THE COGNITIVE DEVELOPMENT AND
PERCEPTIONS ABOUT NURSING AS A PROFESSION
OF BACCALAUREATE NURSING STUDENTS

by

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Date MAY 10 1982

Submitted in partial fulfillment of the
requirements for the Degree of Doctor of Education in
Teachers College, Columbia University
1982
ABSTRACT

THE COGNITIVE DEVELOPMENT AND PERCEPTIONS ABOUT NURSING AS A PROFESSION OF BACCALAUREATE NURSING STUDENTS

Theresa Mary Geiger Valiga

Baccalaureate nursing programs purport to prepare nurses who have a professional view of nursing and of the nurse and who are capable of making independent nursing decisions, dealing with the uncertainty of many nursing situations, dealing with abstract ideas, and accepting the diversity of beliefs, values, attitudes, life styles, life goals, and decision making patterns employed by persons with whom they interact. The former goal of baccalaureate nursing programs can be referred to as the development of a professional perception about nursing, and the latter goal can be referred to as the development of cognitive structures.

While both of these goals are promoted as being central to baccalaureate nursing education, little has been reported to document the measurement of goal-attainment in these areas. This study, therefore, was designed to describe the cognitive development and perceptions about nursing as a profession, the change in each of these variables which occurs over an academic year, and the relationship between these variables for students at all four levels of baccalaureate nursing programs.

The subjects in this study were 123 students -- 29 freshmen, 27 sophomore, 34 juniors, and 33 seniors -- enrolled in three National League for Nursing accredited baccalaureate programs in the northeast.
Subjects were tested at the beginning of the fall semester and at the end of the spring semester of the same academic year. The KneWi instrument, based on William Perry's theory of intellectual and ethical development, was used to measure cognitive development. The Views about Nursing instrument, based on characteristics of professions/professionals and developed by this investigator, was used to measure perceptions about nursing as a profession.

ANOVA, ANACOVA, repeated measures, and post hoc Scheffe multiple comparison procedures were performed as appropriate. These analyses revealed significant differences in cognitive development scores between freshmen and seniors, and freshmen and sophomores, and a significant change in score from fall to spring for seniors only; senior subjects' mean score, however, still reflected Perry's category of dualism. On the Views about Nursing measure, all four levels showed significant changes in scores from fall to spring; significant differences were found between freshmen and sophomores, juniors and seniors in the fall and freshmen and seniors, and juniors and seniors in the spring.

Implications of this study for nursing practice, education and research are discussed.
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ACKNOWLEDGEMENTS

The completion of a dissertation is at once a task that one can
do only on one's own and a task that one can do only with the help,
guidance, and support of many other people. I was particularly
fortunate to have many people who shared in this process with me in
so many ways.

I especially thank my sponsor, Marie M. Seedor, and committee
member, Patricia Raskin, for their guidance, their challenges, and
their support. They made numerous contributions throughout this
dissertation from which I benefitted greatly. I also wish to thank
Elizabeth Maloney and Eugene Martin for their valuable roles as
examiners.

My thanks go also to the students who gave so willingly of their
personal time and effort to participate as subjects in this study, and
to the Deans and faculty at the schools used in this study for their
assistance in contacting and working with these students.

Thanks also are in order to the members of the panel of experts
for their professional feedback regarding the development of my
instrument, to Allen Hodes for his valuable statistical assistance, to
Sigma Theta Tau for the research grant which helped finance this
project, and to the many friends and colleagues who gave me support
and encouragement throughout the completion of this work. Special
thanks go to two friends whose personal support as well as reviews of
and comments on the study at various points in its development were so
greatly appreciated -- Pat Munhall and Carolyn Oiler.

Finally, I sincerely thank my family, especially my husband, Bob, for their faith in me, their encouragement, and their continually helping me be aware of my strengths. They truly exemplify the meaning of caring and sharing, and I will always be grateful to them for this.

T.V.
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CHAPTER I
FORMULATION OF THE PROBLEM

Introduction

The criteria utilized by the National League for Nursing to evaluate baccalaureate nursing programs for accreditation stipulate that

The curriculum focuses on the knowledge and practice of nursing and draws on relevant arts and sciences [and] .... The learning experiences include opportunities for decision making and the development of independent judgments. (National League for Nursing, 1977, p. 14)

These criteria, among other factors, serve as the basis for faculty in many baccalaureate nursing programs as they design curricula and learning experiences. These curricula and learning experiences are designed to help students develop a sound theoretical basis in nursing and other disciplines, refine their skills of critical thinking and decision making, and develop the knowledge, attitudes and skills necessary to function as accountable members of the profession.

Although the specific statements of program objectives vary from one baccalaureate nursing program to another, most faculty in such programs have identified objectives which deal with (1) the ability of the students to evaluate and appropriately apply knowledge from nursing and other disciplines in making independent decisions in nursing practice situations, and (2) the development of a view of nursing and the nurse as a responsible, accountable, independent professional who collaborates with the recipient of care and with other members of the health care team.
in providing high quality care. The "Philosophical Foundations of Baccalaureate Nursing Education" were discussed in greater depth recently (Kramer, 1981); goals such as those identified above are consistent with these philosophical foundations. The development of the ability to structure and organize knowledge and experience, deal with conflicting information and diversity of interpretation of data, and make independent decisions are all components of what may be called cognitive development. The development of a professional view of and attitude toward nursing as previously described are components of what may be called perceptions about nursing as a profession.

The measure of baccalaureate nursing students' cognitive development and perceptions about nursing as a profession often is not carried out in an organized, systematic way by faculty, and as a result, nurse educators have no "clear picture" of how these characteristics develop throughout the curriculum. If baccalaureate nursing programs are designed to meet the criteria established by our professional accrediting body (National League for Nursing, 1977), then measures need to be instituted which provide evidence of the degree to which specified knowledges, skills, and attitudes develop throughout various academic years and from year to year.

Chickering (1976) asserted that "a key problem for educators is to develop conceptual clarity concerning ... the major outcomes of various educational programs and teaching activities" (p. 63). In light of the stated goals and aims of higher education, one of these major outcomes which must be clarified conceptually is that of intellectual development. In light of the stated goals and aims of baccalaureate nursing education, another of these major outcomes which must be clarified conceptually is that of the students' perceptions about nursing as a profession.
Indeed, the investigation of intellectual development is particularly relevant to higher education since

the ability to think clearly, and to reason and synthesize in an open and critical fashion is perhaps a goal most central to the academic enterprise, and one most readily espoused by professional educators as a legitimate and desirable outcome of college attendance. (Strange, 1978, p. 3)

Problem Statement

The problem which is the focus of this study, then, can be stated as follows: What is the relationship between stages of cognitive development and perceptions about nursing as a profession held by freshman, sophomore, junior, and senior baccalaureate nursing students?

Purposes of the Study

This study has several purposes:

1. To describe the cognitive development of freshman, sophomore, junior, and senior baccalaureate nursing students.

2. To describe the perceptions about nursing as a profession held by freshman, sophomore, junior, and senior baccalaureate nursing students.

3. To describe the changes in cognitive development and perceptions about nursing as a profession of freshman, sophomore, junior, and senior baccalaureate nursing students which occur over the span of an academic year.

4. To describe the relationship between stage of cognitive development and perceptions about nursing as a profession of freshman, sophomore, junior, and senior baccalaureate nursing students.
Hypotheses

I. Baccalaureate nursing students at higher educational levels will be at a more advanced stage of cognitive development than will baccalaureate nursing students at lower educational levels.

II. Baccalaureate nursing students at higher educational levels will view nursing as more professional than will baccalaureate nursing students at lower educational levels.

III. There will be an increase in scores on a cognitive development measure over an academic year for baccalaureate nursing students. The increase in scores on a cognitive development measure will be greater for freshman and sophomore baccalaureate nursing students than it will be for junior and senior baccalaureate nursing students.

IV. There will be an increase in scores on a measure of perceptions about nursing as a profession over an academic year for baccalaureate nursing students. The increase in scores on a measure of perceptions about nursing as a profession will be greater for junior and senior baccalaureate nursing students than it will be for freshman and sophomore baccalaureate nursing students.

V. There will be a positive relationship between stage of cognitive development and perceptions about nursing as a profession for baccalaureate nursing students.
Operational Definitions

Cognitive Development: That description of the student's general structuring or organization of knowledge and experience as measured by the KneWi instrument which reflects the Perry Scheme (1970).

Baccalaureate Nursing Student: A student, male or female, generic or transfer, who is enrolled in a four-year senior college or university-based National League for Nursing accredited nursing program in the northeast, and whose declared major is nursing.

Perception about Nursing as a Profession: That view of nursing and the role of the nurse, as measured by the Views about Nursing instrument developed by this investigator and based on the established characteristics of a profession.

Limitations of the Study

Students' participation as subjects in this study required approximately one hour of their time in the fall and one hour of their time in the spring to complete all instruments; they received no remuneration for their participation nor were they rewarded in any other way (e.g., time off from class). This limited the number of subjects in the study.

Subjects who did participate in this study were willing to give their time and energy for research and, thus, may not be representative of all nursing students. This limits the generalizability of the results.

Subjects in this study were asked to complete a set of questions in September and again in May of the same academic year. This is a longitudinal survey design, defined by Notter (1978) as "a survey that collects data
over a period of time for use in studying changes that occur as a result of the experiences occurring or introduced during a specified time period" (p. 164). When such a longitudinal survey design is used, several threats to internal validity arise, particularly in relation to the effects of history, maturation, testing, instrumentation, subject mortality, and/or the reactive effect of testing (Campbell & Stanley, 1963, pp. 5-6). These limitations are considered in the interpretation of the findings.

The selection of schools used in this study was limited geographically to the northeast, and the generalizability of the results is limited to students enrolled in baccalaureate nursing programs in this geographic region.

Need and Background for the Study

The historical roots of nursing are found in religious orders and the military structure (Welch, 1980), both of which foster and reward obedience without question, maintenance of one's place in the hierarchy, and dependence of subordinates on superiors. Indeed,

Early nursing, in accord with women's roles, extolled such virtues as self-sacrifice, service to others above consideration for self, and unquestioning obedience to one's superiors. Neither competitiveness nor aggression were part of this tradition, and in fact if the nurse felt aggressive about something, she did well to hide it under a demure demeanor. (Holmquist, 1971, p. 17)

Throughout the more than one hundred years of nursing's existence as a vocation requiring some type of educational preparation, nurses have been viewed as handmaidens of the physician; compassionate angels of mercy in white who follow orders. Nurses have been thought of as doers instead of thinkers and as "reactors to situations rather than creators of them" (Keller, 1973, p. 238), intellectually and politically unaware.
Today, views about nursing are changing, and nursing is emerging as a profession and evolving as a scientific discipline. These are advances which are occurring as the result of concerted effort by individual members of nursing and by relevant professional organizations.

In this struggle to be recognized as a legitimate profession, nursing and nurses have progressed in several directions and continue to do so. Actions of individual nurses and of professional organizations have been and are directed toward establishing the university as the basis for preparation for professional nursing practice, defining the boundaries of nursing practice and distinguishing those boundaries from those of other health professionals, and engaging in scholarly activities designed to develop the body of nursing knowledge, among other activities.

For the past 65 years, efforts have been made by sociologists and others to develop a set of characteristics which define the degree of professionalism or the professional status of a discipline. The following attributes of profession and/or professionals have been identified by Schein (1972); however, similar criteria have been described also by Blau and Scott (1962), Flexner (1915), Gilb (1966), Kelly (1975), McGlothin (1960, 1964), Metzger (1975), Moore (1970), Notter and Spaulding (1976), Stokes (1972), and Wilensky (1964).

1. The professional, as distinct from the amateur, is engaged in a full-time occupation that comprises his principle source of income.

2. The professional is assumed to have a strong motivation or calling as a basis for his choice of a professional career and is assumed to have a stable lifetime commitment to that career.

3. The professional possesses a specialized body of knowledge and skills that are acquired during a prolonged period of education and training.
4 The professional makes his decisions on behalf of a client in terms of general principles, theories, or propositions, which he applies to the particular case under consideration...

5 The professional is assumed to have a service orientation, which means that he uses his expertise on behalf of the particular needs of his client....

6 The professional's service to the client is assumed to be based on the objective needs of the client and independent of the particular sentiments that the professional may have about the client.... Thus, the professional relationship rests on a kind of mutual trust between the professional and client....

7 The professional demands autonomy of judgment of his own performance....

8 Professionals form professional associations which define criteria of admission, educational standards, licensing or other formal entry examinations, career lines within the profession, and areas of jurisdiction for the profession....

9 Professionals have great power and status in the area of their expertise, but their knowledge is assumed to be specific. A professional does not have a license to be a "wise man" outside the area defined by his training.

10 Professionals make their service available but ordinarily are not allowed to advertise or to seek out clients. Clients are expected to initiate the contact and then accept the advice and service recommended, without appeal to outside authority.

(Schein, 1972, pp. 8-9)

If one examines recent developments within the field of nursing, it becomes evident that nursing is emerging as a bona fide profession in terms of the criteria identified above. However, nursing has yet to reach full professional status. One of the most significant changes that has occurred in nursing in recent years is the growth in the number of educational programs in institutions of higher learning (National League for Nursing, 1979). The baccalaureate program in nursing, which is offered by a senior college or university, is designed to prepare generalists who engage in professional practice (National League for
Nursing, 1978). These practitioners are expected to utilize knowledge from nursing and a variety of disciplines as a basis for making nursing practice decisions as they provide nursing assistance to clients/patients of all ages, located in various health care settings, and experiencing a range of health-related problems.

In order to be able to function as generalists, nurses who engage in professional practice must be able to "synthesize theoretical and empirical knowledge from the physical and behavioral sciences and humanities with nursing theory and practice" (National League for Nursing, 1978b). However, the knowledge offered by these various disciplines often is limited and/or conflicting, and, therefore, nurses must evaluate the knowledge available, recognize its evolutionary status, and come to some decisions about its usefulness in specific practice situations.

In other words, nurses who engage in professional practice must expand their cognitive or intellectual repertoire from one of following the orders of others to one of making independent nursing decisions. They must think more broadly and be able to make sound judgments and decisions in practice. Indeed,

The real challenge to nursing education is to prepare practitioners who are flexible, creative and tolerant in their approach to assessing and solving health service problems. They must be able to understand and cope with change and innovation in adapting to changed circumstances. (Torres, 1973, pp. 41-42)

One way to assess the ability to think broadly, to make independent decisions, and to adapt to changing circumstances is by studying an individual's cognitive development.

Cognitive development can be defined as a process of successive qualitative changes in a person's thinking and reasoning. Initially, individuals can think and reason only in concrete, "black-and-white"
terms. As they experience their world and develop symbolic systems, such as languages, individuals can think and reason in more complex and abstract terms and accept "shades of grey". Views about knowledge, its contradictory nature, and the ambiguity, diversity and multiple perspectives inherent in the real world develop sequentially (Harvey, Hunt & Schroder, 1961; Perry, 1970; Rest, 1973).

In other words, the development of increasingly complex cognitive structures occurs through a series of stages. Situations can be managed first only if they are experienced through the senses; then if they are simple, clear-cut and concrete; they if they are more abstract and complex; and finally, even if they are very complex, controversial, and abstract (Harvey, et al., 1961; Piaget, 1972). In the early stages, individuals expect that a true answer can be given for all situations, and they usually turn to an authority for that answer. In the later stages, however, individuals realize they must consider the evidence available and make their own decisions in light of what they know and their own commitment to or investment of themselves in a particular role.

In nursing, the authority who serves as the source of "true" answers for nurses at less advanced stages of cognitive development frequently is the physician. Many nurses accept the authority of the physician without question and make no attempt at or take no responsibility for making independent nursing decisions. Such a claim was borne out by Stokes (1972) in her study of selected professional behaviors exhibited by baccalaureate-graduate nurses in clinical practice. Her observations of nurses engaged in actual clinical practice as well as her review of pertinent literature showed that nurses are not highly independent individuals, they do not behave in a professional manner, and nursing
practice is at the lower end of the continuum of professionalism.

The ability to function at more advanced stages of cognitive development, however, is essential for nurses if they hope to function at a professional level. This view was supported by Schein (1972) in the following discussion about the preparation of professionals in general:

Thus, an important part of the training of a professional is what some sociologists have called "training for uncertainty" (Fox, 1967), which involves attitudinal and emotional components such as maintenance of one's self-confidence even when one does not have a clear answer to the problem, willingness to take responsibility for key decisions that may rest on only partial information, willingness to make a decision under conditions of high risk, the ability to inspire confidence in the client even when operating in an area of high uncertainty, and so on. (pp. 44-45)

In order to be prepared to engage in professional nursing practice, students in baccalaureate nursing programs must be assisted to develop several qualities. These include the following: (1) a view of nursing as a profession which serves to guide their practice and which is consistent with their personal identities; (2) an appreciation for the diversity of human beings and human situations; and (3) the ability to manage and make decisions in light of the diversity and uncertainty inherent in nursing situations.

Many nurses and students of nursing perceive nursing as intellectual, carrying with it a "great personal responsibility for the proper exercise of choice and judgment" (Flexner as quoted in McGlothlin, 1964, p. 3). Many also perceive nursing as learned, carrying with it a "zest for continued study ... [and] competence in conducting or interpreting research so that [one] can add to human knowledge either through discovery or application of new truths" (McGlothlin, 1960, pp. 20 and 21-22). Such nurses and students of nursing can be satisfied with and successful in
their professional nursing role only if they develop the advanced
cognitive structures which facilitate such professional functioning.
Those who do not perceive nursing as professional will be satisfied with
a professional role which requires less advanced stages of cognitive
development. This latter role would incorporate an unquestioning attitude,
acting without necessarily thinking, and a lack of commitment or
"personal investment of self" (King, 1976b).

An aim of baccalaureate education in nursing is to challenge
students to think, to grow, to learn, to identify with professional peers
and the profession as a collectivity, to manage ambiguity and diversity,
and to develop as professionals. Nurse educators have a responsibility
to assist students to develop skills of independent decision making in
practice and to accept the responsibility to make such decisions. Thus,
it would seem that as students progress through the program, one would
see evidence of (1) increasing cognitive complexity, and (2) more
professional perceptions about nursing and about their own roles as nurses.
The extent to which this occurs is yet to be documented.

Several studies have been conducted in which cognitive development
was examined (King, 1977; Kitchener, 1977; Knefelkamp, 1974; Perry, 1968,
1970; Widick, 1975). However, in only one of these studies (Perry, 1968,
1970) did the researcher describe the development of cognitive structures
over the entire four-year educational experience; the subjects in this
study were liberal arts majors enrolled at Harvard University in the late
1950s and early 1960s. Since a liberal arts curriculum and a nursing
curriculum have different foci and different learning experiences, it is
appropriate that a study be made of the cognitive development of
baccalaureate nursing students, the development of their perceptions about
nursing as a profession, and the relationship between these two aspects of holistic development during each of the four years of their educational program. Based on such data, educators could begin to draw conclusions regarding (1) the extent of influence of baccalaureate nursing programs on students' development beyond mere knowledge attainment or attitude change, and (2) the extent to which a college education meets what has been described as its primary goal, namely, "the development of three senses: the sense of place, the sense of self, and the sense of judgment" (Brewster as quoted in Davis, 1977, p. xv).

**Assumptions**

The following assumptions are relevant to this study:

That the following are characteristics of development: it occurs in stages; it proceeds in a sequential way which is hierarchical (i.e., each level builds upon previous ones); and it occurs within a complex environment. (Flavell, 1963; Kohlberg & Mayer, 1972; Kohlberg, 1975; Rest, 1973)

That cognitive structures do exist which enable us to interpret our world from an increasingly complex perspective.

That cognitive structures, which are unconscious, can be detected through behaviors such as written responses to questions, as can perceptions about nursing. Kitchener (1977) clarified the following:

Subjects might not be able to explicitly articulate their cognitive structures if asked. The elements must be inferred from what the individual says about the relationship of ideas, actions, events and/or theories. (p. 10)

That level of cognitive complexity and stage of cognitive development are an important and legitimate concern of educators of
nurses for professional practice, as is perception about nursing as a profession.

Organization of the Study

In Chapter I, the formulation of the problem and the conceptualization phase of the study were presented. Chapter II includes the development of the theoretical framework of the study through a review of the pertinent literature, particularly in the areas of cognitive development, the professional model, the concept of holism, and perceptions about and attitudes toward nursing held by nursing students. In Chapter III, a discussion of the study method and procedures is presented. The findings of the study are discussed in Chapter IV along with an interpretation of these findings. Chapter V includes a summary of the implications of the study for nursing practice, nursing education, and future nursing research endeavors.
CHAPTER II
REVIEW OF LITERATURE

Introduction

The concepts and theories used as the framework for this study were threefold: (1) cognitive-developmental theory, especially that articulated by Perry (1970), (2) the professional model, particularly the characteristics used to define professions and professionals, and (3) the concept of holism, focusing on the complex, multi-dimensional nature of human beings in which all aspects of human growth and development are interrelated. A review of literature in each of these areas, as well as in the area of development during the college years in general, was conducted and is presented here.

Development During the College Years

Sanford (1956), for many years, has asserted that "liberal education ... is concerned with the development of the individual as a whole person" (p. 4). He defined development as the process of the individual's growing in a way that allows him to become increasingly complex (Sanford, 1967, p. 47), and he distinguished development from change and growth in the following ways: "change" means that something is different from what it was previously, "growth" means that something takes on greater quantity, and "development" means the individual is qualitatively different to the extent that he/she is more insightful about self, more understanding of others, and that he/she thinks, feels, and acts genuinely differently.
Sanford (1966) has argued that the proper role of the educational institution is to foster individual development, "to promote an identity based on qualities such as flexibility, creativity, openness to experience, and responsibility" (p. 42). He conceptualized the college as a developmental community, with the task of challenging the student and offering him support so the challenges do not become overwhelming.

Widick, Knefelkamp and Parker (1975) also supported the emphasis on total development of the student and lamented the lack of concern in colleges about the personal as well as the intellectual development of the students. They explicated the need for "integrative education, an approach in the college classroom which deliberately attempts to educate the 'whole student'". (p. 286)

Many studies have been conducted which deal with how students develop during their college years. Bowen (1977) explored the outcomes of American higher education to illuminate its many impacts upon American society in an attempt to answer the question, "Are our colleges and universities worth what they cost?". His study showed that those students who went through college made large gains in the areas of substantive knowledge, family life, and personal self-discovery; moderate gains in the areas of verbal skills, intellectual tolerance, human sympathy toward groups, esthetic sensibility, lifelong learning, psychological well-being, economic productivity, citizenship, and health; and small gains in mathematical skills, rationality, creativeness, refinement of conduct, consumer behavior, and productive use of leisure time. Bowen (1977) also found a slight negative change in religious interest and no change in human sympathy toward individuals; and that changes in intellectual integrity, wisdom, and morality could not be ascertained.
Davis (1977) conducted intensive interviews with 22 students at the University of Denver to explore the differences in concerns, needs, skills, and abilities between freshmen and seniors. His findings, in addition to findings from the literature, led Davis (1977) to conclude that "the evidence seems conclusive: going to college makes a difference" (p. 11), particularly in "the development of three senses: the sense of place, the sense of self, and the sense of judgment" (Brewster as quoted in Davis, 1977, p. xv).

Katz and Associates (1969) also studied the development of college students, which they viewed as the "dynamic interaction between stability and change" (p. 74). In answer to the question of "How do students change in college?", Katz and Associates summarized that they change very little regarding personal characteristics and moral, religious and political views, but there is greater change regarding making decisions without parental permission, regulating their own time, handling money, developing closer relationships, and developing an increased tolerance of and permissiveness toward the behavior of others.

Heath (1968) identified several areas of development which occur during the college years: the ability to symbolically represent one's experiences and "to bring into awareness what one believes and values" (p. 7), the capacity to be "other-centered" instead of egocentric, the integration and consistency of one's own values, increasing stability, and increasing autonomy or self-directing behavior. Trent and Medsker (1968), after studying 10,000 students "beyond high school", agreed with these major areas of development when they concluded that "college seems to foster, or at least facilitate, the growth of autonomy and intellectual disposition" (p. 261) in ways that immediate employment or marriage do not.

In a classic analysis of four decades of research on higher education
and college students (1920s to 1960s), Feldman and Newcomb (1970) looked for cause and effect relationships between various college "conditions", types of students, and specific types of changes which take place. Their findings revealed a myriad of interesting correlations between (1) students' backgrounds, values, attitudes, personalities, sex, religion, race, and so on, (2) the major they selected, the type of college they entered, the types of experiences they had in college, and so on, and (3) the "outcomes" of college, such as changes in authoritarianism, religious attitudes, and relationships to others.

As a result of these data on student development during the college years, Feldman and Newcomb (1970) asserted that the first two years of college are a period when students are most open to change. Chickering (1969) agreed when he asserted that late adolescence ends at the end of the sophomore year when young adulthood begins; at this point, however, changes do not cease, they are qualitatively different.

Although no longitudinal data has been published about her work, Loevinger (1970, 1976) has postulated that as ego development increases, there is an underlying increase in cognitive complexity. She claimed that people move from conceptual confusion and stereotyping to a proliferation of unpatterned concepts and then to a high level of conceptual complexity, tolerance for ambiguity, and integration. Based on her study of stages of ego development, Loevinger claimed that "the thinking of college students could be characterized as ranging from simple and concrete to initially complex and differentiated" (Loevinger as quoted in Kitchener, 1977, p. 44).

Indeed, as Kurfiss (1975) stated, college provides or enables the "preparation of cognitive weapons for the battle with diversity" (p. 75).
When young adults are finally on their own, many of the issues with which they must deal are problematic, such as choosing a political leader. Clear cut answers neither exist nor can they be easily constructed. Decisions must often be made despite "incomplete and fallible information" (Kitchener, 1975, p. 77).

Students "need the tools which will enable them to come to their own conclusions regarding the appropriateness of one solution over another" (Froberg & Parker, 1976, p. 14). Learning how to make such decisions and convincingly defend one's point of view to others is central to the educational mission of many secondary and post-secondary educational institutions (Kitchener & King, 1979, p. 2) and is a legitimate focus for study.

The use of a developmental paradigm to study the impact of college on students has been a focus of Loevinger regarding ego development, Kohlberg regarding moral development, and Perry regarding intellectual and ethical development. As a result of such studies, developmental theorists have postulated the process of human personality growth as predictable, structural, and sequential movement from one successive stage to another. Each stage is characteristically defined and ordered within a progression from lower to higher levels of development, each level incorporating and expanding elements of previous levels. (Strange, 1978, p. 2)

One area of development which is of central concern in higher education and which is a major component of this study is that of cognitive development.

Cognitive - Developmental Theory

According to Kohlberg and Mayer (1972), "the cognitive-developmental approach provides the only adequate basis for our understanding of the
process of education" (p. 450), and the goal of education is to stimulate
development toward attainment of the highest level possible. Indeed,

the development of the ability to reason clearly,
to analyze problems, and to arrive at a concise,
informed synthesis of the critical issues involved,
has been a consistent theme among educators
concerned with identifying the legitimate aims
of higher education. (Strange, 1978, p. 136)

Inherent in these statements is the concept of development being
a progression through invariant, ordered, sequential stages and involving
changes in the individual's structures or "rules for the processing of
information or the connecting of events" (Kohlberg & Mayer, 1972, p. 457).
Cognitive-developmental theory suggests that higher positions are better
and more stable than lower positions (Kitchener, 1977, p. 33).

This cognitive-developmental approach has been utilized by
Kohlberg (1969) in relation to moral development, by Loevinger (1970) in
relation to ego development, by Knefelkamp and Slepitzia (1976) in
relation to career development, and by Dewey (1904) in relation to
education. It also has been used by Harvey, et al. (1961) in relation to
the development of belief systems, and by Piaget (1969) and Perry (1970)
in relation to cognitive development.

Cognitive/Intellectual development -- as used by Perry (1970) -- is
defined in terms of increasingly complex cognitive skills along a
progressive continuum, not in terms of verbal and mathematical skills
measured by aptitude or achievement tests, and also not as "single traits
such as rationality, critical thinking, intellectual tolerance, esthetic
sensibility and creativeness" (Strange, 1978, p. 10). Instead, cognitive
complexity, as described by King (1977) is "the way subjects reason
about issues, and in particular, ... the manner in which they take into
consideration the diversity of points of view" (p. 107).
Most cognitive developmental models suggest that development occurs as a result of disequilibrium. When an individual is faced with information that cannot be assimilated into his existing structure, he changes that structure to "admit more complexity" (Widick, 1977, p. 37). Cognitive developmental theory would even suggest that "contact with diversity is necessary to motivate breaking with old frames of reference" (Kitchener, 1977, p. 4), and that "diverse experiences are necessary to promote development to higher levels" (Kitchener, 1977, p. 73).

Such change in ways of thinking and reasoning may be very traumatic for the college student since it:

really involves abandoning a paradigm -- in other words abandoning a whole way of thought: a group of ideas, methods, sources of evidence, relationships with colleagues and so on. Since this change cannot take place instantaneously, every change made in an individual's way of thought moves him away from his own past. (Gruber as quoted in Kitchener, 1977, p. 188)

However painful such changes may be, they are, nevertheless, essential since "only an individual who has perceived 'other ways' and honestly confronted their meanings can engage in truly civilized negotiations with others who have made choices different than his/her own" (Kurfiss, 1975, pp. 192-193).

By far, the work of Piaget has had the greatest impact on our understanding of "thought structures found at different levels of intellectual development" (Bruner, 1959, p. 363). Indeed, the three fundamental ideas of the cognitive-developmental approach were first and most fully explicated by Piaget. These central assumptions focus around (1) structural organization, patterns used by the individual to experience his world; (2) developmental sequence, increasingly differentiated and integrated structural organizations which develop logically although
unevenly, and (3) interactionism, the interaction between the person and his environment which results in development.

The cognitive-developmental approach was formulated by John Dewey (1933) who asserted that

with respect to the aims of education, no separation can be made between impersonal, abstract principles of logic and moral qualities of character. What is needed is to weave them into unity. (p. 34)

And it was Dewey who greatly influenced Piaget's work (Kohlberg, 1973, p. 1). Indeed, this basic congruence and continuity among the works of Dewey, Piaget, and Kohlberg was analyzed and documented by Giarelli (1977).

The Dewey-Piaget cognitive-developmental or interactional view of educational psychology is based on the premise that

the cognitive and affective structures, which education should nourish, emerge naturally from the interaction between the child and the environment under conditions that allow or foster such interaction. (Kohlberg, 1973, p. 3)

This person-environment interaction leads to a reorganization of psychological structures, and this change in structure facilitates learning.

These structures are internally organized wholes or systems of internal relations; cognitive structures provide rules for the processing of information or the connecting of events experienced. The development of cognitive structures which enable an individual to process information that is abstract and/or conflictual in nature occurs through a series of stages. This "doctrine of cognitive stages" (Kohlberg, 1973, p. 4) is the core of the cognitive-developmental position. Indeed, Kohlberg (1969) asserted that

The eventual goal of a cognitive-developmental theory is a specification of the types of discrepancies in experience which lead to forward movement, to backward movement, and to "fixation" or to lack of movement. (p. 361)
Piaget's interest has been in "the theoretical and experimental investigation of the qualitative development of intellectual structures" (Flavell, 1963, p. 15). His studies focused on the structure of developing intelligence, not its function and/or content; he has been concerned primarily with "the diagnosis of mental contents and abilities and not with their modification" (Elkind, 1969, p. 321).

According to Piaget (1977), "intelligent activity is always an active, organized process of assimilating the new to the old and of accommodating the old to the new" (Flavell, 1963, p. 17). Inhelder, Sinclair and Bovet (1974) used this "constantly reviewed process of synthesis between continuity and novelty" (p. 272) as their definition of learning.

Piaget identified four stages of intellectual development through which individuals pass from birth through adolescence. The individual is not conscious of the existence of these cognitive structures; rather, "He acts, he operates, he behaves. And from this behavior we ... [can] detect the structures. But the structures are unconscious" (Piaget, 1972, p. 118).

The stages of intellectual development include the Sensori-Motor Period when behavior is primarily motor, and the child does not yet "think" conceptually. In the Period of Preoperational Thought, there is rapid conceptual development as new abilities emerge: language, thought, socialized behavior, egocentrism, and centration. It is in the Period of Concrete Operations that the child develops the ability to apply logical thought to concrete problems and to make cognitive and logical decisions. The ability to apply logic to all classes of problems, abstract as well as concrete, develops during the Period of Formal Operations. It is
during this last stage that cognitive structures reach their greatest level of development (Wadsworth, 1971).

Piaget contended that after the Period of Formal Operations there were no further structural improvements in the cognitive schema; "all changes after this are quantitative and not qualitative with respect to logical operations and structures" (Wadsworth, 1971, p. 101). Indeed, Piaget asserted that "the process of development of schemata begins at birth and culminates in adolescence" (Wadsworth, 1971, p. 107).

Although considerable work has been done using Piaget's theoretical formulations, several authors (Arlin, 1975; Broughton, 1975; Perry, 1970; Riegel, 1973; Schaie, 1977) have begin to question whether Piaget's final stage is indeed so final and whether the development of cognitive structures is, in essence, complete by early adolescence. Riegel (1973) was particularly critical of Piaget in this respect when he said that "although Piaget's interpretations capture a rich variety of performances during childhood, they fail to represent adequately the thought and emotions of mature and creative persons" (p. 346). Riegel (1973) asserted that Piaget's theory "characterizes development as a progression toward abstract thought, away from and toward a denial of contradictions" (p. 350). He proposed dialectic operations as the fifth stage of cognitive development during which the individual manages and lives with the multitude of contradictions in his world rather than trying to overcome or deny their existence by seeking consistent, logical interpretations of them. Indeed, "thinking originates from a dialectical basis and ... creative and mature thinking returns to its dialectic mode or rather fails to separate itself from this foundation" (Riegel, 1976, p. 62).
Bruner (1959) also suggested a stage of thinking beyond formal operations, but he related it to the individual's ability to reflect upon thought itself. He claimed that "there is a difference in being intelligent [that is, being able to cope with problems that exist or that can potentially arise] and in being intelligent about intelligence" (Bruner, 1959, p. 370). It is this latter capacity that takes an individual beyond the stage of formal operations as described by Piaget, according to Bruner.

Schaie (1977) proposed a stage theory of adult cognitive development. He built on Piaget's theory and specified five stages of development: acquisitive (which occurs during childhood and adolescence), achieving (which occurs during young adulthood), responsible and executive (both of which occur during middle age), and reintegrative (which occurs during old age). These are yet to be tested or measured, but they do offer another expansion of Piaget.

Arlin (1975) conducted a study to systematically search for new cognitive structures, to identify a possible fifth stage of cognitive development, and to offer empirical evidence in support of such a stage. Her research was prompted by the suggestion arising from the research of others that

although formal structures are stable, having achieved equilibrium and remaining available throughout life, they may also be building blocks for new structures that go beyond those traditionally defined as formal. These new structures may constitute a level beyond the level of formal operations. (Arlin, 1975, p. 602)

Arlin (1975) hypothesized that Piaget's stage of formal operations actually is made up of two distinct stages which she named the problem-solving and the problem-finding stages (p. 603), the former being a necessary, but not sufficient, condition for the latter. Although
Arlin's study was limited in its sample size and requires further investigation before conclusions can be drawn with any degree of confidence, her findings in this and a follow-up study (Arlin, 1977) did support the two-stage hypothesis with problem-solving being a necessary but not sufficient condition for problem-finding. Since "it has been widely demonstrated that only 50% of the adult population ever attains the Piagetian stage of formal operational thinking, [i.e.} the problem-solving stage" (Arlin, 1975, p. 605), Arlin questioned the degree to which creative thought, the envisioning of new questions, and the discovery of new heuristics in adult thought (all of which characterize the problem-finding stage) can occur.

Although Arlin's propositions and method have been challenged (Fakouri, 1976) and although her findings were not supported in a replication study (Cropper, Meck & Ash, 1977), the proposal regarding a stage of cognitive development beyond Piaget's formal operations has received support by others (as cited above) and warrants continued study. Indeed, were there not some type of intellectual development after adolescence, the institutions of higher education would clearly be called to task, as King (1977) points out, in an interesting paradox:

> While it has been widely accepted that human intellectual development was complete at adolescence, higher education has at the same time been acclaimed as a means of promoting both the social and intellectual maturity of young adults. (p. 1)

William Perry's Theory of Intellectual and Ethical Development

One theory related to the development of cognitive structures during the college years has been provided by Perry (1968, 1970), and it is this which provides the framework for this study. Perry's Scheme helps
"bridge some of the gaps" related to higher education identified thus far in this literature review.

As a result of extensive reviews of the impact of college on students, Feldman and Newcomb (1970) concluded that the personality growth of students, when it does occur, is primarily a result of influence by their peers, and not a result of influence by the educational environment or institution itself or the faculty or curriculum. In practice, not only does the formal curriculum have relatively little impact on this personal dimension of the student, it appears that the educational environment also seems to foster the separation of the personal and the intellectual. Perry's Scheme (1970) of intellectual/ethical development provides a way to resolve this "personal/intellectual dichotomy" (Widick, Knefelkamp & Parker, 1975, p. 288). Intellectual and identity development are seen, in this Scheme, as "sides of a coin, [with] intellectual progress leading into the task of examining one's place and commitments in the world" (Widick, 1975, p. 46).

Perry's original research took place in the mid-to-late 1950s with liberal arts students at Harvard University. His initial purpose was to document the experiences of undergraduate students as they progressed through four years of college. After extensive analysis of the interviews held with 98 students, including 17 who remained with the study for their entire four years at Harvard, the research team believed they "could detect behind the individuality of the reports a common sequence of challenges to which each student addressed himself in his own particular way" (Perry, 1968, p. 9; Perry, 1970, p. 8).

This "common sequence of challenges" was developed as a nine-Position "Main Line of Development" through which college students (and other adults) can potentially progress as they move from viewing knowledge as absolute
and themselves as receptacles of it to viewing knowledge as relative and themselves as responsible, self-directed learners. This Scheme is concerned with the development of internal cognitive structures or "forms" which were defined by Widick (1977) as

essentially a set of assumptions which act as a filter dictating how the individual will perceive, organize and evaluate environmental stimuli and, though less directly, how he will behave in response to those stimuli. (p. 35)

They provide a way to experience, perceive, or think about the world, a way to organize, order and interpret the world.

This Scheme traces "the evolving forms through which the students appeared to construe the world, with special focus on those forms through which they considered the nature and origin of knowledge, value, and responsibility" (Perry, 1968, p. vii). Perry (1968) recognized that his Scheme has similarities to the work of Piaget.

In essence, the most dominant themes of the Scheme, then, include (1) the nature of knowledge, and (2) the relationship to authority. Other themes of the Scheme include the following: (1) decision making or judgment, (2) simplicity-complexity, (3) right versus wrong, (4) responsibility, (5) the nature of reasoning, (6) the use of evidence, (7) open versus closed, and (8) explanations for differences in points of view. (The last two themes have been identified by Kitchener (1977) as a result of her studies of and within this Scheme.) In essence, then, the Scheme is concerned with "human thought, be it about knowledge or values or one's identity, and how patterns of thought change over time" (King, 1977, p. 13).

As mentioned, Perry developed a nine-Position "Main Line of Development". The points on this continuum are "positions from which persons view their world -- their physical environment, other persons,
themselves, and knowledge" (Copes, 1978, p. 1). This Main Line of Development, divided into three broad categories, is described as follows:

**Dualism.** The first three positions represent a view of the world of knowledge as dualistic. The learner views himself as a receptacle ready to receive TRUTH; as a result, he has difficulty with academic tasks requiring recognition of conflicting points of view or use of his own position. (Kniefelkamp, 1974, p. 18)

Position 1: The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right Answers for everything exist in the Absolute, known to Authority whose role is to mediate (teach) them....

Position 2: The student perceives diversity of opinion, and uncertainty, and accounts for them as unwarranted confusion in poorly qualified Authorities or as mere exercises set by Authority "so we can learn to find The Answer for ourselves".

Position 3: The student accepts diversity and uncertainty as legitimate but still temporary in areas where Authority "hasn't found The Answer yet". He supposes Authority grades him in these areas on "good expression" but remains puzzled as to standards.

(Perry, 1970, p. 9)

**Relativism.** Positions four, five, and six describe movement to recognition of knowledge as relative. In this sequence, "Truth" is first relegated to a small corner of the broader realm of knowledge which is uncertain. Then with position five, all knowledge and values are disconnected from the concept of truth or absolute correctness. In a sense, with relativism of knowledge may come loss of the old signposts and the experience of being lost and alone in a chaotic world. Yet, movement along positions four, five, and six creates an awareness that much of what "truth" he "creates" will emerge from the student's own experience and judgment as well as external factors. (Kniefelkamp, 1974, p. 19)

Position 4: (a) The student perceives legitimate uncertainty (and therefore diversity of opinion) to be extensive and raises it to the status of an unstructured epistemological realm of its own in which "anyone has a right to his own opinion", a realm which he sets over against Authority's realm where right-wrong still prevails; or (b) the student
discovers qualitative contextual relativistic reasoning as a special case of "what They want" within Authority's realm.

Position 5: The student perceives all knowledge and values (including authority's) as contextual and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context.

Position 6: The student apprehends the necessity of orienting himself in a relativistic world through some form of personal Commitment (as distinct from unquestioned or unconsidered commitment to simple belief in certainty).

(Perry, 1970, pp. 9-10)

Commitment in Relativism. During positions seven, eight, and nine, the student gradually accepts the responsibility of the pluralistic world and acts through commitment to establish his identity. There are two components to commitment. First, a coming to terms with the content of one's commitment by selecting a particular career, a set of values, a marriage partner. The other aspect appears to be based upon the individual's recognition that within himself are many diverse, conflicting personal themes. (Kniefelkamp, 1974, p. 20)

Position 7: The student makes an initial Commitment in some area.

Position 8: The student experiences the implications of Commitment, and explores the subjective and stylistic issues of responsibility.

Position 9: The student experiences the affirmation of identity among multiple responsibilities and realizes Commitment as an ongoing, unfolding activity through which he expresses his life style.

(Perry, 1970, p. 10)

Perry also described three conditions of delay, deflection, and regression which "offer alternatives at critical points in the development" (Perry, 1968, p. 14). A person "may have recourse to these alternatives whenever he feels unprepared, alienated, or overwhelmed to a degree which makes his urge to conserve dominant over his urge to
progress" (Perry, 1968, p. 14). These positions of delay, deflection, and regression are as follows:

- **Temporizing:** The student delays in some Position for a year, exploring its implications or explicitly hesitating to take the next step.

- **Escape:** The student exploits the opportunity for detachment offered by the structures of Positions 4 and 5 to deny responsibility through passive or opportunistic alienation.

- **Retreat:** The student entrenches in the dualistic, absolutistic structures of Position 2 or 3.

(Perry, 1970, p. 10)

In essence, "with retreat and escape, the possibility of responsibility for one's commitments is denied" (Kurfiss, 1975, p. 72).

As is evident from this description, Perry's Scheme refers to a change in total orientation, not just to knowledge and certainty, a change in what Kuhn (1962) would call "paradigm". In essence, it refers to a "whole world view" (Copes, 1976, p. 3).

In relation to Perry's Scheme, dualists have been described as follows:

In comparison to individuals at more abstract stages, those who are at low conceptual system levels [Dualists in Perry's Scheme] exhibit greater intolerance of ambiguity, greater inability to change perceptual set, greater reliance on stereotypical answers, greater resistance to change, a faulty grasp of means/ends relationships, and a poorer capacity to act "as if", to empathize. (Harvey as quoted in Widick, 1975, p. 57)

Dualists see knowledge as absolute and authority as the source of knowledge; they make decisions based on what they think the truth is. Those at higher positions, however, understand "the fallibility of knowledge" (Kitchener, 1977, p. 197); they see authorities as experts and resources, and make judgments on the basis of critical reason and evidence. This latter reasoning process is required when dealing with
problems about which there is contradictory evidence and opinion.

The Scheme reveals that "each step of development confronts the student with challenge" (Perry, 1968, p. 122). For example, as individuals enter Relativism (i.e., Positions 4, 5 and 6), they experience what can be referred to as the "primary flip" (particularly at Position 5). The student's locus of control has shifted from a basically external reference point to a predominantly internal one. Authority figures "continue to be helpful resources, but the student now becomes the prime focus of the decision making process" (Knefelkamp & Siepitz, 1976, p. 55).

The "important concept that a student in Relativism has grasped is the concept of a 'frame of reference' or the system of which a piece of information is a part" (Froberg & Parker, 1976, p. 31). Indeed, 

Knowledge as "contextual" means that the evaluation of ideas becomes right or wrong within a particular setting and under a particular set of circumstances. It is this relativistic conception of knowledge [which] at last makes the student comfortable with his academic surroundings. (Copes, 1979b, p. 2)

In Perry's Scheme, the process of personal identity formation involves the attainment of a relativistic viewpoint, the making of commitments or affirmations about themselves and their beliefs, the individualized styling of their outward expression, the taking on of personal responsibilities, and stabilization. According to Copes (1978), "Perry's use of knowledge becoming personal [which occurs in the Commitment Positions] is consistent with Polanyi's use of 'personal knowledge' in the sense of consciously structuring one's own perceptions of the world" (pp. 1-2).

Figure 1 (Cordts, 1977) depicts the process whereby a change in Position or a period of delay, deflection or regression occurs in response
to challenges. This actually summarizes Perry's Scheme and movement along it.

Kohlberg (1973) also observed development of a relativistic frame of reference in his study of moral judgment. It is what he called the "relativistic crisis" of the college sophomore, and it is accompanied by an increase in abstraction. This crisis, he suggested, is characterized by a new awareness of the relativity of values and choices. "It reflects the validity of multiple categories for the first time" (Kohlberg, 1973, p. 23).

In essence, then, Perry's Scheme is descriptive (i.e., How do students develop?), not prescriptive (i.e., How should students develop?). His theory parallels other developmental theories, but it has wider applicability and structural base as a result of its three different themes: (1) intellectual development, that is, increasing complexity of thought; (2) ethical development; and (3) "an affirmation of self through choice in a pluralistic world" (Kitchener, 1976, p. 5), that is, ego development or identity formation. (These different themes have been the focus of study of various researchers.) As Perry (1968) summarized:

In the modern epistemology the learner is inextricably entwined in his hearing, the knower in his knowledge. "Knowing" something now involves in itself an act of personal commitment (Polanyi, 1958). From its own particular conceptual frame, the scheme ... articulates the evolution of this intertwining of the learner and the learned. (p. 124)

Research Related to the Perry Scheme

Perry (1968) reported that the validity of the Scheme of development, that is, its "existence" in the students' reports, "could be
assessed ... through the reliability of agreement of lay judges in positioning the students' reports within the framework of the scheme" (p. viii). This reliability rating was proved to be independent of the judges' knowledge of a student's year in college.

In addition to this study of the Scheme's validity, Kurfiss (1975) investigated the sequential and hierarchical nature of the Perry Scheme and the degree of stage unity within Positions; as such, her study was the first independent test of validity of the Perry Scheme. She concluded, based on this and related research (Kurfiss, 1977), that the Scheme does have valid developmental properties and that its broad applicability makes it particularly useful regarding various educational concerns.

Since 1968, when Perry asserted that "the substance of the scheme would seem to bear relevantly on broad aspects of education such as selection, guidance, curriculum and instruction" (p. 122), much research has been conducted regarding educational environments. Indeed,

> The process of development, of progression through stages, is seen as interactional; Perry found that development required both a readiness within the individual and stimulation from the environment. (Widick, 1977. p. 35)

Thus, the study of educational environments not only is a reasonable focus of research, but a very important one as well.

In reality, there is considerable overlap between the concepts included in Perry's Scheme and those most often assessed in the usual studies of development in college. Indeed, the interaction between college and student has been stressed, and it has been predicted that

> Change in any given student will be a joint function of the student's initial epistemological structure and the "structure for learning" offered by the college he or she attends. (Perry as quoted in Kurfiss, 1975, p. 81)
Hunt (1966) extended the work of Harvey, et al. (1961) and was one of the first to explore the specifics of developmental instruction and the matching of learner characteristics with educational approaches. One of the major findings of his research that served as a basis for future studies in developmental instruction was that students who reasoned at a more concrete level (comparable to Perry's Dualists) functioned best with a high degree of structure and those whose thinking was at a more abstract level (comparable to Perry's Relativists) functioned best with less structure and greater flexibility.

In 1971, Heffernan reported on a study which related Perry's Scheme of personal identity formation to factors in the college setting which affected individuals' growth. He compared the effects of two college environments on identity formation among junior students and found that an environment with a high degree of peer interaction, open student-faculty relationships, high academic orientation, and psychosocial ambience facilitated identity development, especially regarding sex-related roles and other specific kinds of identity development. As a result of this research -- which focused on the upper four Positions of the Perry Scheme -- Heffernan (1971) described a process of establishing identity through commitment.

Knefelkamp (1974) was the first to focus on ways to facilitate movement along Perry's developmental scale of increasing cognitive complexity. She designed a course and specific teaching methods -- which she termed developmental instruction -- to move freshman students along Perry's continuum of intellectual and ethical development.

Knefelkamp's (1974) sample consisted of 31 freshman students at the University of Minnesota who elected to register for "Themes in Human
Identity". The vast majority of these students was enrolled in the College of Liberal Arts. Two sections of this course were offered, one using a traditional approach and the other using a developmental instruction approach. (In actuality, however, the "traditional" class was taught in the developmental instruction method.)

Using Schroder, Driver and Streufert's (1967) Paragraph Completion Test and the KneWi cognitive development instrument (which she developed for her study), Knefelkamp (1974) measured the students' stage of cognitive development on the first and last day of the course. She found that 28 of the 31 students moved upward along the Perry developmental scale, with students in the section which was geared toward Dualists gaining .85 stage and students in the section where teaching was geared toward Relativists increasing by .79 stage.

Knefelkamp (1974) concluded that while her study could make no claims to having validated Perry's Scheme, it did show that "the Perry Scheme is applicable and helpful to the planning of college curriculums that attempt to meet the developmental needs of its students" (p. 140). She did suggest that attempts needed to be made to teach a wide range of subject matter in the developmental mode, but left the following question unanswered: "Is it really true, as Sanford asserts, that all subject matter can be taught developmentally?" (Knefelkamp, 1974, p. 141).

In collaboration with Knefelkamp, Widick (1975) studied the impact of academic performance outcomes of an instructional program based on a cognitive stage model of the learner. She cited the observation previously made by an influential educator that students are "victims" of the college they attend, having to "endure bad teaching, a petrified curriculum and other marks of neglect" (Barzun as quoted in Widick, 1975, p. 74), and questioned the effectiveness of the classroom as a learning
environment.

Widick (1975) used the same 31 freshman students about which Knefelkamp (1974) reported, but focused her efforts on relating the type of instructional environment of the classroom to the students' performance on three academic tasks: a take-home essay examination, a short-answer examination, and an ongoing journal. The short-essay examination was designed as a more objective task, and the take-home essay examination and journal were more complex tasks. It was hypothesized that Relativists would perform better than Dualists on the complex tasks, and on the more objective task, students who were in classes matched to their developmental status would perform better than students who were in classes mismatched to their status. It also was expected that Dualists in the Dualistic treatment section would perform better than Dualists in the Relativistic treatment section, and Relativists in the Dualistic treatment section would perform poorer than Relativists in the Relativistic section.

Although the pre- and pos-test data on Perry Position reported by Widick (1975) revealed that 90% of the students in her study evidenced some growth, with 75% showing movement of at least one-half stage, the results did not support the interaction hypothesis. The data did, however, evidence interactive patterns in the expected directions when using the Perry Scheme. In her concluding remarks, Widick (1975) suggested that

Cross-sectional and longitudinal data assessing distribution of students by developmental status across colleges and majors would be useful in identifying if general patterns of college attendance reflect certain stages. (pp. 154-155)

Widick, et al. (1975) continued to study instructional approaches designed to facilitate movement along the Perry Scheme. Through their
study, they found that the dominant stages of development for their subjects -- freshman students -- at the beginning of the course were Positions 3 and 4. At the end of the course, Positions 4 and 5 were dominant for the same students. They concluded that their curriculum intervention caused movement upward along the developmental scale: (1) no student regressed, (2) all students who progressed did so at an increase of one stage level, and (3) no students advanced two stages. They also reported success in moving Dualistic thinkers toward Relativism but little success in moving Relativistic students to the point of making commitments. In essence, Widick et al. (1975) implemented, with some success, an approach involving instruction matched to student developmental position. However, as noted by Widick (1975), "the design of the instructional program was derived from intuition and untested assumptions about dualists and relativists" (p. 36). Thus, research in the same general area continued.

Stephenson and Hunt (1977) replicated a part of the Knefelkamp (1974) and Widick (1975) studies. They offered a course on "Themes in Human Identity" to two groups of freshman students who elected the course, which was designed using developmental instruction. Using the essay portion of the KneWi, and not the sentence stems, as well as Rest's Defining Issues Test, Stephenson and Hunt (1977) tested the students at the beginning and end of the course and found the two groups to be rated as follows (p. 41) at each point in time:
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<td>% Multiplists</td>
<td>% Relativists</td>
<td>% Dualists</td>
<td>% Multiplists</td>
<td>% Relativists</td>
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<td>Control</td>
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In comparing these groups to two freshman English courses, one in which students were enrolled by their own selection and the other in which students were placed due to their having excelled in a preceding course, Stephenson and Hunt (1977) found that the great majority of students in the developmental instruction class showed some stage movement, with 38% and 43% of groups I and II respectively, moving by a full stage or more; however, the control groups had only approximately half of the students showing any stage movement, and in only one of these groups did some students (20%) move a full stage or more. It seems apparent from these data that (1) change can occur in the Perry Positions of students in a relatively short period of time (i.e., eleven weeks), and (2) courses using developmental instruction produced more upward movement on the Perry Scheme than did two comparison courses using similar content and themes.
Kurfiss (1975) undertook a study of late adolescent development with her subjects being freshman and junior students in college. Subjects were asked to (1) choose from among four statements about each of eight essays which were designed to represent each of Perry's first seven Positions, with two essays representing Position 4 (regarding the statements from which the subjects were to choose, one was representative of one Position below that of the essay, one was representative of the essay itself, one was representative of one Position above that of the essay, and one represented two Positions above that of the essay); (2) rank order the eight essays according to how well each was most like their own views; and (3) reformulate each essay in their own words.

Despite a sizeable age span between the 14 freshman subjects (mean age was 18.4 years) and the 14 junior students (mean age was 21.3 years), the juniors in Kurfiss' (1975) study did not appear to be further advanced in comprehension of the essay statements than freshmen. The expectation was that junior students would be able to comprehend higher Position statements better than freshman students would. Subjects' preference for the essay statements (i.e., ranking) tended to be for higher levels, with the exception of a strong tendency to agree most with an essay representative of Relativism Subordinate (i.e., Position 4, moving toward Position 5). In their choice from among the four statements about each essay, subjects tended to choose statements in the "plus-one to minus-one" range.

The findings of her study led Kurfiss (1975) to claim that environments which foster the development of students are critical for education, and she suggested that such environments include the following: (1) faculty openly expressing doubt, willingly considering others' ideas,
and rationally defending their own position; (2) an emphasis on critical analysis, not rote learning, lecture and "objective" testing; (3) faculty being available for and open to interactions with students; and (4) encouragement of disagreement and lively debate (p. 97). She also gave suggestions for "matching" the student's Perry Position with a learning environment that would enhance it.

One important element of a developmental environment -- the faculty -- was the focus of a study by Froberg and Parker (1976) who examined developmental instruction as an outgrowth of their belief that

> The instructor can deal effectively with both mastery of the discipline and student development, and indeed must attend to both if students are to make optimum use of the collegiate experience without high levels of anxiety, if students are to understand the nature of knowledge, and if they are to learn to think critically about and integrate that knowledge. (p. 1)

A basic premise on which Froberg and Parker's (1976) work rested was that

> Dissonance or conflict can be constructive in furthering development. However, if a mismatch occurs and the disequilibrium is too overwhelming it may result in fixation or regression rather than growth. (p. 24)

The project reported by Froberg and Parker (1976) identified the Perry Position of 80 students in the College of Agriculture at a large university. Twenty students were freshman, 20 were sophomores, 20 were juniors, and 20 were seniors. These students were selected from classes taught by six faculty who participated in the study. The researchers observed these faculty members' classes in order to "note the convergence of teachers' goals and methods and students' developmental levels" (Froberg & Parker, 1976, p. 7), and "to explore the ways in which each professor's educational philosophies and goals were operationalized in
his classroom" (Froberg & Parker, 1976, pp. 39-40). First, they interviewed faculty and found several themes emerging: by knowing something about the students, faculty could adapt instructional modes to their learning capabilities, and they seemed to feel that, as faculty, they were making a contribution to students' growth by "accentuating the multi-faceted nature of the world" (Froberg & Parker, 1976, p. 13).

Based on extensive interviews with a limited number of faculty about their roles, their objectives, and their relationships with students, Froberg and Parker (1976) noted "the degree of conformity between the faculty's perceptions of student growth and Perry's documentation of student growth" (p. 18) and commented that "some of the teachers were intuitively acting as developmental instructors" (p. 20). They implied that with a framework such as Perry's to guide their teaching efforts, faculty could be much more effective as developmental instructors and contribute to students' development to a much greater extent.

Touchton, Wertheimer, Cornfeld and Harrison (1977) studied whether a career planning course taught developmentally would lead to greater growth in cognitive complexity with respect to career than would one taught in the traditional manner. The content of each class was the same, but three classes (designated as "experimental") were taught developmentally by instructors so trained, two classes (designated as "traditional") were taught traditionally by instructors with no knowledge of developmental instruction, and one class (designated as "mixed") was taught in the traditional method by instructors knowledgeable about developmental theory and developmental instruction. Pre- and post-course data revealed that 76% of the students in the experimental sections, 41% of those in the traditional sections, and 65% of those in the mixed
section showed some increase in complexity of thinking about careers as measured by the Knefelkamp-Slepitza (1976) model, which had been adapted from the Perry Scheme.

The average stage movement for the experimental group in the study by Touchton et al. (1977) was .59; in Stephenson and Hunt's (1977) study it was .85. The traditionally-taught students in both studies moved .17 and .27 stages on an average, respectively. The mixed group in the study by Touchton et al. (1977) showed an average stage movement of .39.

Goldberger, Marwine and Paskus (1978) asserted that "the success of students in resolving the question of relativism of knowledge and values is, or should be, one of the primary objectives of higher education" (p. 2). They noted that research had indicated that many freshmen enter college at the dualistic or, at best, early multiplicitic stages and that professors recognize this "intuitively", but faculty have no clear pedagogical implications for such intuitions. As a result of such data, they undertook a study with the following purposes:

To show how familiarity with the Perry developmental theory can help a professor organize his perceptions of students in class and alert him to new ways of responding to the developmental needs of his students. ... To contribute to the construct validity of Perry's theoretical stages and to investigate the relationship between Perry's stages, traditional measures of intellectual ability, and Loevinger's stages of ego development. (Goldberger, et al., 1978, p. 4)

Through this study, Goldberger et al. (1978) found a .63 correlation between the professor's ratings of his students based on their behavior in the classroom and judges' Perry ratings based on the KneWi instrument. They also found that freshman students who scored lower on the Perry Scheme were judged by instructors to be performing below or well below the teacher's expectations. They speculated that "poor performance in
dualistic students does not simply result from lower ability but may reflect problems encountered in freshman level courses which demand relativistic thinking" (Goldberger, et al., 1978, p. 8).

The heterogeneity of students within any one classroom prompted Goldberger, et al. (1978) to suggest that "either educational strategies must meet the different needs of students in the same classroom or ways must be found to segregate students with respect to developmental level" (p. 11). A summary of several studies which have been conducted concerning developmental classroom environments and which have been discussed in this literature review (see Table 1) provides evidence that the above suggestion warrants the attention of educators.

In addition to the studies cited above, most of which focused on developmental instruction, several studies have been undertaken in which the Perry Scheme was applied to specific areas. For example, Meyer (1975) applied the Perry Scheme to the investigation of religious development of Lutheran students enrolled in two small Minnesota colleges. He hypothesized that the private college freshman would be more dualistic than public college freshmen, that private college seniors would be more committed than public college seniors, and that freshman at both colleges would be at lower Perry Positions than seniors. He interviewed ten freshmen and ten seniors in each college and found no significant differences in Position scores by class across colleges but did find that the difference in mean Perry scores for freshmen (\( \bar{X} = 3.24 \)) and for seniors (\( \bar{X} = 4.16 \)) was statistically significant (\( p < .05 \)). Meyer (1975) also reported that Perry Position correlated with moral judgment (as measured by Rest's Defining Issues Test) at .45 (\( p < .05 \)), and it correlated with cognitive complexity measures at .40 (\( p < .05 \)).
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<tr>
<td>Widick et al. (1975)</td>
<td>Experimental</td>
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N.R. = Not Reported
Copes (1978, 1979a) studied the Perry Scheme in relation to the area of mathematics. He recognized that "most persons, even many well into Commitment, consider knowledge of mathematics and science as absolutes, and ... the amount of hard data in support of that assumption is increasing" (Copes, 1978, p. 2), and he admitted that this view is dominant in teaching mathematics and in the materials used. Copes (1978) then proceeded to explore absolute, relative, and personal concepts of mathematical knowledge and how he had used various teaching methods reflective of each of these three concepts. He stressed that Perry's Scheme "deals with attitudes toward life in general, and relates to mathematics only indirectly" (Copes, 1978, p. 7).

Blake (1976) utilized the Perry Scheme in studying students enrolled in a science program. He noted that all Perry research to date had been with students in liberal arts, and he questioned whether students in a science-oriented curriculum would show the same upward movement in Perry Position scores. He conducted a cross-sectional study of 20 freshman, 20 sophomore, 20 junior, and 20 senior students randomly selected; this was the first study to look at students at all four levels. (The study previously referenced by Froberg and Parker [1976] utilized the same sample as Blake [1976].)

The purpose in Blake's (1976) study was to assess a wide variety of the "human characteristics that students bring to the college environment so that [he] could evaluate the way these students and environmental variables interact to influence learning" (p. 2). The variables considered in this study were as follows: (1) intellectual development, as theorized by Perry (1968, 1970), (2) ego development, as described by Loevinger (1970, 1976), and (3) locus of control, as explicated by Rotter (1966).
These variables were correlated with students' age, marital status, grade point average, major, and years of work experience as well as with their academic level and with each other.

A structured interview was utilized by Blake (1976) to rate each student's Perry Position. Statements (e.g., about the grading of essays or the role of the professor) were presented to which students responded; each statement was placed in a humanities context or in a scientific context. He found that students responded with higher Perry levels to stimulus statements presented within a humanities context than those presented within a scientific context, and he speculated that "students may be using a completely different epistemology for the acquisition of knowledge in science as compared with humanities" (Blake, 1976, pp. 8-9).

Using a one-way ANOVA, Blake (1976) found a significant difference ($p < .001$) in mean scores between and among all four groups (i.e., freshmen, sophomores, juniors, and seniors): $\bar{x} = 2.84$ for freshmen, $\bar{x} = 3.13$ for sophomores, $\bar{x} = 3.55$ for juniors, and $\bar{x} = 3.48$ for seniors. The scores ranged from Position 2 to Position 5, and the major difference in scores was found between freshmen and sophomores. This finding of a major difference between freshmen and sophomores led Blake (1976) to concur with other studies which concluded that the major impact of college on students occurs during these two years. He speculated that the concern of juniors and seniors about committing themselves to a major and finding a job may force them to return to a more concrete and externally-oriented level of functioning.

Blake (1976) concluded that the students he studied "basically obtained occupational knowledge and information from their four years in college" (p. 10) and little else. Since he found the majority of students
to be Dualistic or Multiplistic, according to Perry's Scheme, he noted that while the occupational knowledge and information gained may prepare students for their life's vocation, "it has little impact in changing their forms of thinking, development of identity or control of inner self" (Blake, 1976, p. 10), according to the instruments he used.

Finally, Neves (1980) utilized the Perry Scheme as a framework for her study of the relationship between the health-related cognitive structure of hospitalized individuals and their health self-care behaviors. Neves' subjects -- 33 male and 39 female adults who were hospitalized on a medical or surgical unit -- were asked to complete an objective, multiple-choice questionnaire designed to measure their health-related cognitive structure, and a health self-care instrument which listed (1) health self-care behaviors, (2) three reasons why the person does engage in that behavior, and (3) three reasons why the person does not engage in that behavior. For each self-care behavior, the subject was asked to choose one of the six reasons provided, depending on whether or not he engaged in that behavior. Each of the six "reasons" were formulated to reflect Perry's three broad categories of Dualism (one reason for and one reason for not engaging in the behavior), Relativism (one reason for and one reason for not engaging in the behavior), and Commitment in Relativism (one reason for and one reason for not engaging in the behavior).

Neves (1980) reported that 27.8% of her subjects were scored in the category of Dualism, 44.4% in the category of Relativism, and 27.8% in the category of Commitment in Relativism on the health-related cognitive structure instrument. Regarding the health self-care behaviors measure, 6.9% of the subjects scored in Dualism, 30.5% scored in Relativism, and 62.6% scored in Commitment in Relativism. Neves (1980) also reported a significant relationship between the scores individuals obtained on both
scales. She also found significant relationships between the health-related cognitive structure measure (HrCS) and education, race, perception about own health, and length of hospitalization:

Subjects who obtained higher scores on the HrCS were more likely to be Caucasians, to have spent more than 14 years in school, to perceive themselves as having good or excellent health, and to be hospitalized for less than a week at the time of testing. (Neves, 1980, p. 125)

Significant relationships were reported also between the self-care behaviors score (HSC) and education, race, perception about own health, living arrangements, and number of previous hospitalizations:

Subjects who scored higher on the HSC were more likely to be Caucasian, to possess more than 14 years of formal education, to perceive themselves as being in good or excellent health status, to live alone, and to have had more than five previous hospitalizations. (Neves, 1980, p. 126)

Neves' (1980) study showed that individuals are at different levels of cognitive development regarding their health, and that development was affected by race, education, and perceptions about one's health. She concluded that "this study offered a basis for identifying where an individual is in terms of cognitive development so that nursing systems can be prescribed or designed to regulate patient's self-care abilities" (Neves, 1980, p. 131), and to enhance their stage of cognitive development. And she indicated that the study provided two instruments for assessing one of the components of self-care agency of individuals, namely their cognitive development. As such, Neves' (1980) study has made a significant contribution to the field of nursing.

The final general area to which the Perry Scheme has been related is that of curriculum evaluation. Heffernan (1975) proposed that Perry's theory be used as a framework for measuring educational outcomes since it "describes how students progress in levels of thinking complexity, how
that leads to a merging of knowledge and values, and how a sense of identity is established" (p. 493). He discussed its usefulness in student evaluation, faculty development, instructional development, and program design and evaluation as well since it draws together so much of the knowledge on both intellectual and personal development.

Goldberger (1979) reported on studies undertaken at Simon's Rock Early College of student development using Perry's Scheme on a college-wide basis. This is one way the College had identified to document the effects of a collegiate education on students. The researcher reported that the modal Position for freshmen was multiplicity, with 60-70% of the students scoring in this category. The findings of this study are particularly interesting in light of the fact that Simon's Rock admits 16-17-year-olds who are intellectually and emotionally prepared to begin studying at the college level.

Dunning, Accola, Kochel and Murray (1977) reported on a project designed to evaluate the undergraduate curriculum in nursing at the University of Minnesota; specifically, the evaluation project was intended to validate achievement of curriculum objectives and determine the effect of the curriculum on learner growth, among other purposes. The researchers explored some of the factors that are difficult to assess, such as conceptualizing ability, value formation, and maturation. Although they cited Perry's Scheme as a model that could be used to map the growth and development of students, the researchers did not report using any direct measure of Perry Position.

Summary

From the above, one can conclude that a good deal of research has been conducted related to the Perry Scheme of intellectual and
ethical development. Indeed, after an extensive review and critique of research on the Perry Scheme, King (1977) concluded that the studies conducted to date provided "some preliminary indication that progression through the Perry positions does in fact occur during the college years" (p. 74). She suggested that "the applicability of the scheme is not limited to either personal-social development nor to one academic discipline" (King, 1977, p. 74), although she did note that "the usefulness of the scheme in scientific, business or professional areas is not yet known" (King, 1977, p. 74).

**Criticisms of the Perry Scheme**

Although King's (1977) review and critique of the Perry Scheme and research related to it were supportive of its validity and applicability, some criticism has been made of the Scheme. This criticism will be summarized here.

One area of criticism relates to the consistency of the Scheme. For example, Kitchener (1977) noted that Perry mixed intellectual development with other aspects of personality, such as, ethics, responsibility, and identity, and his theory "unifies the complexity-simplicity dimension with changing views of reality and knowledge" (p. 25).

This apparent "discontinuity both in the domain and structure of the upper three positions in Perry's original formulation of the theory" (Kitchener, 1977, p. 29) was the focus of criticism from others in addition to Kitchener. Indeed, a major criticism of Perry's work has been directed toward the "lack of conceptual clarity regarding the theory's underlying construct(s)" (King, 1977, p. 11; Strange, 1978, p. 14). In
essence, the critiques by Boyd and Broughton (as quoted in King, 1978, p. 40) as well as Heffernan (1971) have noted the shift in focus from epistemological development in the lower Positions of the Scheme (i.e., Positions 1 through 5 or 6*) to personal identity development in the upper Positions of the Scheme (i.e., Positions 6 or 7* through 9). As Strange (1978) stated,

One is left with an identity construct not clearly articulated below the seventh position, and an intellectual construct that seems to be locked in the relativism of the fifth position along Perry's developmental continuum. (p. 14)

Kurfiss (1975) agreed that Perry's Scheme deals with two different domains (i.e., epistemological and ethical), but she asserted that this is the strength of Perry's Scheme and not a weakness of it. She claimed that

Perry has effectively bridged the development of the intellect with the development of identity, while other theorists of late adolescent development, such as Erikson and Piaget, have neglected one domain or the other. (Kurfiss as quoted in King, 1977, p. 7)

Broughton (as quoted in Kitchener, 1977) criticized Perry especially at Positions 7, 8 and 9 and argued that "epistemological level was more highly related to cognitive maturity than aging" (p. 47). He investigated people's concepts of self and reality and how they come to know each, an area he referred to as the development of natural epistemologies. "Although he does not talk about his stage in terms of simplicity-complexity or abstract-concrete, Broughton's higher states

* King (1978) indicated that Boyd and Broughton stated that epistemological development proceeds through Position 6; Heffernan (1971) stated it proceeds only through Position 5.
imply an increase in complexity and abstraction" (Kitchener, 1977, p. 24). Unfortunately, Broughton reported no longitudinal data.

Froberg and Parker (1976) found that when they asked faculty members whether they saw students growing and changing as they progressed through college, their answers were unreservedly positive. The data from the student interviews, however, did not reflect as much change, particularly toward relativism and commitment. This led the researchers to question the validity of the Perry Scheme regarding the experiences of students in the technical/scientific areas and "to question whether the 'existential relativism' explicit in Perry's work is useful in science and technology" (Froberg & Parker, 1976, p. 41). They raised the following question:

Is the Perry scheme bringing with it an epistemology better oriented to liberal arts? It could be that expecting science students to talk about the relativity of knowledge is inappropriate, since the procedures and tasks they engage in require some acceptance of absolutes. (Froberg & Parker, 1976, p. 33)

Students’ responses to Perry Scheme stimulus questions reflected a view of the nature of knowledge in science as concrete and certain but the nature of knowledge in the humanities as "fuzzy" and lacking in right/wrong absolutes. They were consistently rated lower when questions were related to science areas than humanities areas (Froberg & Parker, 1976). These authors concluded, therefore, that the development of Reflective Judgment, as proposed by King (1977) and Kitchener (1977), may be a goal more appropriate in science programs than the development of Perry's (1970) Commitment in Relativism.

Perry's original work has been criticized also in that although his 1968 study showed a .89 to .96 reliability of judges' mean score for
students by year, he confused reliability with validity when he claimed this high reliability spoke to the validity of the Scheme. In addition to this weakness, his subjects' responses were not rated blindly nor separately by the judges.

Kitchener (1977) identified several other areas of criticism: the instruments used to gather data on Perry Positions are weak, more than six different formats are in use, there is no interrater reliability reported in some studies, there is no test-retest reliability reported, and there seems to be much room for error in scoring. She went on to say that

Except for Perry's original sample, few undergraduate students have been scored at position 7 or higher. This may be a failure of the scoring rules to identify clearly the cues for rating higher stages, or the failure of the measurement formats to tap the higher positions. It may be that the original Harvard sample was unique and/or that more complex and principled judgment does not usually occur until an older age. (Kitchener, 1977, p. 56)

Parker (1976) agreed with this line of reasoning when he questioned the general applicability of Perry's Scheme based on his "three years of experience in finding very few persons who could be classified as 'Committed in Relativism'" (p. 4). He recognized King's (1977) investigations of the construct of commitment and Kitchener's (1977) development of the concept of Reflective Judgment as valuable works which have increased the understanding of the upper end of Perry's Scheme.

Despite these weaknesses, however, the Scheme does have value. Kurfiss (1976) presented Perry's Scheme as a model which synthesizes and extends Piaget's work (which Kurfiss noted has failed to "clarify how reasoning processes adaptive for concrete problem-solving can be
transferred to the developmentally more complex realm of identity concerns" (p. 130)), and Erikson's work (which Kurfiss noted "lacks specification of cognitive foundations" (p. 130)). She went on to analyze briefly the developmental history of identity, as proposed by Erikson, and its relationship to cognitive and epistemological structures, as proposed by Piaget and Perry.

The "critical test of a developmental theory lies in its power to describe important transition states and suggest logical and empirically verifiable mechanisms of change" (Kurfiss, 1975, p. 38). Perry's theory, as "a developmental scheme outlining the progress of late adolescents from one end of the epistemological continuum to the other" (Kurfiss, 1975, p. 59A), seems to "pass this test".

Adaptations and Expansions of the Perry Scheme

Given the findings of Harvey, et al. (1961), Perry's approach -- as a broad scheme, applicable to knowledge in general -- may be applicable to a number of the content areas identified. Research along this line has been conducted by Knefelkamp, Widick and Strood (1976) in the area of counseling women, Knefelkamp and Slepitza (1976) and Slepitza and Knefelkamp (1975) in the area of career development, Meyer (1975) in the area of religious development, and Widick, et al. (1975) in the area of classroom/learning environments. The focus of these studies has been on the individual's ability to organize and integrate information in a particular area rather than on the details of the information itself.

Extensive work has been done in expanding and refining the Scheme. King (1977) and Kitchener (1977) recognized that an individual's intellectual development progresses beyond the Position 5 characteristics
described by Perry. In reconceptualizing the Scheme, they developed
the construct of Reflective Judgment to clarify the nature of intellectual
development beyond Relativism. They developed a seven-point scale,
which was divided into three categories: Dualism (Positions 2 through
3.5), Relativism (Positions 4 through 5.5), and Probabilism (Positions
6 through 7). The first two categories correspond with Perry's
categories of the same names.

The concept of Reflective Judgment was developed by King (1977)
and Kitchener (1977) "as an alternative to commitment" (King, 1976a,
pp. 9-10). They claimed that in making a judgment,

One uses a reasoned approach to making decisions
or choosing among legitimate contexts, and this
approach is based on a probabilistic rather than
a relativistic epistemology. (King, 1976a, p. 10)

The construct of Reflective Judgment focuses on the way individuals
"reason about intellectual problems, taking into consideration the role
of evidence in their arguments, how they understand and deal with
conflicting evidence and what role authorities or experts play in arriving
at judgments" (King, 1977, p. 18). The study of this construct also came
out of Kitchener's (1977) recognition that with Loevinger (1970) and
Harvey et al. (1961), "cognitive components are embedded in discussions of
interpersonal relationships, the self, morality, identity, etc. The
nature of judgments in the intellectual domain also is ignored" (p. 21).

King (1977) and Kitchener's (1977) seven-position model reflects
"increasingly complex ways of reasoning about intellectual controversies
and of justifying one's point of view or resolution to such controversies"
(Kitchener, 1979, p. 5). They studied whether reasoning style, as
described by the Reflective Judgment model, differed over age and
educational levels, and whether any such differences could be accounted for by other variables which also are related to intellectual development (i.e., verbal ability, formal operations, verbal fluency, and socioeconomic status).

King (1977) tested for levels of reasoning at which Reflective Judgments are made by high school students, college students, and graduate students. Subjects were presented with dilemmas and, through a structured interview format, were asked questions to elicit statements about the following:

the processes they use in reasoning to a conclusion about a given dilemma, with particular reference to the basis for their conclusion or point of view, and their underlying assumptions about the process, as reflected in the certainty with which the point of view is held. (King, 1977, p. 103)

In her matched sample -- 20 high school juniors (16 years old), 20 college juniors, and 20 doctoral level graduate students -- the Reflective Judgment scores for the high school group fell predominantly in the mid-Dualistic Positions, with only two students (10%) scoring above 3.0. College students' scores ranged from mid-Dualism to late Relativism with 85% being between 3.0 and 4.5. Graduate students' scores ranged widely, but none scored at Dualism and more than one-half scored at Probabilistic Positions. The mean score for high school students was $\bar{x} = 2.77$ (S.D. = .49), for college students it was $\bar{x} = 3.64$ (S.D. = .81), and for graduate students the mean score was $\bar{x} = 5.67$ (S.D. = .92). The differences between the mean scores for each pair or groups was significant at the $p < .001$ level.

The differences between college juniors and graduate students are
twice as large as those between college juniors and high school juniors. This suggested that "greater strides in intellectual development occur in graduate school than in college, or that students who have evidenced highly developed reasoning are selected into graduate school" (King, 1977, p. 184). Since the difference in Reflective Judgment scores could not be statistically accounted for by scores earned on measures of the four variables identified, King (1977) suggested that the differences in scores reflect differences in maturation, education, selection into higher educational programs, or these factors in combination.

Kitchener (1977) tested the hypothesis that there was continued development in Reflective Judgment in the post-adolescent period, and that this development was related to but different from changes in scores on a test of verbal reasoning. She also explored the relationship between development and sex, socioeconomic status, verbal fluency, and size of home town. Her subjects were the same 20 high school juniors, 20 college juniors and 20 doctoral level graduate students used by King (1977); these subjects were matched on high school Scholastic Aptitude Test (SAT) scores, sex, and size of home town.

As reported for King's (1977) study, significant differences were found between the three groups on Reflective Judgment. However, the differences between the high school students and college students were not significant after controlling for the Concept Mastery Test ($\bar{X} = 3.46$ for high school students and $\bar{X} = 3.5$ for college juniors after adjustment; the adjusted mean for graduate students was $\bar{X} = 5.06$). The Concept Mastery Test was administered to determine current intellectual ability since SAT scores for graduate students were as much as ten to
twelve years old and four to five years old for the college students.

Kitchener (1977) reported that the scores for high school students ranged from Position 2 to 4 on Reflective Judgment (only one student scored at Position 4, however); graduate students' scores ranged between Positions 4 and 7; however, college students' scores ranged from Position 2 to 6, with over half being at Positions 2 and 3. Kitchener stated that this wide range in scores suggests that college students show very uneven development and that the small range for high school students may reflect the relatively homogeneous environments in the high schools from which the students were selected. Regarding the college group, Kitchener (1977) stated

Developmental theory postulates that disequilibrating experiences lead to abandoning inadequate conceptualizations and the development of new, more adequate concepts. It may be that some college students have not experienced adequate challenges. (p. 130)

Since little attention had been paid to sex differences in previous research based on Perry's theory, Kitchener (1977) systematically controlled for them in this study. She found no differences between sexes for the high school or graduate student groups; however, overall differences for the college students approached significance (p < .07). In essence, males scored consistently higher than females and accounted for more of the scores at Positions 4, 5 and 6; females accounted for more of the scores at Positions 2 and 3. The two subjects with mean scores of Position 2 were female. Kitchener (1977) suggested the following:

If the scores reflect the true differences between groups, the differences may be expressed in curriculum choice, responses to intellectual challenges, or differential sex-related treatment by faculty and staff. (p. 181)
Strange (1978) utilized King's (1977) and Kitchener's (1977) reconceptualization of the Perry Scheme to study "the intellectual development of adult and traditional-age learners in higher education, their motives for pursuing education, and their preference for learning styles in that pursuit" (pp. 2-3). He interviewed eight men and eight women from each of the following four groups for a sample size of 64: traditional-age freshmen (18 years old), traditional-age seniors (22 years old), adult freshmen (22 years old), and adult seniors (26 years old). He found that approximately 80% of the entire sample fell within a single stage range (i.e., 3.5 to 4.5) with the following mean Reflective Judgment scores: \( \bar{X} = 3.74 \) for traditional-age freshmen (the lowest mean score), and \( \bar{X} = 4.41 \) for adult seniors (the highest mean score). The mean Reflective Judgment score for all seniors (\( \bar{X} = 4.34 \)) was significantly higher (\( p < .001 \)) than the mean score for all freshmen (\( \bar{X} = 3.76 \)).

Class level (i.e., freshman or senior) was found to be a main effect in the scores obtained, irrespective of the student's age (i.e., traditional or adult) within the class level. This led Strange (1978) to suggest that the differences in scores cannot be accounted for by maturation alone. Although the traditional-age seniors and adult freshmen were all 22 years old, the seniors scored higher on the Reflective Judgment measure. However, only 6% of the seniors scored in the Probabilistic category.

The variance in scores increased for each group. Traditional-age freshman scores ranged from upper-Dualistic to mid-Relativistic; adult freshman scores ranged from mid-Dualistic to mid-Relativistic; traditional-age seniors' scores ranged from upper-Dualistic to high-Relativistic; and
the adult seniors' scores ranged from mid-Dualistic to Probabilistic. No freshman student (adult or traditional-age) and no traditional-age senior scored in the Probabilistic category. For all students, only 3.2% (i.e., two students) scored in the Probabilistic category, and both of these were adult senior students.

Sex also was found to have a main effect on the scores obtained with the mean Reflective Judgment scores in each of the four sub-groups being higher for male subjects. No female subject scored in the Probabilistic category, and only two scored at Position 5 (these two were traditional-age seniors); almost half of the female scores fell in the Dualistic category.

One of the variables measured by Strange (1978) was preference for learning style. His instrument measured the following:

- two primary dimensions of the learning process:
  - the first dimension with concrete experiencing at one end and abstract conceptualization at the other end; the second dimension having active experimentation at one extreme and reflective observation at the other. (Strange, 1978, p. 112)

Strange found that traditional-age students emphasized abstract conceptualizations more than adult students did although the differences were not significant. Males, however, scored significantly higher on this (concrete-abstract) scale \( p < .02 \) than did females, and the freshmen scored higher (i.e., more abstract) than seniors \( p < .067 \). This latter finding, suggested Strange (1978), may reflect

- [freshman students'] initial fascination with new ideas and theories as they are just beginning to be challenged with the task of expanding their own world view, [and/or senior students'] preference for, or desire to apply and test in concrete situations the theories and ideas they have explored and integrated over the four years in college. (p. 152)
Strange (1978) concluded that "college does make a difference in terms of intellectual development, above and beyond the factor of chronological maturation" (p. 138). And "perhaps the major impact of college in terms of intellectual development is found in the challenge of multiple perspectives" (Strange, 1978, p. 139).

The Reflective Judgment concept has been the focus of research for others. King and Parker (1978) reported on a study which was designed to (1) investigate whether students' intellectual abilities improved from high school to college to graduate school and whether the Reflective Judgment Interview could measure that development, and (2) determine whether study in differential curricular programs (i.e., liberal arts or science-oriented) affects this development. The sample consisted of 80 students: 20 high school juniors (16 years old), 20 college juniors in the College of Liberal Arts, 20 college juniors in the College of Agriculture, and 20 doctoral level graduate students; the four groups were matched for sex, verbal aptitude, high school rank, and size of home town when in high school. King (1977) and Kitchener (1977) reported on the liberal arts samples; King and Parker (1978) reported on the College of Agriculture sample.

Unlike Blake's (1976) findings, King and Parker (1978) reported that the mean Reflective Judgment score for the students in the College of Agriculture ($\bar{X} = 3.93$) was slightly higher than that for the liberal arts group ($\bar{X} = 3.64$), although this difference was not significant. No significant sex differences were reported for the agriculture students, but for the liberal arts students, the difference approached significance ($p = .07$) with males scoring higher.

Griffith and Heffernan (1978) supported Riegel's (1973) extension
of Piaget to dialectical operations and King's (1977) and Kitchener's (1977) extension of Perry with their notion of Reflective Judgment. These researchers claimed that the constructs of dialectical operations and Reflective Judgment "both attempt to explain the nature of the dialogue within a world of contradictions, and both affirm that thinking complexity can advance, yet still retain earlier, simpler forms of thought" (Griffith & Heffernan, 1978, p. 9). They suggested that adults proceed through the stages of the Perry Scheme each time they engage in a new environment or a new role (e.g., college, graduate school); thus, "once a commitment is forged it becomes the dialectic basis in new and different environments for contradiction through relativism" (Griffith & Heffernan, 1978, p. 13). Heffernan (1975) asserted a similar position in an earlier paper and proposed that the progression through stages may be quicker and less intense each time, but it does, nevertheless, still occur.

Griffith and Heffernan (1978) have used the dialectical model to extend theories of development into the adult years. They view commitment as "the affirmation of a life-long dialogue, a continuing dialectic embracing the contradictory nature of human experience" (Griffith & Heffernan, 1978, p. 13).

Applications of the Perry Scheme in particular fields of study and/or practice has also been the focus of research reports and papers. In discussing the field of counseling and personnel work, for example, Widick (1977) asserted that "it seems fair to say that the field has had an operating philosophy of fostering development but has lacked an understanding of what development is and how it can be stimulated" (p. 35). The report by Knefelkamp, et al. (1976) gives evidence of attempts to
resolve the dilemma identified by Widick in the use of a developmental framework for counseling women.

A major use of Perry's Scheme of the development of cognitive structures has been made by Knefelkamp and Slepitz (1976) in their formulation of a model related to career development in general. This career model very much parallels the professional model used in this study. Knefelkamp and Slepitz (1976) have developed a process model of human development in which nine areas of qualitative change take place: the use of absolutes in expression, the ability to be intractive, the ability to analyze, the ability to assume responsibility, an openness to alternative perspectives, the ability to take new roles, the ability to be internally controlled, the ability to synthesize, and the ability to take risks with self. The relationship of these areas of development to Perry's broad categories of cognitive development is depicted in Figure 2.

Knefelkamp and Slepitz (1976) viewed Perry's Scheme as a general process model that provides a framework for viewing the development of an individual's reasoning about many aspects of the world. The one "aspect of the world" upon which they focused was that of career development.

In reporting on research conducted with their career development model, Knefelkamp and Slepitz (1976) stated that the predominant stages for various population groups were as follows: freshmen and sophomores, Positions 2 and 3; seniors, Positions 3 and 4; first year Masters students, Positions 3, 4 and 5; and advanced graduate students, Positions 6 and 7.

In her discussions of the career development model adapted from the Perry Scheme, Knefelkamp (1978) noted that individuals at lower
Figure 2

A Process Model of Human Development:
Areas of Qualitative Change

Commitment in Relativism
Relativism
Multiplicity
Dualism

Note: Degree of density corresponds with presence of the variable.

Positions (i.e., 1 or 2) are externally controlled and do not see themselves as active agents in their own lives; as they develop (i.e., Positions 3 and 4), they become more involved in the process but still do not accept full responsibility for choosing and still turn to someone else for direction and answers. At Position 5, the self becomes the prime mover in the decision making process about career. Knefelkamp (1978) noted that the counselor, the helper, must be attuned to what individuals say about their careers, that is, the content; but they also must be attuned to the way they describe themselves, that is, the process, in order to be most effective. This process model of human development provides an organized, theoretical way to look at individuals' development regarding their career.

King (1976b) explored the concept of Commitment in great detail. She noted that "commitments reflect a high degree of personal involvement and personal investment, indeed, they reflect one's identity" (King, 1976b, p. 1) and that people act upon their personal commitments. She studied commitment as a psychological construct, despite its ambiguity -- it has "almost as many definitions ... as there are number of people writing about it" (King, 1976a, p. 2).

King (1976a) focused on a personal commitment orientation where the primary emphasis is put on the personal investment of self in decisions or choices, or in other words, on the implications of making personally important decisions for the formation and development of a personal identity. (pp. 2-3)

Such an orientation involves the "fusion of one's values and one's identity" (King, 1976a, p. 5). King (1976b) accepted Perry's view of Commitment as an active process with the individual acting as his/her
own agent or chooser, and after extensive review of the literature concerning this concept, concluded that Perry's is the most intensive, comprehensive, and meaningful perspective on it.

In addition to these works which have adapted or expanded the Perry Scheme in terms of the Scheme itself (i.e., the Reflective Judgment notion) or the application of the Scheme (i.e., to career development), the Scheme has been used in the health area. Neves' (1980) study on the health-related cognitive structures and health self-care behaviors of hospitalized individuals was discussed earlier. In addition, McIntyre (1980) has applied the Perry Scheme to the field of health and health care. She related views of right and wrong, multiple viewpoints, personal values and beliefs, decision making and relationships to authority to the responsibilities an individual takes for him/herself regarding his/her health and health care. Nowakowski (1980) also has contributed to a health adaptation of the Scheme in much the same way as McIntyre has done.

Although they have not used the Perry Scheme itself, two other nurses have explored the concept of cognitive/intellectual development in relation to health and health care. In an application of Piaget's theory to critically ill patients, Roberts (1980) analyzed how these individuals may experience temporary alterations in their cognitive abilities and the implications such changes have for the teaching function of the nurse in the critical care setting. And Muhlenkamp (1975) applied Piaget's theory of cognitive development in her study of cognition among the elderly.

Mandrillo (1969) studied the cognitive development of 264 nursing students graduating from five baccalaureate and four associate degree
programs in New York City. Specifically, she studied their knowledge about science and their ability to relate scientific knowledge to hypothetical patient problems. Although her study focused on "cognitive skills" or "intellectual competencies", she defined this as the number of correct items on "The Physiology of Patient Problems" test -- a much narrower definition than that used in this current study. Mandrillo (1969) reported, however, that baccalaureate students did have significantly higher mean scores on knowledge, intellectual abilities and intellectual skills than did associate degree students, even after scores were adjusted for initial differences in verbal intelligence scores between the two groups. She suggested that the general education approach to learning science used in baccalaureate education is successful in helping students live in a constantly changing world.

In light of the goals of higher education of "equipping the student with the necessary skills to live effectively and productively in the world of tomorrow" (Harvey, 1972, p. 63), preparing the student for the unexpected and the unknown, and helping the student develop the ability to withstand uncertainty and stress, to behave flexibly, to be committed with openness, to avoid over-generalization and to base decisions on empirically derived information instead of certitude based on opinionation (Harvey, 1972, p. 64), Watson (1978) studied students' conceptual systems. Using Harvey's Conceptual System Test, Watson (1978) compared nursing students' "abstractness, openness, flexibility, and readiness for independent thinking and action" (p. 151) with that of other students and with practicing nurses.

The comparison of level I nursing students (i.e., sophomores) with practicing nurses revealed a greater degree of abstractness among
the students and more concreteness among the nurses. No significant
difference was noted between the nursing students and the liberal arts
students in concreteness-abstractness. However, nursing students
reported a greater "need for structure and order" than did nurses or
other students; this difference was not significant. These findings of
a high degree of abstractness, an openness to take on new roles, a
flexibility, and so on among beginning nursing students are unlike those
reported by other researchers and warrant careful consideration.

Leonard (1974) reported on a study designed to relate aspects of
cognitive-developmental theory to the measurement of change in
psychotherapy and to the activity of the therapist in producing change.
She conducted a longitudinal, intensive study of a person in psychotherapy
and found that the client's level of thought (i.e., ability to coordinate
multiple points of view while retaining her own, ability to maintain
control of a situation, and degree of egocentrism) increased when the
therapist focused on reflection and interpretation of thoughts, ideas,
and feelings. When the therapist emphasized questioning and/or advice-
giving, the client's level of thought remained the same or decreased.
While the client-therapist relationship in psychotherapy is very different
from the student-teacher relationship in education, this study serves as
a stimulus for thinking about the type of environment which facilitates
development of the "helpee".

Finally, the epistemology of nursing itself has been the focus of
one nurse researcher. Based on the assumption that "the body of knowledge
that serves as the rationale for nursing practice has patterns, forms, or
structures that serve as organizing principles" (Carper, 1975, p. 3),
Carper (1975, 1978) attempted to identify the structures of knowledge in
nursing and the fundamental patterns of knowing that characterize and exemplify the discipline of nursing. She asserted that there is a manner of knowing and understanding in nursing and agreed with Immanuel Kant that

The way in which we classify and organize the phenomena of sense experience -- i.e., identify, compare, draw relationships and conclusions, depends on the categories or patterns of our understanding. (Carper, 1975, p. 30)

In her study and explication of the conceptual and syntactical structure of the discipline of nursing, Carper (1975) analyzed the primary concepts of the discipline: Man, Health, Patient-Client, Nursing, and Behavior. She also identified four interrelated and interdependent patterns of knowing in nursing: Empirics, or the Science of Nursing; Esthetics, or the Art of Nursing; the Component of Personal Knowledge in Nursing (i.e., the holistic self); and Ethics, or the Moral Component of Nursing. Carper (1975) claimed that understanding these four fundamental patterns of knowing "makes possible an increased awareness of the complexity and diversity of nursing knowledge" (p. 21). Her work serves as a stimulus to look more critically at nursing as a discipline and a profession.

This study and development of a structured body of knowledge specific to a discipline is a hallmark of a professional and provides a stimulus for examination of the literature related to the second major variable in the current study, namely, the professional model.
The Professional Model

The areas of change cited previously as being identified by Knefelkamp and Slepita (1976) in their career development model (and adapted from the Perry Scheme) are significant to nursing and relate to one's perceptions of nursing as a profession. Nurses who engage in professional practice need to be able to assume responsibility, be self-directive, be intracreative, be able to analyze and synthesize data, and be able to deal with multiple perspective. These nurses also must be able to define their nursing role, articulate it clearly to clients/patients and professionals, and take risks with themselves when negotiating and/or maintaining a professional nursing role and when describing the scope of practice and the services which professional nurses can offer.

The abilities described are congruent with those of the professional model. For more than 60 years, sociologists and others have developed and refined a set of characteristics which define the degree of professionalism or the professional status of a discipline. Nursing, as an emerging profession and an evolving scientific discipline, has used these accepted characteristics as signposts to guide its development, and students of nursing have been assisted to recognize and accept their individual and collective responsibility in this developmental process.

In 1915, Flexner distinguished professions from occupations by applying a set of criteria. In his view, a profession is (1) intellectual and carries with it great personal responsibility for the proper exercise of choice and judgment; (2) learned, for it is based on a substantial body of knowledge, developed over a long period of years and transmissible
to students who wish to enter the profession; (3) practical, since its knowledge can be applied to real-life situations in the here and now; (4) organized into associations or groups of practitioners for various professional purposes, including those of guiding the education of students and regulating entrance into the profession; and (5) guided by altruism, by concern for the patients or clients who come to it for help. A profession also has techniques, or skills, which can be taught, and which serve as the mechanism by which knowledge can be applied to the solution of problems. Finally, each member of the profession accepts individual responsibility, conducts and communicates research, knows practical as well as theoretical information, and possesses definite status (Flexner, 1915).

Merton (1958) shared his thoughts on the growth of a profession through a paper presented at an American Nurses' Association convention. He focused on certain issues of concern to a profession, particularly the importance of research, the role of professional organizations, and the boundaries of practice for the profession.

McGlothlin (1960, 1964) wrote about the aims of professional education as being the preparation of professionally-educated entrants to the profession in adequate quantity and quality. He identified six major attributes of professionals. Professionals possess the following: (1) competence to practice the profession, with sufficient knowledge and skill to satisfy its requirements; (2) social understanding, with sufficient breadth, to place practice in the context of the society which supports it, and to develop the capacity for leadership in public affairs; (3) personality characteristics which make possible effective practice; (4) zest for continued study which will steadily increase knowledge and
skill needed by practice; and (5) competence in conducting or interpreting research so that one can add to human knowledge either through discovery or application of new truths (McGlothin, 1960, pp. 8-22). In addition, he noted that professionals deal with "matters of great urgency and significance" (McGlothin, 1964, p. 4), and not with unimportant concerns.

Moore (1970) studied the characteristics of professions and suggested that "professionalism should properly be regarded as a scale rather than a cluster of attributes, and thus that attributes commonly noted have differing values" (p. 5). The characteristics he described -- in order of their increasing importance and increasing difficulty to obtain -- include the following:

1. The professional practices a full-time occupation, which comprises the principal source of his earned income.

2. The professional has a commitment to a calling, that is, the treatment of the occupation and all of its requirements as an enduring set of normative and behavioral expectations.

3. The professional is set apart from the laity by various signs and symbols, but by the same token are identified with their peers -- often in formalized organizations.

4. The professional possesses esoteric but useful knowledge and skills, based on specialized training or education of exceptional duration and perhaps of exceptional difficulty.

5. In the practice of his occupation, the professional is expected to exhibit a service orientation, to perceive the needs of individuals or collective clients that are relevant to his competence and to attend to those needs by competent performance.

6. In the use of his exceptional knowledge, the professional proceeds by his own judgment and authority; he thus enjoys autonomy restrained by responsibility.

(Moore, 1970, pp. 5-6)
Many other authors have addressed the issue of professionalism and listed characteristics of a profession and/or attributes of professionals. In essence, however, the characteristics which a true profession possesses include a body of specialized knowledge developed by members of the profession, education for entry into the profession occurring at the university level, the knowledge and skill necessary to provide help in a specialized area with "problems [that] have unique and unpredictable elements" (Schein, 1972, p. 45), a code of ethics to guide practice, control over the practice of members of the profession, the exercise of discretion, and a commitment to the field and to "some kind of standard to which the pursuit of self-interest is subordinated" (Gilb, 1966, p. 27).

In order to fulfill their responsibilities to the profession and to their clients, and in order to meet the challenges for nursing implied in the criteria described above, students in baccalaureate nursing programs and graduate of such programs need to have a more professional perception of nursing and be at a more advanced stage of cognitive development. Thus, using the Perry Scheme (1970), the Knefelkamp and Slepetza (1976) model, and the professional model described herein, baccalaureate nursing students should be assisted to develop toward and be characterized by the qualities associated with increasing cognitive complexity and more professional views about nursing and the role of the nurse. Studies of the extent to which baccalaureate nursing students meet such expectations regarding their perceptions about nursing as a profession will be reviewed from an "historical" perspective beginning with some early works and concluding with more recent ones.
Research Related to Perceptions about Nursing

In 1955, Eron conducted a study to see if certain specific attitudes which were felt to be important in the nurse's work and in the gratification she received from it were subject to change during the nursing school program. He administered a series of instruments to measure authoritarianism, political-economic conservatism, cynicism, humanitarianism, and anxiety to a total of 134 subjects, distributed as follows: 41 first-year and 35 third-year students at the Yale University School of Nursing (this was a program which required a baccalaureate degree in any field for admission and awarded the Master of Science in Nursing as the first professional degree upon completion of the program); 25 freshmen in an experimental nursing program at the University of Washington; 20 sophomores in a hospital program at the University of Washington; and 13 Registered Nurse students enrolled in the Master of Science in Nursing program at the University of Washington.

After extensive analysis of the data, Eron (1955) noted the following: there were no noticeable trends in anxiety scores, nor were there any differences in political-economic conservatism scores among the various groups. He did note, however, that authoritarianism scores tended to decrease as age and level of education increased, which was an expected finding, that mean scores on the cynicism measure decreased as age and/or educational level increased, and, most interestingly, that the humanitarianism scores decreased with more education.

In comparing these findings with trends noted in a previous study of first- and fourth-year medical students, Eron (1955) noted that despite a decline in authoritarianism scores with increased age and
level of education, "in general, the nursing students tend to have a more authoritarian attitude than the medical students" (p. 26). This leads one to question what happens to students' attitudes and perceptions during nursing education programs.

Dunnington's (1965) work continued this area of study of students' attitudes and perceptions and how they develop throughout the nursing program. She administered a questionnaire about the role of the nurse to 188 students enrolled in the College of Nursing at the University of Wyoming. Based on a review of the literature, this researcher concluded that "many students who withdrew from nursing have an inadequate perception of the role of the nurse" (Dunnington, 1965, p. 18); thus, she undertook a study of how these students perceived the role of the nurse at various stages during their education and how the students' perceptions compared with those of the faculty. The faculty perceptions were used as a criterion against which students' perceptions were measured.

The following findings were reported by Dunnington (1965): (1) the role perception of the nurse held by freshmen was less like the faculty's role perception of the nurse than that held by more advanced students (p < .01); (2) sophomores' role perceptions were more like that held by faculty than those of the freshmen (p < .01); (3) the juniors were not more like the faculty in their role perception of the nurse than were sophomores; and (4) the seniors' role perception of the nurse was more like that of the faculty than was the juniors' role perception (p < .05). In addition, the score which the freshmen received on the role perception measure correlated with their grade point average in nursing (p < .01).
The assertion made by Dunnington (1965) in introducing her study warrants the attention of nurse educators in light of current concerns about declining enrollment, decreasing quality of students, and students' lack of a true commitment to nursing. Dunnington (1965) asserted the following:

A student pursuing an education in the field of nursing who comes up against the realities of nursing in a practicum situation may well decide to reject or change her vocational choice if the perceptions which she receives in the practical setting are not congruent with the perceptions she holds of her self. (p. 2)

Thus, the perceptions which students hold about nursing and the role of the nurse have been and continue to be a legitimate area of concern to nurse educators.

In a study designed as a follow-up to Dunnington's (1965) and focused on the relationship between the students' (N = 119) and faculty members' (N = 14) perceptions of the role of the nurse, Anderson (1967) reported that more advanced students (i.e., juniors and seniors) were closer to faculty criteria than less advanced (i.e., freshman and sophomore) students, with the freshmen being very different, not only from the faculty but from other students as well (regardless of whether the freshmen were or were not academically successful, incidentally). Freshmen in this study did not have a realistic perception of the profession, according to Anderson (1967), and viewed the nurse as less intraceptive, autonomous, aggressive, and as more deferent than the faculty's view; the freshmen (and sophomores) also described the nurse as hesitating to take initiative and as following the dictates of others.
Anderson (1967) also reported that changes in role perception were greater for freshman and sophomore students, and then a plateau was observed; movement toward faculty criteria continued, but this occurred at a slower pace. This is an interesting statement; however, Anderson's study was cross-sectional and not a longitudinal one, and the basis for her conclusion in this area is questionable.

Holliday (1960) questioned the nurse-role expectations held by community members, nursing educators and nursing service personnel, and studied the qualities they identified in terms of ideal traits that they desired in their bedside nurse. She surveyed 77 hospitalized patients, 44 staff nurses, 522 graduate students in nursing education and nursing service, and 145 graduate students in non-nursing fields.

The 15 ideal traits identified by these various groups, as summarized by Holliday (1960), were as follows: tender touch, sympathetic, well-trained, empathic, anticipative, communicative, well-educated, non-specialized, neat appearance, cooperative, efficient, punctual, happy, instructive, and supportive. The trait which was rated the highest was "well-trained". This researcher reported no differences in ideal traits listed by members of the profession and those listed by consumers.

It is a sad commentary that few of the "traits of the ideal nurse" identified in Holliday's (1960) study are reflective of a true professional model, especially since these traits were identified by staff nurses and graduate students in nursing. This leads one to question just how professional are the perceptions about nursing and the role of the nurse held by these nurses who have completed a program of study in nursing.
In a longitudinal study of 134 undergraduate students (28 men in arts and sciences, 24 women in arts and sciences, 63 students in engineering, and 19 students in nursing), Izard (1962) reported on several significant changes in the nursing students. Students were administered the Edwards' Personal Preference Schedule in the fall of their freshman year and again in the spring of their senior year in college.

Izard (1962) reported a significant mean decrease in the nursing students' scores on measures of order, affiliation, endurance, abasement (i.e., feelings of guilt and inferiority), and deference (i.e., "other-directed" behavior). A significant mean increase in the nursing students' scores on the following measures was reported: autonomy (i.e., the capacity to do the unexpected, and to find rewards and satisfaction from "one's own comings and goings"), heterosexuality, and aggression (i.e., self-assertiveness, and freer overt expressions of hostility in response to threat or frustration). Such changes were similar to those found in other students in the study.

These findings were not unlike those for the entire sample, and they were seen by Izard (1962) as personality development in the direction of social and emotional maturity. They also may be considered supportive of a more professional approach to nursing.

In a three year study of drop-outs in schools of nursing, Kibrick (1963) speculated that the greatest number of drop-outs early in a nursing program would be among those students with a highly unrealistic concept of nursing. She studied 460 students from seven hospital schools of nursing and found the following: (1) there was relatively little consensus on the role of the nurse among nursing supervisors and educators with whom the students interacted in the various programs,
and (2) students who were more realistic in their appraisal of nursing were more likely to remain than were students who were less realistic.

Kibbrick (1963) made an interesting observation about those students who remained in the program and those who withdrew, regarding their views on the relationship of the nurse to the physician, patient, auxiliary workers, and others. She found that those students who withdrew resented authority and were less willing to submit to routines; they had a desire for independence and were aggressive. On the other hand, those students who remained in their program were nurturant and more submissive in their behavior; they "attained their independence by a willingness to submit to authority" (Kibbrick, 1963, p. 148).

Although Kibbrick's (1963) study is almost 20 years old, questions must still be raised about the type of behavior that is rewarded, fostered and encouraged through nursing education programs. Are students of the 1970s and 1980s and enrolled in baccalaureate programs, not hospital programs, socialized differently, or is submissiveness still fostered? Indeed, Welch's (1980) criticisms may be very legitimate. She compared the nursing profession to a dysfunctional parent concerned more with its own security and survival than with the development of its children (i.e., the profession's members), and she lamented that we often are far from helpful to one another. Indeed, she expressed great concern that:

Students may begin the process of professional education as creative, thinking people and leave as inhibited conformists, when the opposite is one of the stated purposes of an educational experience. (Welch, 1980, p. 727)

In a classic study of nursing students' images of nursing, Davis and Oleson (1964) examined the concept of professional socialization,
particularly the students' assimilation of faculty values and outlooks regarding nursing. The researchers hypothesized that as students progressed through the program, they would come increasingly to discard lay and traditional images of nursing for professionally more advanced images.

Davis and Oleson (1964) surveyed 75 students when they entered the University of California School of Nursing, San Francisco, and upon completion of the first year of that three-year curriculum. They found that after one year, students were more likely to ascribe characteristics such as the following to nursing: originality, innovation, creativity, imagination, and insight. These were attributes many or all faculty said they emphasized. Concomitantly, there was less of a tendency to ascribe to nursing bureaucratic characteristics such as ritual and ceremony, close supervision and direction, and clear-cut lines of authority. Interestingly, there also was a decrease in the students' views of nursing as involving or requiring solid intellectual content even though this was an area all faculty said they emphasized.

Recognizing the ambiguousness of their data, Davis and Oleson (1964) suggested, nevertheless, that:

It is perhaps not unreasonable to suggest that while first year baccalaureate students prove highly receptive to certain professionally advanced characterizations of nursing, they also show some reluctance about relinquishing many of the lay images that they brought with them at entry. (p. 11)

Thus, while faculty exert a significant influence on the students' image of nursing, this influence is far from uniform.

In a follow-up study to this one, Oleson and Davis (1966) found that from entry to graduation, a portion of students maintained certain
lay images of nursing in the face of discrepancies between their image and the image of nursing to which they were educationally exposed. This leads one to question the overall impact of the educational program in this area of perceptions/images.

In 1964, Lande conducted research to gain information about the factors that influence the perception of nurses and nursing of female seniors attending Roman Catholic high schools in New York City and to determine their orientation toward nursing as a career. She surveyed 934 students in twelve schools: 19% were nursing aspirants, 39% had never wanted nursing as a career, and 42% had considered and then rejected nursing as a career.

The majority of the subjects in Lande's (1964) study felt they were average students, but interestingly, nursing aspirants tended to consider themselves low and students in both other groups as high achievers. Lande (1964) reported that 73% of the group had a concept of nursing characterized by "Dedication to Service", 6% characterized nursing as "Intellectually Challenging", and only 1% characterized nursing as "Requiring the Ability to Lead". Data such as these provide a picture of how students perceive nursing and the role of the nurse while they are in high school; sadly, this "picture" is not a very professional one.

Based on the assumption that students come to nursing programs with a set of pre-established attitudes about nursing and that those attitudes are subject to change during the educational program, Pierce (1965) studied first- and third-year students in degree and diploma programs as well as pre-nursing candidates. A cross-sectional study of the perceptions of nurses and nursing held by a total of 554 nursing students revealed that students did move from a more traditional view to a more
contemporary view of nurses and nursing, and that change in perceptions was greater in the degree program than in the diploma program. Despite these "positive" changes, Pierce (1965) reported that a number of third year students still saw the nurse as working under rigid discipline, being required to take and follow orders more, and being more obedient and abiding by more rules and regulations than women in other occupations.

In a study of 1,301 girls in their senior year in one of 41 Vermont high schools, Woodruff (1969) found that most students saw nursing as extremely humanitarian and that the majority of those students in the sample who were interested in nursing as a career (N = 207) chose nursing because of this. Interestingly, Woodruff (1969) also reported that some of the girls studied "rejected nursing on the basis of their perception that nursing permitted too little use of the imagination and required little intelligence" (p. 149). It is indeed unfortunate that nursing does not attract young men and women who want intellectual stimulation and challenge.

Davis (1969) also reported that the nursing students in his study provided self-descriptions and descriptions of a "good nurse" which included submissiveness, the ability to be subordinate, and having no or limited leadership qualities.

In 1969, Frank reported on a study which had been designed to determine the extent to which the vocational image of nursing held by college freshman women was consistent with the vocational image advanced by the profession. She limited the investigation of vocational image to several areas: (1) the nature of the work performed, (2) the abilities and characteristics required in nursing, (3) the education
needed to prepare for nursing, and (4) the status, prestige and economic characteristics associated with the work role of the nurse.

Her review of related literature led Frank (1969) to the following conclusions drawn by other researchers regarding the image of nurses and nursing: nurses are assistants to the physician, nurses have low intelligence, nurses are scientists who wear white and who work with instruments, nurses take and follow orders more than women in other occupations, nurses are subject to "being obedient", and nursing involves unpleasant situations, menial tasks and strenuous work. These views of the nurse and nursing were expressed by nursing students, Registered Nurses, head nurses, patients, physicians, and/or friends of nurses. Meleis and Dagenais (1981) later summarized this traditional view of nursing and nurses as follows:

Nursing has always been an occupation with predominantly feminine characteristics, and it still is stereotyped by nurturing roles such as those of wife and mother. Nurses are expected to serve the patient and the physician, to be caring, supportive, altruistic, and sacrificing. In addition, women are seen to be more affective than cognitive, as well as more humanistically oriented; they are thought to apply rather than to create knowledge, and to be fearful of success. (p. 163)

Frank (1969) surveyed 643 freshman students enrolled in seven colleges and universities in the New Orleans area about their image of nursing. Four percent of these subjects had already chosen nursing as a career, 48% had considered nursing as a career but did not choose it, and 48% had never considered nursing as a career.

In comparing the subjects' responses to the Image of Nursing questionnaire with those of nurse educators (whose views were assumed
to be representative of those of the profession), Frank (1969) reported the following: in all sub-categories (i.e., the nature of the work performed, etc.) and overall, the student mean scores were significantly lower than those of the educators \((p < .001)\). She concluded that the image of nursing held by freshmen is inconsistent with the image advanced by the profession.

Interestingly, Frank (1969) also found that the same findings held true for the group of students as a whole as well as when the group was broken down according to whether or not they has (1) chosen nursing, (2) considered but did not choose nursing, or (3) never considered nursing as a career. Apparently, all students held similar images. What is discouraging about this finding is that the students who chose to study nursing had "negative", very traditional, very stereotypical images and they chose to enter the field anyway -- as if they liked and wanted to prepare for such a dependent, unthinking role.

Very interesting data would have been made available to the field of nursing and nursing education had Frank (1969) tested the same subjects in their senior year to determine whether those who studied nursing changed significantly in their image of nursing in comparison to those who did not study nursing. Such data could have served as an "evaluation" of the nursing program in terms of the development of perceptions about nursing.

In addition to the images reported above, for the subjects in Frank's (1969) study, there was "a denial of nursing as requiring high scholastic ability, decision making ability and offering the opportunity for creativity and originality" (p. 165). They also, almost unanimously, saw nursing as requiring tasks that more often than not are associated
with unskilled and semi-skilled occupations rather than with a college education, namely menial tasks, strenuous work, and unpleasant situations.

In her study of beginning practitioners' perceptions of the adequacy of their educational preparation for selected nursing functions, Large (1970) listed nine professional functions. These functions are reflective of the professional model and are consistent with those espoused by the profession and by baccalaureate nursing educators. The subjects in Large's (1970) study (i.e., 128 new graduates) were in agreement that these behaviors were relevant to and important for professional practice.

Admittedly, the study by Eron (1955) cited earlier is old and the relevancy of the results today may be questionable. However, a more recent study also focused on one of the same concepts studied in 1955, namely authoritarianism. In designing a study on nursing students' creativity, Eisenmann (1970) began with the following assumption based on his review of the literature:

> It is possible that there is something in the nurse's training which leads her to behave in a rigid, or conversely, in a flexible fashion while performing her duties. (p. 320)

He conceptualized creativity and authoritarianism as opposite ends of one continuum and reasoned that if the need for order decreased and a need for autonomy increased, then an increase in creativity would be expected. Likewise, if the nurse is frequently inflexible and dominated by adherence to rigid states, one would anticipate a decrease in creativity. These concepts can be likened to Perry's (1970) categories of Dualism and Relativism.

Eisenmann (1970) studied 226 female nursing students in two schools in Philadelphia -- 152 freshman, 44 junior, and 70 senior students.
He found -- through his cross-sectional study -- that originality declined as students' class standing increased, that is, freshmen were more creative than juniors who were more creative than seniors ($p < .01$). Through his longitudinal data (60 of the freshmen were tested again four years later, in their senior year), he also found a significant decline in originality from the freshman to the senior year ($p < .001$).

Eisenmann (1970) made the following two conclusions which are of great interest in light of the data reported for this current study regarding cognitive development:

Originality may be thought of as either learned behavior or as a form of role-defined behavior. In either case, it seems that subjects in the present study were socialized into a less original orientation. (p. 323)

Since it seems unreasonable to think that originality can just disappear, the most reasonable explanation of their lowered scores on originality might be that their personal set has changed to a greater emphasis on doing things "the right way". (p. 324)

The findings and conclusions of Eisenmann (1970) indeed raise some very interesting questions concerning the nature of educational programs in nursing and the types of nurse behaviors which are fostered, modeled, and perhaps even rewarded.

Knox (1971) recognized that "the transition of the novice to the professional is initiated in the professional school and occurs, in part, through interaction with teachers and members of the occupational discipline" (p. 88). In light of this, she sought to describe the development of one part of this transition process, namely the development of nursing students' conceptions of the role of the nurse.

Two hundred fifty three students completing the first year of the nursing major and 153 senior students in six nursing programs in California
were surveyed. Knox (1971) reported that seniors had significantly higher professional conceptions of the role of the nurse and had significantly lower bureaucratic conceptions of the role of the nurse than did first-year students. Both groups of students saw hospitals as more bureaucratic; however, this led to greater discrepancies for the seniors than for the neophytes since the seniors had more of a professional conception of the role of the nurse.

In 1971, Collins and Joel reported on a study of 231 students in a baccalaureate program: sophomores, juniors, seniors, and the previous year's graduates. They noted that the students lacked a clear-cut professional image about nursing, lacked concern, and had a "don't really care" approach to nursing as a career. Many of the subjects maintained a traditional view of the nurse as task-oriented, a nurturer, a comforter, and concerned with the accurate performance of procedures and with carrying out the physicians' orders, a view which Collins and Joel (1971) claimed is "inconsistent with the professional model advanced in baccalaureate programs" (p. 457). This latter model includes characteristics such as independence in action, an eagerness to experiment, to innovate, to question, and a willingness to assume responsibility for one's own behavior.

The data presented by Collins and Joel (1971) indicated that subjects held a highly technical orientation to nursing, and this led them to the following question: "Is the traditional image of the nurse as a 'giver' of care so strong that it cannot be tempered by a professional educational background?" (p. 457).

Although more than one-half of the subjects in this study indicated they had an academic goal beyond the baccalaureate degree and three-
quarters of them planned to join the American Nurses' Association, three-fourths also disagreed with the questionnaire item which implied that nursing entails a lifelong commitment to practice. In light of all their findings, Collins and Joel (1971) warned that "if the professional model fails to replace the lay image, we may well be out of business within ten years" (p. 459). This is a legitimate concern for nursing if the traditional image of nursing is unable to be changed. However, although the traditional image seems to exist in entering students, other studies (as reported herein) provide evidence that it does change during the program; thus, Collins and Joel's (1971) warning may not signal the death knell for nursing.

One study moved beyond the mere reporting of a view of nursing and the nurse to observing nurses in practice as they implemented their professional role. Tanner (1974) examined the behavior of nurses caring for patients with myocardial infarctions who were in the coronary care unit. This study was designed to determine whether professional nurses recognized cues to impending cardiac failure and took appropriate action. She concluded, based on her observations of and interviews with 15 baccalaureate-prepared nurses, that the nurses did not observe all the cues exhibited by the patients and that their actions seemed to have been guided more by the routines of the coronary care unit than by the cues they observed. Unfortunately, while the image of the nurse may change to be more in alignment with the profession's image and expectations, nurses' actions in Tanner's (1974) study did not reflect professional behaviors.

In a study of the process of adult socialization, Sczekan (1976) examined the process by which students acquire the knowledge, skills,
attitudes, values and culture of professional nursing and are socialized into the occupational role of nursing. She administered an attitude/value questionnaire and a respond-to-a-nursing-situation questionnaire to 539 students at the University of Alabama, Birmingham.

Scezkan (1976) hypothesized that the educational program served as a major socializing influence and, thus, with progression in the program, it was expected that students would demonstrate change indicating the "taking on" of characteristics representative of occupational members. She found that as students progressed in the program, they were more likely to respond to a hypothetical nursing situation in a way which expressed greater self-responsibility and a greater occupational risk-taking, and they were more likely to endorse the benefits of continuing education than were students with less "academic investment".

Rudov, Wilson and Trocki (1976) conducted a survey of 2,057 high school seniors in Pittsburgh, Tallahassee and Arizona to assess their attitudes toward and information about nursing as a profession. This information was used primarily as the basis for recruitment and guidance programs. These researchers found that the majority of students thought that nurses performed low level health care tasks, received a good deal of personal reward, and thought a nursing career required a considerable amount of education, although they were unsure as to what that education entailed.

However, when "professional" tasks were examined specifically, very few students identified them as tasks nurses spent much of their time doing. For example, only 8% of the sample identified "Discuss nursing care with the physician", 2.4% identified "Plan nursing care with the family", and 7% identified "Attend professional conferences" as activities
in which nurses engaged. From these responses, it would seem that the students in this study were not fully aware of the professional component of the nurse's role and if they were to enter a nursing program, they would do so with a more traditional view of nursing and the role of the nurse.

In 1977, Leverson undertook a study to identify relationships among background characteristics, career orientation, work values, and expected work satisfaction of 681 females enrolled in a basic baccalaureate nursing program in the City University of New York. The sample consisted of 200 freshmen, 174 sophomores, 180 juniors, and 127 seniors. She found that students who were more career-oriented also valued more of the intrinsic work motives including intellectual stimulation, independence, achievement, altruism, management and creativity than students who were less career-oriented. 24% of this sample valued career more than marriage, 11% valued marriage more than career, and 64% valued career and marriage equally. Leverson (1977) concluded that:

> The development of a professional self-concept results from a complicated chain of background factors, perceptions of nursing and values interactions resulting in value and role conflicts, ambivalence and compromise. (p. 3)

Shortridge (1977) undertook a study to describe attitudes toward professional nursing behaviors of entering freshman and graduating senior baccalaureate nursing students since "favorable attitudes toward professional behaviors are central to learning the knowledge and behaviors necessary for professional practice" (p. 3). She administered a questionnaire to 339 freshman and 332 senior students in which they were asked to agree/disagree with statements about professional behaviors of the nurse. These behaviors were derived from literature on the professional
model and characteristics of a profession.

Shortridge (1977) reported that there was a "strong degree of association between the educational process and the development of more favorable attitudes toward nursing" (p. 118). Seniors scored higher than freshmen on all but four of the 36 items on the questionnaire (these four items being related to a service orientation in nursing and to the professional nurse as a giver of direct bedside care), and they scored especially high on items dealing with autonomous behavior, such as acting as a change agent, engaging in independent practice, collaborating with other health professionals, and teaching nursing staff members. Neither freshman nor senior students held a favorable attitude toward research as a behavior for professional nurses. Such findings led Shortridge (1977) to conclude that although the educational experience does seem to foster the development of more favorable attitudes among students toward professional behaviors, much greater attention must be paid to this area of the students' development and opportunities must be planned for students to engage in such behaviors.

Moore, Decker and Dowd (1978) studied baccalaureate nursing students' identification with the women's movement. Through their study of 200 nursing students (22 freshmen, 65 sophomores, 54 juniors, 36 seniors, and 23 graduates) and 91 non-nursing students in the same university, they found that:

Nursing students enter the program as traditionally oriented young people without a strong career commitment, a prerequisite to their becoming truly professional nurses ... [and] ... despite repeated and extensive exposure to a variety of professional nurses, the nursing students saw essentially the same image as those who had only a general public variety of exposure. (pp. 294-295)
Apparently, the nursing students in this study did not enter with a professional view of nursing, nor did they have such a view upon or after completion of the program. Indeed, Moore et al. (1978) concluded that:

Perhaps professional nurses, while accepting intellectually the ideals of career commitment, self-direction, and professional independence, behave according to a more traditional patterning. (p. 295)

Using the definitions and characteristics of professionalism as a framework, Kielenen (1979) studied the professional attitudes of basic generic (N = 456) and Registered Nurse (N = 96) students within three months of graduation from a baccalaureate nursing program in Massachusetts. She found no differences between the two groups of students overall or when they were examined in relation to age, previous work experience, or any other variable. She did report that the attitudes held by the students in this study were professional in nature. Indeed, Kielenen (1979) concluded that:

Baccalaureate nursing students at the point of graduation have attitudes which are professional in nature; and there is no difference in the professional attitude scores of basic generic and registered nurse transfer students. However, aspects of a concept of professional nursing are not well understood and/or accepted by baccalaureate senior students. (p. 4)

These "aspects" to which Kielenen referred were the following: (1) who judges nursing competency and performance (students seemed to think physicians and other health professionals can and should judge nurses), (2) the priority given to consideration of client needs (the students felt hospital policy adherence is as important as patient needs), (3) the reason for including biological sciences in a baccalaureate nursing curriculum (they thought it was to understand the medical diagnosis
and treatment), (4) licensing examinations for nursing programs (the subjects supported one examination for all types of nursing graduates), and (5) the source of rewards and satisfactions in nursing (the students did not see rewards from helping others as being more important than those from money or status).

Kielenen (1979) recognized that "since behavior follows and is congruent with the attitudes and beliefs which one holds, the attitudes regarding professionalism need to be questioned" (p. 2). She recommended future studies in this area and suggested research be conducted to describe where and when professional socialization occurs and when and where professional attitudes are acquired.

Mannetti (1980) also studied the attitudes toward professional nursing behaviors held by Registered Nurse students upon entrance and completion of a baccalaureate nursing program. Using a framework of attitude change and professionalism, and using Shortridge's (1977) instrument, Mannetti (1980) tested 368 Registered Nurse students in 12 programs in New York, New Jersey and Connecticut: 197 were in the first semester of the program, and 171 were in the final semester of enrollment.

The findings reported by Mannetti (1980) were that seniors had a significantly more positive attitude toward professional nursing behaviors than entering students did, and that the most positive attitudes were expressed in response to items on freedom and individual responsibility in nursing practice, collaborative actions, the professional nurse acting as a change agent, and participation in continuing education. However, the senior students viewed all nurses as leaders in nursing care and saw no differences in the practice of nurses with different
educational backgrounds. They also had very strong beliefs in the professional nurse as a provider of direct patient care and expressed unfavorable attitudes toward professional nursing behaviors of managing a case load of clients by writing nursing orders, delegating tasks, and directing and evaluating the nursing care of others. Participation in professional organizations and in nursing research were not viewed as favorable as was expected.

The difference in mean scores for entering and graduating seniors in this study (\(X = 129\) and \(X = 133\), respectively, on a 170-point scale) were significantly different (\(p < .01\)), indicating the influence of the educational process on the development of professional attitudes. Mannetti (1980) recognized that "the baccalaureate nursing program is expected to provide a climate which fosters the development of positive attitudes toward professional nursing behaviors" (p. 126) and suggested further study to determine the most effective means to promote the development of professional attitudes among Registered Nurse baccalaureate nursing students.

Till (1980) asserted that "the feminine image of nursing and the image of nursing currently advanced by leaders of the profession are incompatible" (p. 295). This feminine view characterizes nurses as submissive and dependent, possessing high religious and low economic values, and having a high social interest. Till (1980) reported on a study of 56 female baccalaureate students at entry level and 36 female baccalaureate students at exit level, some of whom had more feminine traits and others of whom had more masculine traits. She reported no differences between students' image of nursing in terms of their sex-role identity. She did
find that exit students had a better image of nursing than did entry subjects, but neither group's image was congruent with that advanced by the profession.

In 1980, Rothberg conducted a survey of 148 junior and 96 senior baccalaureate nursing students to describe their perceptions of the methods of socialization and relate that to their perception of their competence in patient care aspects of the nurse role. She claimed that "socialization in each discipline includes internalizing [the] cognitive structures which are the ways of solving problems distinctive to that group" (Rothenberg, 1980, p. 61) and that "every discipline has its own cognitive structure used to provide a theoretical framework for practice" (p. 60).

The subjects in Rothenberg's (1980) study reported that the methods of socialization which they perceived having been used most were course content, faculty example, and patient interaction; those used least were examples by nurses in the field, agency procedures, and problem solving. Their preferences for the methods of socialization were that patient interactions and faculty example be used more than they were and that course content be used less than it was. Most of the students in this study preferred other-directed methods of socialization over self-directed methods.

Regarding their competence in the nursing role, Rothenberg (1980) reported that the subjects in her study felt least competent in using judgment, adapting or modifying care, collaborating with patients and families, and being effective in "risky" situations related to emergencies or administration of medications. The seniors perceived themselves as more competent than juniors. There was no relationship found between
the student's perceived competence in patient care aspects of the professional nurse role and the perceived or preferred use of self- or other-directed methods of socialization. These data provide some "food for thought" regarding the role of faculty in enhancing the development of students' competencies and their perceptions about their professional nursing role.

Studies such as those cited herein provide evidence that students in baccalaureate nursing programs frequently take on more characteristics of professionals as they progress through the program. And many nursing leaders claim that nursing has made great advances in its development as a profession. For example, Peplau (1981) recognized that nursing has persisted in its development as a profession despite many obstacles and that it has evolved in light of and despite societal impacts. She asserted that nursing has the very difficult task of combining the humanistic perspective with the characteristics of the professional aim, a task which no other profession has completed and one with which few other professions need to concern themselves. She contended that successfully achieving this combination is nursing's main dilemma today, and not that of meeting the standards set through the characteristics.

However, some authors question whether nursing has achieved the status of a true profession and whether nursing education is doing all that it can in this area. Sleicher (1981), for example, argued that nursing is still less than a profession, especially in several areas such as the commitment of its practitioners, the development of a distinct body of nursing knowledge based on research, the autonomy of its practitioners, evidence that nursing's service is beneficial to patients, and the multiple educational programs to prepare nurses to enter practice.
She claimed that these problems may be due to the individuals who are attracted to nursing (i.e., those with more passive characteristics -- as has been evidenced in the studies reported herein) and the hospital environment (which rewards non-professional behaviors and the adoption of bureaucratic values, and which permits and even encourages physician control, lack of assertiveness, and lack of research and scholarship).

Stuart (1981) also asked how professionalized nursing is. She examined nursing in terms of each of the characteristics of a scale of professionalism identified previously, namely occupation, commitment, organization (i.e., common occupational interests as reflected through professional organizations), education (including minimum preparation, research, and theory construction), service orientation (including control over setting standards), and autonomy. Stuart recognized that nursing has met several of these expectations, but education and autonomy are major areas of weakness; thus, nursing merits the claim of a semi-profession or an emerging profession.

Stinson (1969) carried this line of criticism even farther when she challenged the assumption that nursing is undergoing a process of professionalization by testing the thesis that nursing is undergoing a process of depersonalization. She reviewed the literature to compare nursing in the 1920s with nursing in the 1960s, focusing particularly on the interrelatedness of the concepts of autonomy, a knowledge base, a code of ethics, and "altruistic-type" behavior.

Stinson (1969) asserted that "one thing seems clear: professionalization will not occur to any great degree unless occupational members have a strong sense of their professional identity" (p. 143). Perhaps the studies cited above as well as the current study can serve as evidence
that baccalaureate students do have a good sense of their professional identity or their perceptions about nursing.

Rodgers (1981) compared the nursing-medicine relationship to a child-parent relationship, with nursing being the struggling adolescent attempting to "separate from a parent who actively discourages individuation" (p. 480). She specified certain requirements if nursing is to achieve this independence, including the development of leaders who are secure in their field and who:

have a secure professional identity and a genuine tolerance of ambiguity. The person who cannot tolerate uncertainty or the unknown can never exercise true leadership and power. (Rodgers, 1981, p. 480)

If baccalaureate nursing programs are to prepare such leaders, they must be designed to attend to the development of the whole student and to consider the student as an holistic being. Such an approach provides a theoretical basis for the consideration, in the current study, of the relationship between the students' cognitive development and their perceptions about nursing as a profession.

The Concept of Holism

Holistic care of patients has been a recurrent professional theme; yet the application of this concept to the development of members of the nursing profession is discouraged and even punished. (Welch, 1980, p. 727)

Froberg and Parker (1976) noted that "[Perry's theory] suggests that intellectual development and the development of self do not occur independently of each other" (p. 3). In other words, human beings are integrated beings. Indeed, in discussing this integrated nature of human beings, Royce (1973) asserted that "man is complex, but unified;
one in being, even though not simple in structure or function" (p. 885).

In our discussions of human beings and our study of man, there is a tendency to dissect him into various areas: physical functioning, psychological functioning, interpersonal functioning, and so on. However, although man may be divided into parts for the purposes of discussion and study, it is critical that the holistic nature of man as an integrated, complex being not be lost. And this focus on the holistic nature of man is, or ought to be, of concern to nurses, educators, researchers, and any person in a helping or assisting role. It is this concept of holism which provides the basis for the study of the relationship between cognitive development and perceptions about nursing as a profession.

In his book on Where Colleges Fail, Sanford (1967) lamented the fact that the student has been lost as the central concern of education. He claimed that the development of the individual as a whole is the primary aim of education, and that in order to fulfill this purpose of higher education,

> Colleges should organize all their resources in efforts to achieve it. Such planning of a total educational environment must be guided by a theory of personality — a theory in the terms of which it is possible to state specific goals for the individual, describe the interrelations of his various psychological processes, and understand the ways in which he changes under the impact of environmental influences. (Sanford, 1967, p. xv)

The concept of holism is supported by Sanford's (1967) claim that there should not be a dichotomy in education between "the intellective", which is often said to be the sole concern of educators, and "the non-intellective", that is, the rest of the person which is said to be the province of psychiatry or mental hygiene (p. xvi).
Flavell's (1963) presentation of Piaget's concept of décalage provides a basis for understanding the complexity of the individual as well as his ability to function at different levels for different tasks. Piaget articulated the concept of "vertical décalage" as the development of distinctively different levels of functioning regarding the same task (e.g., functioning at a Multiplistic then a Relativistic Position regarding class work). Piaget also articulated the concept of "horizontal décalage" as the development of similar levels of functioning regarding different tasks (e.g., functioning at a Multiplistic Position regarding the humanities and at a Dualistic Position regarding the sciences).

These intellectual operations vary among tasks because the tasks "differ in the ... extent to which they resist and inhibit the application of cognitive structures" (Flavell, 1963, p. 23). In essence, "intellectual operations never exist in isolation from a governing totality" (Flavell, 1963, p. 34), a holism. The concept of vertical décalage permits an awareness of uniformity within the apparent differences between one stage of functioning and the next; the concept of horizontal décalage permits an awareness of heterogeneity where only homogeneity might have been suspected.

Horizontal décalage is the term Piaget used to recognize the diversity which exists in the realm of human functioning. Other theorists and researchers also have recognized this diversity. Perry (1970), for example, acknowledged that a person might be at different Positions with respect to academics, religion, social life, and so on (p. 48).

Riegel (1973) also acknowledged the differences "permitted" by the concept of holism or Piaget's concept of décalage:
The skills and competence in one area of concern, for instance in sciences, might be of the type of formal dialectic operations; those in a second area, for instance in everyday business transactions, might be of the type of concrete dialectic operations; those in a third area, for instance in artistic activities, might be of the type of preoperational dialectic intelligence; finally, those of intimate personal interactions might be of the sensory-motor and, therefore, of the original dialectic type. (pp. 365-366)

Harvey et al. (1961) discussed various modes of thought used by individuals, and they developed a four-stage conceptual systems model that described an individual's progression from concrete to more abstract modes of thinking. They suggested that an individual possesses a variety of conceptual systems, each corresponding to a different content area such as the classroom learning environment, career, family, and religion. They suggested further that since development takes place through interaction with the environment, and since the environment provides different stimuli in different areas, it is possible for an individual to be on different levels in their approach to knowledge and events in these various areas or conceptual systems.

In a discussion of the need for human beings to take on various "meaning perspectives", or frames of reference, as they experience and expand their world, Mezirow (1977) recognized the multi-dimensionality of individuals. He noted the different kinds of learning in which individuals engage -- learning how to do something, learning how something works, learning what to expect of one, learning who one is and what one's values are, and learning how one is a part of one's environment. These areas of learning can be likened to various areas of development, and Mezirow (1977) encouraged educators (particularly of
adults) to study the ways of identifying meaning perspectives and areas of development in order to "identify [their] phases and the factors which precipitate, facilitate, inhibit and reinforce movement" (p. 12).

Loewinger (1966) also acknowledged the complexity of individuals and suggested that "human development can be divided into four main streams or channels: physical, psychosexual, ego, and intellectual development" (p. 195). She conceptualized the "continuum of ego development [as resembling] what [had] been described elsewhere in terms of moral development, character development, interpersonal integration, relatability, conceptual systems, intraception, and so on" (Loewinger, 1966, p. 195).

Several researchers have built on these ideas and studied the relationships between and among these various aspects of human development. Indeed, Loewinger (1970) has stated that all measures of ego development will correlate regardless of the theory from which the measures come. For example, Farrell (1974) studied the relationship of ego development (using Loewinger's measures) to intellectual and ethical development and found a significant positive but low correlation. In addition, as a result of their research, Goldberger et al. (1978) concluded that Perry stages are clearly related to level of ego development ($r = .59$) and recognized "the complex interaction between cognitive and ego development" (p. 8). They also found that Relativistic students were "much more responsive to criticism and able to use criticism in creative achievement" (Goldberger et al., 1978, p. 10); they generally were viewed as more mature, more serious, and more academically ambitious.
Cauble (1976) reported on a study of 45 female and 45 male undergraduate students (18 to 23 years of age) in which the interrelationship among formal operations, ego identity, and principled morality were investigated. She found that Piagetian formal thinkers made principled judgments more often than did concrete thinkers, but the relationship between level of identity achievement was not significant over the four levels of formal operations or over the two morality stages. She concluded that the data suggest formal operations may be necessary for making principled judgments, but they are not a sufficient condition for same.

By far, the greatest amount of research in the area of the interrelation among various areas of human functioning and human development has been directed toward an examination of the relationship between intellectual development and moral development. Piaget suggested that structural changes are reflected first in logical reasoning, and later in social and moral reasoning. Kohlberg (1972) proposed that the attainment of a logical cognitive stage -- the ability to reason logically -- is a necessary, but not sufficient, condition for the attainment of a corresponding moral stage, that is, principled morality. This latter proposition was supported also by Walker and Richards (1979), Keasey (1975), and other researchers.

Tomlinson-Keasey and Keasey (1974) found a strong association between pre-conventional moral reasoning and concrete operational cognition. Their study provided evidence to suggest that cognitive development, moral development, and ego identity development may be intertwined. In other words, they suggested that these developments "mutually inform and support each other" (Tomlinson-Keasey & Keasey, 1974, p. 297).
Clinchy, Lief and Young (1977) studied structural differences in thinking of sophomore and senior students from a traditional and a progressive high school. Students' cognitive structures ("the ways in which they reason about moral and epistemological issues") (Clinchy et al., 1977, p. 337) were measured on Kohlberg's scale of moral judgment and Perry's scale of epistemological judgment and compared according to the type of school in which they were enrolled. Data on both dependent variables was gathered through interviews. Regarding epistemological judgment, the researchers found that (1) progressive school students scored higher than traditional school students ($p < .01$), (2) seniors scored higher than sophomores ($p < .001$), (3) there was no significant difference between sophomores at the two schools, (4) most sophomores and most traditional school seniors were at Position 3, and (5) more than 40% of the progressive school seniors were at Position 4 or 5. The authors also reported that all subjects who were scored at stage 5 in moral judgment showed evidence of Position 5 reasoning, but not all Relativists (i.e., Position 5 students) espoused principled morality (i.e., stage 5). They concluded that "growth in the epistemological domain may supply the underpinnings for growth in moral judgment" (Clinchy et al., 1977, p. 342).

While several studies have been cited in which cognitive development was shown to be a pre-requisite to moral development, Kimball (1974) proposed that cognitive development itself has a pre-requisite, namely affective development (i.e., the person's feelings, emotions). He reported a high positive correlation between measures of feeling and measures of thinking (ala Piaget) among ninth graders, but did not indicate whether affective development did, indeed, show to be a
pre-requisite to cognitive development. Koocher's (1974) study of children aged six to 15 years old also provided empirical support to existing theories of the interaction between personality and cognitive development.

Keating and Clark (1980) suggested that "a theoretically important issue is the degree to which cognitive development in different domains is coordinated" (p. 23), and they undertook a study of this issue. They hypothesized that individuals who are unable to demonstrate formal reasoning in the standard Piagetian tasks (which deal with the physical-mathematical domain) may be able to apply such reasoning to social processes to which they have a greater exposure. These researchers tested 151 students in the sixth, ninth, and eleventh grades and found that physical and interpersonal reasoning appeared not to be separate domains of reasoning. Although their hypothesis was not supported, Keating and Clark's (1980) idea is supportive of the concepts of holism and décalage, and it is worthy of continued study.

In their study of "The Mediating Role of Cognitive Development in Moral Judgment", Tomlinson-Keasey and Keasey (1974) provided evidence to support their assertion that sophisticated cognitive operations are a pre-requisite to advanced moral judgments. They then expanded this conclusion and stated the following:

At the present time there is a suggestion that cognitive development is a mediator of development in other areas, and that cognitive development is accompanied by predictable and consistent changes in other areas. (Tomlinson-Keasey & Keasey, 1974, p. 297)

Although there are no data reported which support such a broad generalization, the question of the interrelatedness of various areas of human
development is one with which educators should be concerned.

The research cited herein is reflective of a concept of "structural parallelism ... a fundamental unity of development among various domains of thought" (Walker & Richards, 1979, p. 95). This concept is comparable to the concepts of holism and décalage. Although no research has been reported in which the relationship between intellectual development and individuals' perceptions of their role functions was studied, the basic premise of the unity and holistic nature of man provides a reasonable basis to consider such a relationship.
CHAPTER III

METHOD

Introduction

This study was designed to describe the cognitive development of freshman, sophomore, junior, and senior baccalaureate nursing students and to describe the change in cognitive development of these students which occurred over the span of an academic year. This study also was designed to describe the perceptions about nursing as a profession held by freshman, sophomore, junior, and senior baccalaureate nursing students and to describe the change in perceptions about nursing as a profession of these students which occurred over the span of an academic year. Finally, the relationship between stage of cognitive development and perceptions about nursing as a profession was described through this study.

Subjects

Selection of Schools

All schools selected for possible participation in this study were accredited by the National League for Nursing. They were selected from the most recent listing of all N.L.N. accredited schools as identified in (1) the publication entitled "Baccalaureate Education in Nursing: Key to a Professional Career in Nursing 1978-79" (National League for Nursing, 1978a) and (2) the update of such programs which is published annually ("Baccalaureate and Master's", 1979).
The Deans of 79 schools in the northeast were contacted about participation in this study. Twenty two of these schools were private, sectarian; 30 schools were private, non-sectarian; and 27 were public schools. (The list of schools contacted is included here as Appendix A, and the letter which was sent to the Deans is included as Appendix B.) Of these 79 schools, responses were received from 58 Deans (73%). Twenty five of the respondents (43%) indicated an interest in participating in this study, and 23 (40%) indicated they were not interested in participating. Ten of the Deans (17%) indicated they had to present the request for participation to the faculty and/or a Research Committee of the University for approval.

Of the 25 schools in which the Dean agreed to participate, six (24%) were public schools, eleven (44%) were private, non-sectarian, and eight (32%) were private, sectarian. The percentages for the total group contacted were as follows: 26 (33%) public, 30 (38%) private, non-sectarian, and 23 (29%) private, sectarian.

In order to be able to select randomly from each class, a minimum class size of 50 students was established. Two (8%) of the 25 Deans who indicated an interest in participating did not provide class sizes when they responded; an additional seven (28%) indicated one or more classes has fewer than 50 students. Thus, 16 (64%) schools of those agreeing to participate were eligible for this study on the basis of class size.

Four schools were selected to participate in this study. The Dean of each of these schools had indicated class sizes for freshman, sophomore, junior and senior classes of 50 or more students. One school was publicly supported, one was private, non-sectarian, and two
were private, sectarian. There was a great deal of difficulty gaining
access to student class lists in the private, non-sectarian school,
and despite numerous attempts, it was impossible to contact the
students regarding their participation in this study prior to mid-
semester. This was too late for this study since much of the fall
semester has already elapsed; this school, therefore, could not be used.
Therefore, the final number of schools used in this study was three:
one which was publicly supported, and two which were private, sectarian.

Selection of Subjects

The Deans of two of the three schools utilized in this study
provided class lists for freshman, sophomore, junior and senior
students. Using a table of random numbers, 50 names from each level
were selected.

At both of these schools, letters addressed to the 200 students
selected were distributed by members of the faculty. Through these
letters, the study was explained as was the nature of participation,
and students were invited to take part in the study. (See Appendix C
for both the letter to students and the response form.) At one of
these two schools, the response forms were collected from the students
and returned to this investigator by faculty members. At the other
school, a self-addressed, stamped envelope was enclosed with the letter
of invitation, and students were asked to return the response form
directly to this investigator.

The Dean of the third school provided the addresses of the 200
students selected. The letter of invitation, including a response
form and a return envelope, was sent to each student. These students
also returned their response forms directly to this investigator.
In Table 2, data about the number of students contacted, and the number of positive and negative responses received as well as the final number of subjects, categorized by school, are summarized. As noted earlier, the subjects in this study all were volunteers.

Sample
The sample for this study consisted of 123 baccalaureate nursing students -- 29 freshmen (23.5%), 27 sophomores (22%), 34 juniors (27.5%), and 33 seniors (27%). These 123 students represented three National League for Nursing accredited baccalaureate nursing programs in the northeast. Tables 3 through 6 are summarizations about the demographic characteristics of the sample.

Instruments

Demographic Data Sheet
The demographic data sheet (see Appendix D) was administered to specify student level -- freshman, sophomore, junior, or senior -- and to facilitate determination of any relationship between specific variables and cognitive development and/or views about nursing scores. The variables identified were age, sex, ethnic identity, marital status, student status (full-time or part-time), Scholastic Aptitude Test (SAT) scores, occupation, post-high school educational experience, parents' and spouse's occupations, and description of the conceptual/theoretical framework around which the nursing program in which the student was enrolled was organized. Each of these is described briefly.

Age has been studied in relation to stage of cognitive development (King, 1977; Kitchener, 1977; Strange, 1978). Since nursing students
Table 2

Number of Students Contacted Regarding Participation in the Study, The Nature of Responses from Students, and Final Number of Subjects, Categorized by School

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<td>1</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>33</td>
<td>22</td>
<td>29</td>
<td>15</td>
<td>99</td>
</tr>
<tr>
<td>School #3</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>196</td>
<td>16</td>
<td>14</td>
<td>23</td>
<td>29</td>
<td>82</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>31</td>
<td>34</td>
<td>21</td>
<td>19</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>148</td>
<td>148</td>
<td>145</td>
<td>589</td>
<td>60</td>
<td>77</td>
<td>68</td>
<td>86</td>
<td>291</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>21</td>
<td>84</td>
<td>63</td>
<td>73</td>
<td>57</td>
<td>277</td>
</tr>
</tbody>
</table>

Fr = Freshmen       So = Sophomores       Jr = Juniors       Sr = Seniors
Table 3
Level, Student Status, Age, Sex, and Ethnic Identity of Subjects in Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>29</td>
<td>23.5</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27</td>
<td>22.0</td>
</tr>
<tr>
<td>Junior</td>
<td>34</td>
<td>27.5</td>
</tr>
<tr>
<td>Senior</td>
<td>33</td>
<td>27.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Student Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>114</td>
<td>93.0</td>
</tr>
<tr>
<td>Part-time</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-20 years</td>
<td>72</td>
<td>58.5</td>
</tr>
<tr>
<td>21-25 years</td>
<td>39</td>
<td>32.0</td>
</tr>
<tr>
<td>26-29 years</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>30-39 years</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>40-49 years</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>50+ years</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>121</td>
<td>98.5</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Ethnic Identity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Caucasian</td>
<td>120</td>
<td>97.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Oriental</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Table 4

Marital Status, Registered Nurse Status, Post-High School Education, and Ability to Identify School's Theoretical Framework of Subjects in the Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>49</td>
<td>40.0</td>
</tr>
<tr>
<td>Dating</td>
<td>57</td>
<td>46.0</td>
</tr>
<tr>
<td>Co-Habiting</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Married</td>
<td>12</td>
<td>10.0</td>
</tr>
<tr>
<td>Separated</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Registered Nurse Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>Non-Registered Nurse</td>
<td>114</td>
<td>93.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Post-High School Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>93</td>
<td>76.0</td>
</tr>
<tr>
<td>Nursing Related</td>
<td>10</td>
<td>8.0</td>
</tr>
<tr>
<td>Non-Nursing Related</td>
<td>20</td>
<td>16.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Ability to Identify School's Theoretical Framework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correctly Identify</td>
<td>51</td>
<td>41.0</td>
</tr>
<tr>
<td>Incorrectly Identify</td>
<td>61</td>
<td>50.0</td>
</tr>
<tr>
<td>Unsure</td>
<td>11</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Table 5

Occupation, Parents' Occupation, and Spouse's/Fiance's Occupation of Subjects in the Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>53</td>
<td>42.0</td>
</tr>
<tr>
<td>Nurses' Aide</td>
<td>30</td>
<td>24.0</td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>26.0</td>
</tr>
<tr>
<td>Total</td>
<td>125(^a)</td>
<td>100.0%</td>
</tr>
<tr>
<td>Father's Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-Related</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Non-Health Related</td>
<td>111</td>
<td>90.0</td>
</tr>
<tr>
<td>Not Reported</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>99.5%</td>
</tr>
<tr>
<td>Mother's Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-Related</td>
<td>23</td>
<td>19.0</td>
</tr>
<tr>
<td>Non-Health Related</td>
<td>96</td>
<td>78.0</td>
</tr>
<tr>
<td>Not Reported</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
<tr>
<td>Spouse's/Fiance's Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health -Related</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Non-Health Related</td>
<td>16</td>
<td>13.0</td>
</tr>
<tr>
<td>No Spouse/Fiance</td>
<td>106</td>
<td>86.0</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

\(^a\) Two students each indicated two occupations.
Table 6

Combined S.A.T. Scores
Reported by Subjects in the Study,
Categorized by Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>570 - 1180</td>
<td>1010.69</td>
<td>128.62</td>
</tr>
<tr>
<td>Sophomore</td>
<td>770 - 1350</td>
<td>1001.88</td>
<td>171.21</td>
</tr>
<tr>
<td>Junior</td>
<td>790 - 1260</td>
<td>1019.48</td>
<td>104.29</td>
</tr>
<tr>
<td>Senior</td>
<td>910 - 1410</td>
<td>1068.67</td>
<td>107.85</td>
</tr>
<tr>
<td>Total</td>
<td>570 - 1410</td>
<td>1026.61</td>
<td>126.61</td>
</tr>
</tbody>
</table>
have not been reported as subjects in published research, a corroboration of previous findings was considered appropriate.

Sex, ethnic identity and marital status were determined primarily for purposes of describing the sample and comparing it with the population of nursing students where possible.

Student status and occupation were determined in an effort to assess whether total immersion in a student role (i.e., full-time status and no employment) and/or exposure to the work world -- in or outside of nursing -- had any relationship to stage of cognitive development or perceptions about nursing as a profession. Shortridge (1977) described a difference in attitudes toward professional nursing behaviors of students employed as nursing assistants and those working as licensed practical nurses.

SAT scores were determined for sample description purposes (for comparison with the population data in the area) and to examine the relationship between the ability to read with comprehension, to use analytical skills, and to be proficient with mathematical problems that require reading and reasoning ability (all of which are measured by the SAT) and cognitive development and perceptions about nursing as a profession. Subjects were asked to report their verbal and mathematics scores on the SAT. No attempt was made to validate the self-reported scores.

Post-high school educational experience (including whether or not the subject was a Registered Nurse) was ascertained to see if exposure to another educational institution or possibly another field of study had any impact on either major variable. Studies (Knefelkamp, 1974; Stephenson & Hunt, 1977) have been done in which the instructional
environment is designed specifically to foster cognitive development. If subjects had been exposed to such an environment previously, their cognitive development might be greater than expected. By the same token, if the previous learning environment discouraged diversity, encouraged conformity, and/or purported a limited view of the role of the nurse and of nursing, cognitive development might be less as might be views about nursing.

In order to determine the impact on the students' perceptions about nursing as a profession of a parent or spouse employed (currently or previously) in the health field, this demographic variable was included. Shortridge (1977) reported significant differences in attitudes toward professional nursing behaviors for freshmen whose family members included a physician and for seniors whose family members included licensed practical nurses.

Finally, students were asked to identify the conceptual/theoretical framework around which their nursing program was organized. The National League for Nursing (1977) requires the faculty in all baccalaureate nursing programs to organize their curriculum around some specified conceptual framework. Many programs in nursing today are using "nursing theories" as their framework based on the assumption that such an approach will enhance the student's ability to approach nursing situations in a systematic way and will help students develop a more professional view about nursing and the role of the nurse as a thinking, intellectual practitioner. No research has been reported, however, in which the relationship between the faculty's identification of a specific conceptual framework, the student's awareness of that conceptual framework, and the impact on the student's view about
nursing and the role of the nurse was explored. Since the latter is a major aspect of this study, it seemed reasonable to begin to explore this relationship by identifying the variable.

The KneWi Cognitive Development Instrument

The cognitive development instrument developed by Knefelkamp (1974) and refined by Widick (1975) consists of two essay-type questions and seven sentence completion items. (See Appendix E.) The questions are designed to achieve the following:

- tap the student's view of external standards (as a measure of dualism), of the legitimacy of alternatives (as a measure of relativism), and of interpersonal conflict (as a measure of horizontal décalage, identity issues, and commitments).
  (Knefelkamp, 1974, p. 98)

Although Knefelkamp and Widick as well as other investigators (Stephenson & Hunt, 1977; Wertheimer, 1976) have administered the sentence stems along with the essays, it has been found that responses to these items do not yield sufficient data to "stage" a respondent on the Perry Scheme continuum. Although the sentence stems were administered in this study, similar difficulties in rating them were found, and they were not used in the analysis of data. This is described in greater detail in Chapters IV and V. Indeed, Stephenson and Hunt (1977) reported the following:

- Statistical analysis of the Knefelkamp data indicated that the most reliable data is achieved from the two essays and that adding data from the sentence stems does not enhance the statistical correlations of the data or reliability of the Perry Position ratings. (p. 41)

The essays are designed to provide subjects with an opportunity to share their thinking and processing about a subject which is then
analyzed and rated. This approach is based on the work of Harvey et al. (1961) and Schroder et al. (1967) who have indicated that in complex situations, such as decision making, it is more important to consider the way in which individuals think about problems rather than the specific topics about which they are thinking or the specific decisions which they make. Thus, the actual content of the respondents' statements is not the significant consideration; rather, it is the way they think about the issues presented.

In his initial work Perry gathered his data on which to "stage" students by conducting lengthy interviews. The interviews were recorded and transcribed, and the range of responses were analyzed for "cues about the forms in which [the students] functioned intellectually, the forms in which they experienced values, and the forms in which they construed their world" (Perry, 1968, p. 10). These cues about the forms used by students gave an indication of various stages of dealing with knowledge, diversity, and uncertainty.

In their ratings of these entire interviews, the several judges involved in Perry's original study (1968) had frequently referred, on their rating forms, to identical passages which had most significance for the rating they assigned. In addition, this particular analysis of the judges' comments revealed their consensus in the rating of such passages taken out of context. These findings suggested the following:

The explication of the scheme could be illustrated by short excerpts and that a reader could be asked to place confidence in such an exposition without the burdensome context of the complete protocol. (Perry, 1968, p. 85)

These findings also lend support to the formulation of "cue sheets" (Knefelkamp, 1975) to rate students' responses and the use of such
cue sheets to assign ratings.

Time, material and other factors make the use of lengthy interviews as a data collection method very difficult. Thus, the KneWi and other models have been designed.

In order to establish the validity of using written protocols in place of interviews, several studies have been conducted using both methods and correlating the comprehensiveness and consistency as well as the "ratability" of responses to both. Leone (1976) found a .64 correlation between the KneWi and an unstructured interview. Knefelkamp (1974) reported that the KneWi correlated with an interview at .78. Rest (1976) reported a .68 correlation between his Defining Issues Test and interviews. And Wertheimer (1976) found an overall correlation of an adaptation of the KneWi protocols with interviews of .74. Wertheimer's (1976) instruments included five sentence stems, two essays and one paraphrasing exercise; the stems alone correlated with data obtained on interview at .68, but the essays alone correlated at .77.

The use of the written protocol as an instrument to collect data about cognitive development, therefore, appears to have concurrent validity. Indeed, Anastasi (1961) indicated that this projective technique approach is essential where the purpose of the measurement is to gain an understanding of an individual's way of thinking, his perception and interpretation of material, or the way he structures a situation (pp. 564 - 598). With the projective technique, the subject responds to a written or verbal stimulus to which an almost unlimited number of responses exists; this technique is used to elicit how an individual processes thoughts about an area (e.g., career, self).
Although the use of essays instead of interviews has been criticized as a method of data collection (Perry, 1980; Strange, 1978), the essay has been used quite successfully in a number of studies. Researchers have demonstrated that the essays are reliable since (1) the responses to the essays are substantive enough to be rated and the subjects "staged", and (2) scores obtained on essays given simultaneously generally are quite close to each other in scoring. In relation to this latter point, only 23 instances of a total of 246 tests (i.e., 123 pre-tests and 123 post-tests) were found in this study where the individual ratings given on two essays completed by the same subject at the same point in time were more than one stage different from each other. For example, one subject's pre-test responses were rated as follows:

**Essay A**

Rater #1: 2 - 2 - 3  
Rater #2: 2 - 3 - 3

**Essay B**

Rater #1: 3 - 4 - 4  
Rater #2: 4 - 4 - 4

(The overall cognitive development score for this subject was 3.166.)

Construct validity of the KneWi has been established by Widick et al. (1975) who found a .51 (p < .05) correlation between the Perry Position score and conceptual level or cognitive structural complexity as measured by Schroder et al. (1967) Paragraph Completion Test. In addition, the -.07 correlation found between the Perry Position score and the Minnesota Scholastic Aptitude Test score suggested that the KneWi is measuring a variable that is different from and not a direct function of general scholastic ability. The moderate
positive relationship between Perry Position score and conceptual level was found also by Meyer (1975).

The only test-retest data reported within the Perry Scheme was that of Kur fizz (1976) in her pilot studies. She did not use the KneWi but a series of eight essays, each representing one of Perry's first seven Positions (with two essays representing Position 4). Subjects were asked to (1) choose from among four statements about each essay (one statement being representative of one Position below that of the essay, one statement being representative of the Position itself, one being representative of one Position above that of the essay, and one being representative of two Positions above that of the essay); (2) rank order the eight essays according to how well each was most like their own views; and (3) reformulate each essay in their own words. Two weeks later, subjects were asked to repeat the task. Kur fizz (1975) found that "test-retest stability of the multiple choice selections was poor" (p. 132) with a slight tendency to prefer essays representing higher Positions.

The lack of knowledge of many psychometric properties of the assessment procedures used within the Perry Scheme (e.g., the KneWi) has been noted as a limitation in studies using this Scheme. However, King's (1978) review of research studies conducted within and concerning the Perry Scheme led her to conclude that despite measurement difficulties -- namely, the number of assessment procedures used to determine Position, the lack of knowledge of many psychometric properties of the assessment procedures, and the variety of rules used to rate protocols -- the evidence to date does suggest that progression through the Perry Position does occur through college. She also
concluded that the findings of studies completed to date offer preliminary evidence for the validity of the Scheme.

The Views about Nursing Instrument

The Views about Nursing measure was developed for this study. Based on a review of the literature in the areas of (1) characteristics of a profession and professionals (Blau & Scott, 1962; Flexner, 1915; Gilb, 1966; Kelly, 1975; McGlothlin, 1960, 1964; Metzger, 1975; Moore, 1970; Notter & Spaulding, 1976; Schein, 1972; Stokes, 1972; Wilensky, 1964), (2) various nursing theories and concepts (Henderson, 1966; Neuman & Young, 1972; Nursing Development Conference Group, 1980; Orem, 1981; Rogers, 1970), (3) the National League for Nursing's characteristics of baccalaureate graduates in nursing (1978b), and (4) other studies which dealt with perceptions about or attitudes toward nursing as a profession (Davis & Oleson, 1964; Frank, 1969; Shortridge, 1977), a list of 91 statements was prepared. These statements related to the nurse's roles and responsibilities, the relationship of the nurse to the patient/client, and the relationship of the nurse to the physician and other health team members.

Content validity was established through a panel of experts. Nurses were selected who held a Masters degree in nursing, who were enrolled in or had completed a doctoral program in nursing or nursing education, and who were currently teaching or had recently taught in a Bachelors or Masters degree program in nursing. A total of ten "experts" were contacted; eight completed the review and were utilized in establishing the content validity of the instrument.

The material which was sent to the panel of experts is included as
Appendix F. In summary, each person was asked to (1) respond to each item (as the subjects would be asked to respond), (2) categorize each item according to the primary concept reflected in it, (3) suggest whether each item should be retained as written, retained if revised, or eliminated, (4) comment on the appropriateness of the Likert-type format, (5) comment on the clarity of the directions on the instrument, and (6) indicate whether the overall instrument did or did not measure the variable "perceptions about nursing as a profession". A summary of their responses in each of these areas follows.

**Response to each item:** Generally, the experts agreed on their overall responses to each item; that is, 75% either agreed or strongly agreed with a statement which was intended to be a positive/desirable activity of the professional nurse, and 75% either disagreed or strongly disagreed with those statements which were intended to be a negative/undesirable activity of the professional nurse. Of all the statements, there were only 39 "undecided" responses. (The total number of responses possible was eight experts X 91 statements = 728 responses.) For those items where three or more experts disagreed with a positive statement or agreed with a negative one, the item was re-written or eliminated.

**Categorization of items:** Each member of the panel of experts was asked to identify the primary concept reflected in each item. These concepts were derived from the literature on professionalism and characteristics of a profession, and they included the following:

- **Boundaries of the Discipline:** The definition of the scope of the discipline is clear.
- **Recipient of the Discipline's Service:** The object of attention of the discipline is unambiguous.
Goals of the Discipline: The reasons why members of the discipline do what they do are unambiguous.

Relationship of the Discipline to Others: Relations among real-world elements are explicit.

Independence of the Discipline's Practitioners: Members of the discipline function independently.

Responsibility of the Discipline's Practitioners: The discipline has well-defined standards and ethical codes, and members of the discipline are responsible and accountable for their actions.

Scholarly Component of the Discipline: The discipline has a unique body of knowledge and a scholarly component.

Autonomy of the Discipline's Practitioners: Members of the discipline are autonomous.

Commitment of the Discipline's Practitioners: Members of the discipline have a lifetime commitment to it.

Activities of the Discipline's Practitioners: The discipline offers a unique service to society, and the characteristics of what members of the discipline do are unambiguous.

The purposes of asking the panel of experts to identify the primary concept in each item were to ensure that all concepts were represented and that adequate attention was given to each concept.

On 39 of the 91 questions, six, seven, or all eight experts agreed on the primary categorization of the item. On an additional 32 items, at least 50% of the experts agreed on the primary concept reflected in it. Regarding the remaining 20 items, fewer than 50% of the experts agreed on the primary concept evident in the statement.

Retention, revision, or elimination of items: There were a total of 17 items which at least one expert suggested be eliminated; six of these were among those about which less than 50% of the experts agreed on the primary concept evident in the statement. Thirteen items were suggested to be eliminated by only one of the eight experts, two items were suggested to be eliminated by two different experts, and two items
were suggested to be eliminated by three experts. In no instance did more than three of the experts suggest elimination of an item.

Of the remaining 74 items, all experts agreed to retain 29 of them, 75% of the experts agreed to retain 27 of the items, and 50% of the experts agreed to retain 18 of them.

All items that were marked "retain if revised" by even one expert were re-read. In accordance with pre-established criteria, if 50% or more of the experts agreed with positive statements or disagreed with negative statements, and if 50% or more of the experts agreed on the primary concept reflected in the statement, and if at least 50% agreed to retain the item as written, no revisions were made. For those items which did not meet these criteria, the statement was revised if the experts were congruent regarding the nature of the revision. Those items which did not meet the above-stated criteria and/or about which experts suggested a variety of revisions were eliminated.

As a result of this process, six of the original 91 items were eliminated, and 17 items were revised. Sixty-eight items were retained as originally written. A total of 85 items were included in the instrument used in the pilot testing.

Use of the Likert-type format: All but one of the experts agreed that the Likert-type format was an appropriate one to measure this variable. The one person who disagreed commented that "on some items I wanted to both strongly agree and disagree -- having to make a choice was difficult." The Likert format was retained.

Clarity of directions to subjects: Seven of the eight experts indicated the directions to the person responding to the items were clear. One person commented that emphasis should be placed on reading each
statement carefully since many of the items included only one or two words which "made a difference in responding with 'strongly agree' or 'strongly disagree'". The directions were revised minimally to incorporate this suggestion.

**Measurement of the variable:** All experts agreed that the instrument measured the variable, "perceptions about nursing as a profession", and that the framework of characteristics of a profession and of professionals was a legitimate one within which to develop an instrument to measure "perceptions about nursing as a profession".

**Scoring Procedures**

**The Cognitive Development Instrument**

The instrument used in this study to measure cognitive development, consisting of two essay-type questions, was scored by trained raters using standardized "cue sheets" (Knefelkamp, 1975; see also Slepitza, 1976, pp. 54 - 57) to determine the respondent's Position on the Perry scale. In order that movement from a previous Perry Position to movement toward a subsequent Position be acknowledged, each protocol is given a three-digit rating. For example, a respondent who is clearly at Position 3 is rated as 3-3-3; a respondent who is basically at Position 3 but still shows evidence of Position 2 is rated as 2-3-3; and a respondent who is basically at Position 3 but shows some evidence of movement to Position 4 is rated as 3-3-4.

An independent rating group was employed to score the cognitive development responses. This group consisted of four individuals trained as Perry raters who had done similar protocol ratings for other researchers and who had established two rater teams with high inter-rater reliability.
of $r = .86$ and $r = .75$, respectively (Zachary, 1980).

All essays were separated by the particular form of the essay
(see Appendix E) as follows:

Form A -- "Best Class" Essay
Form B -- "Design a Learning Environment" Essay
Form C -- "Last Decision" Essay
Form D -- "Area of Uncertainty" Essay

Since the essays had been sent to subjects randomly, each group
of essays (e.g., Form A) was likely to include subjects from all four
levels and all three schools. It was also true that each group of essays
represented both pre-test and post-test data. The raters, therefore, did
not know anything about the subjects whose essays they were rating except
as was evidenced in the essay itself (e.g., "As I begin my senior year ... ").
Such identifying clues could not be edited out of the essays since the
use of such details in the subject's responses are cues to the raters
for "staging". (This approach also was used by Stephenson and Hunt, 1977.)
However, the raters were blind to the intent of the study, and it was
felt that such "clues" would not influence their ratings.

After separating the essays according to their particular form
(i.e., A, B, C, or D), they were divided at random into two groups; one
group was sent to rating team I, and the other group was sent to rating
team II. Each rating team consisted of two raters who were paired
according to inter-rater reliability reached prior to this study.

Each rater was sent a separate sheet for recording scores; thus,
each person rated the protocols independently of the other member of the
rating team. The ratings of these scores were recorded independently
also. After all the scoring was completed by a team, the raters compared
scores. If the total of the three-digit rating for each essay by each
rater was within two, the ratings were accepted as comparable. (That is, if rater #1 scored an essay as 3-3-3 for a total of 9, and rater #2 scored the same essay as 2-2-3 for a total of 7, the scores were accepted.) If the totals of the three-digit ratings for each essay by each rater was greater than two (e.g., 3-3-3 and 4-4-4), a third rater was called in to review and rate the essay. In these instances, all three raters discussed the essay and agreed upon a score for it. Calling in a third rater to resolve rating differences was required for only one essay in this study. The rationale for the use of the two-point agreement criterion also was set by King (1977) and Strange (1978) and was based on the consideration that a difference of three or more points would theoretically represent a difference of a full Position on the Perry continuum.

The inter-rater reliability for team I in this study was \( r = .84 \). That for team II in this study was \( r = .87 \).

**The Views about Nursing Instrument**

Each form of the instrument designed to measure the students' perceptions about nursing as a profession consisted of 25 statements. The subjects were asked to indicate whether they strongly agreed (SA), agreed (A), were undecided or unsure (U), disagreed (D), or strongly disagreed (SD) with each statement.

This instrument was scored by this investigator. Each student received a score of +2 for each item with which they strongly agreed, a +1 for each item with which they agreed, a 0 for each item about which they were unsure, a -1 for each item with which they disagreed, and a -2 for each item with which they strongly disagreed. (Scoring was
reversed for those statements which were intended to be "negative". The inclusion of such statements was intended to reduce the acquiescence of subjects to all the statements, to reduce their merely agreeing with the printed word.) Thus, the minimum score possible was -50 and the maximum score possible was +50.

The Pilot Study

The pilot study was conducted during the summer of 1979 with students enrolled in a baccalaureate nursing program at a state college. The program is fully accredited by the National League for Nursing and is located in the northeast.

The Dean of the School of Nursing provided a computer-generated class list from the Office of the Registrar. From these lists, the following class sizes for the 1978-1979 academic year were evident: 125 freshmen, 109 sophomores, 74 juniors, and 188 seniors.

Using a table of random numbers, 25 names from each class were selected, for a total of 100 students. All 100 students were sent (1) a letter explaining the study and requesting their participation, and (2) a response form (both of which are included here as Appendix G); also included was a self-addressed, stamped envelope.

Responses were received from 39 students (39%) -- eleven freshmen, nine sophomores, ten juniors, and nine seniors. Of the eleven freshmen, nine (82%) were willing to participate; eight of the nine sophomores (90%), ten (100%) of the ten juniors, and eight (90%) of the nine seniors were willing to participate, for a total of 35 students.

Each of the 35 students was asked to complete the following items:
a permission form, a demographic data form, the cognitive development instrument (consisting of two essays and seven sentence stems), and the 85-item Views about Nursing instrument. Although the pilot study was carried out primarily to validate and refine the Views about Nursing instrument, the students were asked to complete all forms and instruments for two reasons: (1) Sentence stems six and seven were newly developed and needed to be tested for validity; to ask the students to respond to only those two items in the KneWi cognitive development instrument would have eliminated the potential for assessing the nature of the students' responses to the new items in comparison with their responses to the previously-tested items. (2) All forms and instruments were administered so that the length of time required to complete all the items could be estimated more accurately.

The demographic data form was administered to obtain data about (1) its effectiveness in obtaining relevant information, and (2) the degree to which the sample in the pilot study represented the population of baccalaureate nursing students.

**Demographic Data**

The pilot study included 35 baccalaureate nursing students -- nine freshmen, eight sophomores, ten juniors, and eight seniors. Tables 7 through 9 are summarizations about several of the demographic characteristics of the students. Several of these are explained below.

**Occupation:** The seniors who were in this sample were graduated in May, 1979 and, thus, many were employed at the time of this pilot study. Also, these data were reported by all students during the summer months when many students are employed. Thus, the number of
Table 7
Level, Student Status, Age, Sex, and Ethnic Identity of Subjects in Pilot Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Subjects in Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>9</td>
<td>25.6</td>
</tr>
<tr>
<td>Sophomore</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>Junior</td>
<td>10</td>
<td>28.6</td>
</tr>
<tr>
<td>Senior</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Student Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>31</td>
<td>89.0</td>
</tr>
<tr>
<td>Part-time</td>
<td>4</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-20 years</td>
<td>15</td>
<td>43.0</td>
</tr>
<tr>
<td>21-25 years</td>
<td>10</td>
<td>28.0</td>
</tr>
<tr>
<td>26-29 years</td>
<td>4</td>
<td>11.0</td>
</tr>
<tr>
<td>30-39 years</td>
<td>2</td>
<td>6.0</td>
</tr>
<tr>
<td>40-49 years</td>
<td>2</td>
<td>6.0</td>
</tr>
<tr>
<td>50+ years</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>94.0%a</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Ethnic Identity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>6.0</td>
</tr>
<tr>
<td>Caucasian</td>
<td>32</td>
<td>91.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Oriental</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*a Two students did not respond*
Table 8

Marital Status, Registered Nurse Status, and Post-High School Education of Subjects in Pilot Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Subjects in Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>7</td>
<td>20.0</td>
</tr>
<tr>
<td>Dating</td>
<td>17</td>
<td>48.0</td>
</tr>
<tr>
<td>Co-Habiting</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Married</td>
<td>9</td>
<td>26.0</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>36a</td>
<td>103.0b</td>
</tr>
</tbody>
</table>

| **Registered Nurse Status** |        |                                       |
| Registered Nurse            | 0      | 0.0                                   |
| Non-Registered Nurse        | 35     | 100.0                                 |
| **Total**                   | 35     | 100.0%                                |

| **Post-High School Education** |        |                                       |
| None                         | 24     | 69.0                                  |
| Nursing-Related              | 8      | 23.0                                  |
| Non-Nursing-Related          | 5      | 14.0                                  |
| **Total**                    | 37b    | 106.0b                                |

---

a One same student indicated she was widowed and co-habiting.

b Two students attended one college with a non-nursing major and attended a nursing or pre-nursing program before enrolling in their current nursing major; they have been included in both of the latter categories.
Table 9

Occupation, Parents’ Occupation, and Spouse’s/Fiancé’s Occupation of Subjects in Pilot Study

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percentage of Subjects in Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>17</td>
<td>48.0</td>
</tr>
<tr>
<td>Nurses’ Aide</td>
<td>7</td>
<td>20.0</td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>29.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Father’s Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-Related</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Non-Health-Related</td>
<td>32</td>
<td>91.0</td>
</tr>
<tr>
<td>Not Reported</td>
<td>3</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Mother’s Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-Related</td>
<td>5</td>
<td>14.0</td>
</tr>
<tr>
<td>Non-Health-Related</td>
<td>25</td>
<td>72.0</td>
</tr>
<tr>
<td>Not Reported</td>
<td>5</td>
<td>14.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Spouse’s/Fiancé’s Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-Related</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Non-Health-Related</td>
<td>9</td>
<td>26.0</td>
</tr>
<tr>
<td>No Spouse/Fiancé</td>
<td>25</td>
<td>72.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*See narrative regarding these figures.*
students who identified their occupation as something other than student (89% of whom are in that role on a full-time basis) may be larger than expected.

Framework of the School of Nursing: Students were asked to identify the framework around which their program was organized. Of the 35 students, eight (23%) did not respond to this question, and 16 (46%) indicated they did not know or were unsure. Of those 27 students who responded to this question, some listed more than one response (e.g., "I'm not really sure, but I think it's ...") and thus were included in two categories. Three students thought the framework of the program was "public health nursing", one identified "primary nursing", five offered a very philosophical statement but identified no specific framework, five identified "holistic nursing", and three cited "systems theory" as the framework for this program. Obviously, students were not clear or consistent in their understanding of the nature of the program's theoretical/conceptual framework.

Scholastic Aptitude Test (SAT) scores: Students were asked to report their SAT scores (verbal and mathematics) to the best of their memory. No attempt was made to verify these self-reported scores:

**Verbal:**
- Range: 350 - 600
- Majority: 450 - 550
- Mean: 496.5

**Mathematics:**
- Range: 399 - 650
- Majority: 500 - 550
- Mean: 525.5

Six students (17%) did not respond to this item, two (6%) indicated they had "no idea", and two others (6%) indicated the SATs were waived for them.
Length of Time

The length of time required to complete all items ranged from 30 minutes to four hours. The average time needed was 64.9 minutes.

Cognitive Development

The primary purpose of the pilot study was to validate and refine the Views about Nursing instrument and not the cognitive development instrument. However, the essays and sentence stems were coded, using the same rating teams previously described, and the results are reported here. Consistent with the data reported previously, the sentence stems were very difficult to rate and are not included in the results reported. An inter-rater reliability of $r = .91$ was reported for the pilot study data.

The overall scores ranged as follows:

<table>
<thead>
<tr>
<th>Essay</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2-2-2 to 3-4-4</td>
<td>2.74</td>
<td>.38</td>
</tr>
<tr>
<td>B</td>
<td>2-2-3 to 7-7-7</td>
<td>3.58</td>
<td>1.12</td>
</tr>
<tr>
<td>C</td>
<td>2-2-3 to 3-4-4</td>
<td>3.02</td>
<td>.22</td>
</tr>
<tr>
<td>D</td>
<td>2-3-3 to 5-6-6</td>
<td>3.53</td>
<td>.92</td>
</tr>
</tbody>
</table>

Total 2-2-2 to 7-7-7 3.17 .75

Views about Nursing

The instrument designed to measure the students' perceptions about nursing as a profession consisted of 85 statements developed after a review of the panel of experts' comments. The subjects were asked to indicate whether they strongly agreed (SA), agreed (A), were undecided to unsure (U), disagreed (D), or strongly disagreed (SD) with each statement.
Each student received a score of +2 for each item with which they strongly agreed, a +1 for each item with which they agreed, a 0 for each item about which they were unsure, a -1 for each item with which they disagreed, and a -2 for each item with which they strongly disagreed. (Scoring was reversed for those statements which were intended to be "negative". This was so designed to reduce the acquiescence of subjects to all the statements, to reduce their merely agreeing with the printed word.) Thus, the minimum score possible was -170, and the maximum score possible was +170.

The scores obtained by subjects on this measure were as follows:

<table>
<thead>
<tr>
<th>Level</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>26 - 86</td>
<td>48.4</td>
<td>18.61</td>
</tr>
<tr>
<td>Sophomores</td>
<td>40 - 64</td>
<td>55.9</td>
<td>7.40</td>
</tr>
<tr>
<td>Juniors</td>
<td>31 - 104</td>
<td>74.0</td>
<td>20.26</td>
</tr>
<tr>
<td>Seniors</td>
<td>70 - 115</td>
<td>98.2</td>
<td>16.78</td>
</tr>
<tr>
<td>Total</td>
<td>26 - 115</td>
<td>68.8</td>
<td>15.73</td>
</tr>
</tbody>
</table>

Each item on this instrument was examined, using a t-test, to determine if the item discriminated between the uppermost scorers (one-third of the total group) and the lowest scorers (one-third of the total group). The items which discriminated significantly were included in the revised instrument.

In addition, a split-half reliability test corrected with the Spearman-Brown formula for attenuation was conducted. The correlation between forms (odd-even) was .63. Alpha for part I (odd items, 43 in number) was .84; and for part II (even items, 42 in number) it was .67. When corrected with the Spearman-Brown formula (for unequal length forms), the correlation was .77. The Guttman split-half coefficient was .74.
The criterion of internal consistency was applied to the scale by using the coefficient alpha. Based on the reliability coefficients of all 85 items, alpha was computed to be .86. Alpha ranged from a low of .85 to a high of .87 when individual items were deleted.

The reliability of each item was determined by calculating the correlation coefficient of each statement with the battery of items for the total population.

The 50 items with the highest reliability coefficient and which discriminated most among the highest and lowest scorers were selected for the revised Views about Nursing instrument. These were divided into two 25-item tests (form A and form B) on the basis of the primary concept of professionalism reflected in the item to insure that all concepts were represented approximately equally on both forms of the instrument.

Procedure

All students who indicated a willingness to participate in this study were sent the following material early in the Fall, 1979 semester (see Appendix H):

1. An introductory letter
2. A permission form
3. A demographic data sheet
4. The Views about Nursing instrument, Form A or B, randomly selected
5. Two Cognitive Development essays, Form A or B and Form C or D, randomly selected
6. One set of sentence stems, Form E or F, randomly selected
7. A stamped, self-addressed envelope.

Subjects were asked to complete all forms, answer all questions, and return them. No time limit was set for completion of the material.

Late in the Spring, 1980 semester, all subjects who had previously
returned the completed material were sent the following items:

1. An introductory letter with a question about a letter addressing their participation in this study for their student file* (see Appendix I)
2. The same permission form
3. The alternate form of the Views about Nursing instrument
4. The alternate form of each of the two Cognitive Development essays
5. The alternate form of the sentence stems
6. A stamped, self-addressed return envelope

Upon receipt of all post-test data, all essays and sentence stems were coded using a table of random numbers. Since there was no pattern to the coding system, subjects could not be identified by the Perry raters as to their level, school, or other characteristics. Raters also could not identify whether the particular essay or set of stems was pre-test or post-test data.

The cognitive development instruments were sent to the independent rating group for rating, and the Views about Nursing instrument was scored, both as previously described.

The analyses of the data are presented in Chapter IV.

* For those students who indicated they would like a letter sent to their program Head, a letter was sent (see Appendix J) during the summer of 1980.
CHAPTER IV
RESULTS

Introduction

The purposes of this study were as follows: (1) To describe the cognitive development of freshman, sophomore, junior, and senior baccalaureate nursing students; (2) To describe the perceptions about nursing as a profession held by freshman, sophomore, junior, and senior baccalaureate nursing students; (3) To describe the changes in cognitive development and perceptions about nursing as a profession of baccalaureate nursing students which occur over the span of an academic year; and (4) To describe the relationship between stage of cognitive development and perceptions about nursing as a profession of freshman, sophomore, junior, and senior baccalaureate nursing students.

The KneWi cognitive development instrument and the Views about Nursing instrument were administered to 123 baccalaureate nursing students at the beginning of an academic year and at the end of the same academic year. The results reported herein are for 29 freshman, 27 sophomore, 34 junior, and 33 senior students who completed both pre-test and post-test measures.

As indicated previously, difficulties in using the sentence stems as part of the measure of cognitive development were found in this study. Responses to the sentence stems ranged from free association, through a few words, to complex thought patterns. In some instances, a single subject's responses to the seven sentence stems gave evidence of
Positions 2, 3, 4 and 5 simultaneously. The raters concluded that, overall, the amount of thoughtful reaction to the stems was minimal. In the analysis and reporting of the data, therefore, the stems were not included.

The results of the analyses of the data on the effects of a nursing education on nursing students with regard to changes in cognitive development as measured by the KneWi instrument and changes in views of nursing as measured by the Views about Nursing instrument are presented in this Chapter.

Descriptive Statistics on Cognitive Development Pre-Test Scores

Scores for freshman students on the cognitive development pre-test measure ranged from 2.25 to 3.25; for sophomore students, 2.58 to 4.00; from 2.25 to 3.58 for junior students; and from 2.58 to 3.92 for senior students. (The maximum possible score was 9.00.)

The number of subjects, means, and standard deviations on the KneWi cognitive development pre-tests for the four levels (freshman, sophomore, junior and senior) of nursing students are reported in Table 10.

Comparison of Cognitive Development Pre-Test Scores of Nursing Students by Level of Nursing Education

The null hypothesis of no significant differences on the pre-tests of the KneWi cognitive development test among the four levels (freshman, sophomore, junior and senior) of nursing students was tested at the .05 level of significance using a 4 X 1 ANOVA design. The $F$-ratio ($F (3, 119) = 7.34, p < .001$) was significant beyond the .001 level of
Table 10

Number of Subjects, Means, and Standard Deviations on Cognitive Development Pre-tests by Level of Nursing Education

<table>
<thead>
<tr>
<th>Level</th>
<th>Number of Subjects</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>29</td>
<td>2.73</td>
<td>.272</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27</td>
<td>3.06</td>
<td>.424</td>
</tr>
<tr>
<td>Junior</td>
<td>34</td>
<td>2.96</td>
<td>.294</td>
</tr>
<tr>
<td>Senior</td>
<td>33</td>
<td>3.10</td>
<td>.338</td>
</tr>
<tr>
<td>All Students</td>
<td>123</td>
<td>2.96</td>
<td>.359</td>
</tr>
</tbody>
</table>
significance; therefore, the null hypothesis that levels of nursing students were not significantly different in their cognitive development at the beginning of the academic year was rejected (see Table 11).

The post hoc Scheffé multiple comparison procedure was used to determine which of the pairwise differences among the cognitive development pre-test means of the four levels (freshman, sophomore, junior and senior) of nursing students were significantly different beyond the .05 level of significance.

Two of the pairwise mean comparisons were significant. The freshman nursing students' mean pre-test cognitive development score ($\bar{X} = 2.73$) was significantly lower than the pre-test cognitive development mean score of senior nursing students ($\bar{X} = 3.10$) beyond the .01 level of significance ($F (3, 122) = 6.36, p < .01$). The freshman nursing students' mean pre-test cognitive development score ($\bar{X} = 2.73$) also was significantly lower than the pre-test cognitive development mean score of sophomore nursing students ($\bar{X} = 3.06$) beyond the .01 level of significance ($F (3, 122) = 4.52, p < .01$).

No other pairwise comparisons of means were significant beyond the .05 level of significance.

**Descriptive Statistics on Cognitive Development Post-Test Scores**

On this measure, freshman students' scores ranged from 2.25 to 3.67; sophomore students, 2.33 to 5.08; 2.42 to 4.17 for junior students; and senior students' scores ranged from 2.08 to 5.59. (The maximum possible score was 9.00.)

The number of subjects, means, and standard deviations on the
Table 11

ANOVA Source Table
for Pre-test Cognitive Development Scores
by Level of Nursing Education

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Levels</td>
<td>2.454</td>
<td>3</td>
<td>.818</td>
<td>7.344*</td>
</tr>
<tr>
<td>Within Levels</td>
<td>13.255</td>
<td>119</td>
<td>.111</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15.709</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .001$
KneWi cognitive development post-tests for the four levels (freshman, sophomore, junior and senior) of nursing students are reported in Table 12.

**Comparison of Cognitive Development Post-Test Scores of Nursing Students by Level of Nursing Education**

The null hypothesis of no significant mean differences on the post-tests of the KneWi cognitive development test among the four levels (freshman, sophomore, junior and senior) of nursing students was tested at the .05 level of significance using a 4 X 1 ANOVA design. The $F$-ratio ($F (3, 122) = 5.77, p < .001$) was significant beyond the .001 level of significance; therefore, the null hypothesis that levels of nursing students were not significantly different in cognitive development at the end of the academic year was rejected (see Table 13).

The post hoc Scheffé multiple comparisons procedure was used to determine which of the pairwise differences among the cognitive development means of the four levels (freshman, sophomore, junior and senior) of nursing students were significantly different beyond the .05 level of significance.

Only one of the pairwise comparisons of means was significant. The freshman nursing students' mean cognitive development scores ($\bar{X} = 2.82$) was significantly lower than the mean of the seniors' cognitive development scores ($\bar{X} = 3.41$) beyond the .01 level of significance ($F (3, 119) = 5.46, p < .01$).

No other pairwise comparisons were significant beyond the .05 level of significance.
Table 12

Number of Subjects, Means, and Standard Deviations on Cognitive Development Post-tests by Level of Nursing Education

<table>
<thead>
<tr>
<th>Level</th>
<th>Number of Subjects</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>29</td>
<td>2.82</td>
<td>.350</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27</td>
<td>3.18</td>
<td>.672</td>
</tr>
<tr>
<td>Junior</td>
<td>34</td>
<td>3.05</td>
<td>.419</td>
</tr>
<tr>
<td>Senior</td>
<td>33</td>
<td>3.41</td>
<td>.730</td>
</tr>
<tr>
<td>All Subjects</td>
<td>123</td>
<td>3.12</td>
<td>.597</td>
</tr>
</tbody>
</table>

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Table 13

ANOVA Source Table

for Post-test Cognitive Development Scores

by Level of Nursing Education

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Levels</td>
<td>5.528</td>
<td>3</td>
<td>1.843</td>
<td>5.770*</td>
</tr>
<tr>
<td>Within Levels</td>
<td>38.003</td>
<td>119</td>
<td>.319</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>43.531</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
Descriptive Statistics on Views about Nursing Pre-Test Scores

Scores for freshman students on the Views about Nursing pre-test measure ranged from 1 to 32; from 9 to 36 for sophomore students; for junior students, from 11 to 43; and from 11 to 43 for senior students. (The maximum score possible on this measure was 50.)

The number of subjects, means, and standard deviations on the Views about Nursing pre-test for the four levels (freshman, sophomore, junior and senior) of nursing students are reported in Table 14.

Comparison of Views about Nursing Pre-Test Scores of Nursing Students by Level of Nursing Education

The null hypothesis of no significant mean differences on the pre-test of the Views about Nursing instrument among the four levels (freshman, sophomore, junior and senior) of nursing students was tested at the .05 level of significance using a 4 X 1 ANOVA design. The F-ratio \( F(3, 119) = 10.27, p < .001 \) was significant beyond the .001 level of significance; therefore, the null hypothesis that levels of nursing students were not significantly different in their views about nursing at the beginning of the academic year was rejected (see Table 15).

The post hoc Scheffé multiple comparisons procedure was used to determine which of the pairwise differences among the pre-test Views about Nursing means of the four levels (freshman, sophomore, junior and senior) of nursing students were significantly different beyond the .05 level of significance.

Three of the pairwise comparisons were significant. The freshman
Table 14

Number of Subjects, Means, and Standard Deviations on Views about Nursing Pre-tests by Level of Nursing Education

<table>
<thead>
<tr>
<th>Level</th>
<th>Number of Subjects</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>29</td>
<td>15.66</td>
<td>8.528</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27</td>
<td>23.00</td>
<td>7.942</td>
</tr>
<tr>
<td>Junior</td>
<td>34</td>
<td>21.91</td>
<td>7.456</td>
</tr>
<tr>
<td>Senior</td>
<td>33</td>
<td>26.12</td>
<td>6.244</td>
</tr>
<tr>
<td>All Subjects</td>
<td>123</td>
<td>21.80</td>
<td>8.352</td>
</tr>
</tbody>
</table>
Table 15

ANOVA Source Table
for Pre-test Views about Nursing Scores
by Level of Nursing Education

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Levels</td>
<td>1750.515</td>
<td>3</td>
<td>583.505</td>
<td>10.274*</td>
</tr>
<tr>
<td>Within Levels</td>
<td>6758.802</td>
<td>119</td>
<td>56.797</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8509.317</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .001
nursing students' mean pre-test Views about Nursing score \((\bar{X} = 15.66)\) was significantly lower than the pre-test Views about Nursing scores of senior nursing students \((\bar{X} = 26.12)\) beyond the .01 level of significance \((F (3, 119) = 9.92, p < .01)\). The freshman nursing students' mean pre-test Views about Nursing Score \((\bar{X} = 15.66)\) also was significantly lower than the pre-test Views about Nursing score of junior nursing students \((\bar{X} = 21.01)\) beyond the .01 level of significance \((F (3, 119) = 3.60, p < .01)\), and significantly lower than the pre-test Views about Nursing score of sophomore nursing students \((\bar{X} = 23.00)\) beyond the .01 level of significance \((F (3, 119) = 4.43, p < .01)\).

No other pairwise comparisons of means were significant beyond the .05 level of significance.

**Descriptive Statistics on Views about Nursing Post-Test Scores**

On this measure, the scores ranged from 10 to 38 for freshman students; from 14 to 40 for sophomore students; from 10 to 42 for junior students; and for senior students, from 14 to 42. (The maximum possible score was 50.)

The number of subjects, means, and standard deviations on the Views about Nursing post-tests for the four levels (freshman, sophomore, junior and senior) of nursing students are reported in Table 16.

**Comparison of Views about Nursing Post-Test Scores of Nursing Students by Level of Nursing Education**

The null hypothesis of no significant mean difference on the post-test of the Views about Nursing instrument among the four levels (freshman, sophomore, junior and senior) of nursing students was tested
Table 16

Number of Subjects, Means, and Standard Deviations on Views about Nursing Post-tests by Level of Nursing Education

<table>
<thead>
<tr>
<th>Level</th>
<th>Number of Subjects</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>29</td>
<td>21.07</td>
<td>7.454</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27</td>
<td>26.74</td>
<td>7.659</td>
</tr>
<tr>
<td>Junior</td>
<td>34</td>
<td>26.15</td>
<td>9.755</td>
</tr>
<tr>
<td>Senior</td>
<td>33</td>
<td>31.85</td>
<td>6.200</td>
</tr>
<tr>
<td>All Subjects</td>
<td>123</td>
<td>26.61</td>
<td>8.710</td>
</tr>
</tbody>
</table>
at the .05 level of significance. The F-ratio (F(3, 119) = 9.60, p < .001) was significant beyond the .001 level of significance; therefore, the null hypothesis that levels of nursing students were not significantly different in their views about nursing at the end of the academic year was rejected (see Table 17).

The post hoc Scheffé multiple comparisons procedure was used to determine which of the pairwise differences among the post-test Views about Nursing means of the four levels (freshman, sophomore, junior and senior) of nursing students were significantly different beyond the .05 level of significance.

Two of the pairwise mean comparisons were significant. The senior nursing students' post-test mean Views about Nursing score (\(\bar{X} = 31.85\)) was significantly greater than the mean Views about Nursing score for freshman nursing students (\(\bar{X} = 21.07\)) beyond the .01 level of significance (F(3, 119) = 9.55, p < .01). The senior nursing students' post-test mean Views about Nursing score (\(\bar{X} = 31.85\)) also was significantly greater than the mean Views about Nursing post-test score for junior nursing students (\(\bar{X} = 26.15\)) beyond the .05 level of significance (F(3, 119) = 2.89, p < .05).

No other pairwise comparisons of means were significant beyond the .05 level of significance.

Comparison of Cognitive Development Post-Test Scores Adjusted for Differences on the Cognitive Development Pre-Test for Levels of Nursing Students

The null hypothesis that there were no significant mean differences among the four levels (freshman, sophomore, junior and senior) of nursing students on the KneWi cognitive development post-test adjusted for the
Table 17

ANOVA Source Table
for Post-test Views about Nursing Scores
by Level of Nursing Education

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Levels</td>
<td>1803.714</td>
<td>3</td>
<td>601.238</td>
<td>9.602*</td>
</tr>
<tr>
<td>Within Levels</td>
<td>7451.554</td>
<td>119</td>
<td>62.618</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9255.268</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
KneWi cognitive development pre-test was tested at the .05 level of significance using a 4 X 1 ANACOVA design.

The \( F \)-ratio for the main effect (level of education, i.e., freshman, sophomore, junior or senior) on the dependent variable (i.e., KneWi cognitive development post-test score) adjusted for the covariate (i.e., KneWi cognitive development pre-test score) was not significant \( (F (3, 118) = 2.02, ns) \). The null hypothesis that there were no significant mean differences on the cognitive development of nursing students due to level of education at the end of the academic year that were not due to initial differences in cognitive development among levels at the beginning of the academic year was accepted (see Table 18). The covariate (i.e., KneWi cognitive development pre-test score) accounted for a highly significant amount of the cognitive development post-test variance so that the levels of student education had no significant effect after adjustment for the covariate.

**Comparison of Views about Nursing Post-Test Scores Adjusted for Differences on the Views about Nursing Pre-Test for Levels of Nursing Students**

The null hypothesis that there were no significant mean differences among the four levels (freshman, sophomore, junior and senior) of nursing students on the Views about Nursing post-test adjusted for the Views about Nursing pre-test was tested at the .05 level of significance using a 4 X 1 ANACOVA design.

The \( F \)-ratio for the main effect (level of education, viz., freshman, sophomore, junior or senior) on the dependent variable (i.e., Views about Nursing post-test score) adjusted for the covariate (i.e., Views about Nursing pre-test score) was significant \( (F (1, 118) = 3.12, \)
Table 18

ANACOVA Source Table
for Comparison of Cognitive Development Post-test Scores
Adjusted for Cognitive Development Pre-tests
for Four Levels of Nursing Students

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pre-test)</td>
<td>10.789</td>
<td>1</td>
<td>10.789</td>
<td>40.885*</td>
</tr>
<tr>
<td>Main Effects (Level)</td>
<td>1.602</td>
<td>3</td>
<td>.534</td>
<td>2.023</td>
</tr>
<tr>
<td>Residual</td>
<td>31.140</td>
<td>118</td>
<td>.264</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>43.531</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < .001
\( p < .05 \) beyond the .05 level of significance (see Table 19). The null hypothesis that there were no significant mean differences on Views about Nursing post-test scores of nursing students due to level of education at the end of the academic year that were not due to initial differences in views about nursing as a profession among levels at the beginning of the academic year was rejected. The covariate (i.e., Views about Nursing pre-test score) did not account for a highly significant amount of the Views about Nursing post-test variance.

The post hoc Scheffé multiple comparisons procedure was used to determine which of the pairwise adjusted means on the Views about Nursing post-test were significantly different beyond the .05 level of significance. One comparison was also made to determine if the adjusted combined means of junior and senior nursing students was significantly different from the adjusted combined means of freshman and sophomore nursing students beyond the .05 level of significance.

The post-test Views about Nursing means were adjusted according to the procedure outlined by Winer (1971): "The adjustment 'removes' or 'partials out' from \( \bar{Y}_j \) [post-test mean or the criterion variable], that part which may be considered a linear function of \( \bar{X}_j \) [pre-test mean or the covariate]" (p. 762). The adjustments of the means are reported in Table 20.

One pairwise difference among the adjusted means on the post-test Views about Nursing scores was significant. The adjusted mean for the senior nursing students (\( \bar{Y}'_j = 30.01 \)) was significantly greater than the adjusted mean for the freshman nursing students (\( \bar{Y}'_j = 23.70 \)) beyond the .01 level of significance (\( F(3, 118) = 3.89, p < .01 \)).
Table 19

ANACOVA Source Table
for Comparison of Views about Nursing Post-test Scores
Adjusted for Views about Nursing Pre-tests
for Four Levels of Nursing Students

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Pre-test)</td>
<td>2510.131</td>
<td>1</td>
<td>2510.131</td>
<td>47.617**</td>
</tr>
<tr>
<td>Main Effects (Level)</td>
<td>524.823</td>
<td>3</td>
<td>174.941</td>
<td>3.315*</td>
</tr>
<tr>
<td>Residual</td>
<td>6220.314</td>
<td>118</td>
<td>52.715</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9255.268</td>
<td>122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

**p < .001
### Table 20

**Adjusted Means**

of Post-test Views about Nursing Scores

Adjusted for Pre-test Views about Nursing Scores

Pre-test $\bar{X} = 21.81$  $b = .427$ (within class regression coefficient)

<table>
<thead>
<tr>
<th>Level</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test Mean ($\bar{X}_j$)</td>
<td>15.66</td>
<td>23.00</td>
<td>21.91</td>
<td>26.12</td>
</tr>
<tr>
<td>($\bar{X}_j - \bar{X}$)</td>
<td>-6.15</td>
<td>1.19</td>
<td>.10</td>
<td>4.31</td>
</tr>
<tr>
<td>Post-test Mean ($\bar{Y}_j$)</td>
<td>21.07</td>
<td>26.74</td>
<td>26.15</td>
<td>31.85</td>
</tr>
<tr>
<td>Adjusted Mean</td>
<td>$\bar{Y}_j' = \bar{Y}_j - b(\bar{X}_j - \bar{X})$</td>
<td>23.70</td>
<td>26.23</td>
<td>26.10</td>
</tr>
</tbody>
</table>
No other pairwise mean differences among the four levels (freshman, sophomore, junior and senior) of nursing students was significant beyond the .05 level of significance.

The null hypothesis that advanced nursing students (i.e., juniors and seniors) would have a significantly greater combined, weighted mean score ($\overline{Y}_j = 28.02$) on the post-test Views about Nursing measure adjusted for differences on the pre-test Views about Nursing measure than less advanced students (i.e., freshmen and sophomores) on the post-test Views about Nursing measure adjusted for the pre-test Views about Nursing measure ($\overline{Y}_j = 24.92$) was accepted as the F-ratio for the Scheffé procedure was not significant ($F(3, 118) = 1.86, \text{ ns}$).

**Comparison of Pre-Test and Post-Test Cognitive Development Scores for Each Level and All Nursing Students**

The degree of change in cognitive development scores from the beginning to the end of the academic year was as follows:

<table>
<thead>
<tr>
<th>Level</th>
<th>Mean Gain in Perry Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>.098 Position</td>
</tr>
<tr>
<td>Sophomore</td>
<td>.123 Position</td>
</tr>
<tr>
<td>Junior</td>
<td>.091 Position</td>
</tr>
<tr>
<td>Senior</td>
<td>.275 Position</td>
</tr>
</tbody>
</table>

Of the 29 freshman students, 15 (52%) showed a gain in cognitive development score from fall to spring, with the gains ranging from .083 to .830 Position; 10 freshman students (34%) showed a "loss" in cognitive development score from fall to spring, with the "losses" ranging from .083 to .500 Position; the remaining four freshman students (14%) showed no change in their cognitive development score from fall to spring.

The null hypothesis that there would be no significant mean differences between pre-test and post-test Knewi cognitive development
scores for the 29 freshman nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on cognitive development / residual) was not significant ($F(1, 28) = 3.05, \text{ns}$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{x} = 2.73$) and the post-test ($\bar{x} = 2.82$) KneWi cognitive development score for the 29 freshman subjects was accepted (see Table 21).

Of the 27 sophomore students, 15 (56%) showed a gain in cognitive development score from fall to spring, with the gains ranging from .166 to 1.750 Position. Ten sophomore students (37%) showed a "loss" in cognitive development score from fall to spring, with the "losses" ranging from .084 to 1.334 Position. The remaining two sophomore students (7%) showed no change in their cognitive development score from fall to spring.

The null hypothesis that there would be no significant mean differences between pre-test and post-test KneWi cognitive development scores for the 27 sophomore nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on cognitive development / residual) was not significant ($F(1, 27) = 1.13, \text{ns}$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{x} = 3.06$) and the post-test ($\bar{x} = 3.18$) KneWi cognitive development score for the 27 sophomore subjects was accepted (see Table 22).

Of the 34 junior students, 17 (50%) showed a gain in cognitive development score from fall to spring, with the gains ranging from
Table 21

Repeated Measures ANOVA Source Table
for Cognitive Development Scores
of Freshman Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>4.313</td>
<td>28</td>
<td>.154</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>1.329</td>
<td>29</td>
<td>.046</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>0.130</td>
<td>1</td>
<td>.130</td>
<td>3.046</td>
</tr>
<tr>
<td>Residual</td>
<td>1.199</td>
<td>28</td>
<td>.043</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.642</td>
<td>57</td>
<td>.099</td>
<td></td>
</tr>
</tbody>
</table>
Table 22

Repeated Measures ANOVA Source Table
for Cognitive Development Scores
of Sophomore Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>11.704</td>
<td>26</td>
<td>.450</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>4.932</td>
<td>27</td>
<td>.183</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>0.206</td>
<td>1</td>
<td>.206</td>
<td>1.132</td>
</tr>
<tr>
<td>Residual</td>
<td>4.727</td>
<td>26</td>
<td>.182</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.636</td>
<td>53</td>
<td>.314</td>
<td></td>
</tr>
</tbody>
</table>
.083 to 1.167 Position. The remaining 17 junior students (50%) showed a "loss" in cognitive development score from fall to spring, with the "losses" ranging from .083 to .750 Position. No junior students were unchanged in their cognitive development scores.

The null hypothesis that there would be no significant mean difference between pre-test and post-test KneWi cognitive development scores for the 34 junior nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on cognitive development / residual) was not significant (F (1,33) = 1.41, ns); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test (X̄ = 2.96) and the post-test (X̄ = 3.05) KneWi cognitive development score for the 34 junior subjects was accepted (see Table 23).

Of the 33 senior students, 19 (58%) showed a gain in cognitive development score from fall to spring, with the gains ranging from .250 to 1.583 Position. Eleven senior students (33%) showed a "loss" in cognitive development score from fall to spring, with the "losses" ranging from .083 to .750 Position. The remaining three senior students (9%) showed no change in their cognitive development score from fall to spring.

The null hypothesis that there would be no significant mean difference between pre-test and post-test KneWi cognitive development scores for the 33 senior nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on cognitive development / residual) was significant beyond the .05 level of significance.
Table 23

Repeated Measures ANOVA Source Table
for Cognitive Development Scores
of Junior Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>5.356</td>
<td>33</td>
<td>.162</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>3.412</td>
<td>34</td>
<td>.100</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>0.140</td>
<td>1</td>
<td>.140</td>
<td>1.408</td>
</tr>
<tr>
<td>Residual</td>
<td>3.273</td>
<td>33</td>
<td>.099</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.768</td>
<td>67</td>
<td>.131</td>
<td></td>
</tr>
</tbody>
</table>
(F (1, 32) = 7.15, p < .05); therefore, the null hypothesis that there was no significant mean difference between the means on the pre-test ($\bar{X} = 3.10$) and the post-test ($\bar{X} = 3.41$) KneWi cognitive development scores for the 33 senior subjects was rejected (see Table 24).

For all 123 students, 66 (53.7%) showed a gain in cognitive development score from fall to spring, with the gains ranging from .083 to 1.750 Position. Forty eight students (39%) showed a "loss" in cognitive development score from fall to spring, with the "losses" ranging from .083 to 1.334 Position. The remaining nine students (7.3%) showed no change in their cognitive development score from fall to spring.

The null hypothesis that there would be no significant mean difference between pre-test and post-test KneWi cognitive development scores for the 123 nursing students (all levels) was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The $F$-ratio (between measures for pre- and post-tests on cognitive development / residual) was significant beyond the .01 level of significance ($F (1, 122) = 11.07, p < .01$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{X} = 2.96$) and the post-test ($\bar{X} = 3.12$) KneWi cognitive development scores for all 123 nursing students was rejected (see Table 25).

**Comparison of Pre-Test and Post-Test Views about Nursing Scores for Each Level and All Nursing Students**

The degree of change in Views about Nursing scores from the beginning to the end of the academic year was as follows:
Table 24

Repeated Measures ANOVA Source Table
for Cognitive Development Scores
of Senior Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>13.795</td>
<td>32</td>
<td>.431</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>8.433</td>
<td>33</td>
<td>.256</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>1.540</td>
<td>1</td>
<td>1.540</td>
<td>7.151*</td>
</tr>
<tr>
<td>Residual</td>
<td>6.893</td>
<td>32</td>
<td>.215</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22.228</td>
<td>65</td>
<td>.342</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

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Table 25

Repeated Measures ANOVA Source Table

for Cognitive Development Scores

of All Nursing Students

in Fall and Spring

<table>
<thead>
<tr>
<th>Source Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>42.639</td>
<td>122</td>
<td>.346</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>18.107</td>
<td>123</td>
<td>.147</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>1.506</td>
<td>1</td>
<td>1.506</td>
<td>11.067*</td>
</tr>
<tr>
<td>Residual</td>
<td>16.601</td>
<td>122</td>
<td>.136</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60.746</td>
<td>245</td>
<td>.248</td>
<td></td>
</tr>
</tbody>
</table>

*p < .01
<table>
<thead>
<tr>
<th>Level</th>
<th>Mean Gain in Views about Nursing Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5.48 points</td>
</tr>
<tr>
<td>Sophomore</td>
<td>3.78 points</td>
</tr>
<tr>
<td>Junior</td>
<td>4.24 points</td>
</tr>
<tr>
<td>Senior</td>
<td>5.73 points</td>
</tr>
</tbody>
</table>

Of the 29 freshman students, 22 (76%) showed a gain in Views about Nursing score from fall to spring, with the gains ranging from one to 19 "points". Five freshman students (17%) showed a "loss" in Views about Nursing score from fall to spring, with the "losses" ranging from one to 12 "points". The remaining two freshmen students (7%) showed no change in their Views about Nursing score from fall to spring.

The null hypothesis that there would be no significant mean difference between the pre-test and post-test Views about Nursing scores for the 29 freshman nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on Views about Nursing / residual) was significant beyond the .001 level of significance ($F (1, 28) = 18.21, p < .001$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{X} = 15.66$) and the post-test ($\bar{X} = 21.07$) Views about Nursing score for the 29 freshman subjects was rejected (see Table 26).

Of the 27 sophomore students, 19 (70%) showed a gain in Views about Nursing score from fall to spring, with the gains ranging from one to 20 "points". Seven sophomore students (26%) showed a "loss" in Views about Nursing score from fall to spring, with the "losses" ranging from two to 14 "points". The remaining sophomore student (4%) showed no change in the Views about Nursing score from fall to spring.
Table 26

Repeated Measures ANOVA Source Table for Views about Nursing Scores of Freshman Nursing Students in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>2938.897</td>
<td>28</td>
<td>104.961</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>1078.500</td>
<td>29</td>
<td>37.190</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>424.983</td>
<td>1</td>
<td>424.983</td>
<td>18.208*</td>
</tr>
<tr>
<td>Residual</td>
<td>653.517</td>
<td>28</td>
<td>23.340</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4017.397</td>
<td>57</td>
<td>70.481</td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
The null hypothesis that there would be no significant mean difference between the pre-test and post-test views about nursing scores for the 27 sophomore nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on views about nursing / residual) was significant beyond the .05 level of significance ($F(1, 26) = 6.49, p < .05$); therefore, the null hypothesis that there was no significant mean difference (change) between the pre-test ($\bar{X} = 23.00$) and the post-test ($\bar{X} = 26.74$) views about nursing scores for the 27 sophomore subjects was rejected (see Table 27).

Of the 34 junior students, 22 (65%) showed a gain in views about nursing score from fall to spring, with the gains ranging from one to 18 "points". Ten junior students (29%) showed a "loss" in views about nursing score from fall to spring, with the "losses" ranging from one to 22 "points". The remaining two junior students (6%) showed no change in their views about nursing score from fall to spring.

The null hypothesis that there would be no significant mean difference between the pre-test and post-test views about nursing scores for the 34 junior nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on views about nursing / residual) was significant beyond the .05 level of significance ($F(1, 33) = 6.55, p < .05$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{X} = 21.91$) and the post-test ($\bar{X} = 26.15$) views about nursing scores for the 34 junior subjects was rejected (see Table 28).
Table 27

Repeated Measures ANOVA Source Table
for Views about Nursing Scores
of Sophomore Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>2408.593</td>
<td>26</td>
<td>92.638</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>945.500</td>
<td>27</td>
<td>35.019</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>188.907</td>
<td>1</td>
<td>188.907</td>
<td>6.492*</td>
</tr>
<tr>
<td>Residual</td>
<td>756.593</td>
<td>26</td>
<td>29.100</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3354.093</td>
<td>53</td>
<td>63.285</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

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Table 28

Repeated Measures ANOVA Source Table
for Views about Nursing Scores
of Junior Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>3437.941</td>
<td>33</td>
<td>104.180</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>1842.000</td>
<td>34</td>
<td>54.176</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>304.941</td>
<td>1</td>
<td>304.941</td>
<td>6.549*</td>
</tr>
<tr>
<td>Residual</td>
<td>1537.059</td>
<td>33</td>
<td>46.578</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5279.941</td>
<td>67</td>
<td>78.805</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
Of the 33 senior students, 26 (79%) showed a gain in Views about Nursing score from fall to spring, with the gains ranging from one to 26 "points". Five senior students (15%) showed a "loss" in Views about Nursing score from fall to spring, with the "losses" ranging from one to 15 "points". The remaining two senior students (6%) showed no change in their Views about Nursing score from fall to spring.

The null hypothesis that there would be no significant mean difference between the pre-test and post-test Views about Nursing scores for the 33 senior nursing students was tested at the .05 level of significance using a one-way repeated measures ANOVA design.

The F-ratio (between measures for pre- and post-tests on Views about Nursing / residual) was significant beyond the .001 level of significance ($F(1, 32) = 13.60, p < .001$); therefore, the null hypothesis that there was no significant mean difference (change) between the means on the pre-test ($\bar{X} = 26.12$) and the post-test ($\bar{X} = 31.85$) Views about Nursing scores for the 33 senior subjects was rejected (see Table 29).

For all 123 students, 89 (73%) showed a gain in Views about Nursing score from fall to spring, with the gains ranging from one to 26. Twenty seven students (22%) showed a "loss" in Views about Nursing score from fall to spring, with the "losses" ranging from one to 22 "points". The remaining seven students (5%) showed no change in their Views about Nursing score from fall to spring.

The null hypothesis that there would be no significant mean difference between the pre-test and post-test Views about Nursing scores for the 123 nursing students (all levels) was tested at the .05 level of significance using a one-way repeated measures ANOVA design.
Table 29

Repeated Measures ANOVA Source Table for Views about Nursing Scores of Senior Nursing Students in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>1204.485</td>
<td>32</td>
<td>37.640</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>1814.500</td>
<td>33</td>
<td>54.985</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>541.227</td>
<td>1</td>
<td>541.227</td>
<td>13.602*</td>
</tr>
<tr>
<td>Residual</td>
<td>1273.273</td>
<td>32</td>
<td>39.790</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3018.985</td>
<td>65</td>
<td>46.446</td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
The F-ratio (between measures for pre- and post-tests on Views about Nursing / residual) was significant beyond the .001 level of significance \( F(1, 122) = 40.66, p < .001 \); therefore, the null hypothesis that there was no significant mean differences (change) between the means on the pre-test \( (\bar{X} = 21.80) \) and the post-test \( (\bar{X} = 26.61) \) Views about Nursing score for all 123 nursing students was rejected (see Table 30).

**The Degree of Relationship between the Variables**

The Pearson product-moment coefficient of correlation was used to measure the degree of relationship between (1) the Views about Nursing pre-test and the KneWi cognitive development pre-test scores, and (2) the Views about Nursing post-test and the KneWi cognitive development post-test scores for all 123 students. Since a significant correlation is indicative only of a non-zero relationship, Van Dalen's (1973, p. 231) recommendations for the tentative interpretation of the coefficient of correlation was used:

- \( r = \pm .00 \) to \( \pm .20 \), negligible relationship
- \( r = \pm .20 \) to \( \pm .40 \), low relationship
- \( r = \pm .40 \) to \( \pm .70 \), marked relationship
- \( r = \pm .70 \) to \( \pm 1.00 \), high to very high relationship

The coefficient of correlation between the pre-tests (Views about Nursing and KneWi cognitive development) was significant beyond the .01 level of significance \( r = .26, p < .01 \); however, using Van Dalen's (1973) categorization, this correlation was indicative of a low relationship as less than 7% of the variance of one of the pre-tests (Views about Nursing or KneWi cognitive development) was accounted for by the other.
Table 30

Repeated Measures ANOVA Source Table
for Views about Nursing Scores
of All Nursing Students
in Fall and Spring

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between People</td>
<td>13503.927</td>
<td>122</td>
<td>110.688</td>
<td></td>
</tr>
<tr>
<td>Within People</td>
<td>5680.500</td>
<td>123</td>
<td>46.183</td>
<td></td>
</tr>
<tr>
<td>Between Measures</td>
<td>1419.841</td>
<td>1</td>
<td>1419.841</td>
<td>40.656*</td>
</tr>
<tr>
<td>Residual</td>
<td>4260.659</td>
<td>122</td>
<td>34.923</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>19184.427</td>
<td>245</td>
<td>78.304</td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
variable \( r^2 \) (coefficient of determination) = .068).

The coefficient of correlation between the post-tests (Views about Nursing and KneWi cognitive development) was significant beyond the .001 level of significance \( r = .30, p < .001 \); however, using Van Dalen's (1973) categorization, this correlation was again indicative of a low relationship as approximately 9% of one of the post-tests (Views about Nursing or KneWi cognitive development) was accounted for by the other variable \( r^2 \) (coefficient of determination) = .09).
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

Introduction

The focus of this study has been on the investigation of how baccalaureate nursing students view knowledge and how they view nursing. The focus also has included an examination of the degree to which these views change over the course of an academic year and of how they are related.

The question of how people view knowledge and its degree of absoluteness or uncertainty as well as how they view the role of authority figures in relation to knowledge is important in many contexts, such as how they raise children or the way in which they vote on complex, controversial issues. But this question is of particular concern to those in the educational arena of a senior college or university which espouses the goal of helping students to learn, to think, and to learn how to learn. And it has particular relevance to nurse educators who are attempting to achieve these same goals while helping students prepare to assume an autonomous, independent professional nursing role.

The way in which nurses view their role also is of concern to their nurse educators. It has further relevance to their nurse colleagues and to other members of the health care team, including the consumers of health care. If nurses view themselves as subservient to the physician, they will not participate in collaborative, interdisciplinary activities;
if they view themselves only as employees and not as fully dedicated members of a profession, they will not engage in activities designed to advance the profession and improve health care; and if they view their clients as ignorant children, they will not collaborate with clients to increase their own sense of autonomy and control. Indeed, the health care delivery system of today does not need nurses with such limited and narrow visions and approaches. Nursing education programs are designed to help broaden and expand those visions and help students of nursing view themselves as knowledgeable, capable individuals, responsible for improving nursing and health care.

The Hypotheses

Five major hypotheses were tested through this study. Each will be discussed in light of the results obtained and presented in Chapter IV.

Hypothesis I

HYPOTHESIS I: Baccalaureate nursing students at higher educational levels will be at a more advanced stage of cognitive development than will baccalaureate nursing students at lower educational levels.

The results show that the mean cognitive development scores at both the beginning and end of the academic year were highest for senior students and lowest for freshman students. Indeed, there was a significant difference between these two levels beyond the .01 level of significance at both points in time.

At both the beginning and the end of the academic year, however, the junior students did not score higher than the sophomore students as was expected. Since the difference in scores between these two groups
was not statistically significant, it raises some interesting questions as to why the groups scored the same in their cognitive development. Do sophomore nursing students experience an unusually large growth in cognitive development, and if so, why? Do junior nursing students experience an unusually large "retreat" (Perry, 1970) in cognitive development, and if so, why? Do both phenomena occur, and if so, why? Or do other phenomena occur, and if so, what are they?

Answers to these questions may be found in an analysis of the curriculum pattern for the three baccalaureate nursing programs included in this study. Each of these programs is congruent with a typical curriculum plan in which the first year focuses on learning subject matter that primarily is more absolute and concrete than abstract, for example, Biology, Chemistry, Human Anatomy and Physiology, English grammar and composition, and Mathematics.

As students in these programs enter their sophomore year, they continue to take courses in these more concrete areas (e.g., Microbiology, Physics, Organic Chemistry, Nutrition), but they begin to take more courses in less precise disciplines such as Philosophy, Psychology, Sociology, and Nursing. They experience faculty and students in a variety of fields of study where answers to questions are more "grey" than "black-and-white" and where the teaching strategies used include more interactive methods than didactic methods. Study in such fields and by way of such teaching methods may help students begin to accept diversity and uncertainty as legitimate; however, the mean scores obtained in this study for sophomore nursing students (pre-test, \( \bar{x} = 3.06 \); post-test, \( \bar{x} = 3.18 \)) still place the students in Perry's (1970) Position 3. The acceptance of diversity and uncertainty in Position 3 is only
temporary; the student accepts it, not as true, but only as a case where "Authority has not found The Answer yet" (Perry, 1970, p. 9).

Each of the three programs in this study included a concentration of clinical nursing courses in the junior year. The type of clinical experiences students often have at this level are hospital-based and focused on the care of ill persons.

Could it be that several factors combine at this point to facilitate students' "temporizing" or "retreating" in terms of their cognitive development so that they remain essentially unchanged from the sophomore year? As students care for ill individuals, they come to realize more clearly the extent of and gravity of their responsibility as professional nurses. Typically, they are fearful of erring in practice and seek out whatever sources they can to provide them with the correct answer to a nursing practice problem. These sources include their instructor, a textbook, nursing staff members, the physician, or even their own student peer group. Oftentimes, these sources will provide students with an answer rather than helping them think about the many options open to them and choose one that seems to be correct in light of the current situation; such an approach may be related to the lack of time to discuss options (e.g., an instructor who has ten or twelve other students in a similar situation), the lack of interest (e.g., a staff nurse who believes it is the instructor's "job" to answer all the students' questions), the lack of knowledge (e.g., a student peer who "did it that way once before and it worked"), fear of retribution (e.g., an instructor or staff nurse fearing a malpractice suit if the student chooses an option that fails), or the expectation by the source that he is supposed to have the answer (e.g., the physician or a textbook).
In addition to the above factors, the bureaucracy of the hospital itself may establish the expectation that there always is a right way and a wrong way to do things and approach situations, and the "Policy and Procedure Manual" describes the right way. Such rules and regulations, if strictly enforced, do not encourage even the consideration of alternative approaches to situations.

As nursing students in the programs included in this study move from their junior to the senior year, they continue to be heavily involved in nursing studies, but in two of the three programs included here, the nursing courses included research; in all three programs, a course dealing with current nursing issues was included in the senior year. The nature of these courses is such that more questions are generated than answers, and errors can be made in reasoning and judgment without fear of harm to a client.

In addition to the nature of these non-clinical courses, the results for seniors regarding their cognitive development may be accounted for by other factors. Senior nursing students often have clinical experiences in non-traditional settings (e.g., parents' classes, correctional facilities) and/or out-patient settings (e.g., clinics, community health agencies). The focus of these environments is likely to be more on choosing the best alternative available to solve problems despite their creativity, and less on efficient, bureaucratic functioning. Thus, the students' clinical environment may facilitate their ability to deal with abstractness and uncertainty.

As students continue to have clinical experiences in a variety of settings (as is the case in baccalaureate nursing programs), they see many and varied approaches to similar situations by their instructors and
the nursing staff. If they are not totally frustrated by this diversity, they may use it as a stimulus to come to accept the lack of absolute answers not just as a temporary inconvenience, but as legitimate; and they come to perceive knowledge and values as contextual and relativistic.

Despite the findings here that senior nursing students had the highest mean score on the cognitive development measure when compared with students at the other levels at both the beginning and end of the academic year, their scores ($\bar{x} = 3.10$ and $\bar{x} = 3.41$, respectively) do not compare favorably with scores obtained in most other studies.

Heffernan (1975), reporting on Perry's original work, noted that the mean freshman Position was 3, and five years later, entering freshmen were rated at Position 5. He cited research which indicates that freshmen of the Class of 1975 appear to be entering college at even higher Positions, and he concluded that:

Evidently, students are breaking with dualistic thinking structures in high school, and are well into Relativism by their college entry year.  
(Heffernan, 1975, p. 499)

The mean score for freshmen in Perry's (1968) original study was 3.98 (range, 1.83 to 5.67), for sophomores it was 5.08 (range, 2.83 to 6.17), and it was 6.03 (range, 2.50 to 7.33) and 6.98 (range, 2.33 to 8.33) for juniors and seniors, respectively (computed from Table 3, p. 70). Interestingly, the lowest score in the range for each level was achieved by the same student. This same student and only one other showed a slight decrease in score in year three as compared with year two; all 18 other students showed an increase in score for each of the four years.

This wide variation in scores has not been repeated. Kitchener (1976) emphasized that "other than the original Harvard sample there has been a
failure to find a significant number of undergraduate students whose
protocols can be rated at the Committed level" (p. 2). Meyer (1975)
found one senior subject who could be rated as Committed, and Blake (1976)
found none in his sample. Kurfiss (1975) found no freshman or junior
students scored above Position 6 in the comprehension of higher stage
statements. Perry (1968), on the other hand, found that by the senior
year, 75% of his sample was at Position 7 or 8.

Meyer (1975) applied the Perry Scheme to the investigation of
religious development of Lutheran students enrolled in two small
Minnesota colleges. He reported a mean cognitive development score for
seniors of 4.16.

King (1977) and Kitchener (1977) recognized that an individual's
intellectual development progresses beyond the Position 5 characteristics
described by Perry. In reconceptualizing the Scheme, they developed the
construct of Reflective Judgment to clarify the nature of intellectual
development beyond Relativism. Although they did not use the KneWi
instrument, their work was based on Perry's Scheme and is, therefore,
comparable. Kitchener (1977) reported a mean Reflective Judgment score
for college juniors of 3.65.

In only one study reported to date did the data approximate the
findings of this current study. Blake (1976) conducted a cross-sectional
study of 20 freshmen, 20 sophomores, 20 juniors, and 20 seniors enrolled
in a science-oriented curriculum. Using a one-way ANOVA, he found a
significant difference ($p \leq .001$) between mean scores for freshmen,
sophomores, juniors, and seniors: $\bar{X} = 2.84$ for freshmen, $\bar{X} = 3.13$ for
sophomores, $\bar{X} = 3.55$ for juniors, and $\bar{X} = 3.48$ for seniors, with an
overall range from Position 2 to Position 5. These findings led
Blake (1976), and later Kitchener (1977) and Strange (1978), to speculate whether students in various disciplines develop different reasoning abilities as a result of the method of inquiry and practice used in that discipline, that is, as a result of the nature of the science curriculum. Goldberger (1979) went so far as to speculate that dualistic students may gravitate to science and mathematics curricula where they believe right answers can be found.

Kitchener (1977) also pursued this line of thinking as she examined the types of majors being studied by college students who scored at Positions 2 and 3 and those who scored at Positions 4, 5, and 6 in her study. She found that 55% of those with the lower Reflective Judgment scores were in scientific or technical majors (e.g., Physics, Biology, Pre-Nursing); those with higher Reflective Judgment scores tended to be studying in the liberal or humanistic fields (e.g., Music, Anthropology, Journalism) (Kitchener, 1977, p. 190). She cited the claim made previously by a noted philosopher that:

The teaching of normal science takes the form of indoctrinating students into the existing paradigm. Conflicting theories ... are not evaluated critically. They are not even discussed. (Kuhn as quoted in Kitchener, 1977, p. 191)

Such findings certainly lead one to question the impact of the curriculum on a student's cognitive development as well as the nature or characteristics of students who select various major fields of study.

Since none of these studies indicated that nursing students were among the subjects tested, one begins to wonder why the scores obtained herein do not compare favorably with those obtained in most other studies. In addressing this question, one can examine who the students
are who choose to study nursing as well as how the course of study
designed to prepare a professional nurse is similar to and differs from
the course of study designed to prepare counselors, teachers, or liberal
arts majors. This will be discussed in the sections entitled
"Implications for Nursing Education" and "Implications for Future
Research".

Hypothesis II

HYPOTHESIS II: Baccalaureate nursing students at
higher educational levels will view nursing as more
professional than will baccalaureate nursing
students at lower educational levels.

The Views about Nursing instrument was developed and used to
measure students' views about nursing as a profession. The results of
this study show that senior students in nursing scored highest and
freshman nursing students scored lowest on this measure at both the
beginning and the end of the academic year. These groups' scores were
significantly different beyond the .01 level of significance at both
points in time.

However, as was true for the cognitive development measure,
junior students again did not score higher than sophomore students in
their views about nursing as was expected. Since the differences in
these scores were not significant, questions may be raised as to why
the groups scored the same in their views about nursing.

Studies have shown that students enter baccalaureate nursing
programs with a very traditional view of the nurse and of nursing. They
envision the nurse as primarily task-oriented, subservient, and not
concerned with the scholarly and creative aspects of practice. The
freshman students in this current study were no different. However, the
development of perceptions about nursing as a profession takes an interesting turn when one examines the scores of sophomore and junior students.

In each of the three programs used in this study, students are introduced to nursing in their freshman or sophomore year. Such early courses in nursing frequently are designed, among other things, to provide students with an historical perspective on nursing's development, contrasting the "handmaiden" nurse of the past with the assertive, autonomous, patient-advocate nurse of today. Students are provided with an ideal image of the nurse as a true professional in an attempt to offer them a goal toward which they can strive.

Most often, however, the extent of involvement of these neophyte students in the real or traditional world of the nurse is extremely limited. Many programs either have no clinical courses in this lower division of the program, or they have a course whose clinical component is based primarily in the college laboratory. Some programs provide students with off-campus clinical experiences in traditional (e.g., hospitals or nursing homes) or non-traditional (e.g., senior citizen centers, consumer health education classes) settings.

For those beginning students in the non-traditional settings, there often is no nurse present, and there are few, if any, bureaucratic restrictions to limit what the student is permitted to do under the guidance of his/her instructor. The student, therefore, can sit and talk with patients as much as is needed and desired; or the student can develop and implement programs to teach patients about their health, taking care of themselves, their medications, and so on. The student often is able to be the "ideal nurse" who was described in class.
For those beginning students in the traditional settings, there may not be quite as much "freedom" as described above, and the student must practice within the confines of the agency. However, the learning objectives for the student are so specific and their focus is so limited that the student frequently still is able to be the "ideal nurse" who was discussed in class. The student may go into the hospital simply to interview a patient and, thus, can spend an hour or more talking with that patient. Or the student may go into the setting only to teach a patient about his diet; in this case, the student has weeks to prepare the teaching/learning activities, create teaching aides, and carry out the plans with no concerns for all the other activities that relate to this patient or other patients. Thus, while the student is practicing in the "real world" of nursing, the learning experiences are structured such that the student is able to be "ideal". The sophomore student's perceptions about nursing, therefore, continue to develop toward a more professionally ideal perspective.

From the data in this study, one can see that many junior year students were employed as a nurses' aide or nursing assistant when they supplied that demographic data in the fall semester. Of the 29 freshman students, one (3%) worked as an aide, five (17%) had other types of employment (e.g., clerk), and the remaining 23 (79%) were students only. Four (15%) of the 27 sophomores worked as aides, and eight (30%) had other types of employment; the other 15 (56%) subjects were students only. However, in the junior student group (N = 34), 14 (41%) were employed as nurses' aides, two (6%) worked as licensed practical nurses, and nine (26%) had other employment; only nine (26%) were students only. (The 33 senior students were similar to the juniors in this regard: eleven (33%) were
aides, seven (21%) were licensed practical nurses, nine (27%) had other employment, and six (18%) were students only.)

Despite the support of nursing's professional organizations for the baccalaureate degree as basic educational preparation for professional nursing practice (American Nurses' Association, 1965, p. 6), many nurses continue to challenge this goal, overtly and covertly, and even fight to impede its attainment. (The 1979 New Jersey State Nurses' Association Convention is a good example of such actions. At this meeting, some 1,500 diploma-prepared nurses in the State joined the Association in order that they could vote against a resolution calling for the baccalaureate degree as minimal preparation for entry into practice in the State.) Articles continue to be published in support of the traditional nurse (Newton, 1981). And nurses who are active in politics and professional organizations, who engage in research, and who pursue doctoral study are criticized and even ridiculed by their "colleagues" who do not recognize the value of such activities. For the mature, well-established, experienced nurse, such continuous battles are draining and frustrating. For the young student who is experiencing for the first time this lack of enthusiasm for and support of his/her academic goal, it can be devastating.

When students work as nurses' aides or licensed practical nurses, or when they enter their junior year of a baccalaureate nursing program, they are more likely to be challenged openly and with greater intensity by nurses in practice about their education, their ability, and their professional goals. This may contribute to the lack of a significant increase in scores on the Views about Nursing measure for junior students in this study.
In many baccalaureate nursing programs, the junior year is designed to focus on working with ill people who are hospitalized for a variety of health problems. In most programs, the students' clinical experience is off-campus, in hospitals and major medical centers.

The students' clinical learning objectives are again, specific, but not quite so narrowly focused as they were at the sophomore level. In most cases, junior students are expected to begin to take full responsibility for a patient's nursing care, and to begin to collaborate with the agency's nursing, medical and ancillary staff to plan, implement, and evaluate that care. In such a role, students frequently are challenged, not supported, when they propose different, creative approaches to care; approaches which include involving the patient as a more active participant in his own care, or which involve changing a routine practice based on current research findings, or which are contrary to a physician's decision.

Nursing faculty are aware of their role in supporting the student and continuing to encourage them in their professionally responsible efforts, and they do attempt to fulfill this role. However, the responsibilities that accompany supervising and teaching ten or more beginning students in a complex intensive environment as those students care for ill individuals with many individual and complex nursing needs, may be such that the faculty member's focus is on the needs of the system, rather than on the needs of the student. The faculty member may be more concerned that the medications ordered by the physician are given in the correct doses, in the right ways, to the right patients and on time, than that the students be creative, innovative, and scholarly in their larger role as evolving professional nurses.
Sanford has criticized higher education systems today as failing to plan for and respond to the student's development as a total person. He suggested that:

A central purpose of higher education is the fullest possible development of the whole personality, a purpose that ought to be served by every aspect of the college environment. (Sanford, 1967, p. 157)

Perhaps nursing faculty are no less "guilty" of this than are any other faculty. And perhaps it is during the junior year of a baccalaureate nursing curriculum, particularly at the beginning of that year, when the need for such an emphasis on the student's total development is so critical.

The Views about Nursing scores for senior students were found to increase more than other levels, and to be significantly higher than the freshman students' scores. This may be due to a number of factors:

1. Faculty Attitudes: Perhaps the encouragement that faculty give to the students throughout their clinical experiences -- in class, in the clinical area, in clinical care conferences, and/or in individual discussions -- provide students with the support they need to re-examine and re-affirm their views about nursing as a viable, scholarly profession in which they can and must have some degree of control over their own practice.

2. Peer Attitudes: In addition to receiving encouragement from their faculty, students often are supported by each other. Not all the nurses and physicians they have met in the clinical agencies have been negative or critical; many are quite positive toward students and appreciate their ideas and their idealism. And often the students' ideas and alertness to their patient's situations are well-received and
acted upon with enthusiasm. As students experience this reinforcement, they are stimulated to continue to strive toward a fully professional role as a nurse. And they stimulate others to do the same. Thus, a peer support network develops through which students show one another that "It can be done" and "We can practice in the way we are taught".

(3) Curriculum Components: A number of programs in nursing also include courses, special presentations, or units within courses that focus on the development of assertiveness skills. Thus, students are provided with some very specific strategies to deal with the conflicts or the challenges to their professional goals and ideals that they may encounter in practice.

Most nursing programs also include courses at the senior level in which students examine and analyze various issues facing the profession of nursing today. In such courses, students examine these issues and how they, as soon-to-be-graduates, are affected by the issues; they also, however, discuss how they, as new practitioners entering the field of nursing, can shape and influence the development of nursing and the future of some of these issues and problems.

One of the issues discussed in most courses of this nature is that of professionalism and the current and evolving role of the nurse who engages in professional nursing practice. Thus, with the guidance and support of their faculty and their peers, students may experience a re-affirmation of their positive views about nursing as a profession and even be more positive in those views.

(4) Maturity: One final element that may contribute to the increase in the Views about Nursing scores of the senior students in this study may be their increased maturity as human beings. Although a
significant relationship was not found between the variables of Views about Nursing score and age or marital status or previous educational experience, maturity may account for some of the increase in scores. As students mature, they may be more capable of and comfortable with asserting a point of view that receives limited support or that is different from those of other people. It remains to be seen how long such an attitude can be maintained in the face of constant challenge.

Hypothesis III

HYPOTHESIS III: There will be an increase in scores on a cognitive development measure over an academic year for baccalaureate nursing students.

The increase in scores on a cognitive development measure will be greater for freshman and sophomore baccalaureate nursing students than it will be for junior and senior baccalaureate nursing students.

For each of the four levels of nursing students tested in this study (i.e., freshman, sophomore, junior, and senior), there was an increase in cognitive development scores toward the end of the academic year (i.e., post-test) as compared to the cognitive development scores at the beginning of the academic year (i.e., pre-test):

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th></th>
<th></th>
<th></th>
<th>Post-Test</th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{x} )</td>
<td>S.D.</td>
<td>( \bar{x} )</td>
<td>S.D.</td>
<td>( \bar{x} )</td>
<td>S.D.</td>
<td>( \bar{x} )</td>
<td>S.D.</td>
</tr>
<tr>
<td>Freshmen</td>
<td>2.73</td>
<td>.272</td>
<td>2.82</td>
<td>.350</td>
<td>3.06</td>
<td>.424</td>
<td>3.18</td>
<td>.672</td>
</tr>
<tr>
<td>Sophomores</td>
<td>2.96</td>
<td>.294</td>
<td>3.05</td>
<td>.419</td>
<td>3.10</td>
<td>.338</td>
<td>3.41</td>
<td>.730</td>
</tr>
<tr>
<td>Juniors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.96</td>
<td>.359</td>
<td>3.12</td>
<td>.597</td>
</tr>
<tr>
<td>Seniors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>All</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The differences between the pre-test and post-test scores was not significant for the freshman, sophomore, or junior students, but it was significant for the senior students and for all students. Thus, the
secondary hypothesis stated above was rejected.

One explanation of this phenomenon may be related to the students' clinical experience. At the senior level, students often become very much involved in the care of critically ill patients whose health state is unstable and unpredictable. They experience the inexactness of nursing and medical sciences in treating various conditions and the patient's and family's responses to those conditions. And they experience the crises of death, permanent disability, and decision making related to efforts to sustain life or resuscitate after death.

Seniors also frequently function more independently in the clinical area than they had done previously. In such a role, they are forced to face diversity and uncertainty as legitimate. However, in Perry's Scheme (1970), a Position 3 individual accepts this diversity and uncertainty as legitimate, but only temporarily until Authority finds The Answer.

An examination of the range of scores on the cognitive development measure by level reveals that the highest scores achieved by any single student was 5.583:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test Range</th>
<th>Post-Test Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>2.250 to 3.250</td>
<td>2.250 to 3.666</td>
</tr>
<tr>
<td>Sophomores</td>
<td>2.500 to 4.000</td>
<td>2.333 to 5.000</td>
</tr>
<tr>
<td>Juniors</td>
<td>2.250 to 3.583</td>
<td>2.416 to 4.166</td>
</tr>
<tr>
<td>Seniors</td>
<td>2.583 to 3.916</td>
<td>2.083 to 5.583</td>
</tr>
<tr>
<td>All</td>
<td>2.250 to 4.000</td>
<td>2.083 to 5.583</td>
</tr>
</tbody>
</table>

Of all 123 subjects in this study only 16 (13%) began to show evidence of Perry's broad category of Relativism (i.e., a rating of 3-3-4 or higher) on the pre-test measure, and 31 (25%) reached that level on the post-test measure. No students scored at Perry's Commitment in
Relativism level (i.e., Position 7, 8 or 9).

Knefelkamp (1974) and Perry (1968, 1970) described that a true conceptual shift occurs at Position 5, and Perry (1970) characterized this Position as a major restructuring, "a drastic revolution" (p. 109). For the 123 subjects in this study, only seven (5.7%) showed any evidence of this Position (i.e., a rating of 4-4-5 or higher).

In Position 5, the student is confronted with:

- the realization that he, too, faces the challenge of taking a stand, of affirming his own values and decisions through acts of personal Commitment, and that these Commitments will require of him not only all the reason at his disposal but the courage of something beyond the security which reason alone can provide. (Perry, 1968, p. 36)

For students of nursing, this commitment must be to nursing as a profession, to assuming a professional role, to taking a stand for what one believes to be best regarding the health and well-being of the individuals and families in one's care. Such commitments are affirmative acts of choice in which the individual makes a personal investment; they are not "unconsidered commitments deriving solely from familial and cultural absorptions in a dualistic world" (Perry, 1968, p. 36).

Thus, even though all levels of students showed an increase in their end-of-year scores and even though the change in scores from fall to spring was significant for senior students, 94.3% of all subjects in this study (i.e., 116 students) never even approached the stage where a significant conceptual shift occurs. If these data can be assumed to be reflective of a true state of affairs, the subjects in this study, for the most part, did not grow in their cognitive development at any level or even from the beginning to the end of the four-year program. "Cognitive development theory suggests that development takes place slowly. Large
increases of a stage or more in a single semester would be contrary to prediction" (Kitchener, 1977, p. 54); however, one would certainly expect such increases over a four-year period.

Hypothesis IV

HYPOTHESIS IV: There will be an increase in scores on a measure of perceptions about nursing as a profession over an academic year for baccalaureate nursing students.

The increase in scores on a measure of perceptions about nursing as a profession will be greater for junior and senior baccalaureate nursing students than it will be for freshman and sophomore baccalaureate nursing students.

For each of the four levels of nursing students tested in this study (i.e., freshman, sophomore, junior, senior), there was an increase in Views about Nursing scores at the end of the academic year (i.e., post-test) as compared to the Views about Nursing score at the beginning of the academic year (i.e., pre-test):

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th></th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>S.D.</td>
<td>X</td>
</tr>
<tr>
<td>Freshmen</td>
<td>15.66</td>
<td>8.528</td>
<td>21.07</td>
</tr>
<tr>
<td>Sophomores</td>
<td>23.00</td>
<td>7.942</td>
<td>26.74</td>
</tr>
<tr>
<td>Seniors</td>
<td>26.12</td>
<td>6.244</td>
<td>31.85</td>
</tr>
<tr>
<td>All</td>
<td>21.80</td>
<td>8.352</td>
<td>26.61</td>
</tr>
</tbody>
</table>

The differences between the pre-test scores were significant for the sophomore and junior students at the .05 level of significance and for the freshman, senior and all students at the .001 level of significance. Thus, while the primary hypothesis stated above was accepted and there was an increase in Views about Nursing scores over an academic year for baccalaureate nursing students, the secondary hypothesis -- that the
increase would be greater for juniors and seniors than for freshmen and sophomores -- was rejected.

Due to the nature of a course like the one described earlier which focuses on issues in nursing and which is given during the second semester of the senior year in each of the three programs included in this study, the significant increase in senior students' scores might be expected. However, such a significant change in freshman students' scores was unanticipated at the start of this study because nursing students in many baccalaureate nursing programs have no formal (i.e., through a class or seminar) exposure to nursing in the freshman year.

However, in two of the three programs included here, students do take a nursing course in their freshman year. These courses generally are described as an introduction to the development of nursing as a profession and the evolving role of the nurse. Thus, students do have formal exposure to nursing in this year of the program in these schools. And since the description of nursing and the role of the nurse is so different from that with which students entered the program, it is not surprising that they experienced such a significant increase in their scores.

An analysis of the Views about Nursing responses by level, however, reveals some interesting findings. For example, fewer seniors agreed that "Nurses should have a legitimate role in performing physical examinations for the sole purpose of assisting physicians in making their medical diagnosis" than did students at other levels. Freshman and junior students were more uncertain about nurses being "faithful followers of specific rules imposed by the physician or other sources" than were sophomore and senior students, who tended to disagree with the
statement.

Interestingly, the only students who agreed that "The practice of truly professional nursing can occur only in settings or situations where a physician is not directly involved" were seniors. This could be due to the fact that seniors do believe in this statement from a philosophical point of view, or it could be due to the fact that students at other levels cannot even imagine nurses practicing in settings where physicians are not involved.

The majority of junior students agreed that "The administration of medications is of such a serious nature that it should be a primary activity of nurses"; students at other levels tended to disagree with this statement more often. Most students tended to agree that research is appropriate to the nurse's role and that "Nursing practice must be guided by a conceptual/theoretical framework". Fewer senior students agreed that "a primary responsibility of nurses should be taking the client's/patient's vital signs" than did freshman, sophomore or junior students.

Since the Views about Nursing instrument does not reflect as refined a distinction of categories or classifications of various viewpoints about nursing and the nurse as the Perry Scheme does for categories of cognitive development, it is not possible to draw conclusions from the data in this regard. However, a review of the range of scores on this measure by level may provide some clues. Out of a maximum possible score of 50 on the Views about Nursing measure, the following ranges of scores were found in this study:
<table>
<thead>
<tr>
<th></th>
<th>Pre-Test Range</th>
<th>Post-Test Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>1 to 32</td>
<td>10 to 38</td>
</tr>
<tr>
<td>Sophomores</td>
<td>9 to 36</td>
<td>14 to 40</td>
</tr>
<tr>
<td>Juniors</td>
<td>11 to 43</td>
<td>10 to 42</td>
</tr>
<tr>
<td>Seniors</td>
<td>11 to 43</td>
<td>14 to 42</td>
</tr>
<tr>
<td>All</td>
<td>1 to 43</td>
<td>10 to 42</td>
</tr>
</tbody>
</table>

There appears to be more of a range in scores on the pre-test measure with some freshman students scoring extremely low and some junior and senior students scoring relatively high. This variability in scores is greatly reduced on the post-test measure.

**Hypothesis V**

HYPOTHESIS V: There will be a positive relationship between stage of cognitive development and perceptions about nursing as a profession for baccalaureate nursing students.

Based on the knowledge available about human beings' complexity and holistic development, it was hypothesized that a positive relationship would be found between stage of cognitive development and perceptions about nursing as a profession for students in this study. It also was expected that performance on the cognitive development measure and the Views about Nursing instrument would be positively correlated since the scales have some common dimensions: dependence on authority, acceptance of responsibility for making one's own judgments, and the emergence of wider perspectives and greater complexity of thought.

Indeed, a positive relationship was found between these two variables, significant beyond the .01 level on the pre-test measure and beyond the .001 level on the post-test measure, although the relationship was not a meaningful one. In both instances, the correlation was indicative of a low relationship -- \( r = .26 \) and \( r = .30 \), respectively --
and caution must be used in drawing conclusions about the relationship between cognitive development and perceptions about nursing as a profession.

The results of this study may indeed be indicative of a low relationship; cognitive development and perceptions about nursing are two different constructs rather than two aspects of the same construct. If the relationship were a more significant one, question would need to be raised about whether the instruments actually were measuring the same construct. However, these results may also be indicative of the need for further development and refinement of the instruments used to measure the variables.

**Additional Findings**

It was mentioned earlier that demographic data about the subjects were collected for two purposes: first, to describe the sample, and second, to determine the existence of any relationship between these demographic characteristics and either one or both of the variables under study. A summary of such an analysis is presented here. Pearson product-moment correlation coefficients were computed among all variables, and these data are presented in the correlation matrix, Figure 3.

**Age**

Despite differences in form and content of assessment instruments used, Blake (1976), King (1977), Kurfiss (1975), and Meyer (1975) found that older students tended to score in the Relativistic Positions, especially Position 4. However, consistent with the findings of
Figure 3

Pearson Product-Moment Correlational Matrix among Variables

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test Views</th>
<th>Post-Test Views</th>
<th>Pre-Test C.D.</th>
<th>Post-Test C.D.</th>
<th>Age</th>
<th>Sex</th>
<th>Ethnic Ident.</th>
<th>Marital Status</th>
<th>Full/Part Time</th>
<th>SATs</th>
<th>Occupation</th>
<th>Post-High School</th>
<th>R.N. Status</th>
<th>Dad's Occupation</th>
<th>Mom's Occupation</th>
<th>Spouse Occupation</th>
<th>Theoretical Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test Views</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test Views</td>
<td>.52 (.001)</td>
<td>1.00</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test C.D.</td>
<td>.25 (.002)</td>
<td>.26 (.002)</td>
<td>1.00</td>
<td></td>
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C.D. = Cognitive Development   Views = Views about Nursing   Numbers in parentheses indicate levels of significance, P < .05
Strange (1978), no marked relationship was found between age and cognitive development in this current study; Strange's (1978) findings provide evidence that chronological maturation alone does not account for differences in intellectual development that occur during the college years.

The relationship between age and cognitive development on the pre-test measure in this study was significant beyond the .01 level of significance ($p = .002$) and beyond the .001 level ($p = .001$) on the post-test measure, but the relationships were low in both instances (i.e., $r = .27$ and $r = .35$, respectively). Thus, it would seem that chronological age of subjects in this study did not in and of itself influence cognitive development. Indeed, "although development of higher forms of reasoning is age related, age is not sufficient to predict a person's point in the developmental process" (Kitchener, 1977, p. 11). Basically, "an assumption of cognitive developmental theory is that age is a necessary but not sufficient condition for development" (Kitchener, 1977, p. 41).

**Sex, Ethnic Identity and Marital Status**

Strange (1978) reported that:

> The attributes associated with masculinity in the literature on sex-role stereotyping (i.e., autonomous thinking, clear decision making, responsible action) bear a striking resemblance to the same qualities attributed to the probabilistic mode of reflective judgment. (p. 141)

This probabilistic mode of reflective judgment is the highest position in the Reflective Judgment scale. And Blake (1976) reported that male students tended to score higher on cognitive development measures than did female students. However, in this current study, while several of
the relationships between these demographic variables (i.e., sex, ethnic identity, and marital status) and cognitive development or views about nursing were significant beyond the .05 level of significance, all of the relationships were negligible using Van Dalen's (1973) categorizations.

Student Status and Occupation

Unlike Shortridge's (1977) findings that students employed as nurses' aides and those working as licensed practical nurses had different attitudes toward professional nursing behaviors than those students not so employed, no such relationship was found in this current study.

Scholastic Aptitude Test (SAT) Scores

The mean SAT score for the total group of subjects in this study was 1035.64 (S.D. = 127.49). Again, the relationships between these self-reported scores and the measures of cognitive development and views about nursing were negligible on both the pre-test and the post-test measures of the latter variables. Thus it would seem that for the subjects in this study, their level of intellectual ability as measured by the standardized SAT was not directly related to their cognitive development as measured within the Perry (1970) framework.

These findings are in conflict with Goldberger, et al. (1978) who found that Relativistic students had a higher grade point average and higher SAT scores than did Dualistic or Multiplistic students. They also are in conflict with Rest (1976a) who reported correlations of .20 to .50 between tests of intellectual ability and the Defining Issues Test,
Schroeder, et al. (1967) who reported a correlation of .40 between intelligence and the paragraph completion test, Kitchener (1977) who reported an overall correlation of .79 between the reflective judgment measure and the Concept Mastery Test, which is designed to measure abstract thinking at a high level, and Kohlberg (1969) who reported correlations between .30 and .50 between his moral judgment interview and intelligence. However, the data in this current study are consistent with those reported by other researchers: Widick (1975) who reported a low, non-significant relationship ($r = .06$) between scholastic aptitude and scores on the Perry Scheme, and Loevinger (1970) who reported low to moderate correlations between intelligence and her sentence completion test.

The subjects' SAT scores also had no apparent bearing on their perceptions about nursing as a profession which is unlike Anderson's (1967) findings that students who were above average in traditional measures of intellectual ability had a more positive view of the nurse and nursing, and held a view of the nurse and nursing which was more consistent with that of their faculty.

**Post-High School Educational Experience and Registered Nurse Status**

Again, all relationships between post-high school educational experience and cognitive development and perceptions about nursing as a profession were negligible. One can conclude from this that previous exposure to a nursing program (for the Registered Nurse students in the sample) did not significantly influence the view about nursing -- either positively or negatively (which is intimated by antagonists to diploma and associate degree education for nurses) -- for the nine Registered
Nurses in this study; this is, however, a very small number of Registered Nurses from which to draw any definite conclusions.

Of the 123 subjects in this study, 30 (24%) had some educational experience after high school other than the program in which they were enrolled during this study. It was anticipated that the educational environment in which they studied previously may have influenced their cognitive development, either facilitating or inhibiting it. This was not found to be the case as the relationships were negligible ($r = .18$ on the pre-test and $r = .19$ on the post-test).

The lack of a marked relationship between perceptions about nursing as a profession of cognitive development and these two demographic variables may be due to a true lack of relationship or it could be due to the grouping of all these subjects together. Indeed, further exploration of the nature of the educational environment experienced previously by a student and the student's present stage of cognitive development may reveal more significant relationships when various types of previous educational environments (e.g., diverse and complex, or simplistic and conforming) are used as the more specific variables. Such an analysis was beyond the scope of this study.

Parents'/Spouse's Occupation

Unlike Shortridge's (1977) findings of differences in attitudes toward professional nursing behaviors for subjects whose family members included health professionals, no such relationships were found here between perceptions about nursing as a profession and parents' or spouse's occupations. 6.5% of the subjects' fathers, 19% of their mothers, and 1% of their spouses were reported to be engaged in health-related occupations.
Conceptual/Theoretical Framework of the Nursing Program

Each of the three programs used in this study have clearly explicated the conceptual framework used to organize their nursing curriculum; this was evident in their catalogues and in other printed material. It was anticipated that students who were aware of the school's framework and could identify it correctly may have developed a more professional view about nursing and the role of the nurse as a thinking, intellectual practitioner, and, thus, would score higher on the Views about Nursing measure.

While the relationship between the student's ability to correctly describe their school's conceptual/theoretical framework and the student's Views about Nursing score was significant beyond the .05 level on the pre-test and the .01 level on the post-test, they were negligible to low relationships (r = -.16 and r = -.24, respectively). It is interesting to note, however, that these relationships are negative, indicating that those students who can correctly identify the framework scored lower on the Views about Nursing instrument.

A finding such as this negative correlation warrants further study regarding the degree of "indoctrination" of the theoretical framework. Perhaps those students who are so well aware of the conceptual/theoretical framework also are "indoctrinated" to it to the extent that they cannot generalize about nursing and the nurse but can relate the role of the nurse only to specific activities suggested by the framework. In other words, if statements about nursing and the role of the nurse were not written in the terminology or from the perspective of "their theoretical framework" (which they were not in this study), the student might not be able to extract the general concept inherent in the
statement with which he/she could then agree or disagree.

Other

A review of the interrelationships of the demographic variables with each other reveals several findings worthy of note. First, the expectation that age and marital status as well as age and student status and age and post-high school educational experience were related were supported: as the age of the student increased so did the student's move from single to married ($r = .55, p = .001$); as the age of the student increased, so did the student's status as a part-time rather than a full-time student ($r = .56, p = .001$); and as age increased so did students' experiences with other post-high school educational environments ($r = .60, p = .001$).

The relationship between identification of the school's conceptual/theoretical framework and age was significant at the .001 level with the correlation being -.47. This is a marked inverse relationship indicating that as the student's age increased, the ability to accurately identify the theoretical framework decreased. This finding warrants further study to help explain it. Some explanation may be provided through the speculation that older students have experienced more of life (and possibly other educational experiences) without a concern for or involvement with a construct such as "theoretical framework". To include such a construct in their realm of thinking and their conscious awareness requires a greater change in their approach to situations than it does for the younger student who has less to "unlearn" or to "change".
Implications for Nursing Practice

While the focus of this study was on students in an educational environment, the findings have implications for nursing practice. The sub-group of the subjects studied that will be entering the practice world of nursing and assuming responsibility as beginning practitioners of professional nursing is the senior students tested at the end of the spring semester. At this point in their development, they are likely to be influenced little more by the educational environment and will enter the nursing practice world with the abilities and attitudes they currently possess.

As reported, the mean cognitive development score for senior nursing students at the end of the academic year was 3.41. The range of scores was 2.09 to 5.58, with only 15% of all senior students showing any evidence of Perry's broad category of Relativism. If we assume Perry's stages of cognitive development are broad enough that they provide cues as to how an individual may function in any setting -- academic or non-academic -- the implications for nursing practice are clear.

In its struggle to gain status as a profession and an autonomous group in control of its own practice, nursing has advocated that its professional practitioners act independently and interdependently, take responsibility for making nursing decisions in complex situations, establish an identity as a nurse with a lifelong commitment to the advancement of nursing, and not be a subordinate to the physician or any other member of the professional health team.
Sutterley and Donnelly (1973) lamented that "there has always been a trend toward conformity in nursing" (p. 310). Instead, they agreed with the National League for Nursing that nursing needs practitioners who are flexible, creative and tolerant in their approaches to dealing with health problems; they claim that there is "increasing pressure on the nurse to acquire not only new knowledge but new ways of thinking and operating" (Sutterley & Donnelly, 1973, p. 310). Such new ways of thinking are essential for professional nurses since in practice, they are asked to tolerate a certain amount of uncertainty which is irreducible as they face many "situations of ambiguity and uncertainty, when the consequences of one's own actions are difficult to predict" (Carper, 1975, p. 157).

In addition, nurses are expected to assist clients/patients to make decisions for themselves regarding their health care and to support them in those decisions even if they are different from what the nurse would have decided for him/herself in a similar situation. For example, a nurse may believe personally in taking advantage of any and all alternatives that may prolong life (e.g., drugs, radiation and radical surgery) and may choose that course of action for him/herself when faced with a life-threatening illness. However, as a professional helper, the nurse is expected to help patients consider various alternatives (including that of no treatment) and support them even if they choose not to take advantage of measures to prolong life.

In terms of cognitive development and the Perry Scheme, the ability to assume the professional role just described requires that the nurse be at Position 5 or higher. It is only at Position 5 that the individual "perceives all knowledge and values (including authority's) as contextual
and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context" (Perry, 1970, pp. 9-10).
Perry (1968) saw Position 5 as a "complete revolution" (p. 34) in outlook, and it is at this Position and beyond that the person engages in "orienting himself in a relativistic world through the activity of personal Commitment" (Perry, 1968, p. 13). Only three subjects in this study approached or were at Position 5 at the end of their senior year.

These students, then, when they assume a nursing role will need an environment that continues to support them in their present stage of cognitive development and challenge them to progress to higher stages. Such an environment was shown to be facilitative of development in studies by Knefelkamp (1974), Stephenson and Hunt (1977), and Widick (1975), among others, and the concept of support and challenge has been advocated by Sanford (1967) as essential to development. Nursing administrators and others in leadership positions in the profession will need to provide continuing education and/or in-service programs to meet this need, and they will need to help practicing nurses develop support systems to assist them in this development.

Widick et al. (1975), Kohlberg and Blatt (1972), Rest (1973), and Sanford (1967) advocate that attempts to facilitate cognitive development be carried out in the mode of "plus-one staging". In essence, this consists of challenging the individual with ideas and situations which require thinking at the stage above where they currently stand. Such an approach avoids stagnation (which would occur if the environment supported individuals in their current position but never challenged them to move forward) and/or overwhelming frustration (which would occur if the
environment constantly challenged individuals with situations far beyond what they are capable of managing and provided no support during such difficult times).

Thus, nursing practice, as it is envisioned by the profession's leaders, may be possible only if concerted efforts are made to continue the nurse's development of his/her cognitive structures. A focus only on the continued development of technological skill or even on theoretical bases for practice may not be sufficient if this is done without attention to cognitive development as well.

A great deal of attention is being paid recently to the moral development of nurses (Ketefian, 1981; Munhall, 1979). Indeed, nurses often become involved in practice situations that demand making judgments in the face of ethical dilemmas, and their level of moral reasoning is important to study, to be concerned with, and to develop. However, since cognitive development appears to be a precursor to moral development (Clinchy et al., 1977; Kurfiss, 1975; Meyer, 1975; Stephenson, 1976; Tomlinson-Keasey & Keasey, 1974), a focus on developing moral reasoning ability in nurses without a concomitant focus on the development of cognitive structures would seem somewhat futile.

The Views about Nursing instrument used in this study was developed as a measure of the student's perceptions about nursing as a profession and the role of the nurse. It was based on characteristics which have come to be accepted as essential for a professional group and designed to reflect the current conceptualizations of the role of the professional nurse and of nursing.

On this measure, the mean score of last semester senior nursing students was 31.85 (maximum possible score was 50), with scores for this
group ranging from a low of 14 to a high of 42. One senior student student (3%) scored at or below 20, twelve (36%) scored in the 21 to 30 range, 17 (52%) scored in the 31 to 40 range, and only three (9%) scored above 40 on this measure.

From these data, one can infer that while the majority of scores (61%) were above 30, there were few who scored very high on this measure. Of course, the limitations of the instrument and of the small sample size must be considered before generalizations can be made. However, one does question the limited degree to which professional characteristics are and are not being used by senior nursing students to describe their chosen field.

Such data also lead one to raise additional questions. Even if a student scores high on the Views about Nursing instrument, is this score truly reflective of the student's perceptions about nursing and the role of the nurse? Or is it reflective of the extent to which the student has blindly taken on the words and perceptions of nursing faculty and nurse authors? Do students recognize certain key words, such as "function independently", and remember from their readings and class discussions that professional nurses "should" function in this way and they "should" agree with a statement that implies or asserts such a role for nurses?

To carry this line of questioning further, one also may ask whether the perceptions about nurses and nursing held by this student have any bearing on how he/she actually functions in practice. Even if the student genuinely believes a professional nurse should be expected to act independently in practice, will that student act in this fashion when he/she engages in practice? Stern (1964) analyzed the dimensions of Lewin's classic definition of behavior: $B = f(P, E)$, namely that
behavior is a function of the person and the environment. The person has three components: percepts (i.e., recognition, an awareness of what is relevant), needs, and sanctions (i.e., the appropriateness of the behavior to the particular circumstances (Stern, 1964, pp. 161-162). Thus, beliefs and attitudes or percepts are a necessary, but perhaps not sufficient component of behavior.

Implications for Nursing Education

The clearest implications of the study described herein are for nursing education. The data presented show that students do progress in their cognitive development and their views about nursing over the course of an academic year and from one year to the next. And since neither variable seems to be directly related to age alone, there is an implication that something has happened during this professional nursing education experience to facilitate development in these areas for the subjects as a whole. However, the low levels of cognitive development and perceptions about nursing reached by students at the end of their senior year lead one to question whether the educational program offers all that it could to facilitate and enhance development in these areas. Since an understanding of how the development of concise and clear reasoning abilities occurs, and specifically the sequence through which more adequate reasoning proceeds, can provide useful information to educators in "understanding students' cognitive orientations, and in promoting their intellectual development" (King, 1977, p. 199), one wonders whether nurse educators are doing all they can in this area.

In facilitating cognitive development, for example, do nurse educators stress too frequently the "life and death" situations that
occur in practice and the responsibilities of the nurse for "having someone's life in her hands"? Perhaps nurse educators attempt too enthusiastically to emphasize the serious nature of nursing and fail to help students recognize that nursing is an imperfect discipline. Indeed, despite all the studies of human beings conducted by psychologists, sociologists, biologists, anthropologists, and nurses, we still conclude that each person is a unique individual whose needs and behaviors cannot be predicted precisely, if they can be predicted at all. Thus, uncertainty and ambiguity are irreducible in nursing, and students must be assisted to develop ways to manage such uncertainty and ambiguity and diversity.

Students of nursing need to be helped to see this uniqueness of each individual and to combine this recognition with their appreciation for science and research. Such a combination should help students realize that while there is a scientific basis to nursing practice and they need to draw upon it continually to make predictions and take actions, there also is a humanistic element that is vital to nursing, and the human beings with whom we work cannot be categorized and classified and predicted along all dimensions of humanness. Thus, nurses must develop the knowledge, the skill, the tolerance and the flexibility to work in uncertain, unpredictable and unstructured situations with a population as diverse in knowledge, motivation, skill, moral values, and self-esteem as human beings can be. If nurses are expected to work with and provide support to all people, they must be assisted to develop the cognitive, interpersonal and psychomotor skills to assume such a role. This is the task of the nurse educator.
Teachers of nursing cannot and should not be content with measuring students' skill levels or intellectual levels as reflected on paper-and-pencil tests. They must be concerned, as Sanford (1967) and Kohlberg and Mayer (1972) asserted, with the total development of the student. In preparing students for roles as professional nurses, educators in baccalaureate nursing programs must be concerned, in particular, with helping students learn how to think, and learn how to learn. They must be concerned with the development of students' cognitive structures and their ability to manage knowledge and information.

Sutterley and Donnelly (1973) pointed out that "the kinds of experiences which stimulate cognitive stage development are very different from the focus of ordinary schooling which stresses direct academic teaching of information and skills" (p. 225). They provide some guidelines for the direction which nursing education should take in this regard; such direction may likely facilitate cognitive development as well as more professional views of nursing and the nurse:

Finding answers or solutions to vexing problems [such as are encountered by the nurse] requires not only creative thought but creative action as well. Too often in a closed teaching system the message is conveyed that there is "one right way" to do things. This is most restrictive to the operation of the creative process. (Sutterley & Donnelly, 1973, p. 310)

As students enter the traditional, bureaucratic hospital for clinical experiences, they need to be challenged and encouraged and supported to think about and try a variety of alternative solutions to the problems they face, to be creative, to fail if necessary, and to act in a way professional nurses are expected to act. Indeed, as
Duckworth (1972) has asserted, students must be encouraged -- not merely allowed -- to "have wonderful ideas". They must not be encouraged only to read the "Policy and Procedure Manual" or call the physician or "ask the head nurse" to solve problems. Such reliance on authorities fosters dependency and a stage of cognitive development designated by Perry as Dualism. And it perpetuates the handmaiden image of the nurse, an image which nurses have been trying to dispell for years.

This challenge to be creative, to appreciate and manage the multiple perspectives encountered in nursing, and to work independently and interdependently seems to be most critical during the junior year of the program if the findings of this study are an indication of the true progression of cognitive development in baccalaureate nursing students. Except for freshman students, the juniors scored lowest on both the pre-test and post-test measures of cognitive development.

Dunning, et al. (1977) reported data which supported a conclusion that the junior year of the nursing curriculum is a particularly stressful time for students. Although the overall growth in students from the classes they studied was in the direction of more abstractness, more independence, and less structure, the data reported by Dunning, et al. (1977) in this regard showed approximately 39% of the students experienced "growth recession" during the junior year. Perhaps this is the year in a baccalaureate nursing program where the most skilled, the most supportive and the most human-development-oriented faculty should be teaching.

Nursing educators espouse a responsibility for helping students develop an attitude toward and a commitment to nursing that is consistent with the characteristics of professions. Yet very poor measures of this
affective domain exist, and this area often is neglected because of the difficulties encountered in measuring such development. If educators are concerned with preparing mature, responsible individuals capable of engaging in a professional practice role, can this dimension of students' development continue to be ignored? Or can educators assume that through their lectures, their reading assignments, and their role modeling, students will develop a view of nursing and a love of and commitment to the profession essential to a professional?

Implications for Nursing Research

The findings of this study, the interpretations made of the data, and the implications drawn from the data all are sources of stimulation for future research endeavors in the areas of cognitive development and perceptions about nursing as a profession. Due to the limitations of the study reported herein (particularly in terms of a relatively small sample size and an instrument that needs further refinement and testing), one recommendation for future research is to replicate this study after having overcome these limitations.

Additionally, a more longitudinal study would yield valuable information since:

Mapping out the cognitive processes of intellectual growth during the college years, and determining the degree to which the college experience plays a significant role in such development, either by mutual selection or direct impact, are questions better explored through carefully controlled longitudinal studies. (Strange, 1978, p. 160)

The area of instrument development in and of itself warrants research endeavors. The essay-type instrument used here to measure cognitive development requires a great deal of time for subjects to
complete and raters to score, as well as special training as a Perry rater. Efforts to develop less cumbersome instruments which could be used by nurse educators and nurse administrators would be an asset in this area. Perry (1970) and several of his colleagues contend that only the interview or essay format is an appropriate mechanism to gather data about an individual's cognitive development; however, Neves (1980) utilized Perry's framework to develop an objective-type, multiple choice "test" to measure health-related cognitive structures that was shown to be a valid and reliable measure. Such accomplishments suggest future efforts in this area may prove extremely valuable.

As mentioned, nurse faculty often express great concern about finding some objective way to measure students' perceptions about, attitudes toward, and commitment to nursing. Perhaps instrument development research efforts on the Views about Nursing instrument would prove to be effective in meeting this expressed need.

In the area of nursing practice, data about the cognitive development and perceptions about nursing of nurses in practice would yield valuable information, especially if studied in relation to the environment in which they practice. Data about the continued development, regression, or stabilization of the stage of cognitive development of nurses studied upon graduation and at various intervals thereafter (e.g., six months, one year, two years, five and ten years) would provide insight to the effect of the environment on this variable.

It was mentioned that two of the themes central to the Perry Scheme are decision making and relationship to authorities, both of which are essential components of nursing practice. A study of the relationship between the concept of cognitive development and (1) a measure of decision
making abilities and (2) a measure of locus of control as evidenced by nurses in practice would yield useful information about these characteristics of nurses. In the study by Blake (1976) of undergraduate students in science curricula, a low positive significant relationship was found between cognitive development and locus of control for senior students only. Does this correlation exist for all students? To the same degree? Does it change after graduation? To what extent?

An extension of these questions suggests that a study of the correlation between cognitive development scores and the decisions actually made in nursing practice situations be conducted. The responses of a nurse to a questionnaire about decision making, or to hypothetical situations, or to Rotter's (1966) locus of control scale may not be reflective of what the nurse would actually do in a true practice situation. It is this latter instance which is at the heart of nursing.

The relationship between attitudes or perceptions and behaviors is important to consider regarding nurses' and student nurses' views about nursing as a profession. To "strongly agree" with a statement on a questionnaire that "Research is a responsibility of all professional nurses" and then never read professional journals, never attend research conferences, never ask questions about one's practice, or never use published research as a basis for one's practice, belies one's true commitment to engaging in truly professional practice and one's commitment to research as a professional responsibility.

The development and fostering of perceptions and behaviors that reflect a professional practice is a valuable area for future study. Comparing students enrolled in the three types of nursing programs -- baccalaureate, associate degree, and hospital-based -- or comparing
students from schools with different learning environments with an analysis of various factors in those environments would yield information that could be used to design developmental environments to most effectively accomplish program goals and objectives, environments which enhance professional development to the greatest degree. Do upper division baccalaureate nursing programs facilitate such development to a greater extent than programs which begin the major in the freshman or sophomore year, or vice versa? Do programs organized within a conceptual framework that reflects a nursing theory (e.g., self care [Orem, 1981] or adaptation [Roy, 1970]) graduate nurses who are able to assume and maintain a professional practice role more than graduates of a program that is organized within a conceptual framework that is not specifically nursing (e.g., growth and development or the life cycle of man)? Copes (1979b) noted that only one study used the same methods to gather data about students at different institutions; he suggested research be done regarding "how the nature of an academic institution might affect students' conception and, eventually, learning of [an academic discipline]" (p. 12). Such a suggestion deserves attention.

And what of the environment provided for the nurse in the practice arena? Does it encourage and support nurses' autonomy, responsibility, continued professional development? Or does it reward efficiency and cost-effectiveness only? If a developmental environment (Orem, 1981) with a balance of challenge and support (Knefelkamp, 1974; Sanford, 1967) is necessary to enhance the growth of patients and of students, is it not also necessary to enhance the growth of nurses? Many agencies which employ nurses today have Staff Development Departments. It would be interesting to study the focus and activities of such departments and
note the impact on (1) the continued development of a commitment to
and a professional view about nursing, and (2) the nurse's actually
assuming a role as a professional as defined in this study (e.g.,
Flexner, 1915; Schein, 1972).

The concept of a developmental environment to facilitate cognitive
development of students has been the focus of some research activities
(Knefelkamp, 1974; Stephenson & Hunt, 1977; Widick, 1975). However,
these studies have involved a one-semester course and have centered in
the liberal studies area. No studies have been reported to date
describing such efforts in a nursing program and/or on a school-wide
and program-wide basis. Perhaps with such developmental instruction,
the findings of Perry (1968) -- that "the Position at which a student
was rated as a freshman was not predictive of the Position at which he
would be rated in his senior year" (p. 15) -- would be altered. And
perhaps more students would be rated at higher Perry Positions upon
completion of a program of study than was found in this research.

Indeed, Kurfiss (1975) indicated that Perry's work suggests that:

The distance travelled by students along the
epistemological path will be determined by the
degree to which the colleges they attend stress
relativistic thinking and offer opportunities
for them to exercise critical and analytical
tools. (p. 81)

We must question how well this has been the case in nursing education.
Questions for further study could also reasonably be related to the
identification of when growth occurs most along this "epistemological
path" and how such growth can be facilitated. Questions related to the
degree of cognitive growth possible within a semester or an academic year,
when faculty engage in concentrated efforts to balance challenge and
support and enhance such development, also are valuable ones to study.
In order to create and implement an environment as described above, one would need to know very well who the faculty are and how they are "matched" with the students they teach. Through interviews with faculty, Lawson (1976) has found that (1) the faculty emphasized two major areas of student development, namely, professional development and issues of personal identity (Froberg & Parker [1976] reported similar findings with the faculty they studied), (2) the faculty felt they were contributing to students' growth by accentuating the multi-faceted nature of the world, and (3) most faculty acknowledged that "being a part of students' lives as they form critical attitudes and belief systems" (Froberg & Parker, 1976, p. 16) was embedded in their role of teacher. Despite this, student and faculty expectations often were "mismatched".

Lawson (1976) has been involved in developing teaching models designed to match the teacher's approaches and the developmental level of students. This work arose from discrepancies reported to her between student expectations and faculty expectations about the role of the teacher, answers to questions, and the student's role and responsibilities in learning. Lawson (1976) has consulted with faculty to help them "plan course content and sequence curriculum in order to take into account the developmental level of the students" (p. 2). Perhaps such activities are particularly critical in nursing where "life and death" situations do exist, where the discipline is only beginning to develop its scientific basis and to explore many questions about practice, and where the humanness and uniqueness of the individuals/families/groups/communities to whom nurses provide care demands a relativistic view of the world and a commitment to a personal identity within that relativism.
Finally, continued study into the nature of the discipline of nursing itself is warranted. Copes (1979b) recognized that some work has been done to date regarding student development in specific areas: Slepitza and Knefelkamp (1975) have developed a model for development in career choice, Meyer (1975) has studied the area of religious development, and Copes (1979b) reports about two researchers working on a model describing moral development. He also noted, however, that little work has been done on models for epistemological development in particular academic areas. Strange (1978) also questioned whether students in various disciplines develop different reasoning abilities "as a result of the syntax and method of inquiry characteristic of [the] discipline" (p. 163).

Phenix (1964) has proposed several "ways of knowing" and related these to various disciplines, and Carper (1975, 1978) has begun to describe "Ways of Knowing in Nursing". However, work in this area is in its infancy stage and needs further work. Questions such as the following may be of interest to nursing: What is the epistemology* of nursing? What are the unique ways of knowing in nursing? How are they taught or transmitted? How are they enhanced? How do they relate to cognitive development? Such work is essential if nursing is to continue to evolve as a scientific discipline and if nursing education is to have a sound theoretical basis.

* Phenix (1964) defined epistemology as follows: That branch of philosophy concerned with "the problem of knowing in its most general form", especially in reference to what it means to know, the nature, limitations and methods of validating knowledge, and the kinds of knowing there are and how they are related to one another. (p. 263)
In summary, this study of cognitive development and perceptions about nursing as a profession of baccalaureate nursing students can serve as a stimulus for research endeavors in nursing education, nursing practice, and the continued development of the profession. The time for such research and such development activities must not wait.
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Appendix A

Schools Contacted
Regarding Participation in the Study
Schools Contacted
Regarding Participation in the Study

Connecticut
Fairfield University, School of Nursing, Fairfield
Southern Connecticut State College, Division of Nursing,
    New Haven
University of Bridgeport, College of Nursing, Bridgeport
University of Connecticut, School of Nursing, Storrs
Western Connecticut State College, Department of Nursing,
    Danbury

Delaware
University of Delaware, College of Nursing, Newark

District of Columbia
American University, Lucy Webb Hayes School of Nursing,
    Washington
Catholic University of America, School of Nursing, Washington
Howard University, College of Nursing, Washington

Maryland
Coppin State College, School of Nursing, Baltimore
Towson State College, Department of Nursing, Towson
University of Maryland, School of Nursing, Baltimore

Massachusetts
Boston College, School of Nursing, Chestnut Hill
Boston University, School of Nursing, Boston
Fitchburg State College, Department of Nursing, Fitchburg
Northeastern University, College of Nursing, Boston
Salem State College, Department of Nursing, Salem
Simmons College, Department of Nursing, Boston
Southeastern Massachusetts University, College of Nursing,
    North Dartmouth
University of Lowell, Division of Nursing, Lowell
University of Massachusetts, School of Nursing, Amherst

New Hampshire
St. Anselm's College, Department of Nursing, Manchester
University of New Hampshire, Department of Nursing, Durham
New Jersey

Bloomfield College, Presbyterian Department of Nursing, Bloomfield
Fairleigh Dickinson University, Department of Nursing, Rutherford
Jersey City State College, Department of Nursing, Jersey City
Rutgers, The State University of New Jersey, College of Nursing, Newark
Seton Hall University, College of Nursing, South Orange
William Paterson College of New Jersey, School of Nursing and Allied Health, Wayne

New York

Adelphi University, School of Nursing, Garden City
Alfred University, School of Nursing, Alfred
City College of the City University of New York, School of Nursing, New York
College of Mount St. Vincent, Department of Nursing, Riverdale
Columbia University, Faculty of Medicine, Department of Nursing, New York
Dominican College of Blauvelt, Division of Nursing, Blauvelt
D'Youville College, Division of Nursing, Buffalo
Hartwick College, Department of Nursing, Oneonta
Herbert Lehman College of the City University of New York, Department of Nursing, Bronx
Hunter College of the City University of New York, Hunter College-Bellevue School of Nursing, New York
Long Island University, Richard L. Conolly College, Department of Nursing, Brooklyn
Molloy College, Department of Nursing, Rockville Center
Mount Saint Mary College, Division of Nursing, Newburgh
New York University, Division of Nursing, New York
Niagara University, College of Nursing, Niagara University
Russell Sage College, Department of Nursing, Troy
Skidmore College, Department of Nursing, New York
State University College of Arts and Sciences, Division of Nursing, Plattsburgh
State University of New York at Albany, School of Nursing, Albany
State University of New York at Binghamton, School of Nursing, Binghamton
State University of New York at Buffalo, School of Nursing, Buffalo
State University of New York, Downstate Medical Center, College of Nursing, Brooklyn
Syracuse University, School of Nursing, Syracuse
University of Rochester, School of Nursing, Rochester
Wagner College, Department of Nursing, Staten Island

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Pennsylvania

Albright College, Department of Nursing, Reading
Allentown College of St. Francis De Sales, Department of Nursing, Center Valley
Carlow College, Department of Nursing, Pittsburgh
Cedar Crest College, Department of Nursing, Allentown
College Misericordia, Department of Nursing, Dallas
Dusquesne University, School of Nursing, Pittsburgh
Holy Family College, Department of Nursing, Philadelphia
Our Lady of Angels College, Department of Nursing, Aston
Pennsylvania State University, Department of Nursing, University Park
Thomas Jefferson University, Department of Baccalaureate Nursing, Philadelphia
University of Pennsylvania, School of Nursing, Philadelphia
University of Pittsburgh, School of Nursing, Pittsburgh
Villa Maria College, Erie Institute for Nursing, Erie
Villanova University, College of Nursing, Villanova
Widener College, School of Nursing, Chester

Rhode Island

Rhode Island College, Department of Nursing, Providence
Salve Regina College, Department of Nursing, Newport
University of Rhode Island, College of Nursing, Kingston

Vermont

University of Vermont, School of Nursing, Department of Professional Nursing, Burlington

Virginia

Eastern Mennonite College, Department of Nursing, Harrisonburg
George Mason University, Department of Nursing, Fairfax
Hampton Institute, Department of Nursing, Hampton
Radford College, Department of Nursing, Radford

West Virginia

Alderson-Broaddus College, Department of Nursing, Philippi
West Virginia Wesleyan College, Department of Nursing, Buckhannon
Appendix B

Letter Sent to Deans of the Schools Contacted Regarding Participation in this Study
July 20, 1979

Dear

I am a doctoral candidate at Teachers College, Columbia University in the Department of Nursing Education and am at the dissertation phase of my studies. It is in relation to my dissertation that I am writing to you.

My research is designed to describe the cognitive development, the perceptions about nursing as a profession, the changes which occur in both variables over the span of an academic year, and the relationship between the two variables -- all in freshman, sophomore, junior, and senior baccalaureate nursing students. The research design calls for an early Fall and late Spring testing of 12 to 15 students from each level in four to five schools in the northeast, and I would like to invite you and your students to participate in this study.

In order that you may make an informed decision about participating, I will describe what I see as being involved:

1. I would like to meet with you and/or your designee in mid-to-late August to arrange the details of your participation.

2. I would ask that you supply me with a list of the students in each year of your program so that I may select potential subjects from the lists, using a table of random numbers.

3. I would like to send a letter to the students who have been selected inviting them to participate, and, thus, would require the addresses of those 50 (approximately) students.

4. I would like to visit your school for one day each during the first month of the Fall semester and during the last month of the Spring semester to administer the instruments. Completion of the instruments will require approximately 45 minutes of the student's time, so I will not request class time. Rather, I could station myself in a room somewhere on campus (hopefully that can be arranged) and make appointments with the involved students to come to me throughout the day to complete the instruments.
(5) Students will be required to sign a permission form which protects their rights as human subjects, but all responses will be marked only with a code number to protect their anonymity.

(6) Neither your school nor individual students will be identified in the analysis of data or the reporting of the study.

(7) I will be pleased to send you a copy of the abstract of my study upon its completion. I also will be happy to send a letter for each student's file describing his/her participation in this study if he/she so desires.

I am excited about this study and hope that you would be willing to participate in it with me. I have enclosed a stamped, self-addressed response form for your convenience. I ask that you complete it as directed and return it to me as soon as possible, hopefully not later than August 10, 1979. I will be in touch with you soon after receipt of your reply to arrange the details of your participation if you so decide.

Thank you for your cooperation, and I look forward to hearing from you soon.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Enclosures
Response to Request for Participation in the Study
Being Conducted by Theresa M. Valiga

DIRECTIONS. Please check "A" or "B" and complete "C" below. If you check "A", please complete "D" through "G" below also. Return this form in the enclosed envelope as soon as possible. Thank you.

A. __________ I am interested in our school participating in this study.

B. __________ I am not interested in our school participating in this study.

C. Name and Title of Person Responding:
   __________________________________________
   School: __________________________________

D. Name and Title of Person to Contact (if different from above):
   __________________________________________
   Phone Number (including area code): ________________

E. Approximately how many nursing students does your program have at each of the following levels?:
   Freshman _______ Junior _______
   Sophomore _______ Senior _______

F. Are students admitted to the nursing program as Freshmen?
   Yes _______ No _______

G. When does the nursing major begin for most students? (Check one from each column):
   Freshman Year _______ Fall semester _______
   Sophomore Year _______ Spring semester _______
   Junior Year _______ Summer semester _______
   Senior Year _______ Other (specify) _______

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Appendix C

Letter to Students

Regarding Participation in this Study
Dear Student:

I am a doctoral candidate in the Department of Nursing Education at Teachers College, Columbia University, and currently I am engaged in research concerning nursing students' progression through the college years. Specifically, I am studying (1) the issues and concerns which nursing students deal with and how they think about those issues and concerns, and (2) the views which nursing students have about nursing. I also am interested in the changes which do or do not take place in both of these areas over an academic year. Such descriptive data will provide a basis for assessing the extent to which the University is and can be meeting students' needs and the extent to which it facilitates students' development.

I would like to invite you to participate in my dissertation research project. You will be asked to respond to questions which have been designed to elicit your personal views and ideas. There are no right or wrong responses, and all responses will be held in strictest confidence. You will be encouraged, therefore, to respond openly and honestly.

Completion of the instruments would require approximately 30-45 minutes of your time twice during the academic year -- once in the fall semester and again in the later part of the spring semester. I will mail the necessary materials to you and enclose a self-addressed, stamped envelope.

Your participation in this study is greatly appreciated, and a letter of recognition regarding your participation and your contribution to the body of knowledge about nursing students and the educational process will be sent to your program Head, if you so desire.

Please complete the accompanying form and return it to me immediately -- I will mail all necessary materials to you. Thank you for your cooperation in this study. I look forward to collaborating with you in this endeavor.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Enclosure: 1
Response to Request for Participation in the Study

Being Conducted by Theresa M. Valiga

INSTRUCTIONS. Please complete items "A" and "B" below. Please check and complete either item "C" or "D" below. Fold and staple this form and return it to me via mail. Thank you.

A. Name (please print): ________________________________

B. Level during 1979-1980 (check one):

   Freshman __________
   Sophomore __________
   Junior __________
   Senior __________

C. __________ I am interested in participating in this study.

   Please send all material to me at the following address (please print):
   __________________________________________
   __________________________________________

   Phone number (include area code):
   __________________________________________

D. __________ I am not interested in participating in this study.
Appendix D

Demographic Data Sheet

Utilized in this Study
Demographic Data

PARTICIPANT CODE NUMBER

Age (check one): 17 - 20 _______ 30 - 39 _______
21 - 25 _______ 40 - 49 _______
26 - 29 _______ 50 + _______

Sex: Female _______ Male _______

Ethnic Identity (check one):
Black _______ Oriental _______
Caucasian _______ Other (please specify) _______
Hispanic _______

Marital Status (check one):
Single _______ Separated _______
Dating _______ Divorced _______
Co-Habiting _______ Widowed _______
Married _______

Student Status (check one):
Full-time _______ Part-time _______

Student Level (check the level of Nursing which you are in at present):
Freshman _______ Junior _______
Sophomore _______ Senior _______

S.A.T. Scores (please respond to the best of your memory):
Verbal _______ Math _______

Occupation (check all that apply):
Student _______ L.P.N. _______
Nursing Assistant _______ Other (please specify) _______

Post-High School Education prior to enrolling in your current nursing major (either check "A" or complete "B"):
A. Not Applicable
B. School(s) _______
Major(s) _______
Dates _______
Number of credits completed or degree awarded _______
Do you currently have an R.N. license?
Yes __________________ No __________________

Father's Occupation:
Health-related (please specify)
Non-health related __________________

Mother's Occupation:
Health-related (please specify)
Non-health related __________________

Spouse's Occupation:
Health-related (please specify)
Non-health related __________________

What is the conceptual/theoretical framework around which your school's nursing program is organized? (If you do not know or are unsure, please so indicate.)

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Appendix E

KneWi Cognitive Development Instrument
KneWi Cognitive Development Instrument
Form A

PARTICIPANT CODE NUMBER _______________________

Describe the best class you've taken since you've been in college or the best learning experience you've had in your adult years. What made it positive for you? Be as specific as possible. Feel free to go into as much detail as you think will give a clear idea of the class or learning experience; for example, you might want to discuss areas such as what the teacher was like, the subject matter, the particular content (readings, films, etc.), the atmosphere of the class or learning experience, grading procedures, etc. Be as detailed as possible in describing your experiences and how you felt about them.
KneWi Cognitive Development Instrument

Form B

PARTICIPANT CODE NUMBER ________________________

If you were to select a course or a learning experience that would incorporate the best learning environment for you, what would it include? Be specific. What would be the content of the course? What type of assignments would be given? What would the grading and evaluation procedures be? The course or learning experience would include what type of demands on you personally? What would the teachers be like? What would the class or learning experience "atmosphere" be like? Go into as much detail as possible.
KneWi Cognitive Development Instrument
Form C

PARTICIPANT CODE NUMBER __________________________

Think of the last time when you had to make a decision about something that had major importance to you or the last time you had to choose between some significant alternatives. Describe the situation. (1) How did you feel about having the alternatives? (2) How did you go about making the decision? (3) How did you feel about it afterwards? Be as detailed as possible in your description.
KneWi Cognitive Development Instrument
Form D

PARTICIPANT CODE NUMBER ____________________________

At present, what is the area in your life that poses the most uncertainty or confusion for you? Why is this disquieting for you? What do you want to do about it? What do you think you will do about it? Be as specific as possible, giving examples where it will help to describe your situation.
KneWi Cognitive Development Instrument
Form E

PARTICIPANT CODE NUMBER ____________________________

DIRECTIONS. Below are seven (7) sentence stems. Please respond to these sentence stems by writing what comes to your mind. Complete at least three (3) sentences for each stem.

When I am in doubt ...

Rules ...

When I am criticized ...

My main concern ...

When I think about my future ...

For me, I believe nursing ...

In deciding to choose nursing ...
KneWi Cognitive Development Instrument

Form F

PARTICIPANT CODE NUMBER _________________________

.DIRECTIONS. Below are seven (7) sentence stems, Please respond to these sentence stems by writing what comes to your mind. Complete at least three (3) sentences for each stem.

Confusion ...

Parents ...

Choices ...

For me, to say "I believe" ...

Choosing a career ...

When I think about how I'm going to do in nursing ...

When I am in doubt about nursing situations ...
Appendix F

Material Sent to Panel of Experts
June 14, 1979

Dear Nurse Colleague:

I am writing to you to request your assistance in the instrument development aspect of my dissertation project. I am a doctoral candidate at Teachers College, Columbia University in the Department of Nursing Education and, in May 1979, received approval of my dissertation proposal from the Department's faculty.

My proposal deals with the development of baccalaureate nursing students during the four years of their program. I will be looking specifically at students' cognitive development and its relationship to their perceptions about professional nursing. It is in relation to this latter variable that I am seeking your assistance.

For the purposes of my study, I have defined Perceptions about Professional Nursing as "that view of the nursing profession and the role of the professional nurse as indicated in the student's responses to a questionnaire developed by the investigator". A questionnaire format has been selected because of the essay-type instruments already being used to measure the cognitive development variable. I do not wish to overwhelm the subjects in terms of time or effort.

The accompanying Likert-type instrument has been developed based on a review of the literature, primarily that related to characteristics of a profession and the National League for Nursing's characteristics of baccalaureate graduates in nursing. This instrument is intended to provide a measure of the student's Perceptions about Professional Nursing, and it is the validity of this instrument as a device to measure this variable that I would like you, as a member of my panel of experts, to address.

In addition to commenting on the individual items in terms of their clarity/ambiguity, their precision/wordiness, their ability to discriminate among perceptions of nursing which are professional, independent, etc., I ask that you respond also to several questions about the instrument in general. Please use the accompanying form for your responses and reactions.
I have enclosed a self-addressed, stamped envelope for your convenience. Please return the questionnaire with your comments, questions, and/or suggestions to me as soon as you can, hopefully not later than June 29, 1979. I greatly appreciate your cooperation in this endeavor and will be pleased to share an abstract of my study with you upon its completion.

Thank you, and I look forward to hearing from you soon.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Enclosures
Instrument Review by Panel of Experts

Directions. In reviewing this instrument for its content validity, please use this form in conjunction with the questionnaire itself to record your questions, comments, and/or suggestions.

As you read each item, please consider the following questions:

A. How would you respond to the item? For each item, please indicate whether you Strongly Agree (SA), Agree (A), are Undecided or Do Not Know (U), Disagree (D), or Strongly Disagree (SD) with each statement.

B. The statements about nursing have been developed from a variety of sources. An attempt has been made to include a number of statements that reflect the various characteristics which have come to be accepted as being essential to a profession, namely:

The definition of the scope of the discipline is clear (DEFINITION).

The object of attention of the discipline is unambiguous (CLIENT).

The reasons why members of the discipline do what they do are unambiguous (GOALS).

Relations among real-world elements are explicit (RELATIONSHIPS).

Members of the discipline function independently (INDEPENDENCE).

The discipline has well-defined standards and ethical codes, and members of the discipline are responsible and accountable for their actions (RESPONSIBILITY).

The discipline has a unique body of knowledge and a scholarly component (SCHOLARSHIP).

Members of the discipline are autonomous (AUTONOMY).

Members of the discipline have a lifetime commitment to it (COMMITMENT).

The discipline offers a unique service to society, and the characteristics of what members of the discipline do are unambiguous (ACTIVITIES).
On the instrument and its accompanying form, please indicate which of the ten (10) characteristics you think each item represents. Space is provided for "Other" if you think the item represents a characteristic other than one of the ten listed above. Please name this "other" characteristic if you mark this column.

C. Do you think adequate attention has been given to each characteristic?
   Yes ____________  No ____________
   If "No", which characteristic(s) have been addressed too little, and which have been addressed too much?
   
D. What other characteristics not included here should be made part of this instrument? Please be specific.

E. Is the framework of characteristics of a profession an appropriate one within which to develop this instrument?
   Yes ____________  No ____________
   If "No", what other framework do you suggest?

F. Is the Likert-type format an appropriate one to measure the variable of Perceptions of Professional Nursing?
   Yes ____________  No ____________
   If "No", what non-essay format would you suggest as more appropriate?

G. Are the directions to the respondents clear enough?
   Yes ____________  No ____________
   If "No", what caused you difficulty as you read them?
H. As you read each item, please indicate whether:

1. it should be retained as written;
2. it should be retained if revised (please suggest specific revisions on the instrument itself); or
3. it should be eliminated (please give a brief explanation of why it should not be retained at all).

I. Finally, does the overall instrument measure the variable "Perceptions about Professional Nursing"?

Yes ________________  No ________________

If "No", please explain.

Thank you most sincerely for your valuable contribution to this very important phase of my research study.
Appendix G

Material Sent to Students
Regarding Participation in the Pilot Study
June 14, 1979

Dear Student:

I am currently engaged in research concerning the college years and nursing students' progression through them. I am attempting to identify students' views about (1) various educational concerns, and (2) nursing, as a first step in assessing the extent to which the College is and can be meeting students' needs.

I would like to invite you to participate in the pilot study for my research project. You will be asked to respond to questions which have been designed to elicit your personal views and ideas. There are no right or wrong responses, and all responses will be held in strictest confidence. You will be encouraged, therefore, to respond openly and honestly. Completion of the instruments should require approximately 45 minutes. Your assistance in this effort is greatly appreciated, and a letter recognizing your participation will be sent to your program Director, if you so desire.

Please complete the accompanying form and return it to me as soon as possible, hopefully not later than June 29, 1979. I will contact you by phone to arrange the specifics of your participation (date, time, place).

Thank you for your cooperation. I look forward to meeting you and to collaborating with you in this effort.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Enclosures
Response to Request for Participation in the Pilot Study
for Theresa M. Valiga's Research Project

Instructions. Please complete items "A" and "B". Check "1", "2" or "3" of item "C", and complete section "1" if that is what you have checked. If you have checked "1" or "2" in item "C", complete item "D". Thank you.

A. Name (please print): __________________________

B. Level during the 1978-1979 academic year (check one):
   - Freshman ______
   - Sophomore ______
   - Junior ______
   - Senior ______

C. 1. ______ I am interested in participating in this study. I will/can be in the (School's name) area during:
   - July 2 - July 6 ______
   - July 9 - July 13 ______
   - July 16 - July 20 ______
   - July 23 - July 27 ______
   - July 30 - August 3 ______
   (If you will be in the (School's name) area on a specific date during any of these times, please so indicate.)

2. ______ I am interested in participating in this study but cannot/will not be in the (School's name) area this summer. If there is another way I can participate, please contact me.

3. ______ I am not interested in participating in this study.

D. Phone Number (include area code): __________________________
July 20, 1979

Dear Participant:

Thank you so much for agreeing to participate in the pilot study for my research. I appreciate your interest and your willingness to take the time to help me in this project. Enclosed you will find the following items:

(1) A Permission Form -- This is required by law as a way to protect your rights, as a human subject, to privacy and confidentiality. Please complete it where indicated. The remainder of your responses are identified by the code number only.

(2) A Demographic Data Form -- Please complete this as indicated.

(3) Two (2) essay-type questions/statements and a sheet with seven (7) sentence stems. These have to do with how you, as an individual, think about various issues and concerns. There are no right or wrong responses to any of these items. What is important is the way you think about the items that are presented, so feel free to answer them honestly and openly. Please be as complete and comprehensive as possible in your responses to each item.

(4) A Views about Nursing Form -- The directions for this are on the form itself.

(5) A self-addressed, stamped envelope.

Please complete and return all the above items to me in the envelope provided as soon as possible, hopefully not later than August 6, 1979. Also, please answer the two questions below and return them with the other material. Again, thank you for your participation.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

________________________________________________________________________________________

(1) Would you like a letter to be placed in your file at school recognizing your participation in this pilot study? _____________

(2) How long did it take you to complete all the forms? _____________
Appendix H

Material Sent to Students
Who Had Agreed to Participate in this Study
Dear Student:

Thank you for agreeing to participate in my research project. I am excited about the study and am pleased you are interested in being a part of it.

Enclosed please find the following items:

... A Permission Form
... A Demographic Data Form
... Two essay-type questions (each on a separate page)
... Seven sentence stems (all on the same page)
... A 25-item Views about Nursing instrument
... A self-addressed, stamped envelope

Please sign the permission form and complete the demographic data form. Then complete the other items according to the directions provided. Return all material to me in the envelope provided within the next week if possible. If you have any questions, please contact me at either of the numbers below.

Once again, thank you for your interest and cooperation. I look forward to receiving your responses soon.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.
(Home and Work Phone Numbers were provided)

Enclosures
Permission Form

I hereby give my permission to participate in the study being conducted by Theresa M. Valiga, R.N., Ed.M. This study is designed to describe (1) how baccalaureate nursing students think about various topics and issues of concern to them, and (2) their views about nursing.

I understand that I will not be identified personally in any way in the analysis and/or discussion of subjects or data.

I understand that my responses and the demographic data about me will be held in strictest confidence and used only for the purposes of this study.

I understand that I may withdraw from the study at any time.

I understand that excerpts from my responses may be used in reporting the data as examples to provide a more in-depth understanding of it. I understand that these excerpts will not be used to identify me personally.

(Signed) (Date)

(Print Name) (Participant Code Number)
Views about Nursing Questionnaire

Form A

Directions to the Student. Through the following statements, I am attempting to ascertain the ideas which you currently hold about nursing as a profession, the role of the nurse, and the relationship of the nurse to the client/patient and to the physician and other health team colleagues. Read each of the statements below carefully. Then, for each statement, please indicate whether you Strongly Agree (SA), Agree (A), are Undecided or Do Not Know (U), Disagree (D), or Strongly Disagree (SD) with the statement. Circle the one response that best expresses your opinion, and please be certain your response to each statement is clearly marked. There are no right or wrong answers, so please respond openly and honestly.

Thank you

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
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<tbody>
<tr>
<td>1. Nurses of today can provide better medical care than many physicians and should replace physicians in many instances.</td>
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<td>2. Nurses should have a legitimate role in performing physical examinations for the sole purpose of assisting physicians in making their medical diagnoses.</td>
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<td>3. Nurses should get approval from the doctor before giving clients/patients any information or doing anything for them other than what is ordered.</td>
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</table>
4. Nursing practice must be guided by a conceptual/theoretical framework.

5. Nurses should be reactors to, rather than creators of, practice situations.

6. Nurses must be willing to stand up for what they believe in no matter what the "cost".

7. Nurses should identify with and seek approval from professional colleagues inside and/or outside their institution.

8. Nurses should be willing to move from one institution to another in an attempt to seek challenging positions.

9. Fostering personality development of the client/patient in the direction of maturity should be a function of nursing.

10. Nurses must be faithful followers of specific rules imposed by the physician and other sources.

11. There should be one specific definition of nursing that all nurses can follow.
<p>| 12. The practice of truly professional nursing can occur only in settings or situations where a physician is not directly involved. |
| 13. The administration of medications is of such a serious nature that it should be a primary activity of nurses. |
| 14. There is definitely a right and a wrong way to do things and to approach nursing situations. |
| 15. Nursing is practiced most effectively in situations which are largely repetitive and routine. |
| 16. Nurses, in the performance of their roles and responsibilities, assist individuals and groups in society to attain, maintain, and restore health. |
| 17. Nurses should be expected to be involved with research in ways appropriate to their preparation as a routine aspect of their practice. |
| 18. Nurses must be able to provide leadership to their peers and to the profession itself. |
| 19. It is useful for clients/patients to liken the physician to the &quot;father&quot;, the nurse to the &quot;mother&quot;, and themselves to the &quot;children&quot; in a relationship. |</p>
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<tbody>
<tr>
<td>20.</td>
<td>Nursing can be practiced anywhere people are.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>21.</td>
<td>Nurses have the obligation to help clients/patients seek their highest possible level of functioning.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>22.</td>
<td>Nursing is deliberate, health-related action performed by individual persons on behalf of others, individually or in groups.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>23.</td>
<td>Conducting nursing rounds with the entire health team should be a responsibility of nurses.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>24.</td>
<td>There is a scholarly dimension to the practice of nursing.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
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<tr>
<td>25.</td>
<td>A primary responsibility of nurses should be taking the client's/patient's vital signs.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
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</tbody>
</table>
Views about Nursing Questionnaire
Form B

Directions to the Student. Through the following statements, I am attempting to ascertain the ideas which you currently hold about nursing as a profession, the role of the nurse, and the relationship of the nurse to the client/patient and to the physician and other health team colleagues. Read each of the statements below carefully. Then, for each statement, please indicate whether you Strongly Agree (SA), Agree (A), are Undecided or Do Not Know (U), Disagree (D), or Strongly Disagree (SD) with the statement. Circle the one response that best expresses your opinion, and please be certain your response to each statement is clearly marked. There are no right or wrong answers, so please respond openly and honestly.

Thank you

<p>| | | | | |</p>
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<tbody>
<tr>
<td>1. Nurses must be willing to enter with clients/patients those health-related situations which they cannot face alone.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>2. Nursing is concerned with helping people maximize their health potential in their particular life situation.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>3. Overt action, directed by logical thought, toward meeting the client's/patient's need for help constitutes the practice of clinical nursing.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>4. Nurses must assume responsibility for diagnosing and treating human responses to actual or potential illness.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
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<td>5.</td>
<td>The independent functions of nurses include supervising the care of clients/patients, observing and recording, supervising non-professional personnel, and health teaching.</td>
<td>SA A U D SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Nursing must be concerned equally with the prevention of disease and the conservation of health.</td>
<td>SA A U D SD</td>
<td></td>
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<td>7.</td>
<td>Nursing is an expression of one's commitment to others.</td>
<td>SA A U D SD</td>
<td></td>
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<tr>
<td>8.</td>
<td>Nurses must be involved actively in professional organizations.</td>
<td>SA A U D SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>There is definitely a right and a wrong way to do things and approach nursing situations.</td>
<td>SA A U D SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Nurses should make written or verbal contacts with all appropriate persons to assure continuity of nursing care for clients/patients.</td>
<td>SA A U D SD</td>
<td></td>
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</tr>
<tr>
<td>11.</td>
<td>The uniqueness of nursing lies in the reasons for what nurses do in society, rather than in the specific tasks they perform.</td>
<td>SA A U D SD</td>
<td></td>
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<tr>
<td>12.</td>
<td>Nurses should be concerned primarily with giving physical care to clients/patients as directed by the physician.</td>
<td>SA A U D SD</td>
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<tr>
<td>13. There should be only one nursing theory.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>14. Evaluation of the work of their peers and other nursing personnel should be a responsibility of nurses.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>15. Nurses must follow doctor's orders without question.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>16. Nurses should be free to practice nursing as they define it within the scope of professional autonomy.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>17. Nurses should assume responsibility for the total nursing care of a caseload of clients/patients.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>18. Nurses should update their knowledge through lifelong continuing education.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>19. Nurses must control and direct their own practice.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>20. Nurses should be responsible for conducting nursing care conferences routinely.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>21. Nurses must be aware that the people who require their assistance are helpless and dependent and usually need to be told what to do.</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>22.</td>
<td>Nurses have a responsibility for discussing the proposed medical plan of care with the physician so that it can be adjusted, if possible, to be more acceptable to the client/patient.</td>
<td>SA A U D SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Nurses must assume responsibility for reviewing and evaluating care provided by nursing peers.</td>
<td>SA A U D SD</td>
<td></td>
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</tr>
<tr>
<td>24.</td>
<td>Nurses must take deliberate action to attain independence in nursing situations.</td>
<td>SA A U D SD</td>
<td></td>
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</tr>
<tr>
<td>25.</td>
<td>Nurses must not hesitate to assume the role of leader of the health care team when the client's/patient's problems are best met by nurses.</td>
<td>SA A U D SD</td>
<td></td>
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</tbody>
</table>
Appendix I

Introductory Letter Sent to Students in Spring
Who Had Participated in this Study in the Fall
Dear Student:

During the Fall 1979 semester, I was in contact with you regarding participation in my doctoral dissertation research. As you may recall, my research concerns nursing students' progression through the college years, particularly (1) the issues and concerns which nursing students deal with and how they think about those issues and concerns, and (2) the views which nursing students have about nursing. I was pleased you agreed to participate in this study and appreciated your prompt return of my questionnaires last semester.

As I indicated in my initial letter to you last fall, my data collection method calls for a follow-up during the spring semester. It is in relation to this follow-up that I am writing to you now.

I have enclosed the following material:

... A Permission Form (which is a duplicate of the one you signed last semester)

... Two essays-type questions (each on a separate page)

... Seven sentence stems (all on the same page)

... A 25-item Views about Nursing questionnaire

... A self-addressed, stamped envelope

As was true during the Fall, you are asked to respond to all questions openly and honestly. All questions are designed to elicit your personal views and ideas, and there are no right or wrong responses. Again, all responses will be held in strictest confidence and used only for the purposes of this study.

Please (1) sign the permission form, (2) complete the two essays, the seven sentence stems, and the Views about Nursing questionnaire, all according to the directions provided, and (3) return all the above material to me in the envelope provided no later than May 15, 1980.

Please, also complete the question at the end of this letter concerning a letter being sent to your program Head regarding your participation in this study. Return your response to this question along with the other material.
Thank you for your cooperation in this study. I look forward to continued collaboration with you in this endeavor and to receiving your material soon.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Enclosures

Would you like a letter sent to your program Head which recognizes your participation in this study and, thus, your contribution to the body of knowledge about nursing students and the educational process?

Yes ________  No ________

Name __________________________________________
Appendix J

Letter Sent to Students' Program Head,
For Students' Files,
Upon Request of Student
July 1, 1980

To Whom It May Concern:

This letter is being written on behalf of [name of student] in recognition of her participation in nursing research. During the 1979-1980 academic year, I conducted a descriptive study entitled "The Cognitive Development and Perceptions about Nursing as a Profession of Baccalaureate Nursing Students". It is expected that this study will be available for publication by May 1981.

This student agreed to participate in this study. Such participation involved completion of a set of questionnaires during the Fall semester and again during the Spring semester. Completion of these open-ended, essay-type and Likert-type instruments required a total of approximately two hours of time which this student gave willingly.

It is indeed a pleasure to recognize this student's interest in research and her contribution to the development of the body of knowledge about nursing students and nursing education. Such knowledge can have a significant impact on the future of nursing education and the nursing profession as a whole, and this student is to be commended highly for her interest in and commitment to scholarship in nursing.

Most sincerely,

Theresa M. Valiga, R.N., Ed.M.

Doctoral Candidate
Department of Nursing Education