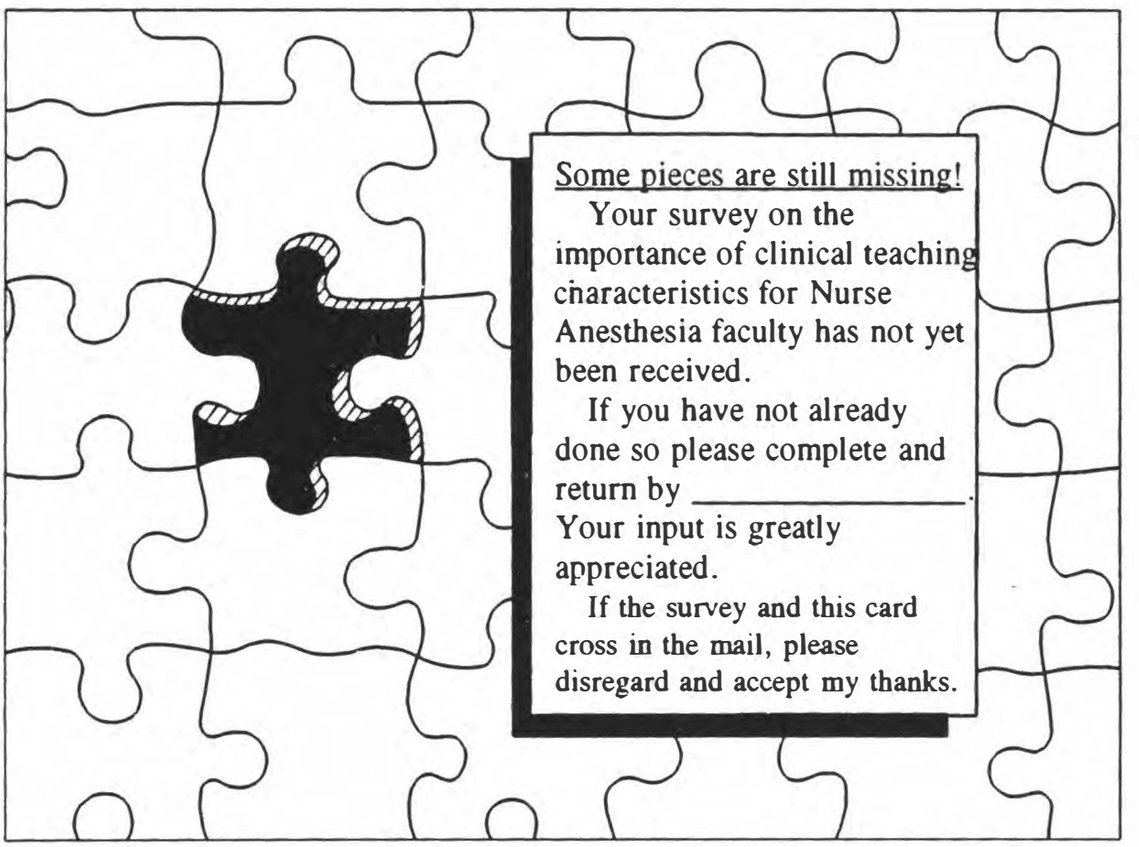
Thank you for your cooperation and time.

William Hartland Jr. CRNA

APPENDIX G

Non-respondent Follow-up Mailings

First Follow-up, Second Mailing



(Second Follow-up Letter, Third Mailing)

Date

Non-respondents Name
Address
Address

William Hartland Jr.
Box , MCV Station
Virginia Commonwealth University
Richmond, Va. 23298-

Dear ,

Four weeks ago a letter was sent inviting you to participate in a research study examining the importance of various characteristics identified as indicative of effective CRNA clinical faculty. These characteristics were identified in 1982 by L. E. Katz. It is anticipated that this knowledge will assist in faculty development, evaluation, selection and counseling. Ultimately, it should contribute to more effective clinical instruction in nurse anesthesia education.

As of this date, I have not received your completed questionnaire. It is possible that you may have misplaced or did not receive the original mailing. It is also possible that because of your busy schedule you have not had the time to complete it. This is understandable. Due to the study design, only a sample of individuals received these questionnaires. Because your participation is crucial to the success of this study, an additional questionnaire and self-addressed stamped envelope are enclosed. It would be most appreciated if you would return the questionnaire as quickly as possible. A pilot study has indicated that completion of the questionnaire should take no more than 10 minutes. Please be assured that your responses will be treated with strictest confidentiality.

Thank you for participating in this most important study.

Sincerely,

William Hartland Jr. CRNA, MS

APPENDIX H

Pearson-Moment Correlations for the Four Professional Group's Demographic Variables and all 22 Characteristics

Pearson Correlations for Director's Demographic Variables and All 22 Characteristics

Demographic Variables/ Characteristics	Pearson Correlation Statistic					
	Age	Gender	Program Type	Yrs. a Director	Yrs. a CRNA Instructor	Hrs./ Wk Clinical Teaching
Age	1.000					
Gender	0.043	1.000				
Program Type	0.030	0.072	1.000			
Years a Director	0.482*	0.112	-0.127	1.000		
Years as a Instructor	0.341	-0.012	0.168	-0.270	1.000	
Hrs./Wk of Clinical Teaching	-0.135	-0.256	0.066	-0.096	-0.049	1.000
Empathy/ Respect	-0.112	0.003	0.020	-0.175	-0.007	0.125
Ego Strength/ Self Assurance	-0.267	-0.003	-0.028	-0.077	-0.133	0.239
Use of Student Care Plan	-0.003	0.242	0.167	-0.074	-0.083	0.081
Scholarly Teaching/ Knowledge	-0.117	0.101	0.074	-0.123	-0.101	0.225
Motivates Students	-0.014	-0.059	-0.054	-0.221	0.121	0.086
Calm	-0.033	-0.159	-0.148	-0.058	-0.086	0.186
Stimulates Effective Discussions	-0.026	-0.044	0.179	-0.139	0.112	0.032
Clinical Competence/ Judgment	-0.129	-0.121	-0.111	-0.025	-0.109	-0.022
Appropriately Encourages Independence	-0.163	-0.152	0.144	-0.169	-0.099	0.061
Evaluation/ Counseling	-0.242	0.095	-0.094	-0.192	-0.024	-0.043
Individualizes Teaching	0.029	0.059	-0.011	-0.045	0.021	0.114
Open-Minded	0.119	0.089	-0.077	-0.110	0.046	0.119
Enjoys Teaching	0.010	0.078	0.025	0.062	-0.073	0.135
Stimulates Student Involvement	0.127	-0.115	-0.017	-0.057	0.059	0.042
Actively Teaches	0.045	0.077	-0.084	-0.037	0.132	0.051
Positive Role Model	0.104	0.160	0.006	-0.110	0.229	-0.183
Sensitivity	0.081	0.152	0.057	-0.084	0.102	0.019
Flexibility	0.034	0.075	0.061	-0.058	-0.010	0.120
Timely Feedback	-0.292	0.011	-0.082	-0.262	-0.081	0.083
Accessibility	-0.204	0.032	0.070	-0.323	0.058	0.326
Engenders Confidence	-0.102	0.015	0.073	0.005	-0.111	0.134
Communication Skills	0.052	0.073	0.126	-0.233	0.218	-0.001

* $p < .005$

Pearson Correlations for CRNA Clinical Instructors Demographic Variables and All 22 Characteristics

Demographic Variables/ Characteristics	Pearson Correlation Statistic				
	Age	Gender	Program Type	Hrs./Wk Clinical Teaching	Yrs. a CRNA Instructor
Age	1.000				
Gender	0.147	1.000			
Program Type	0.037	0.075	1.000		
Hrs./Wk of Clinical Teaching	-0.184	-0.002	-0.135	1.000	
Years as a Clinical Instructor Once/Never a Director	0.648*	0.240	0.080	-0.158	1.000
Empathy/ Respect	0.066	0.062	0.151	-0.152	-0.053
Ego Strength/ Self Assurance	-0.015	-0.072	0.047	0.013	-0.137
Use of Student Care Plan	0.060	0.105	0.059	-0.037	-0.002
Scholarly Teaching/ Knowledge	0.081	0.111	0.165	-0.076	0.001
Motivates Students	-0.091	0.088	0.125	0.045	-0.028
Calm	0.011	-0.022	0.095	0.077	-0.065
Stimulates Effective Discussions	-0.088	-0.038	0.216	0.064	-0.147
Clinical Competence/ Judgment	-0.057	-0.039	0.060	0.105	-0.135
Appropriately Encourages Independence	-0.138	0.112	0.077	0.016	-0.110
Evaluation/ Counseling	-0.041	0.085	0.241	0.028	-0.075
Individualizes Teaching	-0.058	-0.015	0.205	-0.017	-0.117
Open-Minded	-0.015	0.076	0.137	-0.085	-0.040
Enjoys Teaching	-0.052	-0.015	0.187	-0.027	-0.119
Stimulates Student Involvement	-0.053	0.004	0.018	-0.017	-0.115
Actively Teaches	0.006	0.097	0.088	0.097	-0.004
Positive Role Model	-0.093	0.099	0.120	-0.009	-0.118
Sensitivity	0.059	0.087	0.130	-0.086	-0.035
Flexibility	-0.051	0.040	0.053	0.167	-0.124
Timely Feedback	-0.049	-0.025	0.064	-0.110	-0.113
Accessibility	-0.134	-0.069	0.119	0.108	-0.082
Engenders Confidence	-0.012	0.019	0.142	-0.112	0.043
Communication Skills	-0.046	0.065	0.104	-0.036	-0.045

* $p < .0001$

Pearson Correlations for First Year Student Demographic Variables and All 22 Characteristics

Demographic Variables/ Characteristics	Pearson Correlation Statistic				
	Age	Gender	Program Type	Hrs./Wk in the Clinical	Months in the Program
Age	1.000				
Gender	-0.031	1.000			
Program Type	0.078	0.011	1.000		
Hrs./Wk in Clinical	-0.021	-0.241	-0.303	1.000	
Months in the Program	-0.062	-0.362	-0.199	0.256	1.000
Empathy/ Respect	0.034	-0.068	0.240	0.045	0.021
Ego Strength/ Self Assurance	0.145	-0.023	0.188	-0.110	0.057
Use of Student Care Plan	0.137	0.076	0.108	0.012	0.184
Scholarly Teaching/ Knowledge	0.001	-0.059	-0.019	0.044	0.110
Motivates Students	0.034	-0.087	0.135	0.044	0.202
Calm	-0.042	-0.011	0.115	-0.011	-0.108
Stimulates Effective Discussions	0.047	-0.023	0.057	-0.030	-0.244
Clinical Competence/ Judgment	0.173	0.144	0.255	-0.218	0.025
Appropriately Encourages Independence	0.015	-0.148	0.255	0.070	0.119
Evaluation/ Counseling	-0.086	0.051	0.025	-0.096	-0.043
Individualizes Teaching	-0.012	-0.035	0.199	-0.029	0.008
Open-Minded	-0.067	-0.108	0.223	-0.005	-0.045
Enjoys Teaching	0.060	-0.135	0.087	-0.108	0.104
Stimulates Student Involvement	-0.029	-0.270	0.162	0.010	0.184
Actively Teaches	0.144	0.082	-0.087	-0.067	-0.028
Positive Role Model	0.121	-0.010	0.084	-0.041	0.092
Sensitivity	-0.115	0.084	0.108	0.104	-0.003
Flexibility	-0.185	0.102	0.195	0.036	-0.116
Timely Feedback	-0.070	0.020	0.056	-0.091	0.039
Accessibility	-0.050	0.051	0.023	-0.148	-0.114
Engenders Confidence	-0.056	-0.116	0.089	0.182	-0.027
Communication Skills	0.007	-0.110	0.301	0.066	0.103

Pearson Correlations for Second Year Demographic Variables and All 22 Characteristics

Demographic Variables/ Characteristics	Pearson Correlation Statistic				
	Age	Gender	Program Type	Clinical Hrs./Wk.	Months in Program
Age	1.000				
Gender	-0.214	1.000			
Program Type	0.003	0.008	1.000		
Hrs./Wk in the Clinical	0.111	-0.061	0.292	1.000	
Months in the Program	0.117	-0.125	0.038	-0.023	1.000
Empathy/ Respect	-0.138	0.201	-0.033	-0.159	-0.006
Ego Strength/ Self Assurance	-0.007	0.155	0.022	-0.174	-0.045
Use of Student Care Plan	0.102	0.100	-0.288	-0.156	-0.017
Scholarly Teaching/ Knowledge	-0.187	-0.003	-0.155	-0.290	0.139
Motivates Students	-0.112	-0.008	-0.070	-0.100	-0.095
Calm	0.098	-0.012	-0.087	-0.088	0.009
Stimulates Effective Discussions	0.022	-0.033	-0.212	-0.133	-0.087
Clinical Competence/ Judgment	-0.057	0.238	-0.074	-0.123	-0.050
Appropriately Encourages Independence	0.092	-0.023	0.019	-0.101	-0.057
Evaluation/ Counseling	0.118	0.076	-0.173	-0.142	-0.016
Individualizes Teaching	0.206	-0.054	-0.115	-0.115	0.127
Open-Minded	0.087	-0.016	-0.091	-0.179	0.151
Enjoys Teaching	0.044	0.016	-0.219	-0.185	0.235
Stimulates Student Involvement	-0.074	0.050	-0.083	-0.195	-0.017
Actively Teaches	0.020	0.076	-0.112	0.081	-0.015
Positive Role Model	-0.000	-0.033	-0.097	-0.108	0.208
Sensitivity	0.025	0.067	-0.118	-0.143	0.096
Flexibility	0.139	-0.001	-0.244	-0.158	0.016
Timely Feedback	-0.177	0.195	-0.098	-0.006	0.024
Accessibility	0.085	0.177	-0.199	-0.162	0.118
Engenders Confidence	-0.122	0.080	-0.250	-0.194	-0.080
Communication Skills	0.066	0.060	-0.210	-0.146	0.089

APPENDIX I

Multiple Regression Analysis of Age, Gender, Program Type, and Professional Group for Each Characteristic of Effective Clinical Instruction

Multiple Regression Analysis of Age, Gender, Program Type, and Professional Group for Each Characteristics of Effective Clinical Instruction.

The Multiple Regression Model: Characteristic = Constant + Age + Gender + Programs + Groups

1. Multiple Regression Analysis - **Empathy / Respect**

N: 352 Multiple R: .191 Squared Multiple R: .037

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.358	1	0.358	0.378	.539
Gender	1.304	1	1.304	1.374	.242
Programs	3.171	2	1.586	1.672	.189
Groups	6.359	3	2.120	2.234	.084
Error	326.331	344	0.949		

2. Multiple Regression Analysis - **Ego Strength / Self Assurance**

N: 352 Multiple R: .173 Multiple R^2: .03

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	1.475	1	1.475	2.032	.156
Gender	0.043	1	0.043	0.060	.807
Programs	0.0988	2	0.494	0.680	.507
Groups	6.847	3	2.282	3.143	.025*
Error	249.793	344	0.726		

* $p < .05$

3. Multiple Regression Analysis - **Use of Student Care Plan**

N: 352 Multiple R: .228 Multiple R^2: .052

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.506	1	0.506	0.529	.467
Gender	5.529	1	5.529	5.776	.467
Programs	0.739	2	0.369	0.386	.680
Groups	8.889	3	2.963	3.096	.027*
Error	329.248	344	0.957		

* $p < .05$

4. Multiple Regression Analysis - **Scholarly Teaching / Knowledge**

N: 352 Multiple R: .182 Multiple R^2: .033

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.471	1	0.471	0.541	.462
Gender	1.034	1	1.034	1.189	.276
Programs	2.047	2	1.024	1.177	.309
Groups	7.387	3	2.462	2.831	.038*
Error	299.179	344	0.870		

* $p < .05$

5. Multiple Regression Analysis - **Motivates Students**

N: 352 Multiple R: .107 Multiple R^2: .012

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.790	1	0.790	1.284	.258
Gender	0.010	1	0.010	0.016	.899
Programs	0.887	2	0.443	0.720	.487
Groups	1.314	3	0.438	0.711	.546
Error	211.799	344	0.616		

6. Multiple Regression Analysis - **Calm**

N: 352 Multiple R: .124 Multiple R^2: .015

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.000	1	0.000	0.000	.984
Gender	0.424	1	0.424	0.617	.433
Programs	0.177	2	0.088	0.129	.879
Groups	2.830	3	0.943	1.371	.251
Error	236.597	344	0.688		

7. Multiple Regression Analysis - **Stimulates Effective Discussions**

N: 352 Multiple R: .209 Multiple R^2: .044

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.602	1	0.602	0.835	.362
Gender	0.328	1	0.328	0.455	.501
Programs	1.961	2	0.980	1.360	.258
Groups	8.903	3	2.968	4.118	.007*
Error	247.922	344	0.721		

* $p < .05$

8. Multiple Regression Analysis - **Clinical Competence / Judgment**

N: 352 Multiple R: .131 Multiple R^2: .017

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.575	1	0.575	0.891	.346
Gender	0.346	1	0.346	0.536	.465
Programs	0.226	2	0.113	0.175	.840
Groups	2.699	3	0.900	1.394	.245
Error	222.081	344	0.646		

9. Multiple Regression Analysis - **Appropriately Encourages Independence**

N: 352 Multiple R: .203 Multiple R^2: .041

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	1.478	1	1.478	2.685	.102
Gender	0.028	1	0.028	0.052	.820
Programs	2.447	2	1.223	2.223	.110
Groups	2.565	3	0.855	1.554	.200
Error	189.334	344	0.550		

10. Multiple Regression Analysis - **Evaluation / Counseling**

N: 352 Multiple R: .184 Multiple R^2: .034

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.892	1	0.892	1.214	.271
Gender	1.817	1	1.817	2.471	.117
Programs	0.758	2	0.379	0.515	.598
Groups	5.775	3	1.925	2.618	.051
Error	252.891	344	0.735		

11. Multiple Regression Analysis - **Individualizes Teaching**

N: 352 Multiple R: .143 Multiple R^2: .02

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.000	1	0.000	0.000	.987
Gender	0.027	1	0.027	0.030	.864
Programs	4.577	2	2.288	2.533	.081
Groups	1.624	3	0.541	0.599	.616
Error	310.770	344	0.903		

12. Multiple Regression Analysis - **Open Minded**

N: 352 Multiple R: .149 Multiple R^2: .022

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.045	1	0.045	0.059	.809
Gender	0.140	1	0.140	0.184	.668
Programs	0.968	2	0.484	0.636	.530
Groups	3.895	3	1.298	1.705	.166
Error	262.025	344	0.762		

13. Multiple Regression Analysis - **Enjoys Teaching**

N: 351 Multiple R: .166 Multiple R^2: .028

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.090	1	0.090	0.099	.753
Gender	0.004	1	0.004	0.005	.945
Programs	1.056	2	0.528	0.582	.559
Groups	7.938	3	2.646	2.919	.034*
Error	310.973	343	0.907		

* $p < .05$

14. Multiple Regression Analysis - **Stimulates Student Involvement**

N: 352 Multiple R: .19 Multiple R^2: .036

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.074	1	0.074	0.114	.736
Gender	0.533	1	0.533	0.815	.367
Programs	1.325	2	0.662	1.012	.365
Groups	6.313	3	2.104	3.215	.023*
Error	225.168	344	0.655		

* $p < .05$

15. Multiple Regression Analysis - **Actively Teaches**

N: 352 Multiple R: .109 Multiple R^2: .012

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.499	1	0.499	0.520	.471
Gender	2.481	1	2.481	2.591	.108
Programs	0.360	2	0.180	0.188	.829
Groups	0.429	3	0.143	0.149	.930
Error	329.500	344	0.958		

16. Multiple Regression Analysis - **Positive Role Model**

N: 352 Multiple R: .254 Multiple R^2: .065

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.093	1	0.093	0.097	.756
Gender	1.126	1	1.126	1.166	.281
Programs	0.562	2	0.281	0.291	.748
Groups	16.197	3	5.399	5.589	.001*
Error	332.333	344	0.966		

* $p < .05$

17. Multiple Regression Analysis - **Sensitivity**

N: 352 Multiple R: .191 Multiple R^2: .036

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.171	1	0.171	0.187	.666
Gender	2.612	1	2.612	2.857	.092
Programs	0.703	2	0.352	0.385	.681
Groups	7.745	3	2.582	2.823	.039*
Error	314.579	344	0.914		

* $p < .05$

18. Multiple Regression Analysis - **Flexibility**

N: 352 Multiple R: .2 Multiple R^2: .04

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.208	1	0.208	0.346	.557
Gender	0.497	1	0.497	0.829	.363
Programs	0.253	2	0.127	0.211	.810
Groups	7.365	3	2.455	4.092	.007*
Error	206.366	344	0.600		

* $p < .05$

19. Multiple Regression Analysis - **Timely Feedback**

N: 352 Multiple R: .169 Multiple R^2: .029

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.852	1	0.852	1.019	.313
Gender	0.891	1	0.891	1.066	.303
Programs	0.040	2	0.020	0.024	.976
Groups	6.961	3	2.320	2.776	.041*
Error	287.497	344	0.836		

* $p < .05$

20. Multiple Regression Analysis - **Accessibility**

N: 352 Multiple R: .116 Multiple R^2: .013

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	2.538	1	2.538	3.005	.084
Gender	0.643	1	0.643	0.762	.383
Programs	0.485	2	0.243	0.287	.751
Groups	1.807	3	0.602	0.713	.545
Error	290.561	344	0.845		

21. Multiple Regression Analysis - **Engenders Confidence**

N: 352 Multiple R: .188 Multiple R^2: .035

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.487	1	0.487	0.757	.385
Gender	0.074	1	0.074	0.114	.735
Programs	0.439	2	0.220	0.342	.711
Groups	5.7749	3	1.916	2.981	.031*
Error	221.156	344	0.643		

* $p < .05$

22. Multiple Regression Analysis - **Communication Skills**

N: 351 Multiple R: .131 Multiple R^2: .017

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F-Ratio	p
Age	0.009	1	0.009	0.011	.917
Gender	0.410	1	0.410	0.491	.484
Programs	2.020	2	1.010	1.211	.299
Groups	2.138	3	0.713	0.854	.465
Error	286.106	344	0.834		

Vita