

THE RELATIONSHIP BETWEEN  
LEVEL OF NURSING EDUCATION AND  
INTELLECTUAL AND ETHICAL DEVELOPMENT

By

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### Abstract

Pursuit of university education for nurses has been a controversial and poorly understood ideal. It has been difficult to clearly demonstrate and articulate the benefits of higher education for nurses and nursing. In this research the mission of undergraduate education in general, and the Canadian Nurses Association position paper on baccalaureate education served as the basis of inquiry into aspects of university education for nurses and nursing. From these sources and review of the literature it was ascertained that a primary value of education is seen as helping individuals develop intellectual and ethical maturity which allows them to make judgments and commitments in a relativistic world.

This theoretical orientation was operationalized through Perry's theory of intellectual and ethical development (1970). The Measure of Epistemological Reflection (MER), a tool based on this theory, was developed to measure a person's level of intellectual and ethical maturity. In this study the MER was administered to diploma and baccalaureate nursing graduates to determine if this construct could be used to differentiate the effects of the two levels of education.

The findings indicated that there was no difference between diploma and baccalaureate groups of nurses on their scores on the MER. There was no correlation between scores on the MER and age or experience. There was, however, a significant difference between a group of nurses who participated in university education in addition to their basic nursing program, and a group who had no other university credit outside of their basic nursing program. These findings, and their implications for nursing practice, education, and research are discussed.

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## CHAPTER I

### Introduction

#### Background to the Problem

In 1982 the Canadian Nurses Association (CNA) adopted the position that "by the year 2000 the minimal educational requirement for entry into the practice of nursing should be successful completion of a baccalaureate degree in nursing." Since 1982 the CNA has put forth the rationale for this position through Association meetings, public forums, and the Entry to Practice newsletter. A case for the entry to practice position was presented in the April 1988 edition of the newsletter. It states that nurses need university education so that they are better prepared to deal with "changes in the practice of nursing with an emphasis on theory based practice, a research orientation to practice, the effects of technological advances, the importance of helping relationships, ethical issues and community based nursing care" (p. 12). It further postulates that baccalaureate education promotes the development of abilities required for professional practice. It states that access to a university education should:

1. Develop breadth of knowledge.
2. Build intellectual power.
3. Assist in the creation of a coherent scheme of values.

The advantages of a baccalaureate education are many and varied and are not limited simply to a greater quantity of knowledge. A liberal education helps a person achieve those skills and habits of reasoning which constitute intellectual competence. In sum, these faculties could collectively be described as the capacity to order and interpret a complex set of circumstances in the physical, social, or artistic world, and to bring one's full intellectual resources skillfully to bear on the solution of a problem. An education that includes the humanities and liberal arts as well as the biological and natural sciences will provide nurses with the depth and quality of knowledge to allow them to reach their full potential as practitioners.

(CNA newsletter, April 1988  
adapted from Russell, 1959, p. 9)

This excerpt represents one of the clearest articulations of the advantages of a baccalaureate education for nurses. Yet these characteristics are abstract and do not lend themselves easily to operational definition. How are these idealized characteristics observed and measured in graduates? In the past, nurse researchers have studied many traits and characteristics in an attempt to identify the effects of education on practice. Many studies were designed to differentiate diploma and baccalaureate students or graduates. Some of the characteristics that have been studied include self actualization (Goldstein, 1980), performance on specific competencies (DeBack and Mentkowski, 1986), professionalization (Lawler and Rose, 1987), role conception (Itano, Warren, and Ishida,

1987), autonomy, (Murray and Morris, 1982), leadership (Meleis and Farrell, 1974); and critical thinking and moral reasoning (Ketefian, (1981). In spite of these attempts to illustrate differences, many practising nurses, the public, and policy makers are still to be convinced of the benefits of university education for nurses.

Rose (1988), in an article entitled "ADN vs BSN: The Search for Differentiation," notes that the theoretical differences are broad and can be tested in many ways. She defines the problem clearly in the following statements. "The first question is how to capture the essence of the difference between the two types of nurses. Put quite simply, what shall we measure?" (p. 275). In her review of nursing research, Rose found: consistent support for the belief that BSN students were more professional; inconsistent differences in decision making abilities; very little support for theoretical differences in leadership; no difference in job satisfaction between ADN and BSN graduates; and no differences in personality factors. In conclusion, Rose states that we need a more rigorous research base from which to make decisions about nursing education. She notes another area which has not been well investigated. "The BSN program, in contrast with

the ADN program, provides an education with liberal arts, social sciences, and basic and applied sciences content. This broad, well rounded education should have some impact on graduates. Although it may not be apparent in the direct practice of nursing, especially in the hospital setting, it may be most critical for the profession." (p. 278).

The purpose of moving nursing education from hospital-based diploma training to university-based baccalaureate education is directly related to the mission of undergraduate university education in general. It was believed that the nursing profession would benefit from access to higher education (Weir, 1932, Spohn, 1962, Kergin, 1970, p. 51). The Carnegie Foundation for the Advancement of Teaching (1977) offers the following statements in describing the mission of undergraduate education.

Education consists of a series of events and activities that are designed to help individuals to increase their intellectual, social, personal, and moral potentials. At its best, it confronts people of all ages with the realities of their environment, the human condition, and the ideals toward which human beings have striven throughout history. It prepares them for productive activity. It opens their minds to alternative ways for thinking and living. It acquaints them with ways of learning and makes it possible for them to educate themselves. It provides a foundation for making judgments, for determining personal and cultural values, for choosing appropriate courses of action. It builds consensus and therefore can be an instrument of



socialization and social control. It also increases the tolerance individuals have for diversity and therefore can enlarge freedom. The work of education is to make a positive difference in people's lives and also to change society, over time, through the works of those it educates.

(1977, p. 152)

Any measure of the advantages of baccalaureate education for nurses must evolve from this and other descriptions of university undergraduate education. Operationalizing these abstract statements so that the characteristics can be observed and measured has been a problem for nursing researchers.

In this research, the construct of intellectual and ethical development, as defined by Perry (1970), was used to conceptualize the desired outcomes of a university education for nurses. Perry's theory of adult cognitive development during the undergraduate years was chosen as the guiding theoretical framework because it represents the desired outcomes of a liberal university education (Baxter Magolda & Porterfield, 1988, p. 13, Valiga, 1983, Perry, 1981). Using the Perry scheme as a frame of reference allowed interpretation of study findings and direct application for nursing education.

#### Problem Statement

The rationale for pursuing baccalaureate education for nurses has been difficult to describe (Woolley,

1986, p. 199). In order to more clearly define the rationale, the effects of baccalaureate education must be investigated.

Specifically, the problem to be investigated in this research is contained in the following question: Do baccalaureate graduates differ from diploma graduates in their level of intellectual and ethical development?

#### Purpose

The purpose of this study was to describe the level of intellectual and ethical development of practising diploma and baccalaureate-prepared nurses. This research assisted in identifying whether or not the variable of intellectual and ethical development can be considered differentiating outcomes of diploma and baccalaureate education. The purposes can be summarized in the following statements.

1. To identify the level of intellectual and ethical development of practising baccalaureate-prepared nurses.
2. To identify the level of intellectual and ethical development of practising diploma-prepared nurses.
3. To determine whether there is a difference between groups of practising diploma and baccalaureate nurses on the variable of intellectual and ethical development.

#### Research Question

Is there a difference between the level of

intellectual and ethical development of a group of practising diploma nurses and the level of intellectual and ethical development of a group of practising baccalaureate nurses?

### Definition of Terms

#### Intellectual and Ethical Level

In accordance with the Perry scheme, intellectual and ethical level is defined as an individual's perspective or way of thinking about the nature of knowledge, truth, and values, and the meaning of life and responsibilities.

#### Intellectual and Ethical Development

Intellectual and ethical development refers to the sequential progression toward increasingly more complex cognitive structures which allow individuals to process information or connect knowledge in increasingly complex ways. Stages or levels of development can be recognized where each stage represents a qualitatively different way of thinking. Each level of intellectual and ethical development represents a more differentiated and integrated structural organization subsuming that of the previous stages.

#### Operational definition.

The level of an individual's intellectual and ethical development will be the score obtained on the

Measure of Epistemological Reflection (MER) (Taylor, 1982) which is based on the Perry scheme.

#### Level of Education

Level of education will be described as the diploma or degree held by the registered, practising nurse. Diploma level of education is obtained upon official graduation from a college or hospital-based nursing program. Baccalaureate degree level of education is official graduation from a generic, university-based baccalaureate program in nursing.

#### Experience

The number of years employed in nursing. Fifteen hundred hours of part time work will be considered one year of full time employment.

#### Basic Nursing Education

The initial nursing education, either diploma or baccalaureate, leading to nurse registration.

#### Liberal Education

University level education consisting of a breadth of multidisciplinary perspectives.

#### Assumptions

1. Intellectual and ethical development is a central variable in achieving high level skills in the cognitive realm of nursing education.

2. Intellectual and ethical maturity is a desirable

attribute, and can be acquired through interaction with the environment.

3. Assumptions which underlie the theoretical framework of this study will also operate during this research. These include assumptions about the making of meaning, cognitive structure, development, motivation, and the processes of assimilation and accommodation.

4. An individual's stage of intellectual and ethical development can be inferred from what the individual writes about the relationship of ideas, actions, events, and theories.

5. The qualities of independence, responsibility, and commitment, as achieved at high levels of intellectual and ethical maturity, are desirable attributes of a professional in a human service, practice-oriented, discipline such as nursing.

6. The level of intellectual and ethical development influences the practice of nursing at the individual level, and the growth of the profession at the organizational level.

#### Limitations

The scope of this project and financial requirements necessarily limited the size of the sample in this research. This decreases the possibility

of achieving statistically significant results (Burns and Grove, 1987).

The MER requires that subjects be able to articulate and write out their cognitive processes. Therefore, results are dependent upon this ability.

Completion of the instrument is voluntary and requires a time commitment. Individuals who were willing to complete the MER may possess characteristics that might influence the results.

Although the sample was random, it included only practising nurses in British Columbia. The results may reflect the curricula of the schools of nursing attended by the subjects.

It was not possible to control extraneous variables such as participation in continuing education or work setting, but some of these variables were recognized when gathering demographic data.

### Significance of the Study

#### Scientific

This study will add to our knowledge about the development of intellectual and ethical reasoning abilities of nurses with different educational backgrounds.

The data will contribute to our understanding of the effects of the different levels of nursing

education. The findings will be interpreted in relation to the studies referenced in the literature review. Areas of substantiation or disagreement will be revealed.

Compiled, anonymous scores and results of the study will be sent to the authors of the MER scale to assist them in establishing validity and reliability for their instrument.

### Practical

An understanding of intellectual and ethical development during nursing education may assist educators in identifying appropriate curriculum goals. Identifying these goals explicitly may help faculty gain consensus around the aims of nursing education. Knowing a student's level of development will assist in planning effective teaching strategies.

### Summary

The aforementioned background and purpose guide the review of the literature and methodology for this research. As indicated, Perry's (1970) theory of intellectual and ethical development provides the theoretical frame of reference. This theory and appropriate concepts are the focus of the following chapter.

## CHAPTER II

### Theoretical Framework

The Perry scheme of intellectual and ethical development provides a precise framework from which to view the abstract and complex nature of the goals of university education. This theoretical framework helps to explain the relationship between education and the developmental processes it nurtures. The Perry scheme was formulated and refined during a qualitative study which traced changes in students' intellectual and ethical characteristics during their four years of undergraduate education. The Perry scheme was developed over fifteen years by more than thirty researchers (Perry, 1981, p. 77). The researchers collected qualitative data from students about the meaning of learning during four years of liberal arts education at Harvard University during the 1950's. Although the data were collected from young adults, recent studies have shown that cognitive development was more related to the educational experience than the age of the individual (Perry, 1981, p. 97).

During interviews with students, the investigators noted that there was consistency in the way in which students developed increasingly complex cognitive structures, "especially those structures in which they



construe the nature and origins of knowledge, of value, and of responsibility" (Perry, 1970, p. 1). The researchers came to believe that it would be more fruitful to examine a given student's preference for dualistic, right-wrong thinking or another student's affinity for more qualified, relativistic and contingent thinking as expressions of developmental stages rather than personality traits (p. 7).

The validity and utility of the Perry scheme is enhanced by its thorough grounding in the cognitive developmental theories of Dewey (1965) and Piaget (1950). The philosophy of education and democracy put forth by John Dewey in the early part of this century can be considered the theoretical prototype of the cognitive developmental approach to education (Archambault, 1964). The chief function of education became the individual development of the whole person. Fostering the development of the creative, thinking individual would contribute to the growth and well being of a democratic society. According to Dewey, the aim of education is to supply conditions which enable intellectual and moral development (Kohlberg, 1975).

Jean Piaget's empirical research with children built upon the theoretical writings of Dewey. He delineated and described childhood cognitive development

where the differentiation of increasingly complex cognitive structures could be observed. Piaget's developmental theory arose from a background in biology and thus emphasizes genetic predisposition in the development of learning and behavior. Critics suggest that cultural and environmental influences on learning and behavior are thus given secondary significance in this theory (Bigge, 1982, p. 19). Although Bigge acknowledges the benefit of Piaget's theory for teachers, he also suggests that Piaget's work contributes more to the discipline of psychology than to an applicable learning theory for teachers. Piaget's emphasis on genetic developmental factors is contrary to the behaviourist's theoretical position where environmental influences on learning and behavior are primary. Behaviorists define learning as conditioning or reinforcement of behaviors (Bigge, 1982, p. 80). Higher intellectual processes such as thought and insight are not dealt with in detail by behavioral learning theorists. From an opposing viewpoint, gestalt-field learning theorists define learning as the development of insights, which provide a potential guide for behavior (p. 80). These theorists view learning with more complexity and focus on the higher cognitive processes of thought, insight, intelligence and

perception. The gestalt-field theories in combination with fundamental premises developed by Piaget serve as a foundation for Perry's scheme of development.

Piaget described cognitive development through the stages of pre-concrete, concrete, and formal operations from early childhood to adolescence. Tomlinson-Keasey and Keasey (1974) cite six studies which indicate that Piaget's stage of formal operations does not reach functional maturity until well into adulthood (p. 292). Using the assumptions and concepts put forth in these earlier theories, Perry formulated a theory of adult cognitive development.

Some of the components of gestalt cognitive-field theory and Piaget's research are integral to Perry's theory. They include assumptions about the making of meaning, the concepts of structure, development, and stages, and assumptions about motivation. These assumptions will be reviewed next.

#### Making of Meaning

Individuals strive to make orderly meaning of their experiences and their environment. The individual makes sense of environmental interactions through the established forms of orderliness that the individual continually develops and brings to new experiences. Individuals interact with the environment, and

experience new events which may be either congruent or incongruent with established cognitive structures. Cognitive structures are the expectations, based on past experiences, that the individual brings to new situations. These expectations are a part of the perspective from which the individual views the world.

The work of making meaning of new events in the environment consists of a balance between the processes of assimilation and accommodation (Perry, 1970, p. 42). Assimilation is a more implicit merging of the experience to established expectancies of the individual by means of selection, simplification, or distortion. Accommodation is a more explicit realization, where established expectancies are transformed into a new insight that reveals the meaning of an incongruent experience. In Perry's study, students' accounts of such revelations or developments of new insights were valuable in revealing "a) the structure of the earlier expectancies which had proved inadequate, b) the structure of the new interpretation which resolved the incongruity, and c) the transitional process by which the new structure was created" (p. 42). Since the aim of education is to facilitate development, the transitional process is a central concern.

### Cognitive Structures

Structure in the Perry scheme (1970) refers to the "formal properties of the assumptions and expectancies a person holds at a given time in regard to the nature and origins of knowledge and value" (p. 42). The structures can be expectancies of the world as dualistic, relativistic, authoritarian, or equalitarian. Individuals often prefer teaching and learning forms which are congruent with their level of cognitive structure or their expectations and assumptions. However, they require exposure to new and incongruent experiences in order to develop to the next stage.

### Development

Within the Perry scheme the concept of development is defined as a progression in which more complex structures are created by the differentiation and reintegration of earlier, simpler structures. Perry states that "each step in the development presents a challenge to a person's previous assumptions and requires that he redefine and extend his responsibilities in the midst of increased complexity and uncertainty, his growth does indeed involve courage" (p. 44). Each step involves abandoning a way of thinking, and possibly a sense of loss of self. This experience can be uncomfortable and some students will resist the change. Perry suggests there are three

alternatives to development which a student might choose when the challenge is overwhelming. These are: a) temporizing, where a student hesitates to take the next step for an extended length of time; b) escape, where a student chooses detachment and denies responsibility through passivity or alienation; c) retreat, where the student entrenches in dualism or absolutism.

#### Stages or Positions

Stages or positions are used to describe the level of cognitive structure attained by the individual. The term positions is preferred as it represents the perspective from which the individual views the world. Positions are relatively stable structures with identifiable characteristics. Development involves achieving higher positions. Individuals experience a transitional process as they develop toward higher positions of cognitive maturity.

#### Motivation

Motivation to proceed to new positions is considered to be primarily internal. Perry states that the impetus to develop includes many student experiences such as "sheer curiosity; a striving for the competence that can emerge only from an understanding of one's relation to the environment; an urge to make order out of incongruities, dissonances, and anomalies of

experience; a wish for a community with men looked upon as mature; a wish for authenticity in personal relationships; a wish to develop and affirm an identity" (p. 51).

There are nine positions of cognitive development in the Perry scheme. These positions represent the perspective of the individual, or the way in which an individual thinks about "the nature of knowledge, truth, and values, and the meaning of life and responsibilities" (King, 1978, p. 37). The scheme will be presented next.

Position 1: The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right answers exist in the absolute, known to authority whose role it 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 exercise 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.

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).

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, pp. 9-10.)

Four themes of development are apparent through the positions. These are: a) Dualism, represented in the first two positions where the student sees the world in polar terms; b) Multiplicity, represented in positions 3 and 4 where the student accepts multiple sources of knowledge; c) Relativism, represented in position 5 and 6 where the student recognizes knowledge as relative; and d) Commitment, represented in positions 7, 8, and 9 where the student accepts responsibility for decisions and choices in a pluralistic world. Perry (1981) defines these as follows.

Dualism. Division of meaning into two realms-Good versus Bad, Right versus Wrong, We versus They, All that is not Success is Failure, and the like. Right Answers exist somewhere for every problem, and authorities know them. Right Answers are to be memorized by hard work. Knowledge is Quantitative. Agency is experienced as "out there" in Authority, test scores, the Right job.



**Multiplicity.** Diversity of opinion and values is recognized as legitimate in areas where right answers are not yet known. Opinions remain atomistic without pattern or system. No judgments can be made among them so "everyone has a right to his own opinion; none can be called wrong."

**Relativism.** Diversity of opinion, values, and judgment derived from coherent sources, evidence, logics, systems, and patterns allowing for analysis and comparison. Some opinions may be found worthless, while there will remain matters about which reasonable people will reasonably disagree. Knowledge is qualitative, dependent on contexts.

**Commitment.** An affirmation, choice, or decision (career, values, politics, personal relationship) made in the awareness of Relativism (distinct from lower case "c" of commitments never questioned). Agency is experienced as within the individual.

(Perry, 1981, p. 79)

### Summary

The Perry scheme is a theoretical reflection of the statements of the purpose of a university education for nurses, presented at the beginning of this paper. As such, it provides a framework which describes the connections between the complex variables which are components of this issue. The theory is comprehensive in describing the interrelationships among concepts important for nursing education. Added clarity around the process of development of higher levels of intellectual and ethical ability provides nursing educators with a frame of reference which describes how learning in the cognitive realm is achieved.

The Perry scheme has been used in research with nursing students (Valiga, 1983, Frisch, 1987), in career

development (Knefelkamp and Slepitz, 1976), and in studying self directed learning and dependence on authority (Shaw-Berget, 1988). The Perry scheme offers good face validity as most people can see their own, as well as their students development in the descriptions of the positions.

### CHAPTER III

#### Literature Review

Review of the literature will include an overview of theoretical publications and research related to: 1) the effects of baccalaureate nursing education; 2) the body of knowledge related to the cognitive domain in nursing education; 3) the application of the Perry scheme in education; and 4) development of ethical and moral reasoning abilities.

Review of theoretical literature on baccalaureate nursing education will be helpful in illustrating the significance of this study in clarifying the effects of education. This literature will also be helpful in identifying bias and unfounded assumptions. Review of research in this area will identify variables which have been studied in relation to level of education.

Literature on the cognitive domain within nursing education has contributed to our understanding of learner characteristics and teaching strategies which can be used to enhance the effectiveness of nursing programs within this realm. Many of the concepts within the cognitive domain which have been investigated by nursing researchers, such as critical thinking and clinical judgment, are closely related to intellectual and ethical development. Review of the literature in

this area will help to place research on intellectual and ethical development within the broader context of nursing education.

Theoretical writings on the Perry scheme will identify the applicability and appropriateness of this theory to nursing education. Research studies in other disciplines using the Perry scheme have contributed to validation of the theory, and have extended applications of the scheme. Nursing research using the Perry scheme will be critiqued and will be particularly helpful in determining appropriate methodology for this study.

Theoretical and empirical writings on ethical and moral reasoning will be reviewed as they relate to intellectual development.

### Baccalaureate Nursing Education

#### Theoretical Literature

The goal of baccalaureate nursing education most widely accepted by authors is that put forth by Kramer (1981). She states that "the goal of baccalaureate nursing education is to prepare a liberally educated person to function as a professional nurse in a variety of nurse roles and health care settings" (p. 224).

Gallop (1984) relates the concepts of liberal education, intellectual and ethical development, and the entry to practice position in the following statements.

By exposing the student to the arts and humanities as well as biological sciences the student acquires a rich foundation for self growth. Ideally the nursing student will have an opportunity to acquire the ability to think in complex patterns, to problem solve, to tolerate ambiguity, and to pursue knowledge for its own end. The baccalaureate program should encourage cognitive development that will prepare the nurse more fully for problem solving and decision making in the ever increasing complexities of nursing practice (p.57).

Gallop further states that nurses confront issues of enormous moral and ethical consequences, and that a university education prepares nurses with the cognitive skills needed to deal with these issues. She suggests that opportunity to develop these skills differentiates the university degree program from the two year diploma program in nursing.

To be able to consider these and other issues in a complex manner requires the ability to think in a relativistic manner (Perry, 1968). The student in a two year program has not had the opportunity to acquire these cognitive skills. The very nature of the program may require the

student to view issues as simply right or wrong (Gallop, 1984, p.59).

Woolley (1986) defines the product of baccalaureate education as "an autonomous, accountable practitioner of nursing who sees and acts beyond the boundaries of following orders and completing tasks; who sees the whole person and the whole problem; who has a knowledge of the larger world and its many dimensions of knowledge; who is active rather than reactive; and who has the perspective of an educated person who knows how much more there is to know and never feels that he or she has learned all she needs to know" (p. 199).

These statements demonstrate consistency among theoreticians as to the expected outcomes of baccalaureate nursing education. However, the theoretical consistencies are not reflected in the research.

#### Research Literature

Many of the research studies on the effects of baccalaureate education have included performance comparisons of diploma and baccalaureate students. Many of the American studies focused on differences between technical and professional roles. In Canada, the technical-professional dichotomy has not been a

component of the entry to practice issue, but studies with this orientation were reviewed for their contribution to understanding the effects of education.

McCloskey (1981) reviewed the literature on the effectiveness of nursing education as it relates to job performance. She reviewed 33 published and unpublished studies and concluded that the literature "revealed contradictory evidence on the value of baccalaureate education." Significantly, she recommended that future research should focus on "measurement of individual performance rather than the perception of group performance" (p. 355). McCloskey (1983) also identified other variables such as the work setting, career motivation, liberal or general education content in the basic program, and the effect of continuing education on job performance.

Meleis and Farrell (1974) studied 188 students from diploma, associate degree, and baccalaureate programs. Students from six schools were tested for intellectual characteristics, leadership, research orientation, and sociopsychological factors. "Intellectual characteristics, as tested by four scales on the Omnibus personality inventory showed no significant differences among students in the three programs" (p. 464). The four scales of this measurement tool included thinking

introversion or reflective thought, theoretical orientation, estheticism, and autonomy, concepts which are similar to those of interest in this study. Students had similar levels of leadership; diploma students valued research more than baccalaureate students; and all students scored "strikingly low" on self esteem. The authors concluded that "there are more similarities among students in the three types of nursing education programs than many nursing educators are willing to accept" (p. 466). Results of this study showed students of all three programs were essentially alike intellectually and in their consideration for others. Significantly, Meleis and Farrell noted that differences in education might involve constructs that have not been clearly defined and studied as yet.

Mandrillo (1969), in an unpublished study cited by Rose (1988) and McCloskey (1981), conducted "a comparative study of the cognitive skills of graduating baccalaureate degree and associate degree nursing students." She administered a multiple choice test to 155 baccalaureate students and 106 diploma students to ascertain their cognitive skills in relating scientific knowledge to patient problems. She concluded that baccalaureate degree students possessed more knowledge and related this knowledge to patient problems better



than associate degree students.

Bottoms (1988) investigated liberal education competencies used by nurses in their personal and professional lives in relation to level of nursing education. She used Dressel's (1979) six competencies of a liberally educated person in defining the intended outcomes of liberal nursing education. These competencies included knowledge, communication, values, collaboration, citizenship, and integration. Her study sample consisted of 366 diploma, 123 associate, and 76 baccalaureate graduates currently practising nursing. Study findings showed that nurses reported more liberal education behaviors in their personal lives than in their professional lives. Also, baccalaureate graduates applied more competencies in their personal lives than did associate degree graduates and more competencies in their professional lives than did hospital-based diploma graduates (p. 129).

The author noted that possible inequality of the personal and professional measurement scales may have made comparison of personal and professional realms imprecise. Like Sheahan (1972) and Woolley (1986), Bottoms questioned whether "the structure of the workplace hinders the full use of nursing abilities" (p. 129). Does the hierarchical bureaucracy of the hospital

setting inhibit professional practice? In addition, she stated that "These findings also support the notion that differences in graduate behavior may more likely be found in study of the broader goals of the profession rather than in the more specific aspects of the work setting" (p. 129).

Johnson (1988) conducted a meta-analysis of 139 studies of nurses educated in one of three basic nursing programs (associate degree, diploma, and baccalaureate degree). She concluded that "baccalaureate nurses perform better than technical nurses in behaviors identified with professional education and practice: communication, knowledge, problem solving, professional role, and teaching." She also found that "professional nurses' autonomy and leadership behaviors did not differ from those of technically prepared nurses" (p. 191).

Difficulties with the meta-analysis technique included the categorization of the myriad of variables used by the researchers who investigated differences related to education. Also, researchers often defined the same variables, such as leadership, in different ways and measured these variables with different instruments. Some researchers studied students and some studied graduates. Many studies did not acknowledge extraneous variables such as liberal content of the

program, age, previous education, or experience. Often small convenience samples were used. Johnson (1988) noted that there is only one replication in the literature. Many studies polled the opinions of supervisors or peers on the relative merit of the two types of nurses rather than focusing on a single characteristic (Rose, 1988). Very few studies used an explicit theoretical or conceptual framework to guide their inquiry. As a result, findings are difficult to interpret and apply. All of this makes comparison of studies difficult, and results in inconclusive findings. Thus, research on the effects of baccalaureate education has not been significantly helpful in guiding policy makers within the professional organizations, employing institutions, or government, in making decisions about the entry to practice issue.

#### The Cognitive Domain in Nursing Education

Literature review in this section will be concerned with current trends and concepts in nursing education which are related to intellectual and ethical development.

#### Theoretical Literature

Reilly and Oermann (1985) included concept attainment, problem solving, decision making, critical thinking, and clinical judgment within the cognitive

domain for nursing education (p. 146). These authors stated that proficiency in these skills can be attained only at advanced levels of cognitive development as described in the Perry scheme (p. 157). They noted that "Perry's theory has applicability to nursing education since the learner's stage of development influences the cognitive processes used in practice. It also provides a theoretical framework for interpreting student behavior in response to situations arising in the clinical setting" (p. 157).

In this research, then, intellectual and ethical development will be conceptualized as an underlying, or prerequisite factor to the cognitive skills of concept attainment, problem solving, decision making, critical thinking, and clinical judgment.

Other concepts within the nursing literature which are closely related to intellectual and ethical development include professionalism and autonomy.

#### Research Literature

In nursing education research, cognitive development has been related to the concepts of: professionalism (Valiga, 1982); autonomy (Murray and Morris, 1982, Boughn 1988); self directedness (Clark, 1986); critical thinking and problem solving (Bailey, McDonald, and Claus, 1970; Sullivan, 1987; Pesut, 1988);

and decision making (Pardue, 1987).

Professionalism.

Intellectual and ethical development is closely related to the concept of professionalism. A university education is seen as an important characteristic of a profession. Stuart (1981) used a scale of professionalism developed by Moore (1974) to answer the question: "How professionalized is Nursing?" The scale included: existence as an occupation; a total personal commitment to a calling; political activity of an organization; education, including a specific body of knowledge and professional theory; competent and conscientious performance of a service; and professional authority and autonomy as the ultimate value dependent upon achievement of the previous characteristics. She compared nursing to this scale and concluded that education and autonomy are the weakest areas for nursing.

Professionalism of the individual must be attained to achieve professionalism of the discipline. Schein (1972) considered "training for uncertainty" as an important component of professionalism. The skills included "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, and willingness to make decisions under conditions of high risk" (p. 45). This statement is consistent with a relativistic position on the Perry scale.

Valiga (1982) found a low relationship between cognitive development and perceptions about nursing as a profession. Cognitive development was measured by an instrument developed by Knefelkamp and Widdick (1975) (KneWi test), which was based on the Perry scheme. Perceptions about nursing as a profession were measured by the Views About Nursing instrument, which was developed by Valiga (p. 202). Valiga concluded that "cognitive development and perceptions about nursing are two different constructs rather than two aspects of the same construct" (p. 203). However, she also recommended further development and refinement of the instruments, and repetition of the study before conclusions are drawn. Also, on the nine point Perry scale, Valiga obtained a low range of scores for cognitive development, with most students at positions 2, 3, and 4. Burns and Grove (1987) state that "In correlational designs, a large variance in the variable scores is necessary to determine the existence of a relationship" (1987, p. 252).

Lawler and Rose (1987) studied the variable of

professionalization as measured by Stone's Health Care Professional Inventory Scale and Corwin's Nursing Role Conception Scale. Their sample consisted of 25 senior generic baccalaureate students, 18 senior RN/baccalaureate students and 36 senior associate degree students all of whom were within three weeks of graduation. The authors found that registered nurses who returned for baccalaureate education (RN/BSN students), scored significantly higher on three of the five scales on the Stone instrument. Overall results showed significantly higher professionalization among the RN/BSN graduates. The authors extrapolated the findings to state that "the ADN who returns to school to earn the BSN is a more professional product than either the generic BSN or the ADN graduate." Also, the returning RN may be "more mature, committed, self-directed, and wiser in the ways of the world" (p. 22). Unfortunately, the authors did not conduct any analyses on variables such as age or experience. To draw strong conclusions from a such a small nonrandom sample seems premature.

#### Autonomy.

The concept of autonomy is referenced frequently in the theoretical literature on professionalism and intellectual and ethical development.

Baccalaureate education is seen as moving nursing toward professionalism and autonomous practice (ICN, 1985, Stuart, 1981, p. 18). As previously stated, empirical support for this assumption has been inconclusive. Murray and Morris (1982) studied professional autonomy among senior nursing students in diploma, associate degree, and baccalaureate nursing programs. They found that baccalaureate students "scored significantly higher on a scale of professional autonomy than students from either the diploma or associate degree programs" (p. 313). They concluded that "baccalaureate nursing education inculcates professional autonomy" (p. 313). The generalizability of these findings is restricted because the samples were obtained from only one school for each program. The particular schools in the study may have curricula which foster or restrain the development of autonomy in a way that is not representative of the general nursing student population.

Boughn (1988) studied autonomy in nursing students from a different perspective. She compared degrees of autonomy among female students from the schools of nursing, education, business, and arts and science. She found that the mean score for autonomy was significantly lower for the students in the school of nursing than for



the students in the school of business and the school of arts and sciences (p. 155). Scores for nursing students were also lower than scores for education students, but not significantly so. These results could be related to the nature of the baccalaureate program or to the nature of the types of students attracted to nursing. Boughn states "Nursing education is positioned to be the force for dealing with increasing the characteristic of autonomy in nursing students" (p. 155). The power of education is a hopeful strategy for change in pursuit of autonomy and professionalism for nurses. The aims of education which include intellectual and ethical development should theoretically promote these characteristics.

#### Self-directed learning.

Self-directed learning has received considerable attention in both basic nursing programs and in continuing education for nurses. It is stated that basic programs must foster the skill of self-directed learning so that students can continue to acquire knowledge in an independent fashion after graduation (Clark and Dickenson, 1977; Hegge, 1985; Urbano, Jahns, and Urbano, 1988; Oddi, 1988). A nursing education program cannot provide all the information new practitioners will need in their future practice.

Self-directed learning is defined as the pursuit of knowledge where the individual takes the initiative and responsibility for the learning process (Cooper, 1980, p. 4). Cooper states that "significant improvement in nursing practice-the ultimate goal of nursing education-will occur only with a personal commitment by nurses to life-long learning" (p. 13). Commitment and responsibility for self learning are recurring themes in the mission of undergraduate education and intellectual and ethical development theory.

#### Critical Thinking.

Sullivan (1987) studied critical thinking, creativity, clinical performance, and achievement in a sample of 51 RN's who entered a post basic baccalaureate program. In this longitudinal study, she found that flexibility, clinical performance, and grade point average increased significantly; overall creativity and originality decreased; and, critical thinking ability and fluency did not change throughout the program.

Sullivan's study supports earlier findings by Eisenman (1970). He studied 266 nursing students cross-sectionally and 60 students longitudinally throughout the four years of a nursing program. He found a decline in originality and creativity from the beginning to the end of the nursing program. Eisenman

states that "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 had changed to a greater emphasis on doing things 'the right way': Such a conforming or conventional focus would be inconsistent with creativity in many instances" (p. 324). This raises the question: Do nursing programs actually promote dualism? Valiga (1983) raised similar concerns in her study of cognitive development in nursing students.

Pardue (1987) studied decision-making skills and critical thinking ability among associate degree, diploma, baccalaureate, and master's-prepared nurses. Her results showed that nurses with masters and baccalaureate degrees had the highest scores in critical thinking ability. No significant differences were found among the four groups related to decision-making skills.

In conclusion, the literature reviewed in this section describes cognitive processes and attributes which are important in nursing education. It is postulated that these educational goals can only be achieved when students are challenged to reach advanced levels of intellectual and ethical development. Visualizing the relationship between intellectual and

ethical development and the concepts of professionalism, autonomy, self directedness, critical thinking, creativity, problem solving, and clinical judgment in this way will enhance the usefulness of this research.

#### Research on the Perry scheme

Perry (1981) reported that his original theory published in 1970 had been extended and implemented in several ways. Some of these included: college level mathematics instruction (Copes, 1978); elaboration to create a model of developmental instruction (Widdick and Simpson, 1978, Knefelkamp and Cornfeld, 1977); implications for peer training (Clement, 1977); career education (Touchton, Wertheimer, and Cornfeld, 1977); graduate curriculum in counselling (Knefelkamp and Cornfeld, 1977); teaching history (Widick and Simpson, 1978); and teaching English drama (Sorum, 1976) (p. 101). Most of these studies used controlled, experimental designs. The work of these investigators moved the descriptive theory of intellectual and ethical development to one with prescriptive utility.

Stephenson and Hunt (1977) conducted an experimental study where a dualistic curriculum intervention was used with two groups of first year liberal arts students. The teaching paradigm for the experimental groups included elements which would

challenge students to move to new positions, while providing support systems as students left old ways of thinking about values, responsibilities, and the nature of knowledge. They found that experimental groups each moved an average of .85 position in eleven weeks, while control groups moved .42 and .12 position, as measured on the nine position scale. These authors used the KneWi test to assess level on the Perry scale. The KneWi test was developed by Knefelkamp (1974) and refined by Widick (1975). It consists of two essay-type questions and seven sentence completion items. The responses are scored by trained raters and results reveal the subject's position on the Perry scale.

Knefelkamp and Slepitz (1976) used Perry's theory to develop a model for career development. From qualitative interviews they described nine dimensions of change in the processes of how one views a career, how one views career counselling, and career decision making. These nine dimensions could be followed through Perry's developmental levels. These dimensions are: locus of control; analysis; synthesis; semantic structure; self-processing; openness to alternative perspectives; ability to assume responsibility; ability to take on new roles; and ability to take risks with self (p. 54). This adapted career model allowed

progressive research into the applicability of the theory. The nine dimensions of development were used in a later nursing study by Valiga (1983), and assisted in extending the research findings to observable student characteristics.

Touhcton, Wertheimer and Cornfeld (1977) applied the Knefelkamp-Slepitz model by using developmental teaching approaches in a college course on career planning and decision making. They used an instrument designed to measure complexity in thinking about careers. They found that 76% of students in the developmentally taught experimental sections showed some measurable movement along the Perry positions, and in the traditional sections 41% of the students showed similar growth.

Meyer (1977) measured intellectual and ethical development through analysis of responses based on religious content. Students clearly advanced on the construct of intellectual and ethical development. He found significant differences in a cross-sectional study between all four years at a public college and a church affiliated private college. There were no differences between students from the different colleges.

Shaw-Berget (1988) studied intellectual and ethical development in relation to self-directed learning among

students from all four years in a liberal arts college. The research was based on the assumption that the role of authority is a critical component in both constructs. Self-directed learning was measured by the Oddi Continuing Learning Inventory (OCLI) which was developed by Oddi (1988) during her research with nursing students. The Measure of Epistemological Reflection (Taylor, 1983) was used to determine the student's position on the Perry scale. Shaw-Berget found that there was a relationship between self-directed learning and intellectual and ethical development, but that neither was a substantial predictor of the other (p. 155). Shaw-Berget also found that there were differences between the group over 25 years of age and the group under 25 on scores on the MER.

#### Nursing Research using the Perry Scheme

There are three published nursing studies that used the Perry scheme: Valiga (1983), Frisch (1987), and Frisch (1990). Before proceeding to review these studies, it is necessary to clarify the nomenclature used in the research. Both Frisch and Valiga used the terms intellectual development and cognitive development interchangeably, although preference was given to the term cognitive. In later years, Perry (1981) also began to use the term cognitive development synonymously with

intellectual development. Intellectual development is often confused with intelligence and, for the purposes of this study, the two concepts are very different. However, this researcher has decided to retain the label of intellectual and ethical development in order to remain consistent with the theoretical framework, although the term cognitive development more clearly defines the concept of interest to the researcher.

Valiga (1983) described intellectual and ethical development in relation to nursing practice and the mandate for baccalaureate nursing established by the National League for Nursing accrediting body. On the premise that intellectual development is a central aim of higher education, Valiga stated that nurse educators should develop a clear picture of how the characteristics of intellectual or cognitive development are fostered and measured throughout the four year nursing curriculum.

Valiga defined cognitive maturity as "the ability to structure and organize knowledge and experience, to deal with conflicting information and diversity of interpretation of data, and to make independent decisions" (1983, p. 115). Fostering cognitive development in a nursing program then, prepares nurses "who are capable of making independent decisions,



dealing with the uncertainty of many nursing situations, dealing with abstract ideas, and accepting the diversity of beliefs, values, attitudes, lifestyles, life goals, and decision making patterns employed by persons with whom they interact" (1982, p. 1).

Valiga studied the cognitive development of students in all four years of a baccalaureate nursing program. She hypothesized that students at higher educational levels would be at a more advanced stage of cognitive development, and that there would be an increase in scores over the academic year. Cognitive development was measured by the KneWi instrument which reflects the Perry scheme and reveals scores of one to nine. The sample in her study consisted of 29 freshmen, 27 sophomores, 34 juniors, and 33 seniors from three schools of nursing. The KneWi test was administered at the beginning of the academic year (pretest) and at the end of the year (posttest).

The scores on pretests for all subjects ranged from 2.25 to 4.00 with the following means: freshmen, 2.73; sophomores, 3.06; juniors, 2.96; seniors, 3.10; and total group 2.96. The scores on the posttests ranged from 2.08 to 5.59. Most of the scores and all of the means, reflected Perry's category of Dualism. No students scored in the

Commitment in Relativism category. On the pretest, the scores of the freshman students were significantly lower than those of the sophomores and seniors ( $P < .01$ ); no other pairwise comparisons were significant beyond the .05 level of significance. On the posttest scores, the only pairwise comparison that was significant was that between the freshman and senior students (p. 118). The hypothesis that there would be an increase in scores on the cognitive development scale, therefore, was only partially supported. Over the academic year freshman students increased .098 position; sophomores .123; juniors .091; seniors .275. None of these differences was significant, cognitive development was minimal over an academic year.

These results are not consistent with the original findings in Perry's research. He found that students at the end of year 1 "normatively expressed the outlooks of Positions 3, 4, or 5, and students in their fourth year were found to function in positions 6, 7, and 8 (Perry, 1970, p. 56). In the report of her research, Valiga did not compare her findings with those of other educational or nursing research.

A research problem occurs in measurement of the Perry scheme. The KneWi test consists of two essay

questions which are scored by two independent raters. Both Valiga (1982) and King (1978) note there are measurement difficulties with the instrument. Valiga also used small sample sizes which reduces the power of the analysis. The results of her study must be considered in light of the low power. The power of a statistical test is closely related to sample size and is defined as the probability of rejecting the null hypothesis when it is false. "In published nursing research studies with very small samples and nonsignificant results, researchers commonly conclude that the null hypothesis is true" (Volcier, 1984, p. 305). The likelihood of accepting the null hypothesis even when it is false was high in Valiga's study because of the small sample size. A larger sample size would have increased the probability of detecting significant differences among the groups.

Valiga (1983) found that "only 7 of 123" nursing students in her study approached or were at Perry's position 5. She concluded that "according to Perry's theory (1970), this implies that most of the graduates cannot function independently, cannot take responsibility for making decisions in complex/ambiguous/uncertain situations, have not established an identity as a nurse with a lifelong

commitment to the advancement of the profession, and are likely to act in a subordinate role to physicians and/or other members of the health care team" (p. 119).

According to Valiga, the findings provide direction for studying the characteristics of students admitted to nursing, the educational environment in nursing schools, and the role of faculty in the educational experience of students (p. 118). She asked pertinent questions such as: Does nursing attract students who are dualistic and prefer dependence and external direction? Are nursing students given pat answers so that they never make mistakes in practice? Do course readings and faculty present a similar perspective and agreement on issues so that a united front and conformity to standards and rules is valued? Valiga's findings, and their significance for nursing education, offer a strong background for further research into intellectual and ethical development. Her work provided the major impetus for this research.

Frisch (1987) studied cognitive development among 42 junior level baccalaureate nursing students from two university schools. She used the Perry scheme as the theoretical framework and measured students' positions using an essay response questionnaire developed by Allen (1983). Students were evaluated at the beginning and

end of an academic semester in their junior year. Students were exposed to "numerous clinical and classroom learning experiences that could have an impact on cognitive development" (p. 26). She found "a majority of students in both groups were operating at Perry position 3; some were operating in position 2; and only 1 of 42 had reached position 4. There were no differences in Perry positions at the beginning and end of the semester" (p. 27). Frisch compared her findings to results obtained in an unpublished study by Collins (1981). Her findings were consistent with those of Collins who concluded that "professional commitment cannot be expected until after graduation" (p. 27). Interestingly, she did not compare her findings to Valiga's study, published four years earlier. Valiga found that development in the junior year was the lowest of all four years. She found significant increase in position only in the sophomore and senior years (1983, p. 118). Frisch did not state her rationale for studying students in their junior year.

Frisch offers an interesting expansion by relating her findings to the phenomenon of reality shock and the expectations of the work setting. She suggests that a new graduate operating at dualistic or multiplistic levels of cognition may have difficulty adjusting to

professional practice which requires the "individual to consider events from multiple points of view and to make independent judgments based on an assessment of the complexities of each situation." She also suggests that professions which require an undergraduate degree prior to admission may produce more cognitively mature graduates. Research with students admitted to the new graduate nursing programs with nonnursing bachelor's degrees may provide insightful information.

Frisch believes that "professional commitment cannot be expected until after graduation. A period of socialization into the professional role and a chance to grow in reasoning ability are essential for the new graduate" (p. 27). With this conclusion in mind the present research will be conducted with graduate nurses with varying degrees of experience.

Most recently, Frisch (1990) studied the intellectual and ethical development of a group of senior nursing students who participated in an international student exchange. She suggested that measuring cognitive development would be an objective way to assess the impact of exchange programs. The Measure of Epistemological Reflection (MER) was used to measure the participants' position on the Perry scale before and after the exchange experience. A cohort

study design was used with six exchange participants and 21 nonparticipants from the same senior class. Results showed that "exchange students were 3.5 times as likely to improve on Perry testing than were students who did not participate. Seventy-one percent of the measured cognitive improvement seen in the senior class can be attributed to the Mexico program." (p. 11).

#### Ethical and Moral Reasoning

Kohlberg (1975) furthered the work of Dewey and Piaget through research aimed at redefining and validating stages of moral development. He described the relationship of intellectual and ethical development in the following way. "Since moral reasoning clearly is reasoning, advanced moral reasoning depends upon advanced logical reasoning; a person's logical stage puts a certain ceiling on the moral stage he can attain" (p. 671). Kohlberg studied adolescents and young adults and formulated a framework of six stages of moral development. Kohlberg asserted that the majority of the adult population functions at the fourth moral stage of law and order orientation. He stated that only a minority possess the ability to function at the postconventional, autonomous and principled level of moral and political reasoning.

Tomlinson-Keasey and Keasey (1974) empirically

tested the hypothesis that cognitive development is central to other areas such as social and affective development, particularly Kohlberg's assumption that moral reasoning is dependent upon logical reasoning. The authors studied sixth graders and college students and obtained measures according to Kohlberg's stages of moral reasoning and scores according to Piaget's cognitive stage criteria. The scores were correlated, and confirmed a relationship between formal operations and principled moral reasoning (p. 294). The study "supported the hypothesized centrality of cognitive development" (p. 296). "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" (p. 297). In nursing, cognitive development can be central to the development of professionalism, moral judgment, creative and divergent thinking, and reasoning abilities. The construct of intellectual and ethical development can be considered a central variable for research with significance for the aims of nursing education.

Ketefian (1981) studied the relationship between critical thinking, educational preparation, and levels of moral reasoning among groups of practising nurses.



The research was formulated in response to "the rethinking underway in colleges and universities relative to goals of liberal and humanistic studies in undergraduate education" and a noted lack of research on the variables that might affect ethical decision making. The research tested the following hypotheses: 1) there is a positive relationship between critical thinking and moral reasoning, 2) there is a difference in moral reasoning between professional and technical nurses, and 3) critical thinking and educational preparation together will predict greater variance in moral reasoning than either variable taken separately (p. 100). The sample included practising nurses from three acute care facilities with a wide range of age and work experience (p. 101). There were 43 diploma and associate degree graduates and 43 nurses had a baccalaureate or higher degree. The Watson-Glaser (1964) Critical Thinking Appraisal, and the Rest Defining Issues Test (1974) to measure moral reasoning, were administered to subjects. All hypotheses were upheld following statistical analyses. Also "additional analyses carried out between personal characteristics such as age, religion, and ethnicity and moral reasoning, did not yield noteworthy results" (Ketefian, 1981, p. 102).

This study demonstrated a relationship between critical thinking and moral reasoning which is consistent with Kohlberg's assertion of the relationship between logical reasoning and moral reasoning. The integration of intellectual and ethical development as in the Perry scheme is therefore justified. The finding that there is a difference in moral reasoning between professional and technical nurses is significant for this study also. "Education and critical thinking accounted for 32.9 percent of the variance in moral judgment" (Ketefian, 1981, p. 102).

Gilligan (1982) theoretically postulated that Kohlberg's theory is sexually biased and that males are socialized toward autonomy in judgment and, therefore, have higher moral reasoning scores than females. Rest (1979) found that formal education is significantly related to development of moral/ethical reasoning. He found no gender differences on scores of the Defining Issues test.

Mustapha and Seybert (1989) studied moral reasoning among three groups of students from a traditional liberal arts curriculum, a traditional nursing curriculum, and a new curriculum entitled "Foundations for the Future" which consisted of six courses in science, social science, humanities, and religion. In

the foundations curriculum, "each course combined the study of two to three of these subjects, was multidisciplinary, and was organized around the central idea of decision making" (p. 108). The traditional curricula included individual courses in philosophy and ethics. Students in all four academic years were included in the sample. The Defining Issues test was used to measure moral reasoning and the Shiple Institute of Living Scale was used to measure intelligence (IQ). There was no effect for academic year. The foundations students had significantly higher moral reasoning scores than the nursing students, and the nursing students had significantly higher scores than the traditional liberal arts students. The authors suggest that moral reasoning is enhanced through an integrated curriculum approach more than through a single course in ethics. No correlations between the IQ and the Defining Issues test scores were reported.

Mahon and Fowler (1979) also applied Kohlberg's theory to nursing education. They conducted a study during a clinical course where an experimental group of ten nursing students was exposed to moral content in a nursing rounds format. The control group received clinical experience in a similar setting but without the planned moral content discussions. Both control and

experimental groups were exposed to ethical content in lectures. Students were rated on moral development using the Defining Issues test. "The increase in level of moral judgment development of the experimental group was found to be significantly greater ( $p=.05$ ) than that of the control group" (p. 10). The authors suggest that a moral milieu which fosters development should include challenges of moral conflict where genuine uncertainty and disagreement exist, and where the student's stage of thinking offers no easy answers. As well, students should be presented with responses one stage higher than their own.

The literature on moral and ethical reasoning shows similarities between Kohlberg's theory of moral reasoning and Perry's theory of intellectual and ethical development. Kohlberg's theory provided an appropriate framework for nursing research in the area.

#### Summary

This chapter has presented a review of theoretical and research literature related to baccalaureate nursing education and intellectual and ethical development. Literature on baccalaureate education revealed similarities in articulated goals of university education, and a broad empirical search for differences between graduates of diploma and baccalaureate programs.

The second section demonstrated relationships between the concepts of professionalism, autonomy, self-directed learning, critical thinking, and the underlying development of cognitive skills. Review of research using the Perry scheme revealed research methodologies which successfully allowed extension and application of the theory for teaching. The Perry scheme was also used in educational research in nursing where it allowed assessment of student development within the cognitive realm. These studies included measurement of intellectual and ethical development of students at intervals throughout the curriculum, and assessment of the impact of selected educational experiences on cognitive development. The final section of the literature review related the concepts of intellectual development and moral and ethical reasoning. Review of nursing studies provided insight into the concurrent development of cognitive skills and moral reasoning abilities in nursing students and graduates.

This literature review provides a broad background for the research proposed in this paper. It provides direction for the design and methodology of the research. Study findings will be analyzed and discussed within the context of this literature review.

## CHAPTER 1V

### Methodology

#### Research Design

This study was designed to answer the following research question: Is there a difference between the level of intellectual and ethical development of a group of practising diploma nurses and the level of intellectual and ethical development of a group of practising baccalaureate nurses? A comparative descriptive design was used to determine differences between groups on the level of intellectual and ethical development. The data were analyzed using the t-test for independent samples. A descriptive correlational design was used to test relationships between level of intellectual and ethical development, and the variables of age and years of experience. Pearson's product-moment correlation coefficient was used to analyze these relationships (Burns and Grove, 1985 p. 508).

#### Sample Selection

A random sample of diploma and baccalaureate prepared practising nurses in British Columbia was obtained through the computerized registry of the Registered Nurses Association of British Columbia (RNABC). Guidelines for access to members through this

service are included in Appendix A. Membership in this association is mandatory for all practising nurses in British Columbia. The population for this study, therefore, included all practising nurses in B.C. who are registered with the RNABC.

Subjects were selected using desired criteria listed on the application for registration form of the RNABC (Appendix A). Criteria selection was based on variables identified in the literature review, especially those variables identified by McCloskey (1983). McCloskey's meta-analysis suggested that variables such as work setting, career motivation, and continuing education were significant in research on the value of baccalaureate education. To control for these, and other extraneous variables, the following criteria were selected:

1. Employed in nursing on a regular basis.
2. Worked 1,000 hours or more in the last year.
3. Not on a leave of absence.
4. Holds current practicing membership.
5. Primary area of responsibility is direct patient care.
6. Position held is staff/general duty nurse.
7. Employed in an acute care hospital.
8. Basic education is a diploma- 100 subjects

9. Basic education is a baccalaureate degree- 100 subjects.
10. Has no post basic nursing education.
11. Is not currently enrolled in an education program.
12. Resides in B.C..

The above criteria are entered in the RNABC computer as nurses renew their membership at the beginning of each year. This means that sample selection data can become outdated. Also, accuracy of information is dependent upon members filling in the forms correctly. Selection of the above criteria also limited participation in the study, thereby limiting projection of findings.

#### Data Collection Procedures

Mailing labels were produced for the sample generated through the computerized registry of the RNABC. The investigator provided the RNABC with 200 packets in stamped envelopes. The packages contained the MER, demographic data sheet, letter of introduction, and a stamped return envelope. These documents are included in the Appendices. Labels were applied and packages mailed at the end of June 1990. Reminder letters were sent four weeks after the initial mailing.

Protection of human rights was attained through procedures which ensured anonymity and voluntary consent



to participate in the study. Mailing labels were produced and applied by RNABC staff, no record was kept of subjects in the sample. Subjects were requested not to indicate their names on any of the forms. An introductory letter, (Appendix B) explained the study and the time commitment required. Subjects were informed that consent to participate was assumed by completion of the questionnaire. Raw data was destroyed upon compilation of results.

Twenty-nine packages were completed, 11 from the diploma group and 18 from the baccalaureate group. Return rate was 14.5 per cent. Burns and Grove (1987) state that "if the response rate is lower than 50 per cent, the representativeness of the sample is seriously in question" (p. 314). This will be considered when analysing results.

### Instruments

#### Demographic Data Sheet

The demographic data sheet (Appendix C) was designed to collect information on level of nursing education as well as variables which might be pertinent to this study. Burns and Grove (1987) state that descriptive data on attribute variables should be gathered so that characteristics which may influence study findings can be identified. Also, these

characteristics can be used for secondary analysis for the purpose of examining possible alternative hypotheses (p.440). For this study, attribute variables which might influence findings included years of experience, participation in continuing education courses, participation in professional or union activities, career motivation, university credit outside of nursing, location of nursing school, and age.

According to Perry's theory, an individual's interaction with the environment, or experience, is the basis for the processes of accommodation and assimilation which enable cognitive growth (Perry, 1970). It follows then, that years of nursing experience might influence scores on the intellectual and ethical development tool. Nursing studies in the area of cognitive development have used samples of nursing students or new graduates (Valiga, 1982, Frisch, 1987, 1990), so that the variable of professional experience has not been studied.

Participation in continuing education courses may reveal an underlying attitude to learning, or sense of responsibility for self education which might be positively correlated with cognitive maturity. Participation in professional or union activities may be related to commitment, a component of cognitive

maturity. Career motivation has also been identified as an influencing attribute. Information on other university level credit in addition to nursing education was gathered because of the effects of liberal education content, as discussed in the literature review. Name and location of nursing school was requested because different curricula may be found to promote or inhibit intellectual and ethical development. Finally, the variable of age has been associated with intellectual and ethical maturity with conflicting results (Perry, 1980, King, 1977).

#### The Measure of Epistemological Reflection

The Measure of Epistemological Reflection (MER) (Appendix D) was used to measure intellectual and ethical development according to the Perry scheme. The MER was selected on the basis of instrument critique found throughout the literature review. The MER was the instrument of choice in two of the most recent studies critiqued in this research (Frisch, 1990, Shaw-Berget, 1988).

The MER is a short answer response questionnaire which provides information on six content areas of intellectual and ethical development. These include decision making, the role of the learner, the role of the instructor, the role of peers, evaluation, and the

nature of knowledge (Baxter Magolda and Porterfield, 1988). These content areas were identified by the instrument's authors through a review of other research and interpretations of the Perry scheme. The authors state that these six content areas "demonstrate qualitative differences in underlying cognitive structures described by the Perry positions" (p. 22).

Subjects must produce a response in each of the six domains. The authors state that "production task format was chosen based on research indicating that accurate measurement of underlying cognitive structures requires production rather than recognition of a response" (p. 22). Within each domain, questions are posed which direct the respondent's thinking to the content of that domain. Follow up prompting questions help the respondent explain or justify the response to the opening questions, thereby revealing the reasoning structure used by the individual. The MER rating manual contains specific reasoning structures for each position within each domain. "Rating requires finding the closest match between the manual reasoning structures and those identified in the response" (p. 23). The following example demonstrates how the rater determines position and reasoning structure in domain six: nature of knowledge, truth, and reality. The reasoning

structures which might occur within Perry position three are used in the example.

Within domain six, the position three person has left the notion that all knowledge is known by authorities. They believe that there are two categories of knowledge, known and unknown. For the first category, the person who uses position three reasoning structures may believe that conflicting explanations occur because one teacher is wrong, degree of details differ, or opinions about the facts differ. Differences will be resolved in the future when truth is known. For the unknown category the individual decides what to believe on the basis of logic or the most recent information. Major distinctions between the positions are as follows:

Nature of knowledge: all known by authorities (position 1), all known by most authorities but not always presented clearly (position 2), some known, some unknown (position 3), all unknown (position 4), uncertain but definable in a context (position 5).

How one evaluates knowledge: believes authorities (position 1), believes good authorities (position 2), believes what one thinks is logical and recent (position 3), believes whatever one wants (position 4), evaluates evidence in a context (position 5).

The following reasoning structures occur in domain six, position three. Reasoning structures are indicated by the last digit (one, two, or three).

#### 6.3.1 Knowledge falls into two categories;

that which is known and that which is not. Different explanations for the first category result from difference in details, viewpoints and authorities. In the second category differences are explained by knowledge being unknown.

Example of response: Yes they could. I would take the one that seemed to be more logical and seemed appropriate to the situation. Also I would check if there were supporting facts for the explanation. One can be sure by the facts supporting the explanation. Who's going to believe something that can't be supported? One can't be sure if neither explanation has support. The explanations are probably far-out opinions, or a concept not based on any real facts.

6.3.2 Assuming the same two categories of knowledge (known and unknown), if one is discussing abstract areas, one cannot be sure what to believe but can choose on the basis of logic, acceptance, one's beliefs, and the most recent information.

Example: Yes. Historical events are facts. You cannot change their interpretation. Scientific phenomena may be explained differently. I would accept the one that sounds more logical to me and is more widely accepted. One can't be sure unless they personally investigate this; one will not know whether it was explained by the person's opinions or strictly be factual occurrences.

6.3.3 Assuming the same two categories of knowledge, different explanations in the first category are a result of instructors' own viewpoints about the facts. However, in the unknown category opinions may become legitimate truth if evidence is found to support them in the future.

Example: If no previous knowledge on the subject is in the memory vault of the brain, there are many books, magazines, and so forth to consult in order to come to an unbiased opinion. Research explanations and decide if they are opinionated in any way or factual. Opinionated or unproven explanations are difficult to believe, unless one finds facts to support them.

(pp. 216-217)

Gathering data on the way in which a person reasons within each of the six domains adds sensitivity to the instrument and identification of reasoning structures contributes to accuracy and ease of interpretation of responses.

The MER provides a Perry rating of Position one to five. Positions "six, seven, eight and nine do not represent restructuring as do the first five positions" (Baxter Magolda, Porterfield, 1988). This lack of measurability of change in the upper positions is concurrent with a critique of the Perry scheme found in Valiga (1982). Valiga cited Strange (1978) who stated the scheme shows a shift from epistemological development in the first five positions to personal identity development in the upper positions. The decision is also congruent with studies where it was difficult to distinguish between levels of commitment, and where subjects did not achieve upper positions (Kurfiss, 1975, Kitchener 1976).

Upon analysis, the rater assigns a Perry position score for each content area. A three digit rating is produced, (6.3.1). The first digit indicates the domain, the second digit indicates the Perry position, and the third digit represents the reasoning structure. If a response is deemed unratable in domain six, for

example, a score of 6.0.0 is given. The zero value is not calculated in the total protocol rating. If it is possible to identify a position in the response, but the reasoning structure does not match defined structures, a zero is assigned for the reasoning score digit (e.g., 6.3.0). A total protocol rating (TPR) is obtained by determining the arithmetic average of the Perry positions in each content area. In this study the TPR scores were used to determine differences between groups.

The responses were analyzed by two certified raters, the researcher and a colleague. Certification was attained through completion of the rater training program (Baxter Magolda, Porterfield, 1988). Scoring of protocols was carried out using the procedure as stated by the authors of the MER in the rater training manual (pp. 85-92). Raters independently rated each protocol, which had been separated from the data sheet to prevent bias. Interrater agreement for Perry positions by domain was 89.7 %. Following independent scoring, raters met to achieve consensus on the final score, as outlined in the manual. Domain ratings and total protocol ratings for subjects in this study are included in Appendix E.



Reliability and Validity of the MER.

The difficulties in developing an appropriate tool to measure intellectual and ethical level and placement on the Perry scheme has impeded utilization of the theory in research and practice. The authors of the MER developed this assessment tool so that theory and practice within the realm of intellectual development could be more closely linked. Broad criteria for the tool included accuracy and practicality (Baxter Magolda, Porterfield, 1988, p.2).

Eight studies were conducted in order to establish reliability and validity of the MER (Baxter Magolda and Porterfield, 1988). Interrater agreement was one means used to test reliability. For a group of 121 baccalaureate social work students, exact inter-rater agreement for the total protocol ratings was 64%. Within one position agreement was 100% (Baxter Magolda and Porterfield, 1988, p. 34). In another study of 39 baccalaureate and graduate students enrolled in an interdisciplinary program, validity based on correlation with interview scores was .93 (p. 48). The authors suggest that more longitudinal data would be helpful in establishing reliability and validity.

### Summary

This chapter described the strategies used throughout this research. Methods of sample selection of practising nurses were outlined, and pertinent variables were identified. Some of these variables were controlled through sample selection, and some were identified in construction of the demographic data sheet. Selection of the tool used to measure intellectual and ethical development was discussed, and aspects of procedures used in rating were outlined.

The data produced by the questionnaire were rich and informing. Analysis and interpretation of these data is presented in the next chapter.

## CHAPTER V

### Analysis, Interpretation and Discussion of Findings

#### Analysis of Demographic Data

The sample was composed of 18 baccalaureate program graduates and 11 diploma graduates. All data must be interpreted with caution because of the small sample size. The baccalaureate graduates ranged in age from 23 to 51. The diploma graduates ranged in age from 27 to 57. Years of experience ranged from 2 to 29. The demographic data indicate that the composition of both groups was similar in characteristics, such as age and years of experience, which have already been identified as potential influencing variables.

Table 1 shows ranked MER scores with accompanying demographic data. There were no patterns distinguishable for location of educational institution, so these data are not included in the table. Sixteen nurses reported enrolling in continuing education; thirteen nurses had never enrolled in continuing education. Only two nurses reported being involved in RNABC or BCNU activities. Three nurses expected to advance to an administrative position within the next five years. Nine nurses reported having university or college level credit in addition to basic nursing

Table 1

Ranked MER Scores with Demographic Data

Subject	TPR	Educ	Age	Exp	Cont ed	Other univ
18	4.00	Hosp	45	15	Y	Y
161	4.00	Univ	27	4	Y	Y
46	3.83	Hosp	36	11	N	Y
170	3.80	Univ	36	10	Y	Y
149	3.67	Univ	27	5	Y	N
11	3.50	Hosp	56	29	Y	N
167	3.50	Univ	36	12	Y	N
106	3.40	Univ	42	20	N	N
55	3.33	Hosp	32	10	Y	N
122	3.20	Univ	36	12	N	Y
171	3.17	Univ	35	14	Y	Y
100	3.00	Coll	27	3	N	N
128	3.00	Univ	35	8	Y	Y
135	3.00	Univ	40	19	Y	N
24	2.83	Hosp	45	24	Y	N
88	2.83	Hosp	30	5	N	Y
44	2.67	Hosp	35	12	Y	N
47	2.67	Hosp	45	22	N	N

(table continues)

Subject	TPR	Educ	Age	Exp	Cont	Other
					Ed	Univ
101	2.67	Univ	51	27	Y	N
118	2.67	Univ	38	14	Y	N
157	2.67	Univ	28	5	N	N
166	2.67	Univ	27	4	N	Y
168	2.67	Univ	30	3	N	N
187	2.67	Univ	23	2	N	N
124	2.50	Univ	41	18	N	N
129	2.50	Univ	31	8	Y	N
60	2.33	Hosp	40	10	Y	N
153	2.33	Univ	28	5	N	N
3	2.17	Hosp	57	26	N	N

Note. TPR = Total Protocol Rating

Educ = Level of Education

Hosp = Hospital Diploma program

Coll = College Diploma program

Univ = University Baccalaureate program

Exp = Years of Nursing Experience

Cont. Ed. = Participation in a continuing education  
program                      Y = yes        N = No

RNABC/BCNU = Participation in RNABC/BCNU activities

Other univ = University or college credit in addition to  
basic nursing education

education; 20 did not.

Table 1 permits visual comparison of results. From this table it is evident that the variable of university credit other than nursing may be related to high scores on the MER. This relationship is important to the research question in this study and will be examined in the analysis. It also appears that there may be a relationship between participation in continuing education and scores on the MER. Although a link between cognitive development and continuing education has been demonstrated in the literature review, this relationship is not germane to the research question of this study, and it will be left for future analysis.

#### The Measure of Intellectual and Ethical Development

As discussed in chapter IV, total protocol rating scores on the MER were used to analyze differences between the two groups of practising nurses. Rater training, although time consuming, allowed further insights into the construct of intellectual and ethical development. These insights permitted extrapolation of results as the characteristics of individuals' thinking at various positions could be profiled.

Total protocol rating scores on the MER ranged from 2.17 to 4.0, with a mean of 3.01. The range and mean are consistent with results of Valiga's (1982) and

Frisch's (1987, 1990) research with nursing students. Experienced practising nurses in this study did not present higher levels of cognitive maturity than the nursing students in these other studies. Review of reasoning structures typical of position three within the six domains of the MER will help to provide a profile of the level three person.

**Domain 1: Decision Making in an Educational Context.**

In position three choosing is still a matter of finding the right answer, but is complicated by the notion that all truth is not known yet. Authorities still know the truth that can be known, and thus maintain much of their influence. Alternatives are still confusing because it is even harder to find the right one. The position three person generally describes choosing as engaging in the right process or formula for deciding, with the notion that if the process is right it will work out in the end. Criteria discussed with regard to choosing are usually future happiness, success, and fulfillment of goals.

**Domain 2: Role of the Learner in the Learning Process**

In position three the notion that some of the truth is unknown at present even to authorities complicates finding the right answers. Abstract learning contexts like philosophy are likely to be viewed as areas where the truth is yet to be discovered. In concrete contexts, the learner's role remains one of receiving the answers but in uncertain contexts it shifts to one of learning along with the authority how to find the answer.

**Domain 3: Role of the Instructor in the Learning Process**

In position three instructors maintain a great deal of their authority. However, the learner has discovered that some truth is not known at present. As the learner's focus turns to finding a process to use to discover the unknowns, the instructor's role alters from one of giving the answers to one of helping the students learn the process of finding them. The teacher's role becomes one of guiding the learner to understand information. The

learner is more open to abstract teaching methods than before but is still likely to see students participation as having minimal significance to learning. Preferred teaching methods are those that assist in learning the process for thinking and searching. The instructor-student relationship is beginning to expand because the student views getting to know the instructor as part of this learning process. A positive attitude on the part of the instructor toward students is essential to helping them learn better.

#### Domain 4: Role of Peers in the Learning Process

Student involvement is a bit more acceptable in position three because even the instructor may not know all the answers. Peer interaction is seen as legitimate as it relates to discovering the process of finding the truth, such as in small group discussions. Interaction has a number of advantages as long as the instructor keeps the class under control and has the knowledge that he or she should share with the class.

#### Domain 5: Role of Evaluation in the Learning Process

In position three evaluation is no longer absolute and quantifiable. Therefore the issue of true understanding versus recitation arises. Additional issues include objectivity, individual learning styles, practicality of material, and confusion over alternate methods. It is still the responsibility of the instructor to take these into account when grading. The instructor is responsible for finding a fair and objective way to accomplish this.

#### Domain 6: Nature of Knowledge, Truth, and Reality

In position three it is possible for the truth to be disputed because some things are yet to be known for sure. It becomes difficult, however, to define how the disagreement can be resolved. Should one expert seem to have a better process for finding the truth, he or she may be presumed to be right, at least until the truth is really discovered. The position three person believes that the truth will be known for sure in the future. However, in the meantime, opinions could become legitimate truth if supported by enough factual evidence.

(Baxter Magolda, Porterfield, 1988, p. 93)



The position three individual is in transition between a dualistic, absolute view of the world and knowledge, and a more confusing and complex view of the world as relative and uncertain.

Through the above excerpt it is apparent that the MER is generally used with students or people who have had a recent educational experience, although the general population were used in its development. In fact, many of the respondents in this study answered questions regarding education as it related to their own basic nursing education. For many, the decisions around entering nursing and choosing a school occurred several years ago. Some nurses did relate reasoning structures that they used in the past, rather than present reasoning structures. This seemed to occur most in domain 1. For future samples of mature adults, an introductory note on the MER which directs subjects to use recent experiences and respond with present thoughts might be helpful.

#### Comparison of Level of Intellectual and Ethical Development and Level of Nursing Education

The descriptive statistics for the two groups on the variable of scores on the MER are presented in table 2.

Table 2

Descriptive Statistics for MER Scores

Statistic	Baccalaureate Graduates	Diploma Graduates
Sample size	n = 18	n = 11
Mean	x = 3.01	x = 3.01
Range	2.33 - 4.00	2.17 - 4.00
Standard Deviation	0.48	0.56

Since the means of the two samples were exactly the same it was unnecessary and impossible to carry out the t test on the data.

According to Burns and Grove (1987), "if the results indicate no significant difference, power analysis must be done" (p. 505). The power is defined as the probability that a statistical test will detect a significant difference that exists (p. 751). "A type II error occurs when the researcher concludes that there is no significant difference between the samples examined, when, in fact, a difference exists" (p. 480). Power calculation includes the sample size and effect size which reflects the degree to which the phenomenon is present in the population (p.483). Therefore, the small sample size and low variability in MER scores indicates that the power in this study is low.

Comparison of Level of Intellectual and Ethical  
Development and Other University Credit

Overview analysis of the raw data indicated that respondents who had enrolled in university education other than their nursing program scored higher on the MER than those who did not. The sample of subjects who had other education was 9 and the sample of nurses with no outside education was 20. The means for these groups were 3.39 and 2.84 respectively. Analysis of differences between the means was carried out on these samples. The t statistic was calculated by hand using the following formula

$$t = \frac{(\bar{X}_1 - \bar{X}_2)}{s_{\bar{X}_1 - \bar{X}_2}}$$

With a t statistic of 3.1, with 27 degrees of freedom, the difference between means was found to be significant at the 0.005 level of significance (Howell, 1985, p. A21). Burns and Grove suggest that if significant results are found, magnitude testing should be done to determine the amount of variance explained. Magnitude testing was performed using the Omega squared statistic (Howell, 1985, p. 247) yielding a value of 0.2267. Therefore we can conclude that university or college credit in addition to basic nursing education accounted for 23 per cent of the variation in MER scores.

### Correlation Between Intellectual and Ethical Level and Demographic Variables

Pearson product moment correlation coefficient was used to determine relationships between variables. The correlation between age and score on the MER was 0.10. The correlation between experience and score on the MER was -0.03. Both of these relationships are negligible (Burns and Grove, 1987, p. 510).

Lack of a relationship between intellectual and ethical development and age is consistent with the findings reported in Valiga's (1982) research. Kitchener (1977) states that "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 in Valiga, 1977).

Also, surprisingly, no relationship was found between intellectual and ethical level and nursing experience.

### Limitations

Limitations of this study relate to problems in methodology and the resultant small sample size. When interpreting results it is important to note that, although utilizing the RNABC registry allowed access to a larger, random sample, the mail out procedure produced a poor return rate which reduces representativeness of the sample. The mailing list was generated

approximately two months in advance of the mail out and packages were mailed at the beginning of the summer. These factors may have influenced the return rate. Also, the questionnaire required thought and time for completion. Nurses willing to contribute this time may have possessed attributes which would also affect representativeness of the sample.

It should also be noted that considerably more baccalaureate graduates than diploma graduates returned the questionnaire. Reasons for the variation in return rate could include commitment or responsibility which are factors related to the study. Since statistical results for both groups were similar, the variable return rate is not reflected in findings of the study. In retrospect, eliminating criteria 6, 7, 10, and 11 (position held, workplace, and post basic education) may have provided greater variation in data and a more representative sample of practising nurses. Many researchers who studied differences between baccalaureate and diploma graduates used convenience samples of students in the final weeks of their nursing program (Johnson, 1988). This method produced a better return rate of questionnaires, but reduces generalizability of results. Administering the MER to groups of diploma and baccalaureate students just prior

to graduation would control the variables of experience and impact of the work setting. A study of this design might produce interesting results for comparison with other studies on baccalaureate education and cognitive development.

### Discussion

The discussion in this section will be related to the four findings of this study. These were: 1) most practising nurses scored at Perry positions 2 and 3; 2) there was not a relationship between level of education and intellectual and ethical development; 3) there was a relationship between participation in university courses outside of the nursing program and level of intellectual and ethical development; and 4) there was no relationship between intellectual and ethical development and the variables of age and experience.

The relatively low level of intellectual and ethical development achieved by the practising nurses in this sample has implications for nursing educators and curriculum planners. Aspects of nursing education which might promote or inhibit cognitive development will be discussed in the section on implications of study findings for nursing education.

Valiga (1983) interpreted the position 2 and 3 results in her study to state that the majority of

nursing students "are still in a position of expecting some authority to make decisions for them and find THE answer to problems; still very dependent, not making a commitment to the professional mode of behavior" (p. 118). The stage of development of independent nursing practice and nursing research within the profession may also influence epistemological boundaries for individual nurses.

Since all nurses in this study were employed in acute care hospitals, further examination of the relationship between cognitive level and work setting might be useful. Other authors (Bottoms, 1988, Sheahan, 1972, and Woolley, 1986) question whether the structure of the workplace, particularly acute care hospital settings, influences the development of professional practice. The impact of the practice setting on intellectual and ethical development will be further discussed in the section on implications for nursing practice.

The second finding of this study indicates that there was no significant difference between a group of practising baccalaureate and diploma graduates on the level of intellectual and ethical development. Although the sample size in this study does not allow strong conclusions, this finding concurs with those of earlier

studies which attempted to distinguish between technical and professional education and practice (Meleis and Farrell, 1974, McCloskey, 1983) in which attempts to isolate differences and distinguishing characteristics were inconclusive. The lack of correlation between intellectual and ethical development and level of nursing education could be interpreted to mean that this construct is not an appropriate one to distinguish between the effects of baccalaureate and diploma education.

The result may also imply that university education is not providing students with opportunities for cognitive growth in a more effective manner than hospital programs. In 1960, as nursing education began to shift from hospital diploma programs to university baccalaureate programs, Russell (1960) warned that the nursing profession should make full use of the university setting. She saw the possibility that nursing education might just change location without rethinking the focus and methods of education (p. 21). This possibility could be explored by comparing nursing graduates to graduates from other university-based professional programs on their scores on the MER. Previous studies by Perry (1971) found graduates of liberal arts programs to be rated at higher positions on



the Perry scale. However, these ratings were scored using an interview format which makes comparison to results in this study inappropriate. The findings of this study have implications for curriculum planners and nurse educators, and suggest a need for further research into the effects of nursing education.

The third finding in this study reveals the significantly higher cognitive level of students who had been exposed to university credit courses other than nursing. This finding supports curriculum designs which include breadth of education. Breadth of education is closely related to the terms liberal education and general education in the literature. Through exposure to university courses in more than one discipline, students learn about human beings, science, or the world from a variety of perspectives. Reed (1987) states that "liberal education provides a foundation for understanding human wholeness, human potential, and the complexity of human experiences that influence health" (p. 37). She proposes a progressive curriculum design which integrates liberal arts and nursing studies throughout all years of the program. She describes a "rhythm of education" where movement between liberal arts, nursing science, and nursing practice experience allows the development of judgment and a

"developmentally maturing level of learning" (p. 38). "The student's nursing practice activities, then, are not isolated from the liberalizing experiences of other arts and sciences. These courses, in addition to personal experience, sensitize students to the ubiquitous search for the meaning of life and death without conveying pat solutions." (p. 39). In this way students are exposed to multiplicity and relativism which encourages development of a broad perspective and challenges students to change dualistic modes of thinking. Perhaps nursing is not taking full advantage of its presence in the university setting in promoting breadth through liberal education. Students may be receiving a training similar to that in the hospital schools in the guise of the university location.

The fourth finding indicates that intellectual and ethical level was not related to age and/or nursing practice experience in this study sample. Lack of correlation between age and scores on the MER is consistent with other findings (Valiga, 1982, Baxter Magolda, Porterfield, 1988).

Many studies on baccalaureate nursing education and cognitive development used samples of nursing students. Therefore, the variable of experience in nursing practice has not received as much attention. A study by

DeBack and Mentkowski (1986), however, did examine the influence of experience and education on nursing practice competencies. They questioned "whether assumed advantages of baccalaureate education can be substituted by on-the-job experience" (p. 275). They found that "Although experience is also an important factor in the development of effective practitioners, level of education impacts a broader range of behaviors than years of experience" (p. 284). These results along with the lack of correlation between experience and cognitive level in this study suggest that research into the value of experience, and the interaction of education and experience might provide new insights.

The findings of this study will be further explored in the following chapter in the sections on implications for nursing practice, education, and research.

#### Summary

This chapter presented demographic characteristics of the study sample. The sample consisted of baccalaureate and diploma prepared nurses who were employed in acute care hospitals in British Columbia. There was a broad range of experience and age. Statistical analysis of variables was presented. Small sample size and low variability in scores on the MER made the power of this study low. Rating intellectual

and ethical development was discussed, and statistical findings related to this variable were given. Most nurses scored at position 2 or 3 on the Perry scale as measured by the MER. Significantly, there was no difference between groups of practising baccalaureate and diploma nurses on the variable of intellectual and ethical development. The average score on the MER for both groups was 3.01. A profile of the individual at position three on the Perry scheme was presented. Overview of the demographic data and MER scores suggested that the variable of participation in educational courses outside of nursing should receive further examination. In fact, a statistically significant relationship was found between scores on the MER and participation in education outside of the nursing program. Secondary analysis revealed no correlation between scores on the MER and the variables of age and experience.

Limitations of this study do not allow statements of strong conclusions. However, the findings will be discussed within the context of the literature review and conceptual framework to provide implications for nursing practice, education and further research.

## CHAPTER VI

### Summary, Conclusions, Implications, and Recommendations

#### Summary

This research represents an investigation into the complexities of educational direction for nursing. The research problem emerged from a review of the baccalaureate entry to practice issue and the surrounding controversy over the intent and effect of university education for nurses. As stated in the introduction to this research, the rationale for pursuing baccalaureate education for nurses has been difficult to describe. In order to more clearly define the rationale, the effects of baccalaureate education in nursing must be investigated. Specifically, the problem that was investigated in this research is contained in the following question: Do baccalaureate graduates differ from diploma graduates in their level of intellectual and ethical development? This researcher was interested in the meaning of university education, along with its related issues, for nurses and nursing. The study was founded in philosophical statements about the mission of university education in general (Carnegie Foundation, 1977) and in the mission of university education for nurses (CNA, 1988).

Initial readings and review of the literature revealed vast efforts by theoreticians and researchers within the disciplines of education and nursing on the subject area. The goals of university education included more than imparting specialized knowledge. The development of intellectual competence, moral and social reasoning, and breadth of perspective are considered to be more important values of education, particularly university education. The cognitively mature, educated individual shows: a tolerance for diversity and uncertainty in the world; propensity for self education; reliance on an internal locus of control; an ability to make judgments; a commitment to a profession; and an ability to use critical reasoning in problem solving.

Theories of education grounded in this developmental perspective have been well developed (Dewey, 1965, Piaget, 1950, Perry, 1970). The construct of intellectual and ethical development as put forth by Perry represents current thinking on adult cognitive development. In addition, considerable effort has resulted in measurement and assessment tools which have allowed operationalization of the construct and its use in research and practice.

The theoretical framework chosen for this study was developed through rigorous phenomenological research

(Perry, 1970). The theory contains propositions which link essential components of university undergraduate education in a logical, clear manner. The quantitative research reported in this study evolved from the propositions within this theory. This research demonstrated an effective relationship between qualitative research, theory construction, and quantitative investigation of propositions within the theory. The theoretical framework allowed linking of concepts important to nursing education. These include level of education, autonomy, self directedness, professionalism, commitment, critical thinking, clinical judgment, and moral reasoning. Therefore the theoretical framework used in the study was appropriate, and the research design reflected the state of knowledge in the field.

With this background in mind, the level of intellectual and ethical development of a group of practising diploma and baccalaureate-prepared nurses was measured and compared. Participants were selected randomly through the RNABC registry and the data gathering tool was mailed to two hundred nurses. Pertinent variables such as participation in continuing education, age, and place of employment were identified. Some of these variables were controlled through sample

selection and some were identified in construction of the demographic data sheet.

Perry positions of intellectual and ethical development were assessed through rated responses on the Measure of Epistemological Reflection (MER). Although the return rate was poor resulting in small sample size, the data generated from this questionnaire were informative. Statistical analysis of data revealed no significant difference between groups of diploma and baccalaureate prepared nurses on the variable of intellectual and ethical development. However, a significant difference was found in the mean scores of a group of nurses who had other university level credit and a group who had not taken university level credit outside of nursing. There was no correlation between scores on the MER and the variables of age and experience.

The remainder of this chapter will include conclusions drawn from the data and statistical analyses. Implications for nursing practice, education, and further research will be discussed within the background of the literature review and guiding conceptual framework.

### Conclusions

The central purpose of this study was to determine



if there was a difference between groups of practising diploma and baccalaureate nurses on the variable of intellectual and ethical development. In analysis of findings, the variable of intellectual and ethical development, as it relates to participation in university level courses outside of the nursing program was also examined. The correlation between the central variable as measured by scores on the MER and age and nursing experience was also determined. Conclusions will be listed first and implications of findings will follow. Conclusions in this research should be considered with caution until the study can be replicated with larger samples.

1. Most nurses in this study sample scored at Perry positions two and three, while only two of 29 respondents scored at Perry position four. Nurses in position two view the world in polar terms from a dualistic perspective. Position three nurses begin to accept multiple sources of knowledge, some of which is known and some unknown. The world is viewed in atomistic terms and an advanced system of evaluating and making judgments has not yet developed.

2. There was no evidence in this sample to support the hypothesis that baccalaureate nursing education contributes to higher levels of intellectual and ethical

development of practising nurses any more effectively than does diploma education.

3. There was a relationship between participation in university level credit courses outside of the basic nursing program and cognitive development. The relationship between level of intellectual and ethical development and participation in other university credit courses outside of the basic nursing program was discovered serendipitously. Therefore, the relationship should be considered carefully because the study was not designed to fully examine this concept.

4. There was no correlation between the variables of age and nursing experience and the intellectual and ethical level of practising nurses.

#### Implications for Nursing Practice

Implications for nursing practice in this study arise from the relationship between education and practice. Education exists and changes to serve the profession's present and future practice needs. Health care professionals require generalized intellectual skills so that they may fulfill a variety of independent roles within a changing health care system. Nurses, working in a variety of settings, presently fulfill an uncountable number of changing roles. Specialized training for a finite, definable number of functions and

roles is no longer adequate preparation for nurses of the present or future. Of greatest importance to nurses in these roles is the ability to think in a perceptive, independent, and critical manner, and to communicate thoughts in such a manner. A university education is seen to be the appropriate preparation for the development of these skills. This purpose represents the most compelling argument in support of the requirement for baccalaureate preparation prior to nurse registration. However, the assumption that university education inculcates higher order intellectual skills is yet to be empirically supported. The purpose of this research was to determine if these higher order intellectual skills could be considered to be a differentiating outcome of diploma and baccalaureate nursing education. The argument that university nursing education fosters intellectual and ethical maturity more effectively than diploma programs was not supported in this research.

The CNA statement at the beginning of this paper exemplifies the relationship between higher education and nursing practice. It states that nurses need a university education so that they are better prepared to deal with "changes in the practice of nursing with an emphasis on theory based practice, a research

orientation to practice, the effects of technological advances, the importance of helping relationships, ethical issues and community based nursing care" (1988, p. 12). The relationship between each of these areas and cognitive development will be discussed in the following paragraphs.

#### Theory-Based Practice

The development of nursing theory and a unique body of nursing knowledge, with a guiding conceptual framework can be regarded as essential to the autonomous professional practice of nursing. Nursing requires individuals who have the ability to use as well as contribute to the expansion of nursing knowledge and nursing theory. Absence of theories and conceptual frameworks which describe the unique function of nursing and the boundaries of nursing's sphere of practice permits wide variations in approaches to nursing practice and nursing education. Constructive alliance of nursing education, nursing practice, and nursing research depends upon an ability to articulate the mission and boundaries of the domain of nursing. We can speculate that the more mature cognitive level of nurses, and collective intellectual strength of the profession will positively affect the development and implementation of nursing theory, models, and nursing

research.

The interaction between intellectual and ethical maturity of nurses and the development of nursing knowledge and theory is symbiotic. In addition to the positive effect of cognitive maturity of individuals on expanding nursing knowledge, the implementation of nursing frameworks in curricula and practice settings may enhance the cognitive development of students and practitioners. Questions for further study could include: Do students who are products of curricula based on a conceptual framework for nursing show higher levels of intellectual and ethical maturity? Does implementation of and commitment to a nursing framework in the health care setting promote intellectual and ethical development of the nurses who practice there?

Further study of recent graduates and the relationship between theory-based practice and intellectual and ethical development would allow further exploration of this issue. The restricted findings of this study do not contribute significantly to empirical support of the theoretical ideas.

#### Research Orientation to Practice

A research orientation to nursing practice requires an inquiring mind and a view of knowledge as uncertain but definable in context. This view of knowledge is

congruent with higher positions on the Perry scale. The ability to conduct and use research in practice requires higher intellectual skills and an ability to selectively apply knowledge in context. Expansion of nursing knowledge and development of sound nursing interventions based on a scientific foundation depend upon the generation of research and research ideas at the caregiving level. An objective of baccalaureate education is to prepare nurses who have the intellectual skills necessary to contribute to and use nursing research.

#### Technological Change

The third area identified by the CNA as necessitating university preparation includes the technological advances in health care which greatly affect nursing practice. The effects of technological change in health care have been well documented (Cooper, 1980, Urbano, Jahns, and Urbano, 1988). It has been postulated that nurses who do not continue learning will become obsolescent in practice (Cooper, 1980). Thus, the preparation of nurses who have the skills and motivation to pursue further learning is an important goal of nursing schools. Oddi (1986), in studying self-directed learning, described three dimensions of personality characteristics which determine the

propensity for self-education and lifelong learning; proactive drive versus reactive drive; cognitive openness versus defensiveness; and commitment to learning versus apathy or aversion to learning. These characteristics could be developed in a curriculum which enhances cognitive development. This would be particularly important in light of the fact that, in this study, it was found that experience alone does not affect cognitive level.

Although it was not examined in this study, there may be a relationship between continuing education and intellectual and ethical development. Perhaps studying the relationship between participation in continuing education and cognitive development would be useful. Do higher levels of cognitive development predispose an individual to pursue lifelong learning or continuing education? Does continuing education significantly promote cognitive growth where experience alone might not?

#### Helping Relationships

The fourth area identified by the CNA in the entry to practice issue is the relationship between higher education and the increasing importance of interpersonal helping skills required in nursing practice. The importance of helping relationships has also been

related to cognitive development in this study, especially as it relates to the effects of a liberal education. It is recognized that nurses should care for each client within the context of that individual's unique situation. This requires professional judgment, tolerance of others, and a broad perspective.

#### Ethical issues

The ability to deal with ethical issues is closely related to cognitive development (Ketefian, 1981). The relationship between logical reasoning and ethical or moral reasoning was demonstrated in the literature review.

#### Community-Based Health Care

The final area identified by the CNA as necessitating higher education for nurses includes the projected changes in health care delivery in the future. The nursing profession and the health care system require nurses with broadened perspectives and creative visions. The delivery of health care in Canada is highly institutionalized and futurists predict a drastic shift from traditional methods of health care delivery. Community-based nursing care, with its many possible avenues, is an acceptable alternative, but autonomous flexible nurses will be required to fulfill changing roles.



Changes in nursing practice including increasing emphasis on theory-based practice, a research orientation to practice, the effects of technological advances, the importance of helping relationships, ethical issues and community-based nursing care as described in the above paragraphs have been used to illustrate the relationship between the nature of nursing practice and educational requirements for entry to the profession. The foregoing paragraphs illustrate an ideal alignment of nursing education and practice.

Another aspect to the education-practice relationship is the reciprocal congruence where the clinical work setting provides the new graduate with the opportunity to use skills developed in the educational setting. Characteristics of the practice situation, which include a hierarchical structure where many decisions about nursing care for clients are made by superiors and physicians, can be seen as incompatible with the educational preparation of the professional nurse. Sheahan (1972) states that "the professional nurse who practices in a hospital setting will probably function well below her professional capacity, at a semi professional or technical level, for at that level, by definition, one works under the supervision of others" (p. 442). Kramer (1970) also addresses the

professional-bureaucratic conflict. She found that baccalaureate-prepared nurses experience high intensity conflict and role deprivation, and a decrease in professional values. Thus, some practice settings could allow regression or at least stagnation of intellectual skills. Where graduates of other university-based disciplines may meet the opportunity to grow and build upon their broad educational bases, baccalaureate nursing graduates working in the hospital setting may face regression and stagnation. This aspect may have implications for the current issues of job satisfaction and retention of nurses in acute care hospitals. As stated in conclusion number 1, nurses practising in the hospital setting attained similar levels of cognitive maturity regardless of their educational preparation. The impact of the practice setting on the variable of intellectual and ethical development requires further investigation. Future research might examine the intellectual and ethical levels of nurses working in a variety of settings, or compare nursing graduates to graduates of other professional programs.

#### Implications for Nursing Education

The findings of this study are most importantly related to implications for nursing education. The research results do not in themselves offer further

support for the entry to practice position. This is consistent with other research attempts to describe the value of baccalaureate education (McCloskey, 1983). Studying the issue through the theoretical approach used in this research, can, however, offer further insights as to how nursing students gain the knowledge, skills, and values necessary to practice nursing. The Perry theory of intellectual and ethical development demonstrates how individuals gain higher order intellectual skills through university education. In the previous section, the relationship between intellectual skills and the complexities of present and future nursing practice were illustrated. In this way the theory of intellectual and ethical development offers a framework which helps to clarify what knowledge, skills, and values are necessary to practice nursing.

The theory of intellectual and ethical development could be useful in assessing the developmental level of students who enter nursing, and in measuring their gains in cognitive development at intervals throughout the curriculum. Secondly, the theory could help clarify curriculum goals within the cognitive development realm and evaluation of achievement of these goals. Thirdly, it has implications for designing teaching strategies

which promote cognitive growth.

### Student Assessment

With increasing educational costs and the high attrition rates in nursing programs, selection and retention of applicants has received closer attention. This has renewed a search for assessment tools which can predict success in nursing programs. Kissinger and Mujas (1982) conducted a longitudinal study of 201 nursing students and found that "four characteristics can predict success in using the nursing process. These are verbal ability, vocabulary knowledge, convergent thinking ability, and field independent perceptual style" (p. 53). Higher levels of intellectual and ethical development which allow individuals to tolerate ambiguity, and apply knowledge in an uncertain and relativistic environment may be related to success in nursing school. Assessing cognitive level of individuals entering nursing would also provide insightful developmental information for instructors.

From a different perspective, Valiga questions whether nursing attracts people who prefer external direction and authority. Research studies which compare entrants to different faculties may help to profile the individual who chooses nursing. In a study of similar design, Boughn (1988) found that nursing students scored

significantly lower on an autonomy scale than females in non-traditional faculties. She concludes that, in order to attract capable students, nursing must compete with other disciplines where there is opportunity for a more autonomous professional role.

Assessment of cognitive level at various points throughout the curriculum would also be helpful in determining the effect of particular content or experiences on cognitive development. Levels of intellectual and ethical development can be charted longitudinally to determine which curriculum components enhance greatest gains in cognitive development. Do the greatest gains occur in year one, two, three, or four? What are the components of the curriculum in years of greatest gain? Can gains be related to inclusion of electives or liberal arts; specific clinical experiences; ethics and issues courses; or opportunities for independent study?

#### Curriculum Planning

Nursing school philosophies (Malaspina, Camosun, University of British Columbia, and the University of Victoria) contain statements about higher order cognitive abilities such as critical thinking, moral reasoning, self-directed learning, creative thinking, and problem solving. These ideals often remain as

philosophical statements because of the difficulty in implementing them in any precise intentional way through the curriculum. It has also been difficult to measure and evaluate such characteristics in graduates.

Although purpose statements and goals among nursing curricula are similar, the curriculum designs to meet these common goals vary greatly. Curriculum planners and educators express varying ideas about the ways in which students gain the knowledge, skills, and values necessary to practice nursing. The difficulty in clearly describing the ways in which students develop and demonstrate higher order cognitive skills may explain some of the diversity in curriculum plans which evolve from similar philosophies and goals. The Perry scheme brings more precise meaning to cognitive developmental goals. This clarity allows faculty to achieve consensus around implementation of plans to achieve cognitive development, and allows students to have a clearer understanding of expectations regarding their cognitive growth.

All nursing curricula have a common purpose: to prepare individuals for nursing practice and registration. Perusal of descriptions of diploma programs in British Columbia reveals diversity in entrance requirements, length of the program, course

selection, course content, and clinical experiences. There are also post-RN baccalaureate programs and a generic baccalaureate program. In North America, baccalaureate programs can be four or five years in length, follow integrated curriculum designs, one plus three designs, or two plus two designs, and contain varying numbers of electives or liberal arts and sciences credits.

Many arguments have been put forth to support the varying curriculum designs which have been apparent in nursing education both in the past and present. Montag (1959) successfully promoted the associate degree two year diploma program in the United States for preparation of technical nurses. She envisioned different educational preparation and practice roles for technical and professional nurses. The realities of the hospital setting did not allow clear and definite delineation of these two roles, and the original intent of the technical-professional dichotomy was lost. In addition, the fundamental desire to allow upward mobility and advancement for nurses at all levels fostered the popularity of the ladder concept in the 1960's and 1970's. Although the technical-professional dichotomy did not receive as much attention in Canada, two year college-based diploma programs arose leading to

a similar conglomeration of educational pathways in nursing. Decisions which led to the evolution of technical nursing, entry and exit points in programs, and the ladder concept, have created a variety of routes in nursing education which still exist today.

Practising nurses in British Columbia are graduates of a wide variety of programs. This conglomeration of educational pathways in nursing is the legacy of unclear direction in the past. As strategies to achieve the baccalaureate entry to practice position are implemented, effects of the history of nursing education and directions for the future are receiving closer attention.

The baccalaureate entry to practice position has prompted a demand for more post-RN baccalaureate programs. When diploma RN's return for baccalaureate education they are essentially obtaining upper level university preparation which is built upon a narrow, specialized and technical base. Critics of articulation between diploma and baccalaureate programs believe that upper level baccalaureate education should build upon a broad, general liberal arts base (Gallop, 1984, Bullough, 1979). While opponent arguments to articulation appear educationally sound, reality in baccalaureate nursing education today suggests that RN's



returning for the baccalaureate degree make up a large number of successful nursing degree graduates.

Richardson (1986), in a response to Gallop's article, presents a case for articulation as one mechanism for achieving baccalaureate entry to practice in Canada. She states that articulation is a design decision to meet present needs and does not need to be a prescription for the future. Also pertinent in this issue is the study by Lawler and Rose (1987), cited earlier in this research, which concluded that "the ADN who returns to school to earn the BSN is a more professional product than either the generic BSN or ADN graduate" (p. 22).

In addition to the variety of educational programs and pathways leading to nurse registration, there can be considerable diversity within one type of program. For example, Torres and Stanton (1982) describe three curriculum designs which can be used in generic baccalaureate programs (p. 56). The first is a building design where year one and two of the program consist of general university support and elective courses, all nursing content is delivered in the final two years. The second design is a progressive design where students receive a large portion of general education and support courses and a lesser amount of nursing content in their

first year. The general content progressively decreases until the fourth year while the nursing content progressively increases to the fourth year. Advantages of the progressive design were described earlier in this chapter in the section on liberal education. The third curriculum design presented by Torres and Stanton is a parallel design where students receive a proportionate amount of nursing and general content concurrently throughout the four years. Another design receiving greater attention is the post baccalaureate nursing program where a general baccalaureate degree is required prior to entering a nursing program. This educational pathway is similar to that in dentistry, law, medicine, and some social work programs where professional education builds upon a general arts and science base. Torres and Stanton present advantages and disadvantages of each design. Curriculum planners choose a design based on the restrictions of the university setting and their own educational assumptions. Research on the effectiveness of each design is not available, so that planners must make decisions on a theoretical basis.

The Perry theory provides a framework from which to view and clarify curriculum goals which refer to higher order cognitive skills of concept attainment, problem solving, decision making, critical thinking, and

clinical judgment (Reilly and Oermann, 1985, p. 146). The theory of intellectual and ethical development may offer direction for curriculum development, implementation, and evaluation, within the cognitive domain. The results of this study and the research by Valiga (1982) and Frisch (1987, 1990) indicate that cognitive development should be fostered in a more effective way if these curriculum goals and philosophical statements are to be realized.

Nursing curricula undergo frequent revisions and changes without the benefit of broad curriculum research upon which to base decisions. The theorizing around the effects of a liberal education is one example where debate continues without the benefit of empirical research. Future research might include comparison of graduates from different curricula; this might help to measure effectiveness of one design over another.

#### Teaching Strategies

The Perry scheme has become the basis of experimental research where teaching interventions were specifically developed to enhance development to higher positions (Knefelkamp, 1974, Stephenson and Hunt, 1977, Widdick, 1975). These researchers planned learning experiences for students which included exposure to diversity, presentation of more than one perspective on

issues, and challenges to encourage students to advance to multiplistic and relativistic levels of thinking. These research studies utilized experimental designs where Perry positions were measured before and after implementation of a teaching intervention designed to enhance cognitive development. These studies, which were presented in the literature review, offer research models for further study into the effectiveness of teaching strategies. Only one nursing study used a similar design. Frisch (1990) measured the position on the Perry scale of nursing students before and after a student exchange experience. She found that an international student exchange was an intervention which enhanced the cognitive development of nursing students.

In planning teaching methods to promote cognitive maturity it is important to consider the level of the students in the group. Students will be happier and more satisfied with instruction if it is congruent with their beliefs about the role of the instructor, peers, and learners in pursuing education and the nature of knowledge, truth and values. These can be assessed using the MER.

If the faculty believe that learning includes the development of increasingly complex cognitive abilities, then learning in this realm can be more concretely and

specifically defined as achieving higher positions on the Perry scale. The way in which students achieve higher positions will be the faculty's frame of reference for explaining how learning in this realm is achieved.

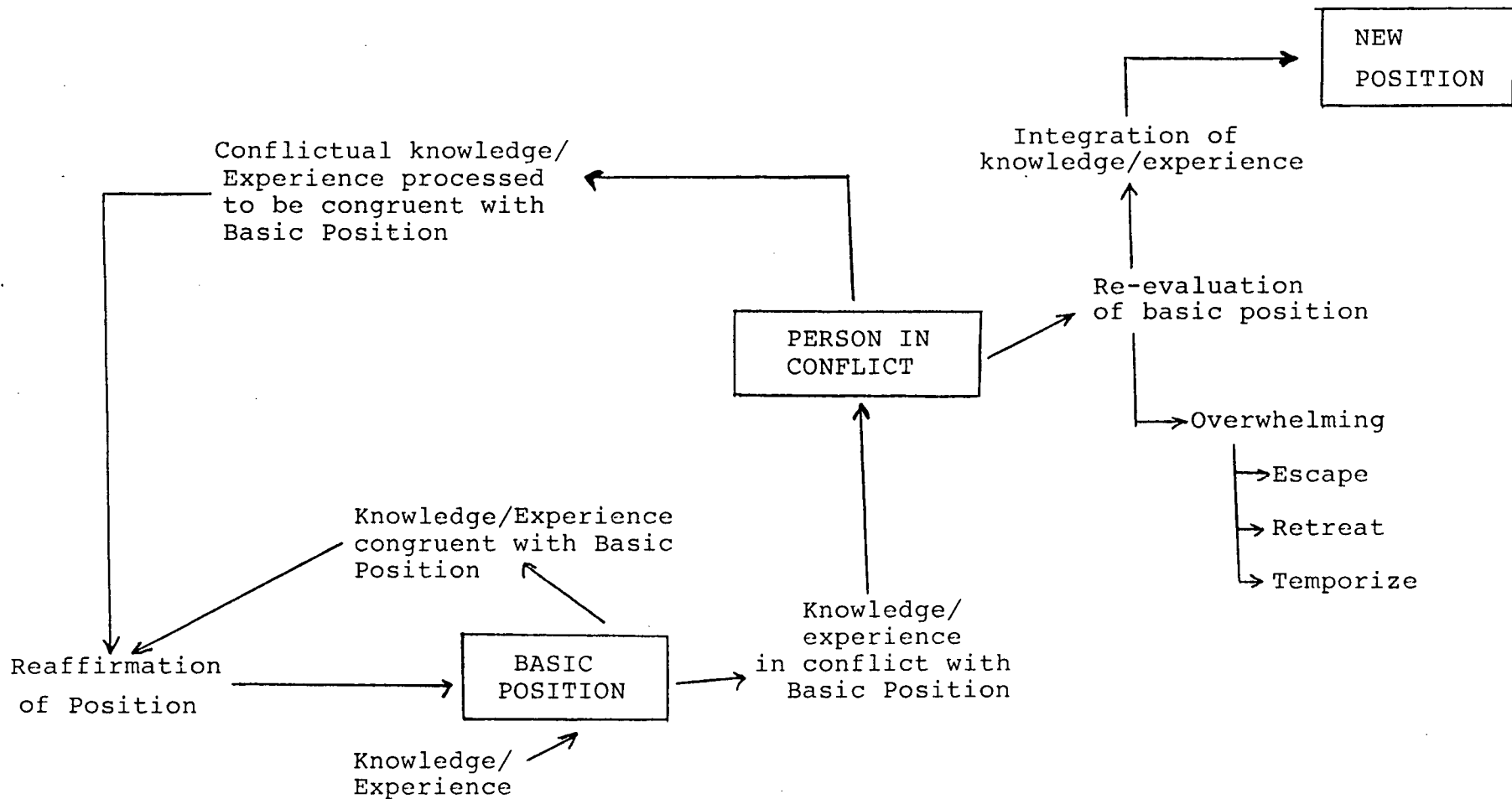
The process of change was briefly described in chapter II and is illustrated here in Figure 1. If the student faces new knowledge or experience in the environment which cannot be handled by existing cognitive structures, cognitive dissonance results. Students can alter their cognitive structures to integrate the new knowledge or experience. This accommodation, or modification of internal patterns of understanding to fit the new reality, results in progression to the next stage of cognitive development. Cognitive dissonance which cannot be accommodated results in alternatives to growth. Achieving new positions and alternatives to growth are illustrated in Figure 2. Perry describes these alternatives to growth in the following way:

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

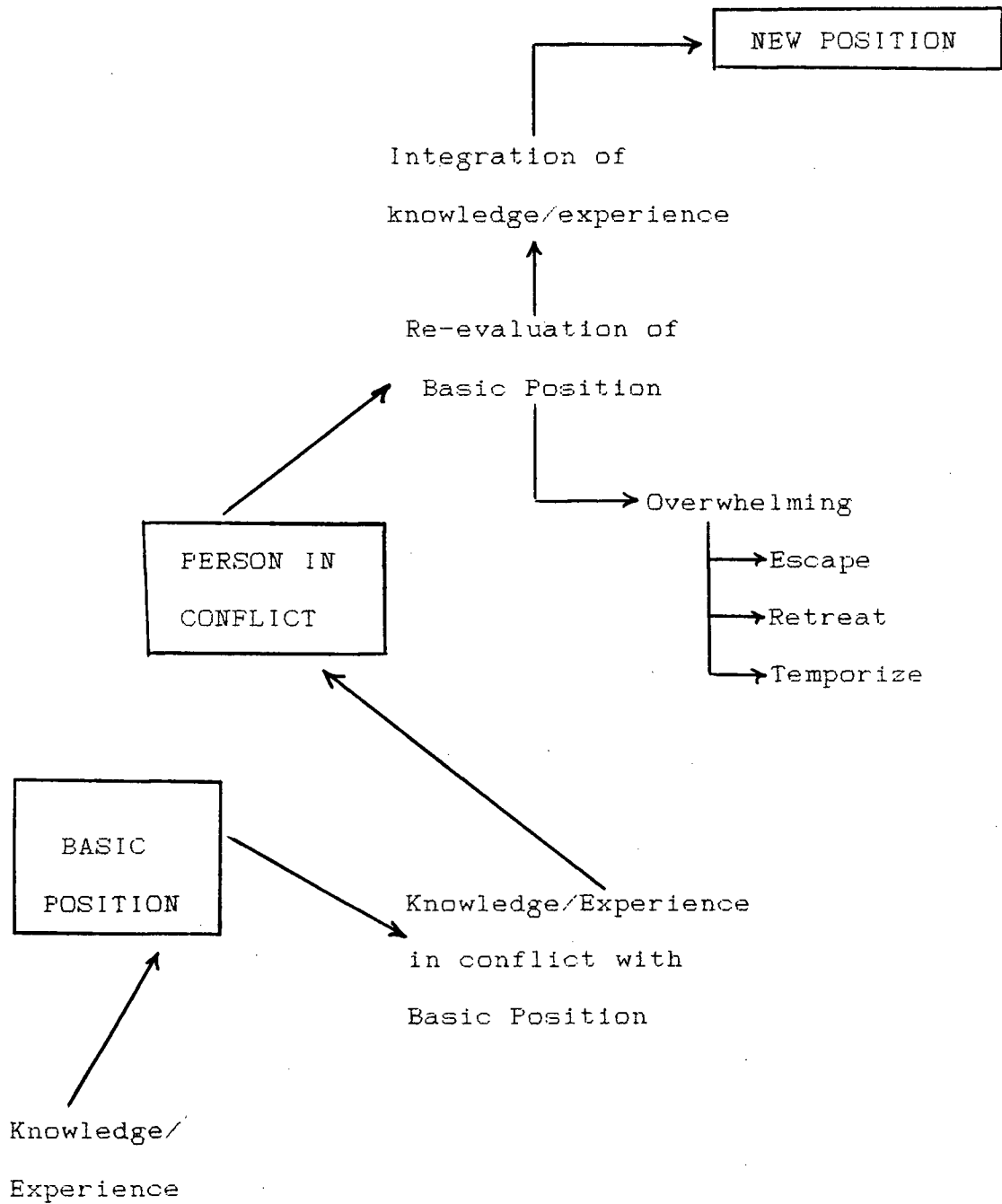
Figure 1.

PROCESS OF CHANGE IN DEVELOPMENTAL POSITION



Copied without permission Cordts (1977) Unpublished paper  
Found in Valiga (1983)

Figure 2: Achieving New Positions and Alternatives to Growth



4 and 5 to deny responsibility through passive or opportunistic alienation.

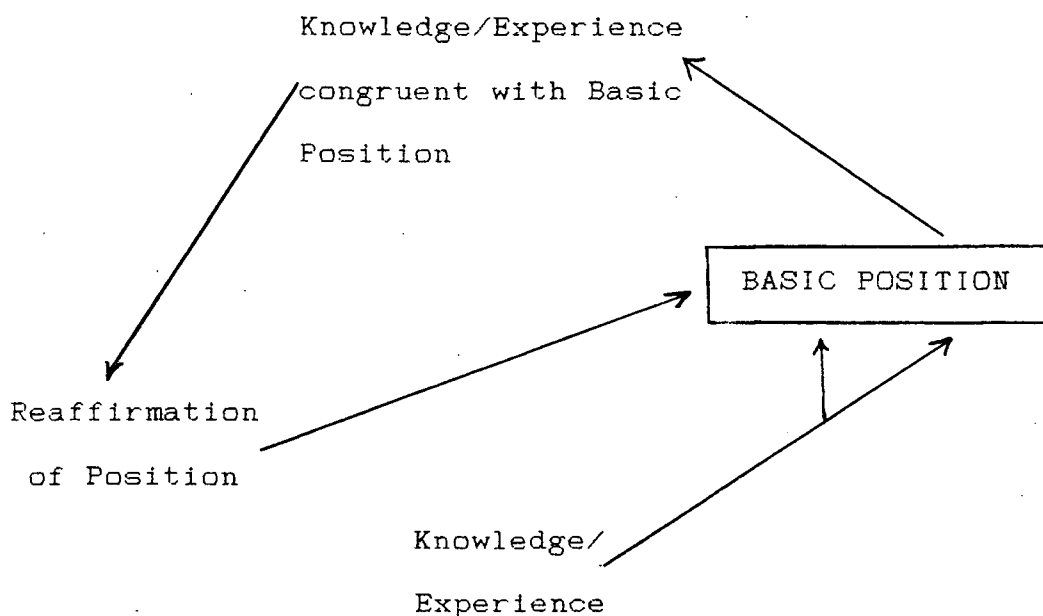
Retreat. The student entrenches in the dualistic, absolutistic structures of Position 2 or 3.

A person in conflict might also block perception of new knowledge or experience so that insight which allows re-evaluation of Basic Position does not occur.

If the student faces new knowledge or experience in the environment which is congruent with existing cognitive structures, the student can reaffirm the Basic Position or current level of development. No new learning or change occurs in a situation such as this. Reaffirmation of position is illustrated in Figure 3.

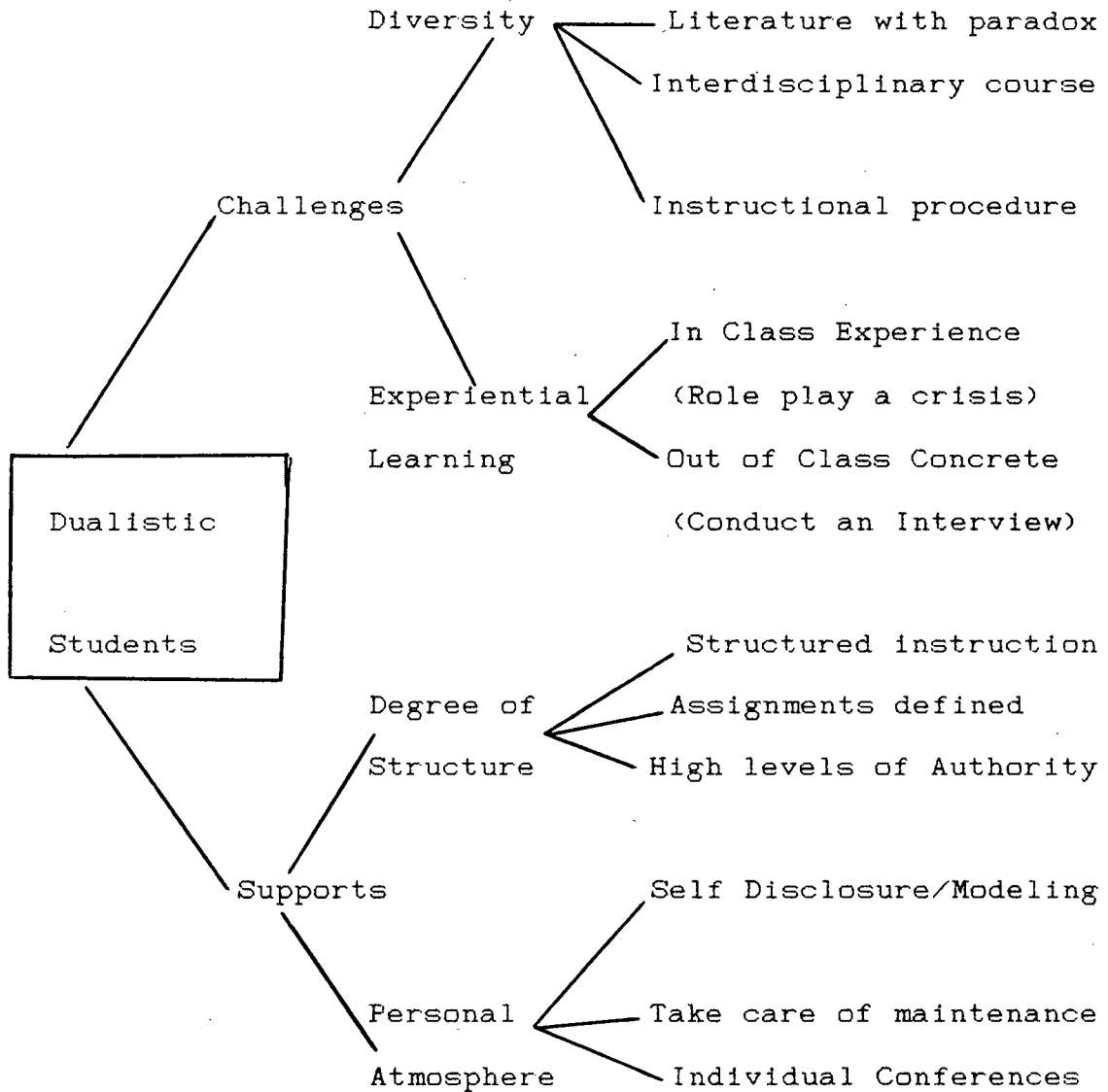


Figure 3: Reaffirmation of Position



A dilemma occurs where, if students are not faced with a challenge, learning and change do not occur. On the other hand if the students are faced with knowledge and experience unsuitable for their level, or too much of a challenge, they cannot attain New Positions. Stephenson and Hunt (1977) have proposed a "dualistic curriculum intervention" which combines challenge and support to help students in dualism move to new positions. Figure 4 illustrates elements of challenge and support which can be used with dualistic students to enable them to move to more multiplistic and relativistic ways of thinking.

Figure 4 Dualistic Curriculum Intervention



This balance of challenge and support also justifies a humanistic approach to education. Teaching strategies to enhance cognitive development can be used in the classroom, seminar and clinical practicums.

The clinical learning environment provides a rich arena for cognitive growth. Nursing, as a humanistic interactive science serving clients of all backgrounds with varying needs, is an inherently inexact and relativistic discipline. With all of our policies and procedures, and intolerance of mistakes, we may portray nursing as an exact dualistic science to new students. Valiga (1982) states:

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.

(p. 217)

It is this difference between how we view and teach nursing and the ambiguity present in practice situations that Frisch refers to as she develops a new and

interesting perspective of reality shock. A new graduate who has been encouraged to view the nursing situation in dualistic right-wrong terms will have trouble with the professional role which requires independent judgment in a relativistic world. Students who have the opportunity to develop relativistic reasoning skills will be better equipped to deal with the realities of the clinical situation.

The research in this study does not offer conclusive direction for nursing education because of the limitations of the findings. This research represents an initial investigation into the complexities of the related concepts within cognitive development theory and nursing education. The findings of the study in combination with other literature and extensions of the theoretical framework do, however, provide a basis for many avenues of further research.

#### Implications for Future Research

Research into the relationship between intellectual and ethical development and concepts such as professionalism (Valiga, 1982), and self-directedness and role of authority (Shaw-Berget, 1988) has already begun. Research to further these efforts and investigate relationships with other concepts such as critical thinking, moral reasoning, decision-making, and

autonomy would contribute to our understanding of the role of education in promoting these abilities.

Longitudinal studies of students upon graduation, and at intervals thereafter would promote our understanding of the relationship between experience, education, and cognitive development. Information regarding the enhancement, regression, or stabilization of cognitive level following graduation would be helpful.

Curriculum research where cognitive level is assessed throughout the program and upon graduation would be important for future curriculum decisions in nursing education. Comparing graduates from different programs, which use different curricula might also provide interesting results. Also, many students entering nursing now are mature students who often have a previous degree or university courses in other faculties. Assessing the development of these students and following their career paths after graduation might provide useful information.

Research into traditional and innovative teaching strategies designed to enhance cognitive development will add to our knowledge about the effectiveness of nursing education. Experimental research designs where levels of cognitive development are measured before and

after an intervention or experience may also help to corroborate inclusion of particular components in a course.

Although the entry to practice position is gaining support, the value of baccalaureate education for nurses is still to be clearly demonstrated to all nurses and the public. Any efforts which help to clarify the nature of higher education's contribution to nursing practice will strengthen the entry to practice position.

#### Summary

In promoting the entry to practice position, the Canadian Nurses Association stated that baccalaureate education should foster the development of abilities required for professional practice. Baccalaureate education should assist in the development of a breadth of knowledge, build intellectual power, and assist in the creation of a coherent scheme of values (CNA, 1988, p.12). The research presented here was an effort to further the search for differentiation between the effects of baccalaureate and diploma education in nursing. To this end, the research proceeded to test the assumptions in the CNA statements on the baccalaureate entry to practice issue as presented in the beginning pages of this study. The findings in this study do not offer further support for the baccalaureate

entry to practice position. However the numbers of subjects in the study dictate judicious consideration of the results.

This final chapter presented a summary of the theoretical background and the research process used in the study. The implications of the conclusions, for nursing practice, education, and research, were analysed. The relationships between cognitive maturity and practice issues such as theory-based practice, research orientation to practice, technological change, helping relationships, ethical issues, and community-based health care were demonstrated. Implications of the Perry theory for nursing education in the areas of student assessment, curriculum planning, and formulating teaching strategies were analysed.

This research furthers investigations into intellectual and ethical development in nursing education conducted by Valiga (1982) and Frisch (1986, 1990). It reveals numerous questions for further research into this area of nursing education. A professional nurse must be educationally prepared to deal with the complexities of a pluralistic world. Theoretical foundations and research which contribute to a better understanding of development within the cognitive domain in nursing education are needed so that

students can be well prepared for nursing practice.



## References

- Archambault, R. (1964). John Dewey on Education: Selected Writings. New York: Random House.
- Bailey, J. T., McDonald, F. J., & Claus, K. E. (1970). Evaluation of the development of creative behavior in an experimental nursing program. Nursing Research, 19(2), 100-107.
- Bauwens, E. E., & Gerhard, G. G. (1987). The use of the Watson-Glaser critical thinking appraisal to predict success in a baccalaureate nursing program. Journal of Nursing Education, 26(7), 278-281.
- Baxter Magolda, M. B., & Porterfield, W. D. (1988). Assessing Intellectual Development: The Link Between Theory and Practice. Maryland: American College Personnel Association. (Media Publication No. 47).
- Benner, P., & Wrubel, J. (1982). Skilled clinical knowledge: The value of perceptual awareness. Nurse Educator, 7(3), 11-17.
- Bigge, M. L. (1982). Learning Theories for Teachers. (4th ed.). New York: Harper & Row.
- Bottoms, M. J. (1988). Competencies of liberal education and registered nurses' behavior. Journal of Nursing Education, 27(3), 124-130.
- Boughn, S. (1988). A lack of autonomy in the contemporary nursing student: A comparative study.

- Journal of Nursing Education, 27(4), 150-155.
- Bullough, B. (1979). The associate degree: beginning or end? Nursing Outlook, 27(5), 324-328.
- Burns, N. & Grove, S. K. (1987). The Practice of Nursing Research: Conduct, Critique and Utilization. Toronto: W.B. Saunders Co..
- Canadian Nurses Association (1988) Entry to Practice Newsletter. 4(2), Ottawa: Author
- Carnegie Foundation for the Advancement of Teaching. (1977). The mission of undergraduate education. In Missions of the College Curriculum: A Contemporary Review with Suggestions. San Francisco: Jossey-Bass.
- Chickering, A. W. (1969). Education and Identity. San Francisco: Jossey-Bass.
- Clark, K. M. (1976). Self-directed and other-directed continuing education: A study of nurses' participation. Journal of Continuing Education in Nursing. 7(4), 16-24.
- Clark, K. M. (1986). Recent developments in self-directed learning. The Journal of Continuing Education in Nursing, 17(3), 76-81.
- Cooper, S. S. (1980). Self-Directed Learning in Nursing. Wakefield: Nursing Resources.
- Copes, L. (1978). Mathematics and the Perry Development Scheme. Paper presented at the 3rd International

Conference on Educational Mathematics.

- DeBack, V., & Mentkowski, M. (1986). Does the baccalaureate make a difference?: Differentiating nurse performance by education and experience. Journal of Nursing Education, 25, 275-285.
- Dewey, J. (1964). What psychology can do for the teacher. In R. Archambault (ed.). John Dewey on Education: Selected Writings. New York: Random House.
- Dressel, P. L. (1979). Liberal education: Developing the characteristics of a liberally educated person. Liberal Education, 65, 313-322.
- Eisenman, R. (1970) Creativity change in student nurses: A cross-sectional and longitudinal study. Developmental Psychologist. 3(3), 320-325.
- Frisch, N. A. (1987). Cognitive maturity of nursing students. Image: Journal of Nursing Scholarship, 19(1), 25-27.
- Frisch, N.A. (1990). An international student exchange program: An educational experience that enhanced student cognitive development. Journal of Nursing Education, 29(1), 10-12.
- Gallop, R. (1984). Articulation and baccalaureate entry to practice. Nursing Papers, 16(4), 55-63.
- Goldstein, J. O. (1980). Comparison of graduating AD

- and baccalaureate nursing students' characteristics. Nursing Research, 29(1), 46-49.
- Hegge, M. (1985). A model for continuing nursing education through self-directed learning. Journal of Continuing Education in Nursing, 16(6), 205-213.
- Holbert, C. M. & Abraham, C. (1988). Reflections on teaching generic thinking and problem-solving. Nurse Educator, 13(2), 23-27.
- Howell, D. (1985). Fundamental Statistics for the Behavioral Sciences. Boston: Duxbury Press.
- International Council of Nurses. (1985). Report on the Regulation of Nursing: A Report on the Present, A Position for the Future. New York: Author.
- Itano, J. K., Warren, J. J., & Ishida, D. N. (1987). A comparison of role conceptions and role deprivation of baccalaureate students in nursing participating in a preceptorship or a traditional clinical program. Journal of Nursing Education, 26(2), 69-73.
- Johnson, J. H. (1988). Differences on the performances of baccalaureate, associate degree, and diploma nurses: A meta-analysis. Research in Nursing and Health, 11, 183-197.
- Kergin, D. J. (1970) Nursing as a profession. In M.Q. Innis (ed.). Nursing Education in a Changing Society. Toronto: University of Toronto press.

- Kramer, M. (1981). Philosophical foundations of baccalaureate nursing education. Nursing Outlook, 19(4), 224-228.
- Ketefian, S. (1981). Critical thinking, educational preparation, and development of moral judgment. Nursing Research, 30(2), 98-103.
- King, F.M. (1978). William Perry's theory of intellectual and ethical development. New Directions for Student Services, 4, 35-51.
- Kissinger, J. F. & Munjas, B. A. (1982). Predictors of student success. Nursing Outlook, 30(1), 53-54.
- Kitchener, K. S. (1977). Intellectual Development in Late Adolescents and Young Adults: Reflective Judgment and Verbal Reasoning. Unpublished doctoral dissertation, University of Minnesota.
- Klassens, E. L. (1988). Improving teaching for thinking. Nurse Educator, 13(6), 15-18.
- Knefelkamp, L. L., (1974). Developmental Instruction: Fostering Intellectual and Personal Growth in College Students. Unpublished doctoral dissertation, University of Minnesota.
- Knefelkamp, L. L., & Slepitz, A. (1976). A Cognitive-developmental model of career development-an adaptation of the Perry Scheme. The Counseling Psychologist, 6(3), 53-57.

- Kohlberg, L. (1975). The cognitive-developmental approach to moral education. Phi Delta Kappan. June, 670-677.
- Kurfiss, J. (1975). Late Adolescent Development: A Structural-epistemological Perspective. Unpublished doctoral dissertation, University of Washington.
- Lawler, T. G., & Rose, M. A. (1987). Professionalization: A comparison among generic baccalaureate, ADN, and RN/BSN nurses. Nurse Educator, 12(3), 19-22.
- Mahon, K. A. & Fowler, M. D. (1979). Moral development and clinical decision-making. Nursing Clinics of North America, 14(1), 3-12.
- Malek, C. J. (1986). A model for teaching critical thinking. Nurse Educator, 11(6), 20-23.
- McCloskey, J. C. (1981). The effects of nursing education on job effectiveness: An overview of the literature. Research in Nursing and Health, 4, 355-373.
- McCloskey, J. C. (1983). Nursing education and job effectiveness. Nursing Research, 32, 52-58.
- Meleis, A. I., & Farrell K. M. (1974). Operation concern: A study of nursing students in three nursing programs. Nursing Research, 23(6), 461-468.
- Meyer, P. (1977). Intellectual development: Analysis of

- religious content. The Counseling Psychologist.  
6(4), 47-50.
- Montag, M. L. (1951). The education of nursing technicians.  
New York: G.P. Putman's Sons.
- Murray, L. M. & Morris, D. R. (1982). Professional autonomy among senior nursing students in diploma, associate degree, and baccalaureate nursing programs. Nursing Research, 31(5), 311-313.
- Mustapha, S. L., & Seyfert, J. A. (1989). Moral reasoning in college students: Implications for nursing education. Journal of Nursing Education, 28(3), 107-111.
- Nickerson, R. S. (1981) Thoughts about teaching thinking. Educational Leadership, 39(1), 21-24.
- Oddi, L. F. (1988). Comparison of self-directed learning scores among graduate students in nursing, adult education, and law. Journal of Continuing Education in Nursing. 19(4), 178-181.
- Pardue, S. F. (1987). Decision-making skills and critical thinking ability among associate degree, diploma, baccalaureate, and master's-prepared nurses. Journal of Nursing Education, 26(9), 354-361.
- Perry, W. G. (1981). Cognitive and ethical growth: The

- making of meaning. In A.W. Chickering (Ed.). The Modern American College (pp.76-116). San Francisco: Jossey-Bass.
- Perry, W. G. (1970). Forms of Intellectual and Ethical Development in the College Years: A Scheme. New York: Holt, Rinehart, and Winston, Inc.
- Pesut, D. J. (1988). Self-perceived creativity of practicing registered nurses. The Journal of Continuing Education in Nursing, 19(3), 100-102.
- Piaget, J. (1950). The Psychology of Intelligence. Harcourt: Brace.
- Reed, P. G. (1987). Liberal arts and professional nursing education: Integrating knowledge and wisdom. Nurse Educator, 12(4), 37-40.
- Reilly, D. E. & Oermann, M. H. (1985). The Clinical Field: Its Use in Nursing Education. Norwalk: Appleton-Century-Crofts.
- Richardson, S. (1986). Articulation and baccalaureate entry to practice: The Canadian context. Nursing Papers, 18(3), 47-58.
- Rose, M. A. (1988). ADN vs BSN: The search for differentiation. Nursing Outlook, 36(6), 275-279.
- Russell, C. H. (1960). Liberal Education and Nursing. New York: Teachers College, Columbia University.
- Schein, E. H. (1972). Professional Education: Some New



- Directions. New York: McGraw-Hill.
- Shaw-Berget, D. M. (1988). Self-directed learning and intellectual development: The role of authority. In Selected papers from the National Conference on Student-Centered Learning. Bellingham: Western Washington University.
- Sheahan, D. (1972). The game of the name: Nurse professional and nurse technician. Nursing Outlook, 20, 440-444.
- Spohn, R. R. (1962). The Future of Education for Professional Practice. New York: American Nurses' Association.
- Stephenson, B. W. & Hunt, C. (1977). Intellectual and ethical development: A dualistic curriculum intervention for college students. The Counseling Psychologist, 6(4), 39-42.
- Stuart, G. W. (1981). How professionalized is nursing? Image: The Journal of Nursing Scholarship, 13(1), 18-23.
- Sullivan, E. J. (1987). Critical thinking, creativity, clinical performance, and achievement in RN students. Nurse Educator, 12(2), 12-16.
- Taylor, M. Baxter. (1983). The development of the Measure of Epistemological Reflection. Dissertation Abstracts International, 44, 1065A. (University

Microfilms No. DA 83-18,441)

- Tomlinson-Keasey, C. & Keasey, C. B. (1974). The mediating role of cognitive development in moral judgment. Child Development, 45, 291-298.
- Torres, G. & Stanton, M. (1982). Curriculum Process in Nursing: A Guide to Curriculum Development. Engelwood Cliffs: Prentice Hall.
- Touhcton, J. G., Wertheimer, L. C., & Cornfeld, J. L. (1977). Career planning and decision-making: A developmental approach to the classroom. The Counseling Psychologist. 6(4), 42-47.
- Urbano, M. T., Jahns, I. R., & Urbano, R. C. (1988). What really motivates nurses to participate in mandatory professional continuing education? Journal of Continuing Education in Nursing. 19(1), 38-42.
- Valiga, T. M. (1983). Cognitive development: A critical component of baccalaureate nursing education. Image: The Journal of Nursing Scholarship. 15(4), 115-119.
- Valiga, T. M. (1982). The cognitive development and perceptions about nursing as a profession of baccalaureate nursing students. Unpublished doctoral dissertation, Teachers College, Columbia University.
- Voliciier, B. J. (1984). Multivariate Statistics for Nursing Research. New York: Grune & Stratton, Inc..

Weir, G. (1932). Survey of Nursing Education in Canada.

Toronto: University of Toronto Press.

Widdick, C. C. (1975). An Evaluation of Developmental Instruction in a University Setting. Unpublished doctoral dissertation, University of Minnesota.

Woolley, A. S. (1986). Defining the product of baccalaureate education. Nursing and Health Care, 10, 199-201.

APPENDIX A

Registered Nurses Association of  
British Columbia

Guidelines for using the Registry  
of Practising Nurses in B.C.  
for sample selection

PROVIDING ACCESS TO RNABC MEMBERS**CURRENT  
POLICIES:**

1. Names and addresses of members printed on mailing labels are released to B.C. educational institutions, on request, for the purpose of distributing information about educational programs. The mailing labels are provided at cost.
2. The Executive Director has discretionary power to approve the release of data from membership records, provided the following criteria are met.
  - a) No information which permits identification of individual members is released.
  - b) Provision is made for review and approval by an agent of the Association of the interpretation of data in major studies which have implications for ~~the~~ RNABC *giving prof*
  - c) The purpose of the project is not inconsistent with RNABC objects and positions.

**ACCESS FOR  
RESEARCH  
PURPOSES:**

Personal information about members is not released. If researchers or others with similar goals wish to contact RNABC members, we can help you by mailing information to them. Here's how it's done.

You Provide:

- A brief one page overview of your study, eg. objectives, methods, time-frame, etc.
- Specifications for your sample, eg. random sample of 200 R.N.s employed in B.C. acute care hospitals, or all R.N.s working in home care in B.C. (Information form attached.)
- A copy of information you plan to send to our members.
- Payment for costs involved.
- Stamped envelopes ready to be mailed -- we will put on the mailing labels. If you want reminders sent or plan to do a second mailing, you must order two sets of labels and number your questionnaires and envelopes.
- A copy of your completed study for the RNABC Library.

*g. 2. The information must be released to the public for research  
data bases, here's how it's done  
- apply to the data base  
The public can be reached  
The information is then sent to the public*

We:

- Select your sample from currently registered nurses in B.C. according to your specification. (Just a reminder -- not all B.C. R.N.s live here. If you want only B.C. residents, please specify.) A copy of the current registration renewal form is attached so you will know what categories can be selected. You must be specific about numbers, categories and geographic locations.
- Print mailing labels of the R.N.s selected for your sample. You will be billed for the cost of the labels (3-4 cents for each name printed.)
- Print a second set of labels if you wish to do a second mailing to the same R.N.s or to send reminders. You must state the number of sets required with your initial request because it may not be possible to duplicate your sample, particularly if it is a random sample. (Same charge as above.)
- Mail your information to the people in your sample, that is, we put the mailing labels on your stamped, coded and sealed envelopes and put them in the mail. Envelopes should have return addresses so you will not do a second mailing to people when the first envelope was returned because the person has moved. If we are too busy to fit this work into our regular routines, you will be charged approximately \$15 an hour for this service.
- Do a second mailing to those you wish to receive more information or a reminder. (Same conditions as for first mailing.)
- Only if required, stamp envelopes. Postage must be paid in advance.

**REQUEST FOR MAILING LABELS****Name:****Address:****Phone No.:****Best Reached At (Time):****Purpose Labels Required:****No. of Sets of Labels Required:****Sample of R.N.s\*:****Number:****Place of Residence:****Employment Status:****Place of Employment:****Employment Position:****Primary Area of Responsibility:****Specific Demographic:****Other:**

\* Please note, not all categories listed may be relevant to your study. Indicate only those that are.

SE COMPLETE SECTION BELOW ONLY IF ABOVE INFORMATION IS INCORRECT OR INCOMPLETE.

140

WE 2FIRST 3MIDDLE

Sex1M2F3

Marital Status12S3M4D5

CAN 4STREET ADDRESSTELEPHONE 46

PAN 5PROVINCE 6POSTAL CODE 7

US NAME(S) 8If your name has changed, please enclose a photocopy of a legal change of name document.SOCIAL INSURANCE NO 9

PLEASE COMPLETE ALL ITEMS ① THROUGH ⑥ BELOW. This will facilitate processing of your registration. See pamphlet for more information.

Our records show

Is this information correct? YES ☐

NO ☐ If No correct below

ARE YOU			
EMPLOYED IN NURSING	27	F	N
Regular Basis	1		
Casual / Seasonal Basis	2		
EMPLOYED - NOT IN NURSING	27		
Seeking Employment in Nursing	3		
Not seeking Employment in Nursing	4		
NOT EMPLOYED	27		
Seeking Employment in Nursing	5		
Not seeking Employment in Nursing	6		
Date last Employed in Nursing (Yr)		Mo	

Are you employed by more than one employer? No <input type="checkbox"/> Yes <input type="checkbox"/> How many	
PRIMARY EMPLOYER: Agency/Institution	
City	26
Employment Status: Full-time <input type="checkbox"/> Part-time <input type="checkbox"/> Casual <input type="checkbox"/>	28
Date commenced present employment Yr: Mo:	30
OTHER EMPLOYER: Agency/Institution	
City	26
Employment Status: Full-time <input type="checkbox"/> Part-time <input type="checkbox"/> Casual <input type="checkbox"/>	28
Date commenced present employment Yr: Mo:	30
Actual hours worked in nursing in 1986	Hours 36

If you are not employed in nursing and you wish to apply for NON-PRACTICING membership, please turn form over.

How many hours did you work in NURSING in 1987? Full-time ☐ (1500 hours will be recorded) or actual hours 43

Have you completed a nursing refresher course in the past 5 years? NO ☐ YES ☐ If yes, when? Yr. Mo. 31

Are you now on maternity, disability, educational or other leave of absence from work? NO ☐ YES ☐

Do you hold a current practicing/active membership	Province/Territory 19	Registration Number 20
in another Province/Territory? NO <input type="checkbox"/> YES <input type="checkbox"/> If Yes where?		
Please attach photocopy of current membership card.		

IMPORTANT: PRINT YOUR REGISTRATION NUMBER ON BACK OF CHEQUE OR MONEY ORDER TO ENSURE CORRECT IDENTIFICATION OF PAYMENT. HAVE YOU COMPLETED ITEMS ① THROUGH ⑥?

FREEBLY APPLY FOR PRACTICING MEMBERSHIP 33	FEE \$
--	--------

Date	Amount Submitted \$	X SIGNATURE
For your protection and convenience a Security Key Word is being added to your record.		
We suggest you select your mother's maiden name. See enclosed pamphlet.		
YOUR PERSONAL SECURITY WORD		10

PLEASE REVIEW THE FOLLOWING SECTIONS CAREFULLY.

The employment, education and other information on our files are given in the sections below indicated by an asterisk (\*) or letter in the shaded column headed "F" (for file). If the information is out of date or incomplete please correct it by placing a check (✓) in the column marked "N" (for new).

For primary employment check ONE only in each of A, B and C.

PRESENT EMPLOYMENT IN NURSING			
Elect one of the four main areas, Direct Patient Administration, Education or Research, then the most appropriate box in that area.			
PRIMARY AREA OF RESPONSIBILITY	25	F	N
(PATIENT CARE)			
Surgical	11		
Care e.g. CU, OR, ER	10		
Newborn	13		
Mental Health	14		
Yes	15		
Gerontology	16		
Mental Health	17		
Areas - Home, sm, hosp, community	18		
Direct Care	19		
EDUCATION			
Education Administration	21		
Services Administration	22		
Administration	23		
NON			
ng - Students	31		
ng - Employees	32		
ng - Patients/ Clients	34		
ng - Other Education	33		
B. POSITION	24	F	N
Director	01		
Associate / Assistant Director	02		
Supervisor / Assistant Supervisor	03		
Clinical Specialist / Clinician	04		
Head Nurse / Assistant Head Nurse	05		
Staff / General Duty Nurse	06		
Com. / Occ. Health / Home Care Nurse	07		
Instructor / Professor	08		
Consultant / Counsellor	09		
Other, not listed	88		
C. PLACE OF EMPLOYMENT	23	F	N
Acute Care Hospital	01		
Activation / Rehab. Hospital	02		
Extended Care Hospital	03		
Psychiatric Hospital	04		
Long Term Care Facility / Nursing Home	05		
Home Care / Visiting Care Agency	06		
Community Health Agency	07		
Business / Industry	08		
Physician's Office / Family Practice Unit	09		
Education Institution	10		
Self-employed	11		
Other, not listed	88		

EDUCATION			
BASIC NURSING EDUCATION	16	F	N
Diploma	1		
Baccalaureate Degree	2		
Master's Degree	3		

POST BASIC means education completed AFTER your original nursing program which lead to nurse registration. Please check only highest level completed.

POST BASIC NURSING EDUCATION	21	F	N
None of the following	5		
Doctorate	4		
Master's Degree	3		
Post Basic Baccalaureate Degree	2		
Post Basic Certificate / Diploma	1		
OTHER THAN NURSING	22	F	N
None of the following	5		
Doctorate	4		
Master's Degree	3		
Baccalaureate Degree	2		
Certificate / Diploma	1		

Check all boxes which are appropriate.

CURRENT ENROLLMENT IN AN EDUC PROG	32	F	N
Not Currently Enrolled in Program			
Enrolled in Nursing Program	N		
Enrolled in Non-Nursing Program	O		
Full-Time Student	F		
Part-Time Student	P		
TYPE OF PROGRAM	32		
None of the following	5		
Doctorate	4		
Master's	3		
Baccalaureate	2		
Certificate / Diploma	1		



## APPENDIX B

### Letters to Participants

## APPENDIX C

## Demographic Data

## DEMOGRAPHIC DATA

1. How many years have you been employed as a nurse? \_\_\_\_\_

(If your employment has been part time or sporadic, please estimate employment in full time equivalent years.)

2. Your initial nursing education was a ...

Hospital diploma program \_\_\_\_\_

College diploma program \_\_\_\_\_

Generic baccalaureate program \_\_\_\_\_

3. Have you ever enrolled in a post basic, or continuing education nursing course?

No \_\_\_\_\_ Yes \_\_\_\_\_

If Yes, please describe. \_\_\_\_\_

4. Do you participate in RNABC or BCNU activities?

No \_\_\_\_\_ Yes \_\_\_\_\_

If yes, in what capacity? \_\_\_\_\_

5. Do you expect to advance to an administrative position within the next five years?

No \_\_\_\_\_ Yes \_\_\_\_\_

6. Do you have any university or college level academic credit in addition to your basic nursing education?

No \_\_\_\_\_ Yes \_\_\_\_\_

If yes, please describe. \_\_\_\_\_

7. Please state the name and location of the nursing school that you attended.

\_\_\_\_\_

\_\_\_\_\_

8. Please state your age. \_\_\_\_\_

Completion of this questionnaire indicates your consent to participate in this study.

## APPENDIX D

## Measure of Epistemological Reflection

## MEASURE OF EPISTEMOLOGICAL REFLECTION

## INSTRUCTIONS:

The questionnaire that follows has to do with your perspective on a number of concerns related to learning. Each of the questions on the following pages asks for your opinion or choice on a given subject, and the REASONS why you have that particular perspective or opinion. I am interested in understanding your perspective as fully as possible. Please give as much detail as you can to describe how you feel about each question. Feel free to use the backs of pages if you need more space.

Code # \_\_\_\_\_

(office use)

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

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WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

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HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

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HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

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WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

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**DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?**

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**WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?**

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**WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?**

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**WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?**

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**IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.**

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**DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.**

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**WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.**

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**WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.**

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**WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?**

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**PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.**

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**DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?**

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**WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/ PARTICIPATION THAT YOU CHOSE ABOVE?**

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**WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?**

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**WHAT DO YOU SEE AT THE DISADVANTAGES OF YOUR PREFERENCE?**

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**WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?**

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**SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?**

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**IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES?**

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**WHO SHOULD BE INVOLVED IN THE EVALUATION YOU DESCRIBED ABOVE?**

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**PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY TO EVALUATE STUDENTS' WORK IN COLLEGE COURSES.**

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**SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?**

**WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.**

**CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?**

**IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?**

## APPENDIX E

Rating Scores on the Measure of  
Epistemological Reflection

Appendix E

Rating Scores on the Measure of

Epistemological Reflection

Subject	Domain						TPR
	1	2	3	4	5	6	
3	1.1.1	2.1.1	3.3.2	4.2.4	5.3.3	6.3.2	2.17
11	1.4.1	2.4.1	3.3.1	4.3.1	5.3.5	6.4.5	3.50
18	1.3.2	2.5.4	3.5.2	4.3.5	5.3.3	6.5.1	4.00
24	1.3.2	2.3.2	3.2.3	4.4.4	5.2.2	6.5.1	2.83
44	1.2.3	2.3.2	3.2.3	4.4.1	5.2.2	6.3.3	2.67
46	1.3.1	2.4.2	3.4.2	4.5.2	5.3.1	6.4.3	3.83
47	1.3.3	2.3.3	3.2.4	4.3.2	5.3.3	6.2.1	2.67
55	1.3.1	2.4.2	3.3.5	4.3.1	5.4.2	6.3.2	3.33
60	1.2.3	2.2.1	3.2.3	4.3.1	5.2.5	6.3.2	2.33
88	1.2.1	2.3.2	3.2.1	4.2.4	5.5.2	6.3.2	2.83
100	1.3.1	2.3.2	3.3.3	4.3.1	5.3.3	6.2.2	3.00
101	1.3.1	2.3.1	3.3.4	4.2.4	5.2.2	6.3.2	2.67
106	1.4.6	2.4.4	3.0.0	4.4.1	5.2.5	6.3.2	3.40
118	1.3.2	2.3.2	3.3.3	4.2.7	5.3.4	6.2.1	2.67
122	1.2.2	2.0.0	3.4.4	4.4.4	5.3.1	6.3.2	3.20

## Appendix E

(continued)

Subject	Domain						TPR
	1	2	3	4	5	6	
124	1.3.4	2.2.1	3.3.7	4.2.3	5.3.5	6.2.1	2.50
128	1.3.2	2.4.1	3.3.2	4.3.5	5.2.2	6.3.2	3.00
129	1.1.1	2.3.2	3.3.7	4.3.4	5.3.5	6.2.1	2.50
135	1.4.1	2.0.0	3.3.4	4.2.4	5.3.2	6.0.0	3.00
149	1.4.3	2.4.2	3.4.4	4.4.1	5.3.5	6.3.2	3.67
153	1.3.3	2.3.1	3.1.1	4.3.1	5.2.5	6.2.2	2.33
157	1.3.2	2.2.1	3.3.7	4.2.4	5.2.1	6.5.2	2.67
161	1.3.2	2.2.1	3.4.4	4.5.1	5.5.1	6.5.2	4.00
166	1.2.1	2.3.1	3.2.2	4.2.1	5.3.5	6.4.2	2.67
167	1.4.1	2.4.2	3.3.7	4.2.4	5.3.1	6.5.2	3.50
168	1.4.5	2.2.1	3.2.2	4.3.3	5.3.5	6.2.3	2.67
170	1.5.4	2.0.0	3.4.1	4.5.2	5.3.4	6.2.3	3.80
171	1.3.2	2.3.1	3.4.4	4.2.2	5.2.2	6.5.1	3.17
187	1.2.2	2.3.3	3.3.4	4.2.4	5.2.2	6.3.2	2.67

TPR = Total Protocol Rating