

THE STATE OF THE ART OF NURSING SCIENCE:
A CONTENT ANALYSIS OF DOCTORAL
DISSERTATIONS, 1974-1984

A DISSERTATION
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BY
ETHEL SCOTT AMOS, B.S.N., M.S.N.

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DEDICATION

To my father, Dunlap Scott, deceased April 1982, whose love and sense of humor will be with me always.

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The last two years have been difficult ones for my family. I wish to express my deepest appreciation to my husband, Clinton, for enduring years of separation while I pursued my career goals and to my mother, Edna, who has made it possible for me to achieve many goals. Their love and support sustained me throughout this process. Without them I would not have persevered.

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ABSTRACT

THE STATE OF THE ART OF NURSING SCIENCE: A CONTENT
ANALYSIS OF DOCTORAL DISSERTATIONS, 1974-1984.

Ethel S. Amos, Ph.D.

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The purpose of this study was to examine the state of the art of nursing science as reflected in doctoral dissertations from 1974-1984. Kuhn's (1960, 1970) Theory of Scientific Development provided the framework. Kuhn postulated that the scientific status of a discipline could be determined by the degree of consensus among a community of scholars regarding concepts, theory, methodology, and subject areas studied--its paradigm. Within this context, the central question posed by this study was "What degree of consensus exists among nurse scholars regarding concepts, theory, methodology and subject areas studied?"

The study's purpose was accomplished through a content analysis of dissertations (N = 280) from five established schools. Four categories reflecting the research questions and criteria for categorical placement were preestablished to provide an analytical basis for a measure of consensus. Content validity of the categories was established through use of expert judges. Chi-square tests of association and

goodness of fit and a measure of consensus developed by Gibbs and Martin (1962) were used in data analyses.

The results of the analyses indicated a low degree of consensus in the categories of concepts, theory and subject areas studied. Additionally, trends toward a psychological and sociological theoretical orientation to nursing and the study of the subject of health were discernable. The concept of self-concept was most frequently studied; however, no trend was discernible in this category. There was substantial to moderate consensus in the category of methodology. Trends were discernible in the use of nonprobability procedures, larger sample sizes, convenient samples, and the study of adult populations. Further analysis of categories showed no significant statistical differences by year but significant differences were found among schools.

Areas of neglect were also identified. These include (a) studies of infants, children, adolescents, and the elderly, (b) studies addressing problems specific to minorities, and (c) tool development.

The findings of the study provide support for the thesis that no paradigm exists in nursing at this time. However, the degree of consensus found in the broad theoretical orientations and methodology point to the possibility that a paradigm may develop in the near future.

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CHAPTER 1

INTRODUCTION

The question of the scientific status of nursing sparks debate among scholars both within and outside the discipline. Nursing literature is replete with testimonies stressing the urgency to answer this question. Yet, divergent viewpoints continue to exist and the debate concerning the scientific nature of nursing steadily increases (Chinn, 1983; Green, 1979; Watson, 1981). The result has been confusion within the discipline and society, and concern for nursing's scientific progress (Green, 1979; Meleis, 1985; Watson, 1981). This perpetual picture of the discipline demonstrates the need for a rigorous, systematic analysis of the state of the art of nursing (Green, 1979; Hardy, 1983; Meleis, 1983; Watson, 1981).

Purpose of the Study

The purpose of this study was to examine, within Kuhn's (1962, 1970) Theory of Scientific Development, the state of the art of nursing science as reflected in doctoral dissertations of five schools from 1974 through 1984.

Statement of the Problem

The nature of nursing as a scientific discipline is critical to the continued development of the discipline--essentially its survival (Gortner, 1983; Johnson, 1959; Meleis, 1985; Watson, 1981). Nursing exists only because society mandates its existence. This existence is based on a unique and valued service that benefits society. Recently, society has begun to question not only the uniqueness of nursing's knowledge but also the cost and benefits of its services (Styles, 1985; Watson, 1981). In essence, society is becoming impatient with the discipline. Thus, it is essential that nursing reassess its knowledge base and explicate the findings to society. This study examined the problem: What consensus exist among nurse scholars regarding concepts, theory, methodology, and subject areas studied?

Justification of the Problem

The American Nurses' Association (1980) has resolved that

Nursing, like other professions, is an essential part of society out of which it grew and with which it has been evolving. Nursing can be said to be owned by society, in the sense that nursing's professional interest must be and must be perceived as serving the interests of the larger whole of which it is a part. (p. 3)

However, internal dissent has resulted in confusion both within and outside of the discipline. Such needless confusion has resulted in the neglect of nursing's nurturing function as describe by Henderson (1966) and Nightingale (1860). This neglect represents the most serious ramifications of all, for it is the nurturing aspects, combined with unique knowledge, that makes nursing relevant to society (Green, 1979; Watson, 1981).

Nursing's function in society is to "assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge" (Henderson, 1966, p. 4). This function gives direction for client services and nursing activities. Moreover, nursing activities are accomplished through the utilization of a scientific body of knowledge (Henderson, 1966). The latter is important because scientific knowledge is the only recognized cognitive authority in the world today (Mannoia, 1980; Merton, 1969; Kerlinger, 1973).

Nursing is responsible for developing and monitoring its own knowledge base, which includes theories, methodology, and subject matter. Such activity is required of all professional disciplines (Freidson, 1971; Kuhn, 1970' Merton, 1969; Tolumin, 1977). Although nursing has

been tardy in this responsibility, there is growing evidence that this is changing. Fawcett (1983), Gortner (1975), Newman (1983), Rogers (1980), and others note that scientific knowledge has developed in nursing in a short time and is well-established in some areas. This revolution in knowledge development is commonly understood to be the state of the art of nursing science and is developed through research.

Gortner (1975) and Watson (1981) speculate that there is a relationship between the current state of the art of nursing and the development of nursing doctoral programs. Doctoral programs in nursing have freed nurses from the influence of other disciplines--their research traditions and specialization. This new alternative offers nurses the opportunity to explore the essence of nursing, thus advancing nursing knowledge (Watson, 1981).

Nevertheless, doctoral education has slowly evolved in nursing. In the southeastern region, Catholic University of America was the first to establish a nursing doctoral program in 1968 (Grace & McClusky, 1983). Of the schools belonging to the Southern Regional Education Board (SREB), Texas Woman's University established the first program in 1971. Since 1971, five other programs were established in this region, including one which became operational in 1984. To date, two of the five programs

have had no graduates (SREB, 1984). However, dissertations written by scholars who have graduated represent a substantial pool of knowledge that has contributed to the state of the art of nursing science.

Several scholars assert that the state of the art of a discipline demands periodic reassessment (Kuhn, 1970; Merton, 1969; Tolumin, 1977; Watson, 1981). This assessment is particularly important in young disciplines, such as nursing, where facts are isolated and fragmented (Abdellah & Levine, 1979; Meleis, 1985). Fragmented knowledge poses difficulties for scientists who are attempting expansion of knowledge and for those attempting to evaluate and use nursing research and leads to a distorted view of the current status of the discipline (Chinn & Jacob, 1983; Dickoff, James, & Semradek, 1975; Johnson, 1969).

The importance of knowledge assessment in any field is that it provides a base for further scientific inquiry (Kerlinger, 1973; Mannoia, 1980; Reynolds, 1980) and determines the paradigmatic status of a discipline (Hardy, 1983; Kuhn, 1970). Therefore, existing knowledge can be validated and expanded, outdated knowledge identified and discarded, and areas of neglect accentuated. The results of this endeavor serve as a method for organizing phenomena, explaining past events, predicting future

events, and providing a degree of understanding why events happen. In addition, it helps identify professional boundaries (Abdellah & Levine, 1979; Freidson, 1971; Merton, 1955; Norris, 1982).

Although in recent years the state of the art of nursing has received much attention in the literature, the major focus has been a philosophical or empirical point of view rather than theoretical-empirical validations. While these discussions are valued, they leave many problems unsolved and have created internal dissent. One such problem is related to the need for data to identify professional boundaries. Another problem is related to the need for data to verify that nursing is a discipline whose practice is based on a scientific body of knowledge.

A review of the literature reveals several scholarly attempts to address these problems via an understanding of the state of the art of nursing (Batey, 1977; Gortner & Nahm, 1977; Hayter & Rice, 1979; Loomis, 1985; O'Connell & Duffey, 1976). With the exception of Loomis' (1985) analyses, these studies utilized a variety of literary sources. In addition, all the studies included sources written by nursing and non-nursing doctorates, and nurses and non-nurses with varied academic preparations. The present study approaches the problem from a theoretical-empirical perspective, utilizing material

specifically written by nursing doctorates and by applying a rigorous analytical method that has proven fruitful in other disciplines.

Significance to Nursing

This theoretical-empirical study may be useful to scholars concerned with the nature of nursing as a scientific discipline. Abdellah and Levine (1979) noted that there is a 30-year gap between existing knowledge directly affecting nursing and its application. Furthermore, this gap exists in both nursing education and practice and may be related to the present conceptualization of the state of the art of nursing (Silva, 1983). The present analysis attempts to bridge this gap by bringing together knowledge that is scattered.

This study has implications for nursing education. By identifying nursing trends, outdated areas, and areas of concern and neglect, this study can provide direction for curriculum content. The emerging content will have relevance to nursing practice and nursing's societal function.

This study also has implications for nursing research. An understanding of knowledge that is relevant to nursing's societal function, including knowledge which needs expanding, will help define future goals to be

pursued by individual scientists or collectively by the discipline (Bauer, 1970; Carper, 1978; Hardy, 1983; Silva, 1979). Knowledge generated by nurse-scientists then becomes relevant and is easily transferred to practice.

From a broader perspective this study has implications for the nursing profession. The American Nurses' Association (1980) resolved to "make a concerted effort to build a public image of nursing as an essential contributor to knowledge in the health care field" (p. 5). By identifying subject areas most frequently studied by nurses, this study may address this resolution and also may help to delineate nursing's professional boundaries. Consciousness-raising regarding the need for consensus of goals may also be enhanced by this study.

Theoretical Framework

Kuhn's (1962, 1970) Theory of Scientific Development serves as the theoretical foundation for this study. In his classic work The Structure of Scientific Revolution, a new interpretation of knowledge development is proposed that is an alternative to the "received view." The theory is used to provide insights on the state of the art of nursing as a scientific discipline.

The central concept of Kuhn's (1970) theory is that of a paradigm. He maintains that without a paradigm a science

cannot proceed because it, by definition, represents a scientist's fundamental frame of reference. As described by Kuhn, this paradigm, or fundamental image a discipline has of its subject matter "stands for the entire constellation beliefs, values, techniques, and so on shared by the members of a given community " (p. 175). Kuhn includes in this definition not only the accepted theory and findings of the field but also the preferred methodologies and tacit understandings of those areas considered important to study. The essence of the concept of a paradigm used in this study--the degree of consensus or sharing of beliefs within a scientific community concerning concepts, theory, methodology, techniques, and problems--is drawn from these definitions.

Kuhn's Theory: An Overview

According to Kuhn (1970), the significant criteria for acknowledging a discipline as a science is the agreement of its scholarly community on a paradigm. He argues that sciences are built around paradigms. These paradigms include "law, theory, applications, and instrumentation together" (p. 10) consisting of a "strong network of commitments, conceptual, theoretical, instrumental, and methodological" (p. 42). Paradigms are the broadest unit

of consensus within a science and serve to differentiate one scientific community from another.

Paradigms explicitly define what should be studied, what questions should be asked, how questions should be asked, and what rules should be followed in interpreting the answers obtained. Thus, paradigms give directions for a discipline's scientific activities. Scientific inquiry then becomes purposeful and orderly and raises few unanswerable questions (Kuhn, 1962, 1970).

Kuhn (1970) asserts that a paradigm does not exist until a scientific community of scholars begins to function; the two develop concurrently. A scientific community, as described by Kuhn, consists of practitioners of a scientific specialty. The practitioners are bound together by common elements in their education and apprenticeship. "To a remarkable extent the members of a given community will have absorbed the same literature and draw from it similar lessons" (Kuhn, 1977, p. 66). They see themselves and are seen by others as responsible for the pursuit of a set of shared goals including training of their successors and generating their own scientific knowledge for practice.

Normal science, argues Kuhn (1970), consists of a scientific community working within a paradigm. He further contends that in normal science fundamental assumptions are

not questioned. Anomalies that arise which cannot be addressed by the prevailing paradigm are set aside or accommodated by ad hoc modifications. As a growing list of anomalies accumulates, a sense of crisis leads the scientific community to examine its assumptions and search for alternatives. A new paradigm may then be proposed that challenges the dominant presuppositions.

Kuhn (1970) emphasizes that when a major change of paradigm occurs, it has such far-reaching effects that it amounts to a scientific revolution; this revolution is a "non-cumulative developmental episode in which an older paradigm is replaced in whole or in part by a new one" (p. 92). Kuhn continues, a revolution is a "Transformation of scientific imagination" (p. 93) in which old data are seen entirely in new ways or new data are advanced.

Scientific revolutions are rare (Kuhn, 1962, 1970). Moreover, scientists resist revolutions because previous commitments have permeated their thinking. In each revolution a paradigm prevails when it attracts a new generation of scholars who have been socialized to view the world differently than previous generations or when the older paradigm does not address the needs of the discipline (Kuhn, 1962, 1970). The new paradigm, like a "gestalt switch," occurs all at once or not at all (Kuhn, 1977). When the transition is complete, the discipline will have

changed its methods, goals, and conceptualization of the phenomenon of interest.

Application of Kuhn's Theory to Nursing

Kuhn's (1962, 1970) theory can be applied to an assessment of the state of the art of nursing as disclosed by an analysis of doctoral dissertations. Evidence should disclose if there is a discipline-wide paradigm, if there is no paradigm, or if multiple paradigms exist. Kuhn emphasizes that scientific status depends essentially upon the emergence of a consensus among a community of scholars.

Doctoral students constitute a community of scholars. These scholars are more familiar than any others with the discipline's literature (Balian, 1982; Kuhn, 1945), its trends, and its problems (Gortner, 1981; Kuhn, 1945). Their work reflects the discipline's scholarliness, advances its trends, and often solves or avoids its previous problems and pitfalls (Armiger, 1974; Meleis, Wilson, & Chater, 1980). Additionally, if it is assumed that doctoral students select problems for investigation on the basis of their scientific contributions and are guided in this activity by experienced nurse scholars, then it is reasonable to assume that their work is representative of the discipline.

If a paradigm exists, then concepts, theories, subject areas, and methodology will reflect patterns of consensus. In addition, nursing can define its subject matter (Hardy, 1978), gain control of its practice area (Schlotfeldt, 1971), and establish itself as an independent scientific discipline. Most important, more time can be utilized to improve client care. If a paradigm does not exist, nursing will know the directions to take to establish a scientific knowledge base. Moreover, if a scientific knowledge base for practice is not a desired majority consensus, then nursing must resign itself to doing whatever non-scientific disciplines do.

Hardy (1979) warns that nursing spends too much time trying to justify various paradigms. If professional nurses accept the premise that practice is based on a body of scientific knowledge, then it follows that time devoted to justifying paradigms is not necessary. Nursing cannot afford to indulge itself in concepts, theory, methodology, and subject areas that will not make a difference in client care or contribute to the advancement of nursing science (Folta, 1971). Society is waiting for the discipline to prove its comparable worth (Styles, 1985), and society has been patient. However, society will not continue to nurture the discipline whose name implies that its practitioners are the nurturers.

Considering that a community of nurse-scholars exists in nursing (Brown & Redmon, 1984; Jarrett & Maraldo, 1984; Meleis, 1985; Stevenson, 1984), Kuhn's (1962, 1970) thesis advocates that a paradigm should be discernable. Kuhn (1962) also states that "in the sciences . . . the formation of specialized journals, the foundation of specialists' societies, and the claim for a special place in the curriculum have usually been associated with a group's first reception of a single paradigm" (p. 19). Since these criteria have been met in nursing, it is reasonable to expect that some degree of consensus on basic concepts, theories, areas of study, and methodology exist among nurses. Furthermore, this consensus should be reflected in the work of new scholars entering the discipline. This study investigates whether this consensus exists, to what extent, and in what substantive areas.

Assumptions

For the purpose of this study, these assumptions were made.

1. Nursing is a scientific discipline (Meleis, 1985; Newman, 1983; Rogers, 1970).
2. Doctoral students constitute a community of scholars (Meleis, 1985).

3. Doctoral dissertations are a representative sample of scholarly work and reflect the state of the art of nursing.
4. The state of the art of a discipline can be empirically identified (Kuhn, 1962, 1970).
5. An understanding of the state of the art in nursing is essential for continued professional growth (Gortner, 1983; Johnson, 1969; Meleis, 1985; Watson, 1985).
6. The established categories are consistent with the purpose of the study.
7. The categories are exhaustive and mutually exclusive.

Research Questions

To examine the problem of this study, these questions were analyzed.

1. What are the theoretical orientations of nursing dissertations?
2. Is nursing research empirical, theoretical, theoretical-empirical, or practice oriented?
3. What are the research characteristics of nursing dissertations?
4. What are the subject areas of concern to nurses?
5. What are the focal concepts of concern to nurses?

Development of Categories

The central question posed by this study was "What consensus exists among nurse scholars regarding concepts, theory, methodology, and subject areas studied?" To answer this question, the investigator analyzed the theory, methodology, topics of concern to nurses, and concepts in order to ascertain the degree of consensus in regard to these determinants of a paradigm. To establish an analytical basis for a measure of consensus, categories and criteria for categorical placement were preestablished. Preestablishment of categories is advocated by the leading authorities of content analysis (Berelson, 1962; Holsti, 1969; Krippendorff, 1980). The preestablished categories of this analysis were derived from the purpose and theoretical framework of the study.

Question Category I: Theory

What are the theoretical orientations of nursing dissertations?

The investigator anticipated that analysis of data in this category would reveal this information:

- a. Whether the use of one theoretical orientation had increased markedly over another, and
- b. Whether there is a body of generally accepted theory.

Question Category II: Methodology

Is nursing research empirical, theoretical, theoretical-empirical, or practice oriented?

What are the research characteristics of nursing dissertations?

The investigator anticipated that analysis of data in this category would reveal this information:

- a. Whether there was a preference for empirical inquiry or theory,
- b. Whether facts were cast in the mold of theory,
- c. Whether nursing research was practice oriented,
- d. Research purposes,
- e. Techniques used to collect data,
- f. Sample size,
- g. Research strategies used to control variables,
- h. Type of sampling used most often,
- i. Population studied, and
- j. Population studied by ethnic origin.

Question Category III: Subject Area

What are the subject areas of concern to nurses?

The investigator anticipated that analysis of data in this category would provide this information:

- a. Which subject areas were studied more frequently,
- b. Which subject areas had persisted over time,

- c. Which areas were neglected, and
- d. Which areas are increasing in importance.

Question Category IV: Concepts

What are the focal concepts of concern to nurses?

The investigator anticipated that analysis of data in this category would provide this information:

- a. Which concepts occurred most frequently,
- b. Which concepts persisted over time,
- c. Whether concepts were derived or primitive, and
- d. Whether concepts were general or specific.

Definition of Terms

Kuhn's paradigm: The degree of consensus within a scientific community concerning concepts, theory, methodology, and problems (Kuhn, 1962, 1970).

Nursing: A societal function described by Henderson (1966) as "assisting the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that he would perform unaided if he had the necessary strength, will, or knowledge" (p. 4).

Science: A human activity, a process of knowing, of challenging, and a continuing revolution (Newman, 1983). The product of science is knowledge.

State of the art: The current degree of consensus of knowledge that directs nursing education, practice, and research--measured by Kuhn's (1962) definition of paradigm.

Limitation

Given the nature of content analysis and holistic person, it must be recognized that the subject areas may be vulnerable due to difficulties in designing appropriate categories.

Summary

The nature of nursing as a scientific discipline is the focus of this study. Specifically, this study examined, within Kuhn's theoretical formulation of a paradigm, the state of the art of nursing science as reflected in doctoral dissertations in five schools from 1974 through 1984.

A case for the need of the study was offered as well as the significance of studying such a phenomenon. An operational definition was established to measure the state of the art of nursing science. Theoretical and research assumptions regarding the nature of the study were stated. Finally, research questions were formulated and categories for coding the data were established.

CHAPTER 2

RELATED LITERATURE

The state of the art of nursing science is the focus of this study. An important issue concerns the paradigmatic status of the discipline. As described by Kuhn (1962, 1970), paradigmatic status of a discipline depends essentially upon the emergence of a consensus among a community of scholars regarding concepts, theory, methodology, and subject areas studied.

This chapter presents a review of the related literature. Relevant topics are reviewed: (a) an overview of the philosophy of science and (b) determinants of the paradigmatic status of nursing. A deductive approach to the review of the literature is utilized to help identify and isolate factors that have contributed to the state of the art of nursing and provide a frame of reference for the established categories.

The Philosophy of Science: An Overview

From the earliest tradition of human thought to the most contemporary of scientific ideas, man has wondered how do we "know" what we know is true. The philosophy of science studies this phenomenon. More specifically, this

branch of philosophy attempts to define, describe, explain, and critique science, and the growth and development of scientific knowledge (Ackerman, 1970; Dampier, 1960; Frank, 1957; Popper, 1959). Since professional nurses assert that nursing practice is based on a body of scientific knowledge, the philosophy of science has implications for nursing scientific growth and development.

Definition, Description, and Explanation of Science

Science Defined

The literature is replete with diversity of opinion regarding the definition of science. This diversity of opinion, or definitional dilemma, has persisted throughout the history of science, and stems from the desire of writers to emphasize certain aspects of scientific development (Conant, 1951). The aspect of scientific development emphasized by writers determines whether or not science is defined as a process and/or a product.

As a product, science is generally defined as a body of accumulated knowledge that purports to describe, explain, predict or control some selected phenomena (Denzin, 1970; Jacox, 1974; Mannoia, 1980). Science, as a process, is considered an activity concerned with what scientists do. It refers to the mental processes or methods of inquiry whereby scientific ideas are formed,

developed, observed, measured, confirmed, or disconfirmed (Jacox, 1974; Kerlinger, 1973; Kolakowski, 1972; Mannoia, 1980). As a process and a product, science refers to both the method of inquiry as well as the outcome of that inquiry. Rudner (1967) refers to this definitional dilemma as the process-product ambiguity of science.

Richard Avenarius (1843-1896), the father of Philosophy of Science, (cited in Kolakowski, 1972), attempted to clarify the process-product ambiguity of science by explaining the difference between science and knowledge. According to Avenarius, knowledge is an accumulation of facts, truths, and laws concerning the universe, and is found in texts or similar manuscripts. The study of knowledge, epistemology, yields theories that attempt to explain the origin, nature, and limits of all facts, truths, and laws. The emphasis of study is on the truth about what is already known (Ayer, 1956, Humelyn, 1970), Kolakowski, 1972).

In contrast, science, according to Avenarius (cited in Kolakowski, 1972), is the acquisition of facts and laws concerning the universe. Extending this definition, he stated that science is a human activity--a mental process and an experience which is not found in texts, but in various settings and among various disciplines. The study of science, the philosophy of science, is an outgrowth of

epistemology. The emphasis of study is on the practice of science including the methods and strategies used by scientists to make discoveries (Ackerman, 1970; Ayer, 1956; Kolakowski, 1972).

Conant (1951) also carefully attempted to delineate the difference between science and knowledge. Science as defined by Conant is "an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful of further experimentation and observation" (p. 25). He argued that accumulated knowledge falls outside the definition of science. Moreover, the phrase "accumulated knowledge" designates the larger field of science. Included in this field are all the sciences, such as biology, physics, anthropology, and others (Conant, 1951). Obviously, despite Conant's desire to differentiate between science and knowledge, he conceptualized science as a product which is the result of the process of scientific inquiry.

However, consistent with Avenarius (cited in Kolakowski (1972)), most contemporary philosophers and scientists have defined science as a process (Fisher, 1975; Shapere, 1981). For example, Ackerman (1970) defined science as an activity of scientific practice. He contended science as an activity of scientific practice is concerned with methods of inquiry and mental process.

Brody (1970), Dampier (1966), Reynolds (1980), and Shapere (1981) defined science as a method of problem-solving. Similarly, Kerlinger (1973), Kuhn (1977), and Laudan (1977) defined science as a process of human behavior and thought. This process is alleged to be creative, imaginative, and problem-solving.

Several prominent scientists and philosophers, however, are not content with the conceptualization of science solely as a process. They have explicated a view of science as a process and a product. The two philosophers most noted for expousing this viewpoint are Mannoia (1980) and Tolumin (1977). Both defined science as an activity and a collection of facts. The argument offered in support of this view of science is that the process and product are inseparable. This argument appears logical in view of the current social, economic, political, and cultural atmosphere.

The Nature, Aim, and Functions of Science

The Nature of Science

Science is a social activity and as such is influenced by society. The interplay between science and society is shaped by the prevailing cultural, political, and economic attitudes, and the philosophical view of science in any given era. Society grants or withholds science privileges

because of the prevailing attitudes of the time or the philosophical views espoused by scientists. This fact is evident in the types of government funding programs in which certain projects are accepted or rejected on a philosophical basis (Watson, 1981). Society is interested not only in the methods of inquiry by which scientists make discoveries, but also in the relevancy of the product of this inquiry to solve significant problems.

Changing patterns in technology, economics, politics, and other areas of society have focused attention on the nature of values in science. Harrison (1982), Tinkle and Berton (1983), and Tucker (1979) claimed that science and values are intrinsically interwoven. These writers viewed value judgments as significant aspects of science and substantiated them as one of the main activities of science. Moreover, values influence all aspects of scientific inquiry--from problem solving to manipulation of results (Folta, 1968).

Science is morally neutral. It can neither create nor destroy. The latter is the task of human agents and is based on values. Thus, the application of science can be humanistic or hedonistic.

The Aim of Science

The primary aim of science is theory development (Jacobs & Huether, 1978; Kerlinger, 1972; Mannoia, 1980; Reynolds, 1980). Other aims of science are explanation, prediction, and control of phenomenon (Ayer, 1956, Dampier, 1966; Reynolds, 1980). However, the latter aims are consistent with the purpose of theory. Theory attempts to describe, explain, predict and often control phenomena.

The Functions of Science

Science functions within an area of concern. It deals with delimited events of phenomena and the interrelation between and among them. Thus, science in physics inquires into events different from science in chemistry. If the phenomenon of interest overlaps among disciplines, the focus and methods of observing it are different (Scholtfeldt, 1972).

Generally, the most accepted function of science is to make discoveries, to learn facts, and to advance knowledge in order to improve human conditions (Ackerman, 1970; Kerlinger, 1972; Shapere, 1981). This function is valued by society and nurtured by funding agencies. Another function of science is the establishment of laws, truths and facts concerned with a specific phenomenon of interest (Ayer, 1956; Braithwaite, 1955). According to Braithwaite,

this function of science connects knowledge of separately known events and makes reliable predictions about phenomena yet unknown.

Growth and Development of Scientific Knowledge

Scientific growth and development has been studied by philosophers and scientists since the twelfth century (Whitehead, 1968). Recently, this subject has become significant to nurses (Gortner, 1983; Green, 1983; Hardy, 1979). Of particular interest is the process that nurses go through to develop nursing knowledge. This process is called scientific inquiry.

Scientific Inquiry

Scientific growth begins with scientific inquiry. Scientific inquiry is a dynamic human activity that begins with an idea. The idea is carried through a cyclic, analytic process of discovery and prediction, and through confirmation becomes a theory (Mannoia, 1980). This process involves the use of conceptual schemes and emphasizes a systematic approach to the study of phenomena and the relationships among them (Gibbs, 1972; Kerlinger, 1973; Mannoia, 1980). Thus activity in conceptualization is the first level of scientific inquiry. The implications are that scientists identify an idea, conceptualize it, and use it as a basis to develop scientific knowledge.

According to Feigl (1953), Kerlinger (1973), and others, this process distinguishes scientific knowledge from common sense knowledge.

The impact of ideas on the development of scientific knowledge was described by Reynolds (1980) according to their degree of "newness." Reynolds referred to the most dramatic type of new idea as a "Kuhn paradigm." This idea represents a radically new conceptualization of a phenomenon, suggests new research strategies for gathering empirical evidence, suggests new problems for solutions, and explains phenomena that were previously unexplainable.

When an idea is a less dramatic break from the past, it is called a paradigm. The idea may represent a unique description of a phenomenon, but suggestions of new research methodologies are absent. However, new research questions may be suggested, and phenomena previously unexplained may be explained (Reynolds, 1980).

Often an idea is only a slight variation in the original conceptualization. This slight variation in the conceptualization of an idea was referred to by Reynolds (1980) as "paradigm variations." The idea is considered to offer refinement of details or variations in emphasis, not changes in the basic conceptualization of phenomena (Reynolds, 1980).

Ideas that are investigated without variations in the original conceptualization are described as "paradigm conservation" (Ackerman, 1970). Paradigm conservatism does not prevent the introduction of completely new ideas. However, it does suggest that these ideas are not viable and will not play an important role in knowledge development (Ackerman, 1970).

Philosophies of Science

Various philosophers of science have influenced the development of nursing. This influence is evident in nursing texts and has had profound effects upon nursing research. Among the philosophies that have influenced nursing development are (a) logical positivism, (b) pragmatism, and (c) the perceived view.

Logical Positivism

The dominant philosophy of science in Western thinking was labeled "logical positivism" by numerous writers such as Ayer (1959), Hacking (1981), and Kolakowski (1972). Logical positivism was the twentieth-century, Viennain Circle, philosophical movement responsible for developing, clarifying, and supporting a view of science now called the received view (Suppe, 1977). The most influential proponents of the Logical Positivism included Hempel (1966), Nagel (1961), and Rudner (1967).

Logical Positivism falls within an overall philosophical category designated "analytic philosophy" found by G. E. Moore. Rather than begin with a philosophical doctrine, logical positivism was part of a movement based upon the conviction that the task of philosophy was the analysis of language, both everyday and scientific (Kolakowski, 1972).

This philosophical view is most noted for its interest in formal logic and formalization issues; its denial of metaphysics and religion; its religious espousal of natural science, and its reductionist methods (Dampier, 1966; Jacox & Baldwin, 1983; Kolakowski, 1972). The central tenet of logical positivism is the concept of verification of assertions. The acceptability of assertions is determined by the demonstration of how "empirical evidence" can verify or falsify scientific ideas (Hacking, 1981).

Several critics of the received view have argued that the assumptions underlying this philosophy put science out of the reach of most scientific disciplines (Ayer, 1959; Feigl & Brodeck, 1953). Expanding this critique, Jacox and Baldwin (1983) stated that the received view excludes all disciplines from science with the possible exception of mathematics and formal logic. However, Silva (1984) noted that the part of science which the received view idolized,

mathematical physics, does not exemplify the methods espoused by the received view.

The assumptions of the received view were overthrown during the late 1950s and early 1960s by its original proponents. During the years that these assumptions were rejected within the scientific community, other developing disciplines such as psychology, sociology, education, and nursing were trying to adhere to principles of this philosophical view (Jacox & Baldwin, 1983; Silva, 1984; Watson, 1981). Moreover, many disciplines still adhere to these principles even though they have long since been abandoned by other scientific communities. Watson (1981), commenting on the received view, argued that this philosophy is incompatible with the scientific problems and aims of most disciplines--especially nursing.

Pragmatism

Another twentieth century philosophy of science is pragmatism. The major themes which undergrid pragmatism include the idea of experience and a new notion of science. In turn, these themes also reflect the philosophy of science descriptive of pragmatism in general.

Pragmatism is a method of philosophizing often identified as a theory of meaning. According to Thayer (1968), this philosophical view was first stated by Charles

Pierce (1839-1977), revised as a theory of truth in 1898 by William James (1842-1910), and further developed, expanded and disseminated by John Dewey (1859-1952).

According to the philosophy of pragmatism, truth is not as dependent upon evidence as it is upon observation, or the consensus of the effectiveness of methods used by a community of scholars. In fact, a consensus between investigators is what constitutes truth. This consensus, or so called methods of effectiveness, may be subjective, objective, political, or social. Expedience and the ability to solve problems are two of the tenets espoused in this view of truth (Thayer, 1968).

The proponents of pragmatism view science as a method. Furthermore, their view of science regards all accepted findings as "provisional," and, as such, these findings are valued if they attest to being useful in application (Kaplan, 1964).

The Perceived View

The perceived view, an alternate to the logical positivism and pragmatism, has been advanced by several philosophers (Feyerabend, 1978; Kuhn, 1962; Laudan, 1977; Suppe, 1977). The most ardent proponent of the perceived view was Suppe. Suppe contended that a different way of analyzing science was needed. He proposed a comprehensive

world view, called "weltanschauung," as appropriate for accomplishing this task.

Suppe (1977) suggests that weltanschauung is an analysis of science

which gives serious attention to the idea that science is done from within a conceptual perspective which determines in large part which questions are worth investigating and what sorts of answers are acceptable: the Perspective provides a way of thinking about a class of phenomena which define the class of legitimate problems and delimits the standards for their acceptable solution. (p. 126)

In describing the perceived view, Meleis (1985) states that it combines intuition, sensory data, perceptions of the subject and scientist, and logic with observable data. It recognizes diversity in the use of norms in the acceptance of truths. Consideration is given to the thesis that one set of norms is not appropriate in all situations (Meleis, 1985).

The perceived view uses validation, verification, simplicity, logic, consequences, subject, and scientists, and actual or potential experiences as norms against which the truth of a theory can be compared (Meleis, 1985). This view of truth accepts multiple realities and a "composite" of realities (Oiler, 1982). It accepts different expressions, different sources of knowledge, and such criteria as the number of solved problems within a

discipline (Laudan, 1977). In addition, it accepts qualitative experiences as valid science.

Theories of Scientific Growth and Development

Theories of scientific growth and development attempt to describe and explain the life cycle of scientific ideas, born of discovery, confirmed, altered, or modified, and ultimately discarded through progress in the history of science (Mannoia, 1980). The two competing theories regarding scientific growth and development are the theory of evolution and the theory of revolution. These theories have implications for the emergence of nursing knowledge, the pitfalls in nursing knowledge development, and future progress in the growth and development of nursing knowledge (Hardy, 1979; Meleis, 1985; Newman, 1983).

The Theory of Evolution

Tolumin (1967), a notable contemporary philosopher, provided a comprehensive theory of the evolutionary view of scientific knowledge development. Influenced by Darwin's formulations of evolution, Tolumin applied evolutionary principles to scientific development. Within Tolumin's theory, scientific development is viewed as proceeding through progressive, predetermined stages in a manner suggestive of the development of plant and animal species.

The major premise of Tolumin's (1967) theory is that knowledge development is a cumulative , uninterrupted process. Successive ideas, facts, or theories build one upon the other adding to a reservoir of facts. Science does not backtrack, and there are no blind alleys (Tolumin, 1967).

In support of his major premise, Tolumin (1967) cited examples of historical research which reveal that most important scientific theories were anticipated by earlier generations. He stated that these examples stress the continuity and evolution of scientific knowledge. One example is that the theory of inertia as expressed by Newton was introduced by Galileo and anticipated before Galileo by the Impetus Theorists in Paris in the 1400s (Tolumin, 1967).

Tolumin (1967) utilized evolutionary principles, derived from Darwin's assumption of natural selection, as the keystone of his theory. Summarized, these principles present a view of scientific development that allows for competing concepts, theories, and methodologies. Of these, only those that "fit" will flourish and survive. Thus, at any point in time in the growth of a discipline, several concepts, theories, and methodologies may exist; and their existence is harmonious and advantageous.

The evolutionary view of scientific development has both supporters and critics. The main argument offered in support of this view is that it is not only compatible with but also explanatory of the patent fact that alternative theories are required for sound scientific practice and coherent progress in science (Abdellah, 1969; Ackerman, 1970; Chinn, 1983; Conant, 1951).

According to Conant (1951) and Mannoia (1980), the most powerful evidence for an evolutionary interpretation of scientific development comes from comparative and historical research. Conant cited the actual demonstration of how certain bacteria today can accommodate to a changed environment as convincing evidence of the evolutionary view. Mannoia emphasized the case of the theory of motion in which Aristotle's theory was modified by successive generations in order to improve observations. Such evidence suggests an evolutionary march of gradual progression and development in scientific ideas.

Critics of the evolutionary theory have argued that this view is a piecemeal approach to the history of scientific development (Kuhn, 1962; Laudan, 1977). Scientific development becomes a process by which facts are added one at a time, or in combination, to the ever growing reservoir that constitutes scientific knowledge. As a result, scientists draw from this pool of knowledge to

solve problems. If the knowledge is inadequate to solve problems of interest to scientists, an attempt is made to "fit" the knowledge to the problems (Kuhn, 1962).

The Theory of Revolution

The revolutionary view of scientific development emphasizes a non-cumulative process in science. Science proceeds along a zigzag course, with specific periods of crisis during which the course of scientific ideas is altered radically. Previous scientific ideas or theories are viewed as inadequate for problem-solving, and a new perspective, or paradigm, is advanced. This new perspective is so different that it amounts to a revolution. The switch from the old perspective to the new is referred to as a gestalt switch (Mannoia, 1980).

Thomas Kuhn (1962, 1970) is credited with developing the revolutionary theory of scientific development. His theory, based on the major concept of a paradigm, serves as the framework for this investigation and is explicated in Chapter 1. The theory explains how scientific ideas are generated, refined, expanded, why and how they are replaced, and how scientific disciplines develop.

The revolutionary theory of scientific development proposed by Kuhn (1962, 1970) is not without its critics. His ideas have fostered many debates, and many writers take

issue with the capability of his theory to describe scientific progress adequately.

Several philosophers and scientists surmised that Kuhn's (1962) definition and explanation of a paradigm are too broad to have any real meaning to the scientific community (Laudan, 1977; Meleis, 1983; Shapere, 1981; Tolumin, 1967). Because of his definitions and explanations of a paradigm, Kuhn has been accused of making science an irrational activity. Shapere (1981) asked, "How can progress in science occur when one paradigm replaces another and this replacement is not cumulative, but simply a mere change?" He further argued that two paradigms cannot be judged according to their ability to solve the same problem.

Kuhn's (1962) explanation of a paradigm has also led philosophers to accuse him of relativism (Tolumin, 1967). This accusation stemmed from Kuhn's statement that scientists choose one paradigm over another, not for any good reason, but simply because it seems to fit the current needs of the research community.

Masterman (1970) concluded from a review of Kuhn's 1962 edition that the term "paradigm" was used in at least twenty-one different ways. Her conclusions tended to lend support critics of Kuhn's (1962) theory who cited definitional inconsistencies in his use of the term

paradigm. Kuhn (1970) took no issue with this statement. He agreed that his notion of paradigm was broad; however, he credits most of the differences Masterman noted to stylistic inconsistencies.

Kuhn's (1962, 1970) notion of the development of scientific disciplines through crisis and revolutions has also been challenged by several philosophers of science. Those who challenged this notion have pointed out the historical inconsistencies between Kuhn's analysis of the established scientific disciplines and his generalizations about their development. These inconsistencies point to the harmonious coexistence between numerous competing paradigms in a discipline. Moreover, competing paradigms lead to appropriate debates within a discipline. In addition, one paradigm is not sufficient to solve all research problems encountered by a discipline (Ackerman, 1970; Laudan, 1977; Toulmin, 1967).

Supporters of the revolutionary view point to evidence throughout history that suggested the need for radical changes of direction in the development of scientific ideas. Cited examples of this evidence are Darwin's theory, Galileo's theory, and Copernicus' theory (Mannoia, 1980; Reynolds, 1980). Moreover, according to Mannoia (1980), there are times when a fresh start must be made, and old views must be rejected as wrong or at least

misleading. Often no new observations are necessary, only a fresh look at the old one.

In addition, several scholars and philosophers supported Kuhn's (1962) notion that a paradigm is essential for a discipline's scientific growth and development (Effratt, 1972; Hardy, 1979; Newman, 1973; Reynolds, 1980; Rogers, 1985). A paradigm provides directions for research activities among a community of scholars. Without a paradigm, science cannot proceed because it, by nature, represents the fundamental subject matter of a discipline and the broadest unit of consensus within a science (Ritzer, 1975; Rogers, 1985).

A recent study that utilized Kuhn's theory of scientific development also provided support for his notion of a paradigm. Lodahl and Gordon (1977) have used Kuhn's concept of a paradigm in an empirical study of the differences in academic disciplines. They first tested Kuhn's contention that paradigms are more highly developed in the physical than in the social sciences. Data were collected from questionnaires sent to a stratified random sample of 80 university graduate departments in each of four major fields--physics, chemistry, sociology, and political science. The faculty of the departments were asked to rank seven fields on their relative degree of paradigm development, using as the criterion the consensus

within the field with respect to generally accepted theory and agreed-upon methodologies.

The resultant rankings supported Kuhn's thesis, as physics, and chemistry were ranked first and second, while political science was sixth, and sociology seventh. The authors designated physics and chemistry as fields having high paradigm development and political science and sociology, where there was less agreement over theory and methodology, as having low paradigm development. They hypothesized that in fields having a highly developed paradigm there is high agreement over the content of survey courses and in the requirements and content of graduate programs. They predicted also that high paradigm development facilitates teaching at the graduate level because scientists have less conflict over the time spent with graduate students than scientists in low paradigm fields. This prediction is based on the assumption that teaching in a high paradigm science is more rewarding than teaching in a low paradigm science because the communication between faculty members and their graduate students is facilitated by their extensive shared vocabulary in a high paradigm science.

The hypothesis was tested by the responses to these items on a questionnaire.

1. Was the time spent teaching graduate students (a) well spent and (b) intellectually stimulating?
2. Would you prefer to spend more or less time with graduate students?

Their findings support both hypotheses. Lodahl and Gordon concluded that "well-developed paradigms facilitate teaching and research activities. We expect that the relationship is interactive: paradigm development facilitates performance which, in turn, further enhances paradigm development" (p. 70).

A call for "greater recognition of the scientific utility of paradigms or theoretical perspectives and greater conscious reliance on them as analytical tools," was made by Effratt (1972, p. 68). He suggested that one of the most important ways to approach any field is to understand and compare its principal paradigms.

Determinants of the Paradigmatic Status of Nursing

Theoretical Orientations

An essential component of a paradigm is the theoretical perspective accepted by the scientific community of a discipline. While there is disagreement among nurses as to which, if any, is the reigning perspective in nursing, there are certain theoretical orientations which are recognized as basic to the

development of nursing and which encompass various explanations of nursing phenomena. Several nursing theories have evolved over the past two decades; however, at present, most theories used by nurses are borrowed from other disciplines (Fawcett, 1984). The two disciplines from which most nursing theories are borrowed are sociology and psychology (Chinn, 1983; Fawcett, 1984; Johnson, 1969; Meleis, 1985).

Meleis (1985) referred to the use of nonnursing theory by nurses as the "What is Imported is Superior" phenomenon. She explains this phenomenon by stating that "the imported is far more meaningful than that which is domestic and developed by nurses" (p. 44). Imported means theory developed by individuals in fields other than nurses. According to Meleis, this action is sometimes justified, but many times it is done without rationale other than the obvious--the obvious being that nonnurses developed the theory, it emerged from a nonnursing paradigm, therefore it must be good. This is manifested in the unquestioning use of theories from other disciplines, the unwillingness to question if they are truly theories, and the reluctance to attribute the label of theory to nursing models (Meleis, 1985).

Another observation as to why nurses appear to prefer nonnursing theory is proposed by several nurse scholars

(Chinn, 1983; Fawcett, 1984; Gortner, 1983; Johnson, 1974; Watson, 1981). These scholars assert that the use of nonnursing theory by nurses would not be an issue were it not for the fact that many nurse scientists received advanced education and research training in fields other than nursing. In the process of their education, they acquired the scientific orientation of other disciplines and brought these perspectives to the study of nursing (Johnson, 1974). Many of these scholars who received training in fields other than nursing became influential leaders in theory development, nursing research, and education. They transmitted their ideas to many professional and student nurses.

A common response to the use of nonnursing theory in nursing is that most theory represents the nursing world as it should or might be (Chinn & Jacobs, 1983). Practitioners claim this conceptualization of nursing is quite different from the world in which they function and does not provide directions for practice. Researchers claim that this conceptualization of nursing is not adequate to describe, explain, and predict all nursing phenomena. Furthermore, nursing theory does not evolve from an empirical base (Meleis, 1985).

Several nurse scholars sanction the use of nonnursing theory to solve nursing problems (Hardy, 1979; Johnson,

1974; Stevens, 1984). According to these scholars, the complexity of nursing phenomena cuts across disciplinary lines and thus supports the use of a multiplicity of theories. Hardy (1979) pointed out that there is no reason for nurse-scientists to spend time duplicating knowledge that already exists. However, she qualified this statement by stressing that nonnursing theory must first be empirically validated to determine if it is applicable to nursing phenomena.

Johnson (1974) proposed that many theories dealing with normal life processes are better developed by other fields and borrowed by nurses. However, Johnson also made a plea for the development and use of a unique theory of nursing that addresses the phenomena of the discipline. She pointed out that if nurses continued to observe behavior from a sociological or psychological perspective, the cause of science would be served but not necessarily the cause of nursing.

The use of borrowed theory in nursing is not without criticism. This practice contributes more to the theory's discipline of origin rather than to nursing by validating or invalidating its ability to solve a multiplicity of problems. Moreover, if nursing phenomena are not couched in a nursing frame of reference, the knowledge obtained is not nursing knowledge. Borrowed theories are also criticized

on the grounds that not one of them views the person as a totality in interaction with the environment. Further, this practice discourages the use and development of nursing theories, thus inhibiting nursing scientific growth (Meleis, 1985; Newman, 1972; Phillips, 1977).

Many nurses have voiced hope that a single theory in nursing would emerge to incorporate the notions expressed in the dominant nursing theories (Stevens, 1981). Indeed theorists, practitioners, and educators have been brought together for this purpose. However, debate continued as to whether or not nursing should aim for a single-or multiple-theory approach to the discipline.

The critics of the single-theory approach argue that this approach is not feasible in nursing. To accept one theory that has not been subjected to practice application, research validation, or the test of time is unacceptable (Meleis, 1985). Moreover, Fawcett (1983) explained that most disciplines have several theories which present diverse views of the phenomena of interest; this allows members of the discipline to explore phenomena in a variety of ways and avoids a restrictive viewpoint. Stevens (1981, p. 38) argued that the multiple-theory approach avoids the problem of premature closure on options for the discipline and "fosters development of the full scope to the inherent potential of the discipline."

In contrast to the multiple-theory approach, Riehl and Roy (1980) and others, advocated a single unified theory for nursing. They suggested that such a theory would lend stability and scientific mobility to the discipline by providing unity in directions for nursing practice, education, and research.

Johnson (1974) pointed out that whether a model is right or wrong for nursing is a social decision. Thus, the emergence of one theoretical perspective over another would be determined by the agreement of the discipline. However, at present, three theoretical perspectives, nursing, sociology, and psychology, coexist within the discipline.

Nursing Theory

There is general agreement among scholars that nursing theory is essential to the continued scientific growth of the discipline (Chinn, 1983; Menke, 1983; Walker & Avant, 1983). Nurse theorists have accepted this challenge, and their work is extensively cited in the nursing literature. The theories developed by these scholars express different world views and are often classified according to their paradigmatic origin (Table 1). Most often they are labeled developmental, systems or interaction theories (Fawcett, 1983; Johnson, 1974; Reilly, 1975; Riehl & Roy, 1980; Stevens, 1984).

Table 1
Paradigmatic Classification of Nursing Theories

Theorist	Theory	Paradigmatic Origin
Johnson, D. (1959, 1980)	The Behavioral System Model for Nurses	Systems Theory
King, I. (1971, 1981)	A Theory for Nursing	Systems/Interaction Theory
Leininger, M. (1978, 1981)	Caring	Interaction Theory
Levine, M. (1967), 1978)	Conservation	Systems/Developmental Theory
Neuman, B. (1972, 1982)	Health-Care Systems Model	Systems Theory
Orem, D. (1971, 1980)	Self-Care	Systems/Developmental Theory
Rogers, M. (1970, 1980, 1985)	Unitary Person: A Paradigm for Nursing	Systems/Developmental Theory
Roy, C. (1974, 1976, 1981)	Adaptation	Systems Theory

Developmental theory. Developmental theory has roots in both sociology and psychology (Theodorson & Theodorson, 1969). Concepts that form the basis of this theory are identifiable state, growth, development, and maturation.

The three assumptions pertinent to developmental theory are:

- a. There are noticeable differences between the states of a system at different times.
- b. The succession of these states implies the system is heading somewhere; and
- c. There are orderly processes that explain how the system gets from its present state to wherever it is going (Chinn, 1980, p. 30).

In developmental theory, change is postulated to be directional--growing, developing, maturing. Identifiable state refers to different states of change over time. The change may be either small, nondiscernible steps that are recognized as growth, or sudden, cataclysmic changes (Chinn, 1980). Developmental theory also postulate that people have the inherent ability to change.

Systems theory. The systems approach in nursing owes a great debt to general systems theory and to the social sciences from which it derives its theoretical foundation and its validity (von Gigch, 1978). A system is essentially a set of related elements. It is an assembly of parts connected together in an organized way. The parts are affected by being in a system and are changed if they leave it. As an assembly of parts, the system exhibits

dynamic behavior as opposed to being inert. A system may exist as a natural aggregation of component parts found in nature (i.e., man-environment) or a man-contrived aggregation (i.e., a way of looking at a problem) (von Gigch, 1978).

Systems are open or closed. They have boundaries, tension, stress, strain, and conflict. In addition, they try to maintain a steady state. In an open system, the steady state is maintained by a continuous flow of energy within and between the system and its environment (Bertalanffy, 1968). The flow of energy between a system and its environment is called feedback. Feedback is described as a series of outputs, inputs, and throughputs across the system's environmental boundary. The feedback process works so that open systems interact with each other (Chinn, 1980).

Interaction Theory. In 1934, the sociologist George H. Mead laid the groundwork for symbolic interactionism, a theory that deals with the importance of interaction between one's self and other people. This milestone in social psychology was the beginning of a series of interaction theories (Deaux & Wrightsman, 1984).

Symbolic interaction theory stresses that people in social interactions try to take the role of the "other," and see themselves as others see them. This process is based on the perceptions that an individual has of other people, the environment, the particular situation, and depends on meanings attached to these phenomena (Fawcett, 1984).

The major characteristics of interaction theory are perception, communication, role, and self-concept. Each intervention theory emphasized different phenomena and exhibits different characteristics. However, the major premises of symbolic interaction theory are

- a. Perceptions are derived from social interactions with others.
- b. During social interactions, people communicate with each other through language.
- c. Communication is important in learning roles.
- d. Roles are prescriptions for behavior.
- e. Self-concept is influenced by an individual's ability to perform roles according to self-imposed and societal standards (Heiss, 1981).

Nursing theory, as consistent with theory in other disciplines, are derived from various paradigmatic origin and are at various stages of development. However, these theories can provide a basis from which propositions and/or

hypotheses can be drawn to study the phenomena of interest to nursing (Chinn, 1983; Meleis, 1985). The results would be the conceptualization of phenomena from a nursing point of view rather than from a sociological or psychological orientation.

Sociological and Psychological Theories

Meleis (1985) wrote that the dominant sociological and psychological orientations used to explain nursing phenomena are derived from the paradigmatic origins of nursing theories. The sociological theories include, but are not limited to, disengagement theory, conflict theory, and social interaction theory. Social interaction theory includes social action theory, symbolic interactionism, role theory, and exchange theory (Batey, 1971; Carter, 1978; Chinn, 1983). The psychological theories include cognitive theory of attitudes, reinforcement theory, theories of learning, self-actualization theory, and Lewin's field theory (Carter, 1978). Watson (1981), commenting on the use of these theories, suggested that this practice may advance science, but not nursing science.

Methodological Issues in Nursing

Nursing research is laden with methodological problems (Abdellah, 1970; Donaldson & Crowley, 1978; Ellis, 1977). Discussion in the literature has focused on the

general approach used such as inductive versus deductive, borrowed versus unique, and basic versus applied research (Downs & Newman, 1977; Gortner, 1980; Lininger, 1969).

Clinical versus theoretical has received increased attention and often ends in heated debates (Dickoff, James, & Widenbach, 1968; Downs & Fleming, 1979; Gortner, 1981).

Measurement and design issues are explicated by Miller (1980), Schlotfeldt (1977), and Watson (1981).

Investigators frequently offer suggestions to improve measurement tools or tighten the design or otherwise increase control. A few scholars have gone beyond measurement issues and argued in favor of other methodologies such as historical, philosophical, phenomenological, aesthetic, and ethnoscientific (Christy, 1975; DeTornyay, 1976; Oiler, 1982; Smith, 1983).

Watson (1981) pointed out that nursing possesses a set of rights and wrongs that are guided by Received View traditions. She also extends this notion to encompass nursing theory development and nursing practice. According to Watson, criteria from psychology, education, sociology, and formal philosophy still influence nursing research development. The scientific method is considered the only process for scientific discovery, experimental quantitative research methodology, and design. Philosophy, in particular, has created in some nurse researchers

preoccupation with syntax, correspondence rules, formalization, and axiomatization (Watson, 1981).

Various reasons are given for dissatisfaction with the prevailing "scientific method" at the practical and theoretical level. At the theoretical level, the "scientific method" is characterized as a reductionist version of positivism which favors simplifying science by attributing the origin of knowledge to one explanation, to the genetic origin, or smallest organic unit commonly associated with Darwin (Smith, 1983; Winstead-Fry, 1980). This reductionist method is not consistent with the profession's views regarding holistic person.

At the practical level nurse scholars have suggested lack of fit between the research findings, and the clinical context. The findings arising out of attempts at laboratory designs with strict controls are said to be inadequate and in most instances inappropriate to study the phenomena of interest to nursing (Brown, Tanner, & Padrick, 1984; Krueger, 1978; Oiler, 1980). In addition, they do not apply to nursing reality.

Several factors have contributed to the methodological problems in nursing research. In some ways nursing has been subjected to different social, political, and scientific forces than those in other disciplines. Historically, medical and male norms influenced nursing's

earlier professional practice and educational development. More recently norms from the physical and behavioral sciences have influenced nursing's scientific development. Nursing's established ties and control by doctors, hospitals, and society's male-female role expectations played an important part in nursing's emphasis in "doing," its studies, problem with authority, self-denial, and lack of self-esteem. Recent attempts in scientific development have been guided by fields that are inappropriate models for nursing and have resulted in nurses becoming sociologists and psychologists, without directly addressing nursing problems and issues (Meleis, 1981; Watson, 1981).

Ellis (1977) observed a number of shortcomings which characterizes much of nursing in general. Summatively:

1. A conceptual framework or theoretical base is not used consistently throughout the various phases of the research process.

2. Operational definitions of variables do not preserve the original meaning of the concepts of primary interests. Consequently, selection of measurement tools are distantly related to the original concepts and lead to inconclusive results.

3. Hypotheses are not formulated to approximate elements of a theoretical framework and/or the statistical

tests selected to analyze the data, consequently, yield minimal new knowledge.

In an analysis of articles published during the first 25 years in Nursing Research, Batey (1977) found that the major limitation of nursing research was related to the conceptual phase of the research process. Batey stated that clearly defined concepts were often missing in selecting constructs and operationalizing variables and methodologies. Further, she criticized nurse researchers for focusing prematurely on the method more than on an imaginative, creative use of the literature and first hand experience.

A limitation of nursing research repeatedly emphasized in the literature is the strategy of replication. Replication of studies enhances reliability and generalizability of findings. In her bicentennial review of nursing, DeTornyay (1977) commented on the lack of evidence in the literature of replicated studies. She attributed such voids to devaluation of replications as nonoriginal endeavors. Gortner (1980) argued this limitation is an unfortunate situation for the state of nursing research which rests "precariously on single investigations and unconfirmed study findings" (p. 182).

Several analyses of published articles were done to evaluate the nature and direction of nursing research.

These studies are pertinent to the categories of the present analysis. Abdellah (1970) reviewed 175 studies supported in part by the Division of Nursing and the National Institute of Health from 1955-1968. The study resulted not only in an assessment of nursing research but also in a method of classification of its contents. Abdellah identified three broad content areas: (a) nursing practice, (b) nursing education, (c) nursing administration, and (d) theory development. In addition, criteria for placing content in these areas were specified.

The findings of Abdellah's (1970) analysis indicated that the primary focus of nursing research was education. There was a lack of practice oriented research and studies designed specifically for the purpose of theory development. The major limitation of nursing research noted by Abdellah was the lack of precise measurement tools to assess the phenomena of interest to nursing.

O'Connell and Duffey (1976) presented an analysis of research in nursing practice published in Nursing Research during a six year period from 1970-1975. The sample consisted of 88 studies. Several categories were preestablished for classifying the content of the articles. Although the categories were not exhaustive and mutually exclusive, they included: (a) specialty area, (b) age of clients, (c) research methods, (d) research design,

(e) variables manipulated, (f) statistics, and (g) instruments. These researchers concluded from their findings that adults were the most frequent population studied. There were few studies that dealt with chronic illness and little emphasis was placed on the reliability and validity of instruments to collect data.

The O'Connell (1983) study represents an extension and replication of the original efforts by O'Connell and Duffey (1976) to analyze research in nursing practice that had been published in the Journal of Nursing Research. This analysis included 145 studies that were published during 1970-1979. In addition, O'Connell compared the studies published from 1970-1974 with those published in 1975-1979 to identify changes. The categories remained the same as in the previous study but were further delimited by additional criteria.

A significant change noted when the second half of the decade was compared with the first was that more studies were related to chronic illness, the elderly, obstetrics, and needs assessment. In addition, far more experimental designs were utilized, and the number of descriptive studies were greatly reduced.

Ellis (1977) summarized the most prevalent medical-surgical nursing studies. Her sample included over 200 studies published in Nursing Research from 1952-1975.

Although the emphasis in this body of research was on client condition, the investigator addressed methodological issues and subject areas of concern to nurses. Ellis observed a shift from illness oriented studies to those that focused on wellness and an increase in studies with theoretical orientation.

Brown, Tanner, and Padrick (1984) analyzed the characteristics, trends, and changes in research over the past three decades. A sample of 137 studies was drawn from four research journals published in 1952, 1960, and 1980. Each article was analyzed with regard to four major categories (a) authorship, (b) major topics of investigation-education, administration, nurse characteristics, and clinical practice, (c) theoretical orientation, and (d) methods employed.

Data from the analysis revealed that over the years, nursing research had become more clinically and theoretically oriented, and more sophisticated methods were employed. Among the limitations noted were insufficient conceptualization and lack of replication.

Emerging content of dissertation abstracts and titles was analyzed by Loomis (1985). A sample of 319 abstracts and titles were obtained from 24 schools. The purpose of the analysis was to describe the content of nursing doctoral dissertations over a six year period, 1976-1982,

using a theoretical orientation from "Nursing: A Social Policy Statement" (ANA, 1980). Analyses were related to the distribution of content in general and specifically to differences by program age, geographic region, and type of degree. Categories and their subcategories were developed after the abstracts and titles were analyzed. Six categories, A, B, C, D, E, and F included: (a) developmental life changes, (b) acute and chronic health illness, (c) cultural, emotional, social, and physical environments, (d) clinical practice, (e) theoretical orientations, and (f) nursing history, education, administration.

Data from Loomis' analysis revealed an increased focus on clinically and theoretically oriented studies. Further analysis of the subcategories and most frequently occurring combination of study variables showed significant differences in dissertation content when analyzed by program age, geographic region and type of program.

These reviews produced a lineage of the progress of nursing research over the past years. Each contributed to the development of nursing knowledge, and to categories by which nursing research can be classified: theoretical orientation, research characteristics, subject areas, and focal concepts.

Subject Areas

The third determinant of the paradigmatic status of nursing is the subject areas with which nurses are concerned. There appears to be growing consensus on the nature of the research paradigm as representing human responses to health and illness across the life span (Colaizzi, 1975; Gortner, 1983; Rogers, 1980). Fundamental questions concerning human responses to health and illness include the subject of health, environment, holistic person and nursing (Silva, 1983). These four areas are considered the subject matter of concern to the discipline (Fawcett, 1981; Gortner, 1983; Meleis, 1985).

In 1981, the ANA commission on nursing research published its most recent priority statement entitled Research Priorities for the 1980s: Generating a Scientific Basis for Nursing. This statement encompassed the subject areas of concern to nurses. According to the statement,

Nursing research develops knowledge about health and the promotion of health over the full lifespan, care of persons with health problems and disabilities, and nursing action to enhance the ability of individuals to respond effectively to actual or potential problems.

In the statement, five directions for research were identified.

1. Promoting health, well-being, and competency for personal care among all age groups.

2. Preventing health problems throughout the lifespan that have potential to reduce productivity and satisfaction.

3. Ensuring that the health needs of particular vulnerable groups are met through appropriate strategies.

4. Decreasing the negative impact of health problems on coping abilities, productivity, and life satisfaction of individuals and families.

5. Designing and developing health care systems that are cost effective in meeting the needs of the population.

The 1981 statement also gave examples of research consistent with these priorities. These examples stressed the need for nurses to (a) provide more effective care to high-risk populations--mothers and infants, elderly, and the chronically ill, (b) enhance the care of culturally different clients--Blacks, Hispanics, and Native Americans, and (c) identify emotional, social, cultural, and physical environmental factors which affect health.

The impact of the environment on clients and their health status is a recurring theme in nursing literature. Gortner (1983) postulates that the environment is not restricted. It is viewed as a multidimensional set of forces which includes cultural, social, physical, and emotional factors. Nursing research focuses on the characteristics of internal and external environments that

promote health, maintain, and support states of health (Fawcett, 1978; Gortner, 1983).

The use of holistic person across the lifespan as a subject area is found in Loomis' (1983) study. In operationalizing holistic person across the lifespan, Loomis included "normal" developmental stages and deviations or problems in these stages. Problems of the developmental included acute or chronic illness. "Normal" developmental changes were limited to conditions related to growth to a more mature or advanced state, and expected normal life changes related to age or developmental tasks.

The ANA's 1981 statement on research priorities provided the major backdrop for developing the category of subject area in the current study. Previous studies analyzing nursing research also contributed to development of subcategories.

Focal Concepts

Concepts, often called the building blocks of theory, are the most critical elements to be considered when theoretical formulations are undertaken, for they determine the direction of inquiry (Jacobs & Huether, 1978). However, concepts evolve as empirical events are made known--they lack stability (Gortner, 1983). A focal concept is the dependent variable.

Gortner (1983) noted examples of focal concepts that frequently appear in nursing research literature. These concepts included social support, self-concept, attachment, pain, chronicity, and parenting. Examples of recently completed and ongoing research dealing with these concepts are found in published proceedings of the 1980 and 1981 meetings of the Western Society for Research in Nursing Symposia.

At another level of abstraction are the focal concepts health, illness, adaptation, prevention, and promotion. Gortner (1983) suggested that it can be expected that inquiry will be directed toward these concepts and that the work will be of a more fundamental nature in the future than it was true of the past. In their current state of analyses and operationalization, these concepts hold no immediate hope for clinical utility that is unique to nursing. Rather, they contribute a general understanding of events across a wide variety of disciplines (Gortner, 1983).

Summary

In this chapter philosophical and a theoretical explanations germane to the discipline of nursing were described. The problems inherent in the methodology utilized to develop nursing knowledge were discussed.

Issues and studies addressing the subject area of concern to nursing were presented. These descriptions provided an overview of past endeavors to analyze nursing research and serve as an analytical basis for coding content of the dissertations in the current study into specific categories.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This study used a descriptive-explanatory approach that allowed the investigator to examine existing materials and seek "what is" rather than predict relationships (Kerlinger, 1973). Concepts, theories, methods, and subject areas presented in dissertations were examined to determine the trends and degree of consensus which exists among scholars regarding these variables. The objective of this study is consistent with criteria defined by Abdellah and Levine (1979) as appropriate for descriptive-explanatory studies: (a) to provide descriptions of variables and (b) to identify patterns. Theoretical formulations provide explanations of the phenomena of interest.

Content Analysis

To answer the research questions a content analysis of doctoral dissertations was performed. Content analysis is a systematic, objective research technique for examining contents of recorded information. The technique is systematic in that specified criteria are consistently applied in selecting and analyzing data. It is designed

to be objective by incorporating explicit rules (Berelson, 1952; Holsti, 1969; Krippendorff, 1980).

In content analysis, the investigator may identify, measure, describe, and make inferences about specified characteristics within or reflected by written text. In addition, it allows the investigator to trace the development of scholarship and historical trends (Berelson, 1952, Holsti, 1969; Krippendorff, 1980).

This study is consistent with the description of content analysis by Berelson (1952), Fox (1982), Holsti (1969), and Krippendorff (1980). The distinctive features which make it amenable to content analysis are (a) recorded information is examined, (b) emphasis is on recorded information, and (c) trends are examined.

Content analysis involves the systematic and objective reduction of recorded materials into sets of categories that represent the presence, frequency, intensity, and nature of selected characteristics. The two key processes involved are (a) specifying characteristics to be measured and (b) applying explicit rules for identifying and recording the characteristics. Selection and analysis procedures are not arbitrary but should be predetermined, explicit, and applied consistently to all data examined

(Berelson, 1952; Fox, 1982; Holsti, 1962; Krippendorff, 1980). Categories were pre-established for this study.

Population

The population of data for this study was all doctoral dissertations written from 1974 through 1984 from five established schools that offer doctoral degrees in nursing. This population consisted of 280 dissertations from the University of Texas at Austin, the University of Alabama at Birmingham, Texas Woman's University, the University of Maryland, and Catholic University of America.

A list of the names of graduates, the year of graduation, and titles of their dissertations were obtained from each school. The graduates' names and titles of the dissertations were then compared for accuracy with University Microfilm's computerized list. The year of graduation cited on the computerized list was used in this study. In addition, this list of nursing dissertations was also checked for additional names and/or titles from the five schools. Thus, the 280 dissertations represent the known population of the five schools.

Definitions of Categories

The categories of this analysis are consistent with the purpose of the study and are designed to be exhaustive

and mutually exclusive. Most important, the categories adequately reflect the research questions (Berelson, 1952; Holsti, 1969). According to Berelson (1952), Fox (1982), and Wilson (1985), categories may be borrowed from other sources or developed by the investigator. This study combines both approaches for category development.

The unit of analysis for this study was each entire dissertation. The dissertations were analyzed according to four question categories. In any category where assignment of content was in doubt, the dependent variable(s) of the study determined the category assignment.

Question Category I: Theory

What is the theoretical orientation of the dissertation?

Theoretical orientation: Theoretical orientation was classified as four types:

- a. Nursing
- b. Sociological
- c. Psychological
- d. Other

Criteria for Assignment to Question Category I

This category was limited to theory presented solely in Chapter 1 of the dissertations. Assignment to a

category depended upon the theory's discipline of origin. A dissertation could be assigned to only one of the subcategories.

Question Category II: Methodology

Is nursing research empirical, theoretical, empirical-theoretical, or practice oriented?

Each dissertation was categorized by type through assignment to one of these four categories based on a judgment of its essential nature.

1. Empirical: straight presentation of empirical findings.
2. Empirical-theoretical: presentation of empirical findings as interpreted through some theoretical scheme.
3. Theoretical: presentation of abstract or concrete concepts with implied or explicit stated relationships.
4. Practice oriented: social action and interventions oriented, specifically toward solving problems related to nursing practice.

Criteria for Assignment to Question Category II

When the characteristics of a dissertation appeared to exhibit two categories, a judgment was made as to which

aspect the investigator emphasized. The judgment was based on the consideration as to whether the emphasis was more on developing theory, advancing empirical knowledge of a subject advancing theory, or solving problems related to nursing practice. Theory presented in Chapter 1 of the dissertation was disregarded. The investigator's statement of conclusions, based on the dependent variable, determined the placement by category. Dissertations that studied the association between two or more variables, none of which was treated as a dependent variable, were classified on the basis of the variable which the statistical analysis treated as dependent. A dissertation could be assigned to only one of the subcategories.

What are the research characteristics?

Research characteristics classified as empirical, theoretical, empirical-theoretical, or practice oriented were assigned to the categories suggested by Brown, Tanner, and Padrick (1984) and modified for this study.

1. Purpose of research

- a. Exploratory: to formulate a problem for more precise investigation
- b. Descriptive: to produce an accurate description of the phenomena being investigated

- c. Explanatory: to discover relations among facts or explain a given phenomenon
 - d. Combination of purposes
 - e. Tool development
 - f. Other
2. Source of data (technique used to collect data)
- a. Primary (original data)
 - (1) Questionnaire
 - (2) Interview
 - (3) Both questionnaire and interview
 - (4) Observation (participant and nonparticipant)
 - (5) Other
 - b. Secondary (data already collected and compiled)
 - (1) Census data
 - (2) Other records, literature, survey
 - (3) More than one secondary source
3. Size of sample
- a. 30 or less
 - b. 31-100
 - c. 101-500
 - d. 501-1000
 - e. Other

4. Research Strategy (technique to control variables)
 - a. Experimental
 - b. Multivariate analysis
 - c. Not applicable
5. Type of sampling
 - a. Probability (based on the author's statement that a random sampling design was used)
 - b. Nonprobability (no random techniques mentioned in description of sample)
 - c. Both probability and nonprobability
 - d. Total population
 - e. No indication
6. Population studied
 - a. Infants
 - b. Children
 - c. Adolescents
 - d. Adults
 - e. Elderly
7. Ethnic population studied
 - a. Black
 - b. White
 - c. Hispanic
 - d. Mixed
 - e. Other

Presentation of this category is simplistic, straight forward, and self-explanatory. Criteria for placement into categories are cited in the category presentation. A dissertation may be assigned to several of the subcategories.

Question Category III: Subject Areas

What are the subject areas with which nurses are concerned?

The subject area was assigned according to categories developed from the review of the literature. The literature review suggested that the subcategories are the subject areas of concern to nurses (ANA, 1981; Green, 1979; Gortner, 1983; Meleis, 1985; Rogers, 1970). In addition, an attempt was made by the investigator to create exhaustive and mutually exclusive categories. However, it is universally recognized that the holistic person is so complex that such dichotomy is impossible. Thus, faint shades of category overlap may exist. A dissertation could be assigned to several of the subcategories.

1. Health

- a. Promotion
- b. Prevention

- c. Maintenance
 - d. Rehabilitation
- 2. Environment
 - a. Physical
 - b. Cultural
 - c. Emotional
 - d. Social
- 3. Holistic Person (according to developmental stages)
 - a. Infants: age 0 - 12 months
 - b. Children: age 13 months - 12 years
 - c. Adolescents: age 13 - 21 years
 - d. Adults: age 22 - 64 years
 - e. Elderly: age 65 and beyond
 - f. Others
 - (1) Mothers
 - (2) Fathers
 - (3) Mothering/fathering (parenting)
 - (4) Families
 - (5) Others
- 4. Nursing
 - a. History and status of the discipline
 - b. Education
 - c. Research

- d. Practice
- e. Administration
- f. Nurses as subjects

Criteria for Assignment to Question Category III

Subcategory 1: Health.

1. Dissertations that address the etiology of health problems or discuss the development or testing of measures for their amelioration were classified as Health promotion.

2. Dissertations that address diagnosis of potential health problems and suggest interventions to eliminate these problems were classified as prevention.

3. Dissertations that address chronic health problems that are irreversible and suggest interventions aimed at maintaining existing health status were classified as health maintenance.

4. Dissertations that address interventions aims at restoring an individual to an optimum state of health were classified as health rehabilitation.

Subcategory 2: Environment. Environment is conceptualized for this study as external influences or factors that affect an individual state of health or interaction with others. The criteria for inclusion in these categories were:

1. Physical: This category included only physical factors that interfere with or affect an individual's normal body functions. These factors include (but were not limited to) air, food, fluids, geographical locale, sounds, sights, and living quarters.

2. Cultural: This category was limited to those subject areas which addressed the organized handed-down ways of thinking, speaking, attitudes, beliefs, values, and behavior patterns that distinguish one group from another.

3. Emotional: This category was limited to those factors in the individual's surroundings that affect mental activity which, in turn, influence interaction with others.

4. Social: This category was limited to individuals, groups, and institutions with which an individual must interact and the impact of the results of this interaction on the individual.

Subcategory 3: Holistic Person: According to Developmental Stages. This category was limited to factors affecting contemplated developmental life changes. Developmental life change is defined as "any condition that is related to growth to a more mature state; expected change in life situation related to age or developmental task" (Loomis, 1985, p. 114). If a dissertation addressed

problems of the developmental stages, it was placed in the appropriate category pertaining to health.

Subcategory 4: Nursing. This category was limited to those subject areas which address the discipline of nursing. Consistent with all other categories, the dependent variable(s) were the determining factor for category placement. The criteria for category placement were:

1. History and status of the discipline: The only subject areas placed in this category are those that trace trends, issues, or problems over time, make cross-national or local comparison, or attempt to describe or explain characteristics of the discipline.

2. The only subject areas included in this category are those that address issues or problems specifically related to education, research, practice, or administration.

3. Nurses as subjects: This category included (but was not limited to) areas addressing role/socialization, job satisfaction, and decision making processes.

Question Category IV: Concepts

What are the focal concepts of concern to nurses?

Concepts were assigned to the following categories suggested by Hage (1972) and Walker and Avant (1983).

1. Derived: those concepts that are operationally defined.
2. Primitive: those concepts that are not operationally defined.
3. General: those concepts that are not limited to time and space.
4. Specific: those concepts that are limited to time and space.
5. Focal: the dependent variable.

Instruments

An investigator-developed tool was used to collect data for analysis (Appendix A). This tool was derived from the conceptual framework and reflects the purpose of the study. The items in the tool comprise four question categories and request demographic data. As recommended by Berelson (1952) and Krippendorff (1980), the tool is a checklist which was accompanied by criteria for assigning data to categories. The instrument was the final result of two pilot studies and a judges' study.

Validity and Reliability

Content validity in content analysis is established through the informed judgment of the investigator (Berelson, 1952; Holsti, 1969). However, Kerlinger (1973) and Treece and Treece (1977) note that content validity is an important characteristic of checklists. Moreover, a jury of opinion is better than a single individual judgment. A content validity index (CVI) of 0.85 was confirmed by a panel of judges.

The panel of judges who confirmed the validity of the instrument also served as interraters. The interrater reliability of the tool is 0.82.

Pilot Studies

Two pilot studies and a judge's study were conducted to test the instrument. Each study had a specific objectives.

Pilot Study 1

Four categories and their subcategories were tested for their utility and their ability to be exhaustive and mutually exclusive. The categories were theory, research characteristics, methods, subject areas, and concepts.

Pilot Sample

The sample consisted of five dissertations from three southern schools. The sampling frame of reference and dissertations by number were

Texas Woman's University: $n = 2$

University of Texas at Austin: $n = 2$

University of Alabama: $n = 1$

The dissertations covered a period from 1978 through 1984.

Pilot Results

The results of the pilot revealed that the categories, research characteristics, and concepts appeared exhaustive and mutually exclusive. In addition, they were clearly defined and delimited by definitions.

The areas that posed the most problems were the categories of subject areas and theory. The subject area consisted of 15 subcategories of which 14 were a listing of general topics. For example, subcategories one and two were general topics: care of the child and health problems studied by nurses. The fifteenth subcategory consisted of the topic "other." Since three of the dissertations analyzed could not be placed in any of the subject area subcategories, the subcategory "other" became a catch-all. In essence, the subcategories were too broad.

Additionally, criteria for assigning content to the subcategories were non-existent.

In the category of theory, problems arose when a decision was to be made as to the type of dissertation and the dissertation's theoretical orientation. These were two separate categories, each with its own subcategories. Their placement in the instrument was not adjacent. Of the five dissertations analyzed, only one was assigned to the category of theoretical orientation. In addition, the other four could easily be placed in several of the subcategories of type of dissertation. Lack of category definitions and criteria for assigning content to subcategories were non-existent.

Revised Instrument

For the revised version of the instrument, four major categories and their subcategories were selected. In addition, definitions and specific criteria for placing content into a category were established. The category, research characteristics, and concepts were not changed. No problems were encountered by the investigator when assigning content to those categories.

A new category of subject areas was developed based on a review of the literature. The literature review revealed that the subject areas of concern to nurses were (a)

health, (b) environment, (c) holistic person according to developmental stages, and (d) nursing (ANA, 1981; Gortner, 1983; Green, 1979; Meleis, 1985; Rogers, 1970). These subcategories were delineated by definitions and criteria for assigning content to each category were established.

In an attempt to make an explicit distinction between the categories for type of dissertation and theoretical orientation of the dissertation, definitions of the categories were established. The category, type of dissertation, was made a subcategory of Category II and delimited by definitions. Subcategories for theoretical orientation, a major category, were reestablished; the three most general theoretical perspectives used in nursing, as identified by Johnson (1969), served as the subcategories. They are (a) nursing, (b) sociology, and (c) psychology. A fourth subcategory, "other," was also established to accommodate any theory which did not fall into the subcategories. In addition, explicit criteria for placing content into the categories and their subcategories were also established.

Judges' Study

The revised instrument was submitted to a panel of judges. The purpose was to establish clarity of the instrument, content validity and interrater reliability.

Six institutions were contacted in an effort to obtain judges. Of the six institutions contacted, three responded.

The panel of judges consisted of five persons considered knowledgeable in nursing. The judges were faculty from three universities. These universities included Texas Woman's University, the University of Florida at Gainesville, and Catholic University. Four of the judges held earned doctorates in nursing and professorial rank. One was completing doctoral study.

First, the judges were given a brief description of the study including the study's purpose and research questions. Second, they were asked to examine each item in the tool for its relevance to understanding the state of the art of nursing science. Third, they were asked to rate the relevance of each item using a four-point rating scale (Appendix B). Fourth, they were asked to examine a dissertation entitled, The Tenderness Process in Mother-Infant Couples, and to record its content according to the established categories. They were also invited to make suggestions regarding clarity of the categories and addition or deletion of categories.

The results of the judges' study were analyzed for content validity and interrater reliability. Hambleton's

method, cited by Waltz and Bausell (1981), was used to determine the content validity index (CVI). The CVI is defined as the proportion of items given a rating of three or four by all raters. A rating of 0.50 or below indicated an unacceptable level of content validity. A CVI of 0.85 was confirmed for the instrument.

Scott's (1955) measure of index reliability (pi) was used to determine interrater agreement. This measure corrects for interrater agreement that may result from chance. The method can be used with all levels of measurement of data. A pi of .05 or below indicates an unacceptable reliability index. A pi of 0.92 was established for the instrument. Computation of this measure is

$$pi = \frac{\% \text{ observed agreement} - \% \text{ expected agreement}}{1 - \% \text{ expected agreement}}$$

The judges made several suggestions for improving the clarity of the instrument. Most of these suggestions were word substitutions. For example, instead of using the phrase "content will be classified" the suggested phrase was "content will be assigned." These adaptations were made and the instrument repiloted.

Pilot Study 2

This study was done to validate the reliability of the instrument after modifications. A different group of judges was asked to utilize the tool to analyze the content of dissertations. Three persons volunteered. None of them were knowledgeable in nursing. All were faculty at Texas Woman's University and held earned doctorates and professorial rank.

Pilot Sample

The sample consisted of two dissertations from two southern schools. The schools were Texas Woman's University and the University of Maryland.

Pilot Results

The results of the pilot confirmed the established reliability of the instrument. Utilizing Scott's (1955) method for determining interrater reliability, a pi of 0.94 was confirmed.

Data Collection

Collection of data for this study was done through content analysis of dissertations. The content unit of analysis was each entire dissertation. Most of the dissertations were requested from private, public, and personal libraries. In addition, the investigator traveled

to the libraries of three of the five schools to collect data.

Descriptive data of each dissertation were recorded. Following this entry, the content of the dissertation was assigned to the pre-established categories according to the specified criteria. Data that fell into the category "other" were examined for emerging themes.

A first year doctoral research assistant was hired to assist in data collecting. At midpoint in the data collection process, an interrater reliability using Scott's (1955) method was performed between the two coders. The latter is recommended by Krippendorff (1980) to insure continued interrater reliability. The pi between the two coders was 0.96.

Treatment of Data

Descriptive statistical measures were used to describe the population by school, year, and number of dissertations. The description of the population was presented in tabular form.

The dependent variables--theory, methodology, subject areas, concepts, and their subcategories--were analyzed by the chi-square goodness of fit test and the chi-square test of association. These statistics determined whether or not significant differences and relationships existed between

the variables of the study and allowed the investigator to examine trends.

The data obtained in this analysis are consistent with the assumptions for use of chi-square goodness of fit test as described by Kerlinger (1973).

- a. All observations must be independent; this is usually accomplished by counting each item only once.
- b. Each observation must enter into exactly one category.
- c. There must be a sample of ten or more.

Finally, cross-tabulation of concepts and their links were performed. This procedure allowed the investigator to examine emerging conceptual patterns. All data were presented in tabular form.

Measure of Consensus

Since the definitions of a paradigm for this study is the degree of consensus found in theory, methodology, concepts, and problems, it was necessary to find a measure of consensus for the data generated in each category of a classification over a given time period. The degree of consensus is the amount of agreement in dissertations as to categories utilized and the frequencies within the categories. As the number of categories increases, the

maximum possible amount of differences among investigators increases. However, the number of categories by itself is not an adequate measure: the distribution of the frequencies in the categories must be taken into account. Given an equal number of categories, the more even the distribution among them, the less the consensus. A formula used by Gibbs and Martin (1962) to measure degree of industrial diversification was adapted to examine the homogeneity of the categories and the trends over time. The formula is

$$C = 1 - [cx^2 / (cx)^2]$$

where c = degree of consensus
 x = numbers of dissertations in each category
 cx = the sum of the x 's, that is the total
 number of dissertations in the
 classification
 cx^2 = the sum of the squares of x
 $(cx)^2$ = the sum of the x 's squared, that is the
 square of the total number of
 dissertations in the classification

The minimum value, indicating the highest degree of homogeneity or consensus when all the frequencies occur in the same category of the classification is 0.0. The maximum value or highest degree of heterogeneity depends on

the number of classifications. This maximum possible value is equal to $1 - 1/N_C$, where N_C is the number of categories utilized in a given classification.

In order to compare classifications with varying numbers of categories in different yearly intervals, it is desirable to adjust for the variation in the maximum value of the measure. This adjustment is made by dividing C by the maximum value for the distribution. When the obtained value of C is divided by $1 - 1/N_C$, the quotient is the degree of consensus relative to the possible maximum.

Interpretation of the Measure of Consensus. There are no established criteria as to what can be interpreted as a substantial degree of consensus and what should be considered low consensus. However, since the degree of consensus is similar to a measure of association in that the figure is a number which can range from zero to one, for this study the values are set arbitrarily at points equivalent to the interpretation of Yules Q (Sokol, 1970). The degree of consensus and appropriate phraseology are

00.0	complete consensus
30.0 or lower .	very strong consensus
31.0-50.0 . . .	substantial consensus
51.0-70.0 . . .	moderate consensus

71.0-90.0 . . .	low consensus
91.0-99.0 . . .	negligible consensus
100.0	no consensus

Summary

A detailed description of the methodology to be used in the study was presented. The research design, population and sample were identified. Definitions of the categories and criteria for category assignment were also presented. The instrument used to collect data, including its development, validity, and reliability were explained. A brief description of the pilot studies and the judges' study was reviewed with regard to descriptions of the sample and participants, procedures, findings, and changes made as a result of implementing these studies. Finally, a step-by step description of the data collection procedure was outlined, and the statistical techniques for analyzing data were proposed.

CHAPTER 4

ANALYSIS OF DATA

This chapter presents an analysis of dissertations written between 1974 and 1984 at five established schools that offer doctoral degrees in nursing. The findings are presented by categories established by the investigator to determine if a shared paradigm exists among a community of scholars. The established categories also encompass the research questions of this study. The dissertations are grouped chronologically by year in order to both clarify the analysis of data and indicate trends in the discipline.

Description of Population

The population consisted of 280 dissertations that were written between 1974 and 1984 by nurse scholars from five established nursing programs. The population of data by year, school, frequency and percentage is described in Table 2.

Analysis of Categories

This study examined these research questions.

1. What are the theoretical orientations of nursing dissertations?

Table 2

Doctoral Graduates by Number, School, Degree, and Year

School	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total	%
U. of Texas Austin, Ph.D. * 1974	*	0	2	6	8	5	1	9	6	23	23	83	29.6
U. of Alabama, DNS * 1975		*	0	0	0	8	6	7	8	14	9	52	18.6
Texas Woman's U., Ph.D. * 1971	1	2	0	4	5	6	5	7	9	10	11	60	21.4
U. of Maryland, Ph.D. * 1979						*	0	0	0	0	3	3	1.1
Catholic U. of America, DNSc * 1968	4	10	7	6	3	9	13	9	9	3	9	82	29.3
Year Total	5	12	9	16	16	28	25	32	32	50	55	280	100.0

*Year doctoral program began.

Source. Gudmundsen, A., & Beard, M. (1984). Southern Region Graduates by Number, School, Degree and Year. Denton, TX: Fourth Annual Research Conference, Texas Woman's University. Adapted by permission.

2. Is nursing research empirical, theoretical, theoretical-empirical, or practice oriented?

3. What are the research characteristics of nursing dissertations?

4. What are the subject areas of concern to nurses?

5. What are the focal concepts of concern to nurses?

To answer the research questions, categories analyzed were: (a) theoretical orientation, (b) research characteristics, (c) subject areas, and (d) concepts.

Question Category I: Theoretical Orientation

Research Question 1: What are the theoretical orientations of nursing dissertations. This question was analyzed using chi-square test of association and chi-square goodness of fit test.

The theoretical orientation of dissertations written by scholars at the University of Texas at Austin (UTA) are presented in Table 3. As indicated by these data, six (7.2%) dissertations had a nursing theoretical focus 10 (12.0%) a psychological focus; 21 (25.3%), a sociological theoretical focus; and 11 (13.3%) had other theoretical focuses from business (2), physiology (6), and biology (3). Thirty-five (42.2%) of the dissertations had no theoretical orientation. The chi-square test revealed no significant statistical association between theoretical

Table 3

Theoretical Orientation of Dissertations by Year, Frequency, and Percent:
University of Texas at Austin

Theoretical Orientation	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Nursing	-	-	-	-	-	1	1	4	-	6
	-	-	-	-	-	16.7	16.7	66.7	-	7.2
	-	-	-	-	-	11.1	16.7	16.7	-	
Sociological	-	2	-	-	-	2	2	8	7	21
	-	9.5	-	-	-	9.5	9.5	38.1	33.3	25.3
	-	33.3	-	-	-	22.2	33.3	33.3	31.8	
Psychological	-	1	-	-	-	1	2	3	3	10
	-	10.0	-	-	-	10.0	20.0	30.0	30.0	12.0
	-	16.1	-	-	-	11.1	33.3	12.5	13.6	
Others	-	-	2	2	-	2	-	4	1	11
	-	-	18.2	18.2	-	18.2	-	36.4	9.1	13.3
	-	-	25.0	40.0	-	22.2	-	16.7	4.5	
None	2	3	6	3	1	3	1	5	11	35
	5.7	8.6	17.1	8.6	2.9	8.6	2.9	14.3	31.4	42.2
	100.0	50.0	75.0	60.0	100.0	33.3	15.7	20.8	50.0	
Total	2	6	8	5	1	9	6	24	22	83
	2.4	7.2	9.6	6.0	1.2	10.8	7.2	28.9	26.5	100.0

χ^2 (32, N = 83) = 32,.2079, p = .40

orientation and years surveyed; therefore, these variables are independent.

A chronological analysis of the data in Table 3 does not indicate a major shift in theoretical orientation of the dissertations. The only notable trend is the decrease in relative frequency of all theoretical orientations. This trend is especially noticeable in dissertations that did not use theoretical orientations. These dissertations have decreased in relative frequency from 1976 (100%) to 1978 (50%). Dissertations using a nursing theoretical orientation have increased in relative frequency from 1981 (11.1%) to 1983 (16.7%).

Theoretical orientation of dissertations written by scholars at the University of Alabama at Birmingham (UAB) are presented in Table 4. An examination of these data revealed that 15 (28.8%) dissertations had a nursing orientation; 14 (27%) had a sociological orientation; 11 (21.2%) had a psychological orientation, and 4 (7.7%) had other orientations from physiology (2) and business (2). Eight (15.3%) dissertations did not use a theoretical orientation.

An inspection of the data in Table 4 indicates an increase in relative frequency of both sociological and nursing theory. The relative frequency for nursing theory has almost doubled from 1979 (12.5%) to 1984 (22.2%).

Table 4

Theoretical Orientation of Dissertations by Year, Frequency, and Percent:
University of Alabama at Birmingham

Theoretical Orientation	1979	1980	1981	1982	1983	1984	Total
Nursing	1 7.7 12.5	1 7.7 16.7	1 7.7 14.3	3 23.1 37.5	5 38.5 35.7	4 15.4 35.7	15 28.8 22.2
Sociological	2 18.2 25.0	1 9.1 16.7	1 9.1 14.3	- - -	5 36.4 28.6	5 27.3 33.3	14 27.0
Psychological	1 12.5 12.5	- - -	3 37.5 42.9	4 25.0 25.0	3 25.0 14.3	- - -	11 21.2
Others	- - -	2 50.0 33.3	- - -	1 25.0 12.5	1 25.0 7.1	- - -	4 7.7
None	4 25.0 50.0	2 12.5 33.3	2 12.5 28.6	- - -	- - -	- - -	8 15.3
Total	8 15.4	6 11.5	7 13.5	8 15.4	14 26.9	9 17.3	52 100.0

$$\chi^2 (20, N = 52) = 21.4676, p = .37$$

Sociological theory has increased from 25% in 1974 to 33.3% in 1984. A notable trend is the drastic decrease in relative frequency of dissertations using other, and no theoretical orientations. Chi-square yielded no significant statistical association between theoretical orientation and years surveyed. However, there is a trend toward the use of theoretical orientations to guide research and toward the use of nursing theory.

Data presented in Table 5 show the theoretical orientations of dissertations from Texas Woman's University (TWU). An examination of these data revealed an almost evenly distributed relative frequency in all theoretical orientations throughout the years surveyed. In 1984, the relative frequency had decreased in all theoretical orientations. Most notable was the decrease in relative frequency of dissertations that did not use theory to guide research.

As indicated in Table 5, 8 (13.3%) dissertations used a nursing orientation; 13 (21.7%) used a sociological orientation; 19 (31.7%) used a psychological orientation; 15 (25%) used other orientations from physiology (6), education (3), business (1), and five were investigator-developed theories. Chi-square revealed no significant statistical association between theoretical orientation and years surveyed.

Table 5

Theoretical Orientation of Dissertations by Year, Frequency, and Percent:
Texas Woman's University

Theoretical Orientation	1974	1975	1977	1978	1979	1980	1981	1982	1983	1984	Total
Nursing	-	-	-	-	1	-	1	1	4	1	8
	-	-	-	-	12.5	-	12.5	12.5	50.0	12.5	13.3
	-	-	-	-	16.7	-	14.3	11.1	40.1	9.1	
Sociological	-	-	-	2	2	2	-	4	-	3	13
	-	-	-	15.4	15.4	15.4	-	30.8	-	23.1	21.7
	-	-	-	40.0	33.3	40.0	-	44.4	-	17.3	
Psychological	-	1	3	1	2	1	2	2	3	4	19
	-	5.3	15.8	5.3	10.5	5.3	10.5	10.5	15.8	21.1	31.7
	-	50.0	75.0	20.0	33.3	20.0	28.6	22.2	30.0	36.4	
Others	-	1	1	-	-	2	3	2	3	3	15
	-	6.7	6.7	-	-	13.3	20.0	13.3	20.0	20.0	25.0
	-	50.0	25.0	-	-	40.0	42.0	22.0	30.0	27.3	
None	1	-	-	2	1	-	1	-	-	-	5
	20.0	-	-	40.0	20.0	-	20.0	-	-	-	8.3
	100.0	-	-	40.0	16.7	-	14.3	-	-	-	
Total	1	2	4	5	6	5	7	9	10	11	60
	1.7	3.3	6.7	8.3	10.0	8.3	11.7	15.0	16.7	18.3	100.0

χ^2 (36, N = 60) = 46, p = .11

The University of Maryland (UMA) graduated three scholars in 1984. The theoretical orientation of their dissertations include one sociological perspective (33.3%), one psychological perspective (33.3%), and one educational perspective (33.3%) (Table 6). No trend is discernible. In addition, no chi-square test was performed because only one year was reported.

Table 6
Theoretical Orientations by Year, Frequency,
and Percent: University of Maryland

Theoretical Orientations	Year 1984	Total
Sociological	1 100.0	1 33.3
Psychological	1 100.0	1 33.3
Other	1 100.0	1 33.3
Total	3 100.0	3 100.0

The theoretical orientation of dissertations written by scholars at Catholic University of America (CU) are displayed by data in Table 7. Analysis of these data indicate an increase in relative frequency of dissertations with a psychological orientation from 33.3% in 1975 to

Table 7

Theoretical Orientation of Dissertations by Year, Frequency, and Percent:
Catholic University

Theoretical Orientation	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Nursing	-	2	1	-	-	2	1	3	3	-	2	14
	-	14.2	7.2	-	-	14.2	7.2	21.4	21.4	-	14.2	17.0
	-	22.2	14.3	-	-	22.2	8.3	22.2	33.3	-	11.1	
Sociological	-	-	2	-	1	3	3	2	2	-	2	16
	-	-	12.5	-	6.2	18.7	18.7	12.5	12.5	-	12.5	19.5
	-	-	28.6	-	33.3	33.3	16.7	22.2	22.2	-	20.0	
Psychological	-	3	2	-	-	3	6	3	3	-	4	24
	-	17.5	8.3	-	-	12.5	30.0	12.5	12.5	-	16.6	29.2
	-	33.3	28.6	-	-	33.3	50.0	27.2	33.3	-	40.0	
Others	-	-	-	3	1	1	2	3	1	-	1	12
	-	-	-	25.0	8.3	8.3	16.7	25.0	8.3	-	8.3	14.6
	-	-	-	50.0	33.3	11.1	15.7	27.2	11.1	-	10.0	
None	4	4	2	3	1	-	-	-	-	2	-	16
	25.0	25.0	12.5	18.6	6.3	-	-	-	-	9.1	-	19.5
	100.0	44.4	28.5	50.0	33.3	-	-	-	-	100.0	-	
Total	4	9	7	6	3	9	12	11	9	2	10	82
	4.8	11.0	8.5	7.3	3.6	11.0	14.6	13.4	11.0	2.4	12.2	100.0

$$\chi^2 (40, \underline{N} = 82) = 54.20, p = .06632$$

40.0% in 1984. The relative frequency of dissertations with no theoretical orientations have decreased from 100 % in 1974 to 0% in 1984. A trend toward the use of theory to guide research and a psychological theoretical orientation of dissertations is noted.

Of the 82 dissertations from CU, 14 (17%) utilized nursing theory, 16 (19.5%) utilized sociological theory, and 24 (29.2%) utilized psychological theory as a framework to solve nursing problems. Twelve (14.6%) were from other disciplines including physiology (9), education (2), and business (1). The results of the chi-square indicated no significant statistical association between theoretical orientation and years surveyed.

Table 8 summarizes the association between theoretical orientations of the 280 dissertations and years surveyed. An examination of the data in this table indicates 43 (15.4%) dissertations had a nursing theoretical orientation; 65 (23.2%) had a sociological orientation; 65 (23.2%) had a psychological orientation; 65 (23.2%) used no theoretical orientation and 43 (15.4%) used theoretical orientations from other disciplines.

Table 9 combines data from dissertations with other theoretical orientations (43, 15.4%) and schools. Examination of the data in this table revealed that six (14%) were from business, 23 (53.4%) were from physiology,

Table 8

Summary Data and Chi-Square Test of Association for Question Category I: Theory and Year

Theoretical Orientation	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Nursing	-	2	2	-	-	4	2	5	8	12	8	43
	-	4.6	2.3	-	-	9.3	4.6	12.0	18.6	30.0	18.6	15.4
	-	16.6	22.2	-	-	50.0	8.0	15.6	25.0	26.0	14.5	
Sociological	-	-	2	2	3	7	5	5	12	12	17	65
	-	-	3.2	3.2	4.6	10.7	7.7	7.7	18.0	18.0	26.0	23.2
	-	-	22.2	12.5	18.8	25.0	20.0	15.6	37.6	24.0	30.9	
Psychological	-	5	2	4	1	6	7	8	7	8	14	65
	-	6.1	3.2	6.1	1.5	9.2	10.7	12.0	10.7	12.0	21.5	23.2
	-	41.6	22.2	25.0	6.3	21.4	29.2	25.0	21.8	16.0	25.0	
Others	-	1	-	4	3	3	7	8	4	8	5	43
	-	2.3	-	9.3	6.9	6.9	16.2	18.6	9.3	18.6	12.0	15.4
	-	8.3	-	56.3	18.8	10.7	25.0	25.0	12.5	16.0	9.3	
None	5	4	4	6	9	8	4	6	1	9	11	64
	7.8	6.2	6.2	9.3	14.0	12.5	6.2	9.3	1.5	14.0	17.1	22.8
	100.0	33.3	44.4	37.5	56.3	28.6	16.7	18.8	31.2	18.0	20.0	
Total	5	12	9	16	16	28	25	32	32	50	55	280
	1.7	4.2	3.2	5.7	5.7	10.1	8.9	10.0	11.4	17.8	19.6	100.0

$$\chi^2 (40, N = 280) = 60.59, p = .0193$$

$$V = .23$$

Table 9

Other Theoretical Orientation of Dissertations and School by Frequency
and Percent: 1974 - 1984

Theoretical Orientation	UTA	UAB	TWU	UMA	CU	Total
Business	2 33.3	2 33.3	1 16.7	- -	1 16.7	6 14.0
Physiology	6 26.0	2 8.8	6 26.0	- -	9 39.2	23 53.4
Biology	3 0.1	- -	- -	- -	- -	3 7.0
Education	- -	- -	3 50.0	1 16.7	2 33.3	6 14.0
Investigation developed	- -	- -	5 0.1	- -	- -	5 11.6
Total	11 25.5	4 9.3	15 35.0	1 2.3	12 28.0	43 100.0

$$\chi^2 (16, N = 43) = 33.22, p = .726$$

three (1%) were from biology, and five (11.6%) were theories developed by investigators. Chi-square indicated no significant statistical association between schools and the use of other theoretical orientations.

Analysis of data in Table 10 reveals that 43 (15.4%) dissertations had a nursing orientation. The schools in which nursing theory was used most often were the University of Alabama--15 (35%, n = 52) dissertations and Catholic University--14 (32.5%, n = 82) dissertations. A listing of nursing theories used in the dissertations by frequency and percent is found in Appendix C.

Sixty-five (23.2%) dissertations had a sociological orientation of which the largest portion 21 (32.3%) was from the University of Texas at Austin. Also, 65 (23.2%) dissertations had a psychological orientation. Of the schools that used a psychological orientation, Catholic University and Texas Woman's University had the largest portion, 24 (36.9%) and 19 (29.3%). Dissertations that did not use a theoretical orientation (64, 28%) were found among all schools with the exception of the University of Maryland. Over one-half (35, 54.7%) of the dissertations that did not use a theoretical orientation were from the University of Texas at Austin. Chi-square analysis of the data (Table 10) indicated a significant statistical association between theoretical orientation and schools;

Table 10

Summary Data and Chi-Square Test of Association for Question Category I:
Theory and School

Theoretical Orientation	UTA	UAB	TWU	UMA	CU	Total
Nursing	6 14.0	15 35.0	8 18.6	- -	14 32.5	43 15.4
Sociological	21 32.3	14 21.5	13 20.0	1 1.5	16 24.6	65 23.2
Psychological	10 15.4	11 16.9	19 29.3	1 1.5	24 36.9	65 23.2
Others	11 25.5	4 9.3	15 35.0	1 2.3	12 27.9	43 15.4
None	35 54.7	8 12.5	5 7.8	- -	16 25.0	64 22.8
Total	83 29.7	52 18.6	60 21.4	3 1.0	82 29.3	280 100.0

$$\chi^2 (16, N = 280) = 38.05, p = .0015$$

$$V = 0.185$$

therefore, these variables are dependent. Cramer's V indicated a low relationship between these variables.

Chi-square-goodness of fit test indicated that significant statistical differences exist in theoretical orientation of dissertations. Although these differences indicate heterogeneity in this category, the theoretical orientations are almost evenly distributed among the subcategories. No trend is discernible, however, a heavy reliance on theory other than nursing is noted (Table 11).

Question Category II: Methodology

This category encompasses two research questions. These questions are: Is nursing research empirical, empirical-theoretical, theoretical, or practice oriented? and What are the research characteristics of nursing dissertations?

Type of Dissertation

Research Question 2: Is Nursing research, empirical, empirical-theoretical, theoretical, or practice oriented? This question was analyzed using chi-square test of association and chi-square goodness of fit test. Analysis of this category distinguishes among dissertations that are empirical, empirical-theoretical, theoretical, or practice

Table 11
Chi-Square Goodness of Fit Test for
Question Category I: Theory

Theoretical Orientation	Cases		
	Observed	Expected	Residual
Nursing	43	55.40	-12.40
Sociological	65	55.40	9.60
Psychological	65	55.40	9.60
Other	43	55.40	-12.40
None	64	55.40	8.60
Total	280		

$$\chi^2 (4, N = 280) = 18.5, p = .001$$

oriented. Tables 12, 13, 14, 15, and 16 present the results of this analysis by schools and years.

Examination of the data shown in Table 12 indicates that practice oriented dissertations account for 40.4% of the total number ($n = 84$) with 29.7% occurring in the years 1983 and 1984. Twenty-six (31%) dissertations were empirical; 23 (27.4%) were empirical-theoretical, and 1 (1.2%) was theoretical. Chi-square revealed a significant statistical association between types of dissertation and year at the University of Texas at Austin. However, the

Table 12

Type of Dissertation by Year, Frequency, and Percent:
University of Texas at Austin

Type	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Empirical	2 7.7 100.0	3 11.5 50.0	3 11.5 37.5	3 11.5 60.0	- - -	3 11.5 33.3	1 3.8 16.7	4 15.4 16.7	7 26.9 30.4	26 31.0
Empirical- Theoretical	- - -	1 2.9 16.7	2 5.7 25.0	- - -	- - -	4 11.4 44.4	5 14.3 83.3	4 11.4 66.7	7 20.0 30.4	23 27.4
Theoretical	- - -	- - -	1 100.0 12.5	- - -	- - -	- - -	- - -	- - -	- - -	2 1.2
Practice Oriented	- - -	2 9.1 33.3	2 9.1 25.0	2 9.1 40.0	1 4.5 100.0	2 9.1 22.2	- - -	16 45.2 16.7	9 40.9 39.1	34 40.4
Total	2 2.4	6 7.1	8 9.5	5 6.0	1 1.2	9 10.7	6 7.1	24 28.6	23 27.4	84 100.0

$\chi^2 (24, N = 84) = 35.6, p = .05$
 $V = .376$

Table 13

Type of Dissertation by Year, Frequency, and Percent:
University of Alabama at Birmingham

Type	1979	1980	1981	1982	1983	1984	Total
Empirical	2 25.0 35.0	- - -	1 12.5 14.3	1 12.5 12.5	2 25.0 14.3	2 25.0 22.2	8 15.4
Empirical- Theoretical	1 4.5 12.5	4 18.2 66.7	2 9.1 28.6	4 18.2 50.0	7 31.8 50.0	4 18.2 44.4	22 42.3
Practice Oriented	5 22.7 62.5	2 9.1 33.3	4 18.2 57.1	3 13.6 37.5	5 22.7 35.7	3 13.6 33.3	22 42.3
Total	8 15.4	6 11.5	7 13.5	8 15.4	14 26.9	9 17.3	52 100.0

$\chi^2 (10, N = 52) = 6.49, p = .772$

Table 14

Type of Dissertation by Year, Frequency, and Percent:
Texas Woman's University

Type	1974	1975	1977	1978	1979	1980	1981	1982	1983	1984	Total
Empirical	1	-	-	2	1	-	-	-	-	-	4
	25.0	-	-	50.0	25.0	-	-	-	-	-	6.7
	100.0	-	-	40.0	16.7	-	-	-	-	-	
Empirical- Theoretical	-	1	1	1	2	2	3	6	7	10	33
	-	3.0	3.0	3.0	6.1	6.1	9.1	18.2	21.2	30.3	55.0
	-	50.0	25.0	20.0	33.3	40.0	42.9	66.7	70.0	90.9	
Practice Oriented	-	1	3	2	3	3	4	3	3	1	23
	-	4.3	13.0	8.7	13.0	13.0	17.4	13.0	13.0	4.3	38.3
	-	50.0	75.0	40.0	50.0	60.0	57.1	33.3	30.0	9.1	
Total	1	2	4	5	6	5	7	9	10	11	60
	1.7	3.3	6.7	8.3	10.0	8.3	11.7	15.0	16.7	18.3	100.0

$\chi^2 (18, N = 60) = 37.96, p = .0039$
 $V = .56$

relationship between type of dissertation and year is low as indicated by Cramer's V.

Analysis of data presented in Table 13 indicates an increase in empirical-theoretical dissertations from 1982 to 1984 accounting for 29% of the total in this category. however, both empirical-theoretical and practice oriented dissertations are equally distributed, 22 (42.3%) each. There were eight (15.4%) empirical dissertations and no dissertations occurred in the theoretical category. Chi-square test indicated no significant statistical association between type of dissertation and year at the University of Alabama at Birmingham.

As indicated in Table 14, empirical-theoretical dissertations (33 = 55%) accounted for more than one-half of the total number (n = 60). Of the empirical-theoretical dissertations, 28 (46%) were written between 1980-1984. Practice oriented dissertations totaled 23 (38.3%), and empirical totaled 4 (6.7%). The last empirical dissertation was written in 1979; no theoretical dissertations were written at TUW. Chi-square analysis indicated a significant statistical association between types of dissertations at Texas Woman's University and year. In addition, Cramer's V indicated a moderate relationship between type of dissertation and year.

Analysis of data presented in Table 15 indicates that at UMA, there were one (33.3%) empirical-theoretical dissertation and two (66.7%) practice oriented. Chi-square test was not performed because only one year was reported.

Table 15

Type of Dissertation by Year, Frequency, and Percent:
University of Maryland

Type	1984	Total
Empirical-Theoretical	1 100.0	1 33.3
Practice Oriented	2 100.0	2 66.7
Total	3 100.0	3 100.0

Examination of data presented in Table 16 indicates that 35 (42.6%) dissertations were practice oriented; 32 (39%), empirical theoretical; 14 (17%), empirical; and one (1.4%), theoretical. Chi-square revealed a significant statistical association between type of dissertation and year at Catholic University. A moderate relationship exists between the variables type of dissertation and year as ascertained by Cramer's V.

Tables 17, 18, and 19 summarize the data in subcategory 1 of Question Category II. Table 17 summarizes

Table 16

Type of Dissertation by Year, Frequency, and Percent: Catholic University

Type	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Empirical	2 14.3 50.0	1 7.1 11.1	1 7.1 14.3	3 21.4 50.0	- - 0	- - 0	1 7.1 7.7	- - -	1 7.1 11.1	2 14.3 100.0	3 21.4 33.3	14 17.0
Empirical- Theoretical	- - -	2 6.5 32.2	3 9.7 42.9	2 6.5 33.3	2 6.5 66.7	7 22.6 77.8	5 16.1 38.5	5 16.1 55.6	2 3.2 11.1	- - -	4 12.9 44.4	32 39.0
Theoretical	- - -	- - -	- - -	1 100.0 16.7	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1 1.4
Practice Oriented	2 5.9 50.0	6 17.6 66.7	3 8.8 42.9	- - -	1 2.9 33.3	2 5.9 22.2	7 10.6 53.8	4 11.8 44.4	8 20.6 77.8	- - -	2 5.9 22.2	35 42.6
Total	4 5.0	9 11.3	7 8.8	6 7.5	3 3.8	9 11.3	13 16.3	9 11.3	11 12.3	2 2.5	9 11.3	82 100.0

$$\chi^2 (30, N = 82) = 51.5, p = .0086$$

$$V = .46$$

Table 17

Summary Data and Chi-Square Test of Association for Question Category
 II: Subcategory, Type of Dissertation by School

Type of Dissertation	UTA	UAB	TWU	UMA	CU	Total
Empirical	26 50.0 31.0	8 15.4 15.4	4 7.7 6.7	- - -	14 26.9 17.5	52 18.6
Empirical- Theoretical	34 28.0 41.7	22 18.0 42.3	33 27.0 55.0	1 0.8 33.3	32 26.2 38.8	122 43.7
Theoretical	1 50.0 1.2	- - -	- - -	- - -	1 50.0 1.3	2 0.7
Practice Oriented	22 21.4 26.2	22 21.4 42.3	23 22.3 38.3	2 1.9 66.7	35 33.0 42.5	104 37.0
Total	83 29.7	52 18.6	60 21.5	3 1.1	82 29.3	280 100.0

$\chi^2 (12, N = 280) = 20.59, p = .05$
 $V = .157$

Table 18

Summary Data and Chi-Square Test of Association for Question Category II:
Methodology, Subcategory 1, Type of Dissertation by Year

Type of Dissertation	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Empirical	3	1	3	6	5	6	1	4	3	8	12	52
	5.8	1.9	5.8	11.5	9.6	11.5	1.9	7.7	5.8	15.4	23.1	18.6
	60.0	9.1	33.3	37.5	31.3	21.4	4.0	12.5	9.4	16.0	21.8	
Empirical- Theoretical	-	3	3	4	5	10	11	14	16	30	26	122
	-	2.5	2.5	3.3	4.1	8.2	9.0	11.5	13.1	24.6	21.3	43.7
	-	27.3	33.3	15.0	31.3	35.7	44.0	43.8	50.0	60.0	47.3	
Theoretical	-	-	-	1	1	-	-	-	-	-	-	2
	-	-	-	50.0	50.0	-	-	-	-	-	-	0.7
	-	-	-	6.3	6.3	-	-	-	-	-	-	
Practice Oriented	2	7	3	5	5	12	13	14	14	12	17	104
	1.9	6.8	2.9	4.9	4.9	11.7	12.6	13.6	13.6	11.7	16.5	37.0
	40.0	63.6	33.3	31.3	31.3	42.9	52.0	43.8	40.6	24.0	30.9	
Total	5	11	9	16	16	28	25	32	33	50	55	280
	1.8	3.9	3.2	5.7	5.7	10.0	9.0	11.5	11.5	17.9	19.7	100.0

$\chi^2 (30, N = 280) = 48.03, p = .019$
 $V = .239$

the data by schools and types of dissertations. Analysis of data in this table revealed that of the 280 dissertations, 52 (18.6%) were empirical; 122 (43.7%) were empirical-theoretical; 2 (.7%) were theoretical, and 104 (37%) were practice oriented.

The University of Texas at Austin had the largest number of both empirical and empirical-theoretical dissertations: 26 (50% of 52) and 32 (26.2% of 122), respectively. Catholic University had the largest number of practice oriented dissertations (35, 33%, $n = 104$). The University of Alabama and Texas Woman's University had the fewest empirical dissertations: 8 (15.4% of 52) and 4 (7.7% of 52), respectively. Chi-square analysis of the data indicated a significant statistical association between type of dissertations and school; however, Cramer's V indicated a low relationship between these variables.

Over an eleven year period, 52 (18.6%) dissertations were empirical in nature. Moreover, 28 (53.8% of 52) were written between 1980-1984. There were 122 (43.7%) empirical-theoretical dissertations of which an increase in relative frequency is noted from 1975-1984 (2.5% to 23%). An upward trend is seen in 1979 and has continued throughout the years studied. Dissertations of a theoretical nature are consistently scarce throughout the years studied; only 2 (7%) of the total ($n = 280$) fell

within this category. Practice oriented dissertations (104, 37%) have increased in relative frequency throughout the years surveyed. An upward trend is noted in 1979 (11.7%) and has steadily increased to 1984 (16.5%). Chi-square revealed a significant statistical association between type of dissertation and year. Cramer's V indicates a low relationship between these variables (Table 18).

The chi-square goodness of fit test indicates a significant statistical difference in the category types of dissertations. The indications are that a trend and consensus are emerging toward the use of empirical-theoretical and practice oriented research. Table 19 presents the summary data of the chi-square goodness of fit test.

Research question three was "What are the research characteristics of nursing dissertations?" The research characteristics are reported according to subcategories (a) purpose of research, (b) source of data collection, (c) sample size, (d) research strategy, (e) type of sampling, (f) population studied, and (g) ethnic population studied. This question was analyzed using the chi-square tests of association and goodness of fit.

Table 19
Chi-Square Goodness of Fit Test
for Type of Dissertation

Category	Cases		Residual
	Observed	Expected	
Empirical	52	55.80	- 3.80
Empirical-Theoretical	122	55.80	66.20
Theoretical	2	55.80	-53.80
Practice Oriented	104	55.80	48.20
Total	280		

$$\chi^2 (3, N = 280) = 215.6, p = .0001$$

Purpose of Research

Chi-square analysis of the data in Table 20 indicated no significant statistical association between research purposes of the dissertations and the years surveyed. Therefore, the variables purpose of research and year are independent.

In examining the purpose of each of the studies, the largest number 109 (39.1%) were conducted for a combination of purposes--explaining, describing, gaining insights and ideas, and testing relationships between variables. Of the 109 studies, 60 (55%) were descriptive/explanatory, and 49 (45%) were descriptive/exploratory in nature. The number

of exploratory studies conducted were 72 (25.8%); descriptive studies were 62 (22.2%); explanatory studies were 30 (10.7%). Studies conducted for the purpose of tool development were five (1.8%) and studies conducted for other purpose were two (.7%) of which both were extensive reviews of the literature and one had a philosophical orientation.

A chronological analysis of the data in Table 20 indicated a decrease in relative frequency in studies of an exploratory nature from 1974 (60%) to 1982 (9.4%). In 1983 and 1984, the relative frequency increased to 38% and 38.2%, respectively. Studies of a descriptive nature have shown stability in relative frequency from 1974 (33.3%) to 1982 (21.3%) and then began to decline in 1983 (14.0% and 1984 (12.7%). Explanatory studies have shown a steady decrease in relative frequency from 1974 (20%) to 1984 (7.3%) with fluctuating frequencies (6.3% to 18.8%) between these time periods. Studies with a combination of purposes have increased in relative frequency since 1974 (20%) with the largest increases occurring in 1980 (48%), 1981 (54%), and 1982 (56.3%), decreasing in 1983 (28%), and up again in 1984 (40%). Studies conducted for the purpose of tool development are scarce throughout the years surveyed but have increased from 1979 (1) to 1983 (2).

Table 20

Summary Data and Chi-Square Test of Association for Purpose of Research and Year

Purpose of Research	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Exploratory	3 4.2 60.0	5 6.9 41.7	3 4.2 33.3	5 6.9 31.3	5 6.9 31.3	2 2.8 7.1	3 4.2 12.0	3 4.2 9.7	3 4.2 9.4	19 26.4 38.0	21 29.2 38.2	72 25.8
Descriptive	- - -	4 6.5 33.3	3 4.8 33.3	6 9.7 37.5	4 6.5 25.0	9 14.5 32.1	8 11.3 28.0	5 8.1 16.1	10 16.1 31.3	8 11.3 14.0	8 11.3 12.7	62 22.2
Explanatory	1 3.4 20.0	- - -	1 3.4 11.1	1 3.4 6.3	3 10.3 18.8	3 10.3 10.7	3 10.3 12.0	4 13.8 12.9	1 3.4 3.1	8 27.6 16.0	4 13.8 7.3	30 10.7
Combination of Purposes	1 0.9 20.0	3 2.8 25.0	2 1.8 22.2	4 3.7 25.0	4 3.7 25.0	12 11.0 42.9	12 11.0 48.0	17 15.6 54.8	18 16.5 56.3	15 12.4 28.0	22 20.2 40.0	109 39.1
Tool Development	- - -	- - -	- - -	- - -	- - -	1 20.0 3.6	- - -	2 40.0 6.5	- - -	2 40.0 4.0	- - -	5 1.8
Other	- - -	- - -	- - -	- - -	- - -	1 50.0 3.6	- - -	- - -	- - -	- - -	1 50.0 1.8	2 0.7
Total	5 1.8	12 4.3	9 3.2	16 5.7	16 5.7	28 10.0	25 9.0	31 11.1	32 11.5	51 17.9	55 19.7	280 100.0

$$\chi^2 (50, \underline{N} = 280) = 64.3, p = .083$$

Chi-square test was used to determine the association between research purposes of the dissertations and schools. Data presented in Table 21 indicate no statistical significant association between the purpose of research and schools. Therefore, the variables school and purpose of research are independent.

In examining the data in Table 21, the University of Texas at Austin conducted the largest number of exploratory (24, 33.3%), descriptive (25, 40.3%), and explanatory (12, 44.8%) studies. Catholic University conducted the second highest number of studies with exploratory (22, 30.6%), descriptive (13, 21%), and explanatory (8, 24.1%) purposes. The majority of studies with a combination of purposes were conducted at Catholic University (38, 34.9%). Texas Woman's University conducted 30 (27.6%) studies with a combination of purposes; the University of Texas at Austin conducted 21 (19.3%), and the University of Alabama at Birmingham conducted 19 (17.4%). Studies conducted for the purpose of tool development were from the University of Alabama at Birmingham (2, 40%), Texas Woman's University (2, 40%), and Catholic University (1, 20%). Two studies with other purposes were conducted at the University of Texas at Austin (1, 50%) and the University of Alabama (1, 50%).

Table 21

Summary Data and Chi-Square Test of Association for Purpose of
Research and Schools

Purpose of Research	UTA	UAB	TWU	UMA	CU	Total
Exploratory	24	15	10	1	22	72
	33.3	20.8	13.9	1.4	30.6	25.8
	28.6	29.4	16.7	33.3	27.2	
Descriptive	25	11	12	1	13	62
	40.3	17.7	19.4	2.6	21.0	22.2
	29.8	21.6	20.0	33.3	16.0	
Explanatory	12	4	6	-	8	30
	44.8	10.3	20.7	-	24.1	10.7
	15.5	5.9	10.0	-	8.6	
Combination of Purposes	21	19	30	1	38	109
	19.3	17.4	27.5	.9	34.9	39.1
	7.5	6.8	10.8	.4	13.6	
Tool Development	-	2	2	-	1	5
	-	40.0	40.0	-	20.0	1.8
	-	3.9	3.3	-	1.2	
Other	1	1	-	-	-	2
	50.0	50.0	-	-	-	.7
	1.2	2.0	-	-	-	
Total	83	52	60	3	82	280
	29.7	18.6	21.5	1.1	29.3	100.0

$$\chi^2 (20, N = 280) = 23.6, p = .256$$

Chi-square goodness of fit test indicated significant differences in the subcategory, purpose of research. Therefore this subcategory is heterogeneous and no consensus exist. A trend toward the use of a combination of purposes to conduct research and an area of neglect, tool development and explanation studies, are discernable (Table 22).

Table 22

Chi-Square Goodness of Fit Test for the
Subcategory, Purpose of Research

Purpose of Research	Cases Observed	Cases Expected	Residual
Exploratory	72	46.50	25.50
Descriptive	62	46.50	15.50
Explanatory	30	46.50	-17.50
Combination of Purposes	109	46.50	62.50
Tool Development	5	46.50	-41.50
Other	2	46.50	-44.50
Total	280		

$$\chi^2 (5, N = 280) = 189.3, p = .0001$$

Source of Data Collection

Chi-square test, indicated no significant association between the source of data collection and the years surveyed; therefore, these variables are independent. These data are presented in Table 23. Further analysis of the data in Table 23 reveal that the questionnaire is the major source of primary data collection, 167 (62.5%) of the 267 dissertations. The use of observation and interview or questionnaire (39, 14.6%) was second, and observation was third (21, 7.9%) of which 15 (71.4% of 21) were nonparticipant and six (28.6%) were participant. The interview technique (19, 7.1%) was fourth followed closely by the use of questionnaire and interview (17, 6.4%). Other sources of data collection (4, 1.5%) were limited to equipment, such as biofeedback machines and oxygen analysis, which measures physical parameters. Chi-square test to determine the association between source of data collection in school revealed no statistical significant relationship [χ^2 (20, N = 267) = .49] between these variables.

Of the researchers using secondary data (13, 4.6%, N = 280), 12 made use of more than one source. Included in this source of data collection were various combinations of school records, census data, literature reviews, and survey information. One researcher used only literature as a

Table 23

Summary Data and Chi-Square Test of Association for Primary Source of Data
Collection and Year

Source of Data Collection	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Questionnaire	2	7	4	11	11	14	14	20	19	31	34	167
	1.2	4.2	2.4	6.6	6.6	8.4	8.4	12.0	11.4	18.6	20.3	62.5
	40.0	58.3	44.4	68.8	73.3	56.0	56.0	69.0	63.3	64.6	64.2	
Interview	1	1	-	-	1	1	2	1	-	7	5	19
	5.3	5.3	-	-	5.3	5.3	10.5	5.3	0	36.8	26.3	7.1
	20.0	8.3	-	-	6.7	4.0	8.0	3.4	-	14.6	9.4	
Questionnaire and Interview	-	1	1	1	1	2	4	3	2	1	1	17
	-	5.9	5.9	5.9	5.9	11.8	23.5	17.6	11.8	5.9	5.9	6.4
	-	8.3	11.1	6.3	6.7	8.0	16.0	10.3	6.7	2.1	1.9	
Observation	-	-	2	2	1	3	2	1	2	5	3	21
	-	-	9.5	9.5	4.8	14.3	9.5	4.8	9.5	23.8	14.3	7.9
	-	-	22.2	12.5	6.7	12.0	8.0	3.4	6.7	10.4	5.7	
Observation and Interview or Questionnaire	2	3	2	2	1	3	3	3	6	4	10	39
	5.1	7.7	5.1	5.1	2.6	7.7	7.7	7.7	15.4	10.3	25.6	14.6
	40.0	25.0	22.2	12.5	6.7	12.0	12.0	10.3	20.0	8.3	18.9	
Other	-	-	-	-	-	2	-	1	1	-	-	4
	-	-	-	-	-	50.0	-	25.0	25.0	-	-	1.5
	-	-	-	-	-	8.0	-	3.4	3.3	-	-	
Total	5	12	9	16	15	25	25	29	30	48	53	267
	1.9	4.5	3.4	6.0	5.6	9.4	9.4	10.9	11.2	18.0	19.9	100.0

$$\chi^2 (50, N = 267) = 45, p = .67$$

source of data collection for a study. This study was an extensive literature review dealing with a specific topic. Chi-square test indicated a statistical significant association between source of secondary data and years surveyed; therefore, these variables are not independent of each other. Cramer's V indicates a low relationship between these variables. These data are presented in Table 24.

A chronological analysis of the data in Tables 23 and 24 indicated a preference for the use of primary data and a shift toward the use of questionnaires as a source of data collection. The relative frequency of questionnaires as a source of data collection has increased from 40% in 1974 to 64.2% in 1984, and fluctuating at various time periods from a high of 73.3% in 1978 to a low of 56% in 1979 and 1980. Another notable change is the decrease in relative frequency of all the other primary sources of data collection during the years surveyed.

Chi-square goodness of fit test indicated significant statistical differences in the subcategory source of data collection. Therefore, this subcategory is heterogeneous and no consensus exist. However, a trend toward the use of questionnaires is noted, and negligible use of other important data collection sources, especially observation, is discernable (Table 25).

Table 24

Summary Data and Chi-Square Test of Association for
Secondary Source of Data Collection and Year

Source of Data Collection	1978	1979	1981	1982	1983	1984	Total
Records,	-	-	1	-	-	-	1
Literature,	-	-	100.0	-	-	-	7.1
Surveys	-	-	100.0	-	-	-	
More than one	1	3	2	2	2	2	12
source	8.3	25.1	15.4	16.6	16.6	16.6	92.9
	100.0	100.0	100.0	100.0	100.0	100.0	
Total	1	3	3	2	2	2	13
	7.6	23.0	23.0	15.3	15.3	15.3	100.0

$\chi^2 (6, N = 13) = 14.0, p = .0296$
 $V = .13$

Table 25

Chi-Square Goodness of Fit Test for the Subcategory,
Primary Source of Data Collection

Sources of Data Collection	Cases		
	Observed	Expected	Residual
Questionnaire	167	44.50	122.50
Interview	19	44.50	- 25.50
Questionnaire and Interview	17	44.50	- 27.50
Observation	21	44.50	- 23.50
Observation and Interview or Questionnaire	39	44.50	- 5.50
Other	4	44.50	- 40.50
Total	267		

$$\chi^2 (5, N = 267) = 418, p = .0001$$

Sample Size

The smallest sample size reported was in a case study using one subject. The largest sample size reported was in an exploratory study using over 1500 participants. One study, an extensive review of the literature, did not report sample size.

An inspection of the data in Table 26 indicate that the most frequent sample size used was one of 30-100. Of

Table 26

Summary Data and Chi-Square Test of Association for Sample Size and Year

Sample Size	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
30 or less	3 4.2 60.0	6 8.5 50.0	6 8.5 66.7	5 7.0 31.3	3 4.2 18.8	10 14.1 35.7	7 9.9 28.0	2 2.8 6.5	6 8.5 18.8	12 16.9 24.0	11 15.5 20.0	71 25.4
31 - 100	- - -	6 4.9 50.0	- - -	8 6.5 50.0	11 8.9 68.8	11 8.9 39.3	11 8.9 44.0	12 9.8 38.7	14 11.4 43.8	20 16.3 40.0	30 24.4 54.5	123 44.1
101 - 500	2 2.7 40.0	- - -	2 2.7 22.2	3 4.1 18.8	1 1.4 6.3	7 9.6 2.0	7 9.6 28.0	14 19.2 45.2	10 13.7 31.3	16 21.9 32.0	11 15.1 20.0	73 26.2
501 - 1,000	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1 14.3 3.2	2 28.6 6.3	1 14.3 2.0	3 42.9 5.5	7 2.5
Other	- - -	- - -	1 20.0 11.1	- - -	1 20.0 6.3	- - -	- - -	2 40.0 6.5	- - -	1 20.0 2.1	- - -	5 1.8
Total	5 1.8	12 4.3	9 3.2	16 5.7	16 5.7	28 10.0	25 9.0	31 11.1	32 11.5	50 17.9	55 19.7	279 100.0

$\chi^2 (40, N = 279) = 61.06, p = .017$
 $V = .23$

the total dissertations studied, the investigators used this sample size in (122) 44.1% of the studies. A chronological analysis revealed the relative frequency of this sample size to be consistently higher than any other throughout the years studied with the exception of the year 1981.

A sample size of 30 or less was used 71 times (25.4%) and has decreased in relative frequency from 1974 (60%) to 1984 (20%). The lowest peak in relative frequency occurred in 1981 (6.5%). The sample size 101-500 was used 73 (26.2%) times. An examination of the relative frequency of this sample size indicated periods of extreme fluctuations from 1974 (40%) to 1978 (6.3%). It began to increase in 1974 (25%), reached a peak of 45.2% in 1981, and then began to decline again to 20% in 1984. The peak in relative frequency of this sample size in 1981 (45.2%) may account for the decreased relative frequency in the sample sizes of 31-100 and 30 or less in that same year.

From 1981 to 1984, the sample size 501-1000 was used seven (2.5%) times. The relative frequency of this sample size has increased from 1981 (3.2%) to 1984 (5.5%). Other sample sizes (5, 1.8%) included two samples of 1,100, two of 1,200, and one of 1,500.

Chi-square analysis of the data indicated a significant statistical association between sample size and

the years studied; therefore, these variables are dependent. Cramer's V indicated a low relationship between sample size and year.

The chi-square test of association showed no significant statistical relationship between sample sizes and schools. However, as indicated by the data in Table 27, dissertations from CU used a sample size of 30 or less (24, 33.3%) more often than other schools. A sample size of 31-100 was used most frequently in dissertations from UTA (34, 27.6%). Following UTA closely in this category were TWU and CU, each with 33 (26.8%) dissertations using a sample size of 31-100. Both UTA and CU had dissertations that used the largest portion of sample size, 101-500 (21, 28.8% each). In the category 501-1,000, UTA had four (57.1%). Sample sizes over 1,000 were found in dissertations from UTA (3, 60%) and CU (2, 40%).

Chi-square goodness of fit test showed significant statistical differences in the subcategory of sample size. Therefore, this subcategory is heterogeneous and no consensus exist. Trends toward the use or over use of a sample size of 31 to 100 and the infrequent use of larger sample sizes are noted. These data are presented in Table 28.

Table 27

Summary Data and Chi-Square Test of Association for Sample Size and School

Sample Size	UTA	UAB	TWU	UMA	CU	Total
30 or less	21 29.6 25.3	15 21.1 28.8	11 15.5 18.3	- - -	24 33.8 29.6	71 25.4
31 - 100	34 27.6 41.0	20 16.3 38.5	33 26.8 55.0	3 2.4 100.0	33 26.8 40.7	123 44.1
101 - 500	21 28.8 25.3	16 21.9 30.8	15 20.5 25.0	- - -	21 28.8 25.9	73 26.2
501 - 1,000	4 57.1 4.8	1 14.3 1.9	1 14.3 1.7	- - -	1 14.3 1.2	7 2.5
Other	3 60.0 3.6	- - -	- - -	- - -	2 40.0 2.5	5 1.8
Total	83 29.7	52 18.6	60 21.5	3 1.1	81 29.0	279 100.0

$$\chi^2 (16, \underline{N} = 279) = 14, p = .52$$

Table 28
Chi-Square Goodness of Fit Test for
Subcategory: Sample Size

Sample Size	Cases		
	Observed	Expected	Residual
30 or less	71	55.80	15.20
31 - 100	123	55.80	67.20
101 - 500	73	55.80	17.20
501 - 1,000	7	55.80	-48.80
Other	5	55.80	-50.80
Total	279		

$$\chi^2 (4, N = 279) = 179.3, p = .0001$$

Research Strategy

The chi-square test of association showed no significant statistical association between research strategy and the years studies (Table 29). Therefore, no relationship exists between these variables. An analysis of the data indicates that only a small percentage of research designs used multivariate analysis (15.1%) or experimental techniques (19.3%) as compared to the not applicable category. However, the not applicable category has decreased in relative frequency from 1973 (100%) to 1984 (70.3%).

Table 29

Summary Data and Chi-Square Test of Association for Research Strategy and Year

Research Strategy	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Experimental	-	4	1	4	2	6	8	7	5	5	12	54
	-	7.4	1.8	7.4	3.7	11.1	27.7	12.9	9.2	9.3	22.2	19.3
	-	33.3	11.1	25.0	12.5	22.2	32.0	21.9	15.6	9.6	22.2	
Multivariate Analysis	-	3	1	3	4	2	3	5	7	10	4	42
	-	7.1	2.4	7.1	9.5	4.8	7.1	11.9	16.7	23.8	9.5	15.1
	-	25.0	11.1	18.8	25.0	7.4	12.0	15.6	21.9	19.3	7.4	
Not applicable	5	5	7	9	10	19	14	20	20	37	38	184
	2.7	2.7	3.8	4.9	5.4	10.3	7.6	10.9	10.9	20.0	20.6	66.2
	100.0	41.7	77.8	56.3	62.5	70.4	56.0	62.5	62.5	71.1	70.3	
Total	5	12	9	16	16	27	25	32	32	52	54	280
	1.8	4.3	3.2	5.8	5.8	9.7	9.0	11.5	11.5	18.6	19.2	100.0

 $\chi^2 (30, N = 280) = 28.15, p = .562$

Most of the dissertations examined compared the responses or characteristics of various groups and did not, or could not, control for different variables through statistical manipulations. The experimental research designs were found mainly in studies with a social, psychological, educational orientation.

Chi-square test of association showed no significant statistical association between type of research strategy and school. As indicated in Table 30, experimental designs were used most often at TWU (19, 35.1%, $n = 54$) and multivariate analysis most often at CU (14, 33.2%, $n = 42$). Studies that did not control for different variables (60, 32.6%, $n = 184$) were most often from UTA.

Chi-square goodness of fit indicated a significant statistical difference in research strategies. This subcategory is heterogeneous; therefore, no consensus exist among scholars regarding the nature of research designs. A trend is noted, however, toward the rise or over use of strategies that do not control for variables. The use of experimental and multivariate analysis to control for variables appear to be under used as a research strategy in nursing dissertations. Table 31 presents the chi-square goodness of fit test for research strategy.

Table 30

Summary Data and Chi-Square Test of Association for Research
Strategy and School

Research Strategy	UTA	UAB	TWU	UMA	CU	Total
Experimental	12 23.5 14.3	10 18.5 18.5	19 35.1 32.2	- - -	13 24.0 16.0	54 19.3
Multivariate Analysis	12 28.6 14.3	8 19.0 15.0	7 16.7 11.9	1 2.4 33.3	14 33.3 17.3	42 15.1
Not Applicable	60 32.6 71.4	36 19.6 66.6	32 17.4 54.2	2 1.1 66.7	54 29.3 66.7	184 66.2
Total	84 30.2	54 19.2	59 21.2	3 1.1	81 30.0	280 100.0

$\chi^2 (11, \underline{N} = 280) = 15.16, p = .232$

Table 31

Chi-Square Goodness of Fit Test for the
Subcategory: Research Strategy

Research Strategy	Cases		Residual
	Observed	Expected	
Experimental	54	69.50	- 15.50
Multivariate Analysis	42	69.50	- 27.50
Not applicable	184	69.50	114.50
Total	280		

$$\chi^2 (2, N = 280) = 271.95, p = .0001$$

Type of Sampling

Of the 280 dissertations, 76 (27.1%) used a probability sample; 198 (70.7%) used nonprobability samples; four (1.4%) used a combination of probability and nonprobability samples; two (0.7%) indicated no sampling procedures and no studies used the total population (Table 32). An examination of the data indicated that the relative frequency of all sampling techniques have fluctuated throughout the years studied. Chi-square test yielded a significant association between sampling techniques and years studied. The computation of Cramer's V indicated a low relationship between these variables.

Table 32

Summary Data and Chi-Square Test of Association for Type of Sampling and Year

Type of Sampling	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Probability	-	6	2	7	5	7	10	14	10	7	8	76
	-	7.8	2.6	9.2	6.5	9.2	13.1	18.4	13.1	9.2	10.5	27.1
	-	50.0	22.2	31.3	31.3	25.0	40.0	45.2	31.3	14.0	14.5	
Nonprobability	5	6	7	9	10	21	15	16	20	43	36	198
	2.5	3.0	3.5	4.5	5.0	10.6	7.6	8.0	10.1	21.7	23.2	70.7
	100.0	50.0	55.6	56.3	62.5	67.9	60.0	51.6	60.6	86.0	83.6	
Both probability and nonprobability	-	-	-	-	-	-	-	-	3	-	1	4
	-	-	-	-	-	-	-	-	75.0	-	25.0	1.4
	-	-	-	-	-	-	-	-	9.0	-	1.8	
No indication	-	-	-	-	1	-	-	1	-	-	-	2
	-	-	-	-	50.0	-	-	50.0	-	-	-	0.7
	-	-	-	-	6.1	-	-	3.2	-	-	-	
Total	5	12	9	16	16	28	25	31	33	50	55	280
	1.7	4.3	3.2	5.7	5.7	10.0	8.9	11.0	11.9	17.8	19.6	100.0

$$\chi^2 (30, N = 280) = 62.0408, p = .0005$$

$$V = .272$$

Table 33

Summary Data and Chi-Square Test of Association for
Type of Sampling and School

Type of Sampling	UTA	UAB	TWU	UMA	CU	Total
Probability	22 28.9 26.5	9 11.8 17.3	24 31.5 40.0	- - -	21 27.6 25.6	76 27.1
Nonprobability	56 28.2 67.4	43 21.7 82.6	37 18.6 62.0	3 1.5 100.0	60 30.0 73.0	198 70.7
Both probability and nonprobability	4 100.0 4.8	- - -	- - -	- - -	- - -	4 1.4
No indication	1 50.0 1.2	- - -	- - -	- - -	1 50.0 1.2	2 0.7
Total	83 29.6	52 18.6	60 21.4	3 3.8	82 29.0	280 100.0

$\chi^2 (12, N = 280) = 29.26, p = .0036$
 $V = .187$

There was a significant statistical relationship between schools and type of sampling techniques used in dissertations, $\chi^2 (12, N = 280) = 29, p = .0036$. Computation of Cramer's V indicated that this was a low relationship, $V = .187$. Table 33 presents these data. As indicated by these data, dissertations from TWU used slightly more probability sampling (24, 31.5%, $n = 76$) than those from other schools. In this same category UTA had 22 (28.9%) and CU had 21 (27.6%) dissertations. Nonprobability sampling was used most often in dissertations from CU (60, 30%, $n = 198$) and UTA (56, 28.2%). Dissertations that used a combination of both probability and nonprobability sampling were from UTA (4, 100%).

Chi-square goodness of fit yielded a significant statistical difference in types of sampling. Therefore, this subcategory is heterogeneous, and consensus does not exist. A trend is noted toward the frequent use of nonprobability sampling and the infrequent use of other sampling techniques. Table 34 presents the data of this analysis.

Population Studied

The most frequently studied population was adults (204, 73.4%). The least studied populations are infants

Table 34

Chi-Square Goodness of Fit Test for the
Subcategory: Type of Sampling

Type of Sampling	Cases		Residual
	Observed	Expected	
Probability	76	69.75	6.25
Nonprobability	198	69.75	128.25
Both probability and nonprobability	4	69.75	- 65.75
No indication	2	69.75	- 63.75
Total	280		

$$\chi^2 (3, N = 280) = 322.4$$

(2, .7%) and children (7, 2.5%). Studies with an elderly population were 18 (6.5%); those with an adolescent population were 17 (6.1%); and those with a mixed population were 30 (10.8%). Included in the mixed population were 22 studies that used families as the unit of analysis. In addition, six studies encompassed various age groups as samples.

Chronological analysis of the data in Table 35 revealed that from 1981 to 1984 there was an increased interest in the study of children, adolescents, and the elderly. In addition, the adult population studied doubled

from 11 in 1978 to 22 in 1979 and has steadily increased throughout the years studied. However, this population does not include all clients, but also students and professionals as subjects. Chi-square test of association indicated no significant statistical relationship between population studied and years surveyed. These data are presented in Table 35.

There is no statistical relationship between population studied and schools. Analysis of data in Table 36 revealed that the schools with the greatest number of graduates, UTA, TWU, and CU, studied adolescents, adults, elderly, and other populations more than the other schools. Children were studied more at UAB (57.1%), and the study of infants was equally divided between UTA (50.0%) and TWU (50.0%).

Chi-square goodness of fit test yielded a significant statistical difference in the subcategory of population studied. Therefore, this subcategory is heterogeneous and no consensus exist. A trend toward the study of adult populations is noted, and infants, children, adolescents, the elderly, and families are understudied. These data are presented in Table 37.

Table 35

Summary Data and Chi-Square Test of Association for Population and Year

Population Studied	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Infants	-	-	-	1	-	-	1	-	-	-	-	2
	-	-	-	50.0	-	-	50.0	-	-	-	-	0.7
	-	-	-	6.3	-	-	4.0	-	-	-	-	
Children	-	-	-	1	-	-	-	1	1	1	3	7
	-	-	-	14.3	-	-	-	14.3	14.3	14.3	42.9	2.5
	-	-	-	6.3	-	-	-	3.1	3.2	2.0	5.5	
Adolescents	-	-	-	1	1	-	-	-	5	3	7	17
	-	-	-	5.9	5.9	-	-	-	29.4	17.6	41.2	6.1
	-	-	-	6.3	6.7	-	-	-	16.1	5.8	12.7	
Adults	5	10	8	13	11	22	21	26	21	33	34	204
	2.5	4.9	3.9	6.4	5.4	10.8	10.3	12.7	10.3	16.2	16.7	73.4
	100.0	83.3	88.9	81.3	73.3	81.5	84.0	81.3	67.7	44.7	61.8	
Elderly	-	1	-	-	1	1	2	2	2	5	4	18
	-	5.6	-	-	5.6	5.6	11.1	11.1	11.1	27.8	11.1	6.5
	-	8.3	-	-	6.7	3.7	8.0	6.3	6.5	10.0	7.3	
Other	-	1	1	-	2	4	1	3	2	9	7	30
	-	3.3	3.3	-	6.7	13.3	3.3	10.0	6.7	30.0	13.3	10.8
	-	8.3	11.1	-	13.3	14.8	4.0	9.4	6.5	17.6	12.7	
Total	5	12	9	16	15	27	25	32	31	51	55	278
	1.8	4.3	3.2	5.8	5.4	9.7	9.0	11.5	11.1	18.3	19.8	100.0

 $\chi^2 (50, N = 278) = 48.41, p = .547$

Table 36
Summary Data and Chi-Square Test of Association
for Population Studied and School

Population Studied	UTA	UAB	TWU	UMA	CU	Total
Infants	1 50.0	- 0	1 50.0	- 0	- 0	2 0.7
Children	- -	4 57.1	2 28.6	- -	1 14.3	7 2.5
Adolescents	3 18.8	3 18.8	5 31.3	- -	6 32.2	17 6.7
Adults	58 28.4	37 18.1	43 21.1	3 1.5	63 30.9	204 73.6
Elderly	7 38.9	3 16.7	2 11.1	- -	6 33.3	18 6.5
Others	13 43.3	4 13.3	7 23.3	- -	6 20.0	30 10.8
Total	82 29.4	51 18.3	60 21.5	3 1.0	82 30.5	278 100.0

$\chi^2 (20, N = 278) = 18.00, p = .597$

Table 37

Chi-Square Goodness of Fit Test for the
Subcategory: Population Studied

Population Studied	Cases		
	Observed	Expected	Residual
Infants	2	46.17	- 44.17
Children	7	46.17	- 39.17
Adolescents	17	46.17	- 29.17
Adults	204	46.17	157.83
Elderly	18	46.17	- 28.17
Other	30	46.17	- 16.17
Total	278		

$$\chi^2 (5, N = 278) = 418.78, p = .0001$$

Ethnic Population Studied

A mixed ethnic group (192, 69.0%) was the most frequently studied population. The relative frequency of studies in this category has increased from 1974 (20%) to 1984 (76.5%). However, most of the mixed ethnic groups studied were not representative of the population distribution. The least frequently studied ethnic groups were hispanics (3, 1.0%), Blacks (13, 4.7%), and others (7, 2.5%) of which 100% were Asians. With the exception of Asians, the relative frequency of studies investigating

minority populations has decreased. The relative frequency of studies investigating Blacks was 12.5% in 1975 decreasing to 3.9% in 1984; hispanics, 5.5% in 1978 decreasing to 2.2% in 1983. Chi-square test of association showed no significant statistical relationship between ethnic population studied and years surveyed. These data are summarized in Table 38.

There is no statistical significant relationship between ethnic population studied and school. An examination of the data in Table 39 revealed that studies investigating Blacks were conducted most often at UAB (5, 38.%%), those investigating whites at CU (24, 30%), and those investigating hispanics at TWU (2, 66.7%). The University of Texas at Austin conducted the most studies investigating mixed groups and the Asian population.

Chi-square goodness of fit yielded significant statistical differences in the subcategory of ethnic population studied. Therefore, this category is heterogeneous and no consensus exist. However, a trend toward the use of mixed groups in research is noted, and studies investigating problems of minority populations are understudied (Table 40).

Table 38

Summary Data and Chi-Square Test of Association for Ethnic Population and Year

Ethnic Population Studied	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Black	-	2	2	1	2	-	2	-	2	-	2	13
	-	15.3	15.3	8.0	13.3	0	15.3	0	15.3	0	15.3	4.7
	-	12.5	20.0	6.3	11.1	0	7.3	-	6.5	-	3.9	
White	4	6	3	5	6	7	7	6	4	8	7	63
	6.3	9.5	4.8	8.0	9.5	11.1	11.1	9.5	6.5	12.7	11.1	22.7
	80.0	37.5	30.0	31.3	33.3	24.0	25.9	19.4	12.9	17.4	13.7	
Hispanic	-	-	-	-	1	-	1	-	-	1	-	3
	-	-	-	-	33.3	-	33.3	-	-	33.3	-	1.0
	-	-	-	-	5.5	-	3.7	-	-	2.2	-	
Mixed	1	6	5	10	9	22	16	23	25	36	39	192
	0.5	3.1	2.6	5.2	4.7	11.5	8.3	12.0	13.0	18.8	20.3	69.0
	20.0	37.5	50.0	62.5	50.0	75.9	59.3	74.1	80.6	78.3	76.5	
Other	-	-	-	-	-	-	1	2	-	1	3	7
	-	-	-	-	-	-	14.3	28.6	-	14.3	42.9	2.5
	-	-	-	-	-	-	3.7	6.5	-	2.2	5.9	
Total	5	14	10	16	18	29	27	31	31	46	51	278
	1.7	5.0	3.6	5.7	4.5	10.3	9.7	11.1	11.1	16.5	18.3	100.0

$$\chi^2 (40, N = 278) = 56.4012, p = .25$$

Table 39

Summary Data and Chi-Square Test of Association for Ethnic
Population Studied and School

Ethnic Population Studied	UTA	UAB	TWU	UMA	CU	Total
Black	3 23.0	5 38.5	2 15.6	- -	3 23.0	13 4.7
White	14 22.2	14 22.2	11 17.3	- -	24 30.0	63 22.7
Hispanic	1 33.3	- -	2 66.7	- -	- -	3 1.0
Mixed	58 30.2	33 17.1	45 23.4	3 1.6	53 27.6	192 69.0
Other	5 71.4	- -	- -	- -	2 28.6	7 2.5
Total	81 29.1	52 18.7	60 21.6	3 1.0	82 29.5	278 100.0

$$\chi^2 (16, N = 278) = 21.27, p = .38$$

Table 40

Chi-Square Goodness of Fit Test for the
Subcategory: Ethnic Population Studied

Ethnic Population Studied	Cases		
	Observed	Expected	Residual
Black	13	43.83	- 30.85
White	63	43.83	19.17
Hispanic	3	43.83	- 40.83
Mixed	192	43.83	148.17
Other	7	43.83	- 36.83
Total	278		

$$\chi^2 (4, N = 278) = 642.5, p = .0001$$

Question Category III: Subject Area

Research question 4: What are the subject areas of concern to nurses? The subject areas are reported according to subcategories (a) health, (b) environment, (c) holistic person according to developmental stages, and (d) nursing.

Health

Of the 280 dissertations, 123 (44%) focused on the subject area of health. Health promotion accounted for 62 (50.4%) of the topics studied. Illness prevention (44,

35.8%) and health maintenance (11, 8.9%) were the next most frequently studied area. Studies investigating topics of rehabilitation are scarce throughout the years surveyed and accounted for 4.8% of this category. The relative frequency in all subject areas studied, with the exception of health maintenance has increased. Chi-square test of association yielded no statistical relationship between the subject area of health and the years surveyed. These data are summarized in Table 41.

Chi-square test of association revealed no significant statistical association between the subject area of health and schools. The subject area of health promotion was investigated most frequently by researchers from catholic University (21, 33.9%). Illness prevention was studied most frequently by researchers at TWU (18, 40.9%), health maintenance (6, 54.5%) at CU, and rehabilitation was studied equally between UTA, TWU, and CU (2, 33.3%) respectively. Table 42 summarizes these data.

Chi-square goodness of fit indicated a significant statistical difference in the subcategory of health. Therefore, this subcategory is heterogeneous, and no consensus is discernible. The data in Table 43 indicated a trend toward the study of the subject area, health promotion, and prevention, maintenance, and rehabilitation are understudied.

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Table 41

Summary Data and Chi-Square Test of Association for the Subject Area Health and Year

Health	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
Promotion	2 3.2 50.0	2 3.2 28.6	2 3.2 66.6	2 3.2 33.3	2 3.2 22.2	5 8.0 21.4	5 8.0 45.4	4 6.5 50.0	11 17.7 61.1	13 20.1 68.4	14 22.7 58.3	62 50.4
Prevention	1 2.3 25.0	5 11.4 71.4	- - -	2 4.5 33.3	5 11.4 55.5	7 15.9 50.0	2 4.5 18.1	4 9.0 50.0	6 13.6 33.3	6 13.6 31.6	6 13.6 25.0	44 35.8
Maintenance	1 9.0 25.0	- - -	1 9.0 33.3	2 18.1 33.3	1 9.0 11.1	2 18.1 14.3	3 27.3 27.3	- - -	- - -	- - -	1 9.0 4.2	11 8.9
Rehabilitation	- - -	- - -	- - -	- - -	1 16.6 11.1	- - -	1 16.6 9.0	- - -	1 16.6 5.5	- - -	3 50.0 12.5	6 4.8
Total	4 3.3	7 5.7	3 2.4	6 4.9	9 7.3	14 11.2	11 8.9	8 6.5	18 14.6	19 15.4	24 19.5	123 100.0

 $\chi^2 (30, N = 123) = 51.69, p = .102$

Table 42

Summary Data and Chi-Square Test of Association for the
Subject Area of Health and School

Subject Area: Health	UTA	UAB	TWU	UMA	CU	Total
Promotion	13 30.0	14 22.6	13 30.0	1 1.6	21 33.9	62 50.4
Prevention	7 15.9	8 18.1	18 40.9	- -	11 25.0	44 35.8
Maintenance	2 18.1	2 18.1	1 9.0	- -	6 54.5	11 8.9
Rehabilitation	2 33.3	- -	2 33.3	- -	2 33.3	6 4.8
Total	24 19.5	24 19.5	34 27.6	1 0.8	40 32.5	123 100.0

$\chi^2 (12, \underline{N} = 123) = 23.68, p = .059$

Table 43
Chi-Square Goodness of Fit Test for the
Subcategory: Health

Health	Cases		
	Observed	Expected	Residual
Promotion	62	56.00	6.00
Prevention	44	56.00	-12.00
Maintenance	11	56.00	-45.00
Rehabilitation	6	56.00	-50.00
Total	123		

$$\chi^2 (4, N = 123) = 266.2, p = .0001$$

Environment

Of the 280 dissertations included in this analysis, 20 (7.1%) focused mainly on environmental factors affecting health and well-being. Six studies (30%) addressed problems of the physical environment: lead poisoning (1), hospital acquired infections (3), and allergies (2). Two studies (10.0%) addressed the cultural environment: attitudes and beliefs of Mexican American, and Asian mothers toward child bearing. Four studies (20%) addressed the social environment: nursing homes (2) and single parenting (2).

Studies that addressed the emotional environment (8, 40%) were the most difficult to categorize. This was mainly because many of the variables investigated could affect an individual's mental capacities. However, this category was further delimited and included only those studies which incorporated self-concept, self-esteem or similar descriptors in the titles.

Chronological analysis of the data in Table 44 indicate that the subject area of environment did not receive attention until 1977. Moreover, since 1977, studies focusing on this subject area are scarce throughout the years surveyed. Chi-square test yielded no significant statistical relationship between the subject area of environment and the years surveyed.

The physical, emotional, and social environment was studied most frequently by researchers at CU (50%, $n = 10$) and TWU (20%, $n = 5$). The cultural environment was studied only by researchers at UTA (100%, $n = 2$). Chi-square test of association indicated no significant statistical relationship between the subject area of environment and schools. These data are summarized in Table 45.

Chi-square goodness of fit indicated a significant statistical difference in the subcategory of the subject area of environment. Therefore, this subcategory is heterogeneous; no trend or consensus is discernable.

Table 44

Chi-Square Test of Association for the Subject Area of Environment and Years

Environment	1977	1978	1979	1980	1981	1982	1983	1984	Total
Physical	1 16.7 100.0	1 16.7 100.0	- - -	- - -	2 33.3 28.6	- - -	1 16.7 50.0	1 16.7 100.0	6 30.0
Cultural	- - -	- - -	- - -	- - -	1 50.0 14.3	1 50.0 25.0	- - -	- - -	2 10.0
Emotional	- - -	- - -	2 25.0 50.0	- - -	2 25.0 28.6	3 37.5 75.0	1 12.5 50.0	- - -	8 40.0
Social	- - -	- - -	2 50.0 50.0	- - -	2 50.0 28.6	- - -	- - -	- - -	4 20.0
Total	1 5.0	1 5.0	4 20.0	- -	7 35.0	4 20.0	2 10.0	1 5.0	20 100.0

$$\chi^2 (30, \underline{N} = 20) = 11, \underline{p} = .369$$

Table 45

Chi-Square Test of Association for Ethnic the Subject Area
of Environment and School

Environment	UTA	UAB	TWU	UMA	CU	Total
Physical	- -	1 33.3	1 33.3	- -	4 13.3	6 30.0
Cultural	2 100.0	- -	- -	- -	- -	2 10.0
Emotional	- -	1 12.5	3 35.5	- -	4 50.0	8 40.0
Total	1 25.0	- -	1 25.0	- -	2 50.0	4 20.0

$\chi^2 (12, N = 20) = 30, p = .433$

However, the data indicate that the subject area of environment is understudied. These data are presented in Table 46.

Table 46

Chi-Square Goodness of Fit Test for the Subcategory
of the Subject Area: Environment

Environment	Cases		
	Observed	Expected	Residual
Physical	6	56.00	-50.00
Cultural	2	56.00	-54.00
Emotional	8	56.00	-48.00
Social	4	56.00	-52.00
Total	20		

$$\chi^2 (3, N = 20) = 753.33, p = .0001$$

Holistic Person According to Developmental Stages

Analysis of the 280 dissertations revealed that 60 (21.4%) focused mainly on the subject area of holistic person according to developmental life changes. Studies that focused on the developmental changes of infants (2, 3.3%), children (3, 5.0%), and adolescents (8, 13.3%) were the least frequently investigated. Studies that focused on developmental changes of adults were 10 (16.7%), and the

elderly, 15 (25.0%). Twenty-two studies (36.7%) addressed other expected "normal" life changes which included mothers (9), fathers (6), parents: both mother and father (4), and families (3). These data are summarized in Table 47.

Chronological analysis of the data in Table 47 reveals that the subject area of holistic person did not receive attention until 1977. However, nurse researchers have shown an increased interest in this subject beginning in 1979 and continuing until 1984. Chi-square test of association indicated no significant statistical relationship between the subject area of holistic person according to developmental stages and the years surveyed.

There was no significant statistical relationship between the subject area of holistic person according to the developmental stages and schools. Studies that focused mainly on developmental changes of adolescents were conducted most frequently at TWU (3, 37.5%, $n = 8$) and least frequently at CU (1, 12.5%). Developmental changes during adulthood were studied most frequently at UAB (5, 50%, $n = 10$) and least frequently at UTA (1, 10%) and CU (1, 10%). Developmental changes of the elderly were studied most frequently at UTA (6, 40%, $n = 15$) and least frequently at TWU (2, 13.3%). Studies that investigated developmental changes during infancy were distributed evenly between UTA (1, 50%) and TWU (1, 50%); children (2,

Table 47

Summary Data and Chi-Square Test of Association for the Subject
Area of Holistic Person and Year

Holistic Person	1977	1978	1979	1980	1981	1982	1983	1984	Total
Infants	1	-	-	-	-	1	-	-	2
	50.0	-	-	-	-	50.0	-	-	3.3
	50.0	-	-	-	-	12.5	-	-	
Children	-	-	-	-	-	-	-	3	3
	-	-	-	-	-	-	-	100.0	5.0
	-	-	-	-	-	-	-	20.0	
Adolescents	-	-	-	-	-	2	2	4	8
	-	-	-	-	-	25.0	25.0	50.0	13.3
	-	-	-	-	-	25.0	13.3	26.7	
Adults	1	-	2	-	2	-	2	3	10
	10.0	-	20.0	-	20.0	-	20.0	30.0	16.7
	50.0	-	40.0	-	28.6	-	13.3	20.0	
Elderly	-	1	1	2	2	2	5	2	15
	-	6.7	6.7	13.3	13.3	13.3	33.3	13.3	25.0
	-	33.3	20.0	30.0	28.6	25.0	33.3	13.3	
Others	-	2	2	3	3	3	6	3	22
	-	9.0	9.0	13.6	13.6	13.6	27.2	13.6	36.7
	-	66.7	40.0	50.0	43.0	37.5	40.0	20.0	
Total	2	3	5	5	7	9	15	15	60
	3.3	5.0	8.3	8.3	11.7	13.3	25.0	25.0	100.0

$$\chi^2 (55, N = 60) = 27, p = .745$$

66.7%) were most frequently studied at UAB. Chi-square test of association indicated no significant statistical relationship between the subject area of holistic person and the years surveyed. These data are summarized in Table 48.

There was a significant statistical difference in the subcategory of the subject area, holistic person, as indicated by chi-square goodness of fit test. Therefore, heterogeneity exists within this subcategory and no trend or consensus are discernible. In addition, the data presented in Table 49 indicates that this subcategory is understudied.

Nursing

Seventy-seven (27.5% of the 280 dissertations included in this analysis focused mainly on the subject area of nursing. Two dissertations (2.6%) addressed nursing history, 20 (30.0%) addressed education and four (5.2%) administration. The researchers that investigated nursing education focused mainly on program evaluation (11), teaching methods (7), and faculty evaluations (2). Studies that addressed nursing administration focused on policy issues (2) and organizational structure (2).

Table 48

Chi-Square Test of Association for the Subject Area of Holistic Person
According to Developmental Stages and School

Holistic Person	UTA	UAB	TWU	UMA	CU	Total
Infants	1 50.0	- -	1 50.0	- -	- -	2 3.3
Children	- -	2 66.7	1 33.3	- -	- -	3 5.0
Adolescents	2 25.0	2 25.0	3 37.5	- -	1 12.5	8 13.3
Adults	1 10.0	5 50.0	3 30.0	- -	1 10.0	10 16.7
Elderly	6 40.0	3 20.0	2 13.3	- -	4 26.7	15 25.0
Others	5 27.2	5 22.7	7 31.8	- -	5 26.7	22 36.7
Total	15 25.0	17 28.3	17 28.3	- -	11 18.3	60 100.0

$$\chi^2 (20, N = 60) = 61.42, p = .708$$

Table 49

Chi-Square Goodness of Fit Test for the Subcategory
of the Subject Area: Holistic Person

Holistic Person	Cases		Residual
	Observed	Expected	
Infants	2	46.50	-44.50
Children	3	46.50	-43.50
Adolescent	8	46.50	-38.50
Adults	10	46.50	-36.50
Elderly	15	46.50	-31.50
Other	22	46.50	-24.50
Total	60		

$$\chi^2 (4, N = 60) = 130.3, p = .0001$$

Dissertations that addressed issues, problems and improvement in nursing practice (30, 39%) accounted for the largest number of studies in this category, research (1, 1.3%) accounted for the smallest number. Studies that investigated nurses as subjects (20, 30%) focused mainly on decision making (9), role socialization (5), job satisfaction (4), and burnout (2).

Chronological analysis of the data in Table 50 indicates a decrease in relative frequency of most subject areas throughout the years surveyed. The exception is in the area of nursing practice. The relative frequency in

Table 50

Summary Data and Chi-Square Test of Association for the Subject Area Nursing and Year

Nursing	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Total
History and Status of the Discipline	-	-	-	-	-	1	-	-	-	1	-	2
	-	-	-	-	-	50.0	-	-	-	50.0	-	2.6
	-	-	-	-	-	12.5	-	-	-	10.0	-	
Education	-	1	1	3	4	2	1	2	1	2	3	20
	-	5.0	5.0	15.0	20.0	10.0	5.0	10.0	5.0	10.0	15.0	30.0
	-	33.3	20.0	42.8	50.0	25.0	14.5	28.8	12.5	20.0	7.7	
Research	-	-	-	-	-	-	1	-	-	-	-	1
	-	-	-	-	-	-	100.0	-	-	-	-	1.3
	-	-	-	-	-	-	14.3	-	-	-	-	
Practice	-	-	1	2	2	2	3	5	5	4	6	30
	-	-	3.3	6.7	6.7	6.7	10.0	16.7	16.7	13.3	20.0	39.0
	-	-	20.0	28.8	25.0	25.0	42.8	71.4	62.5	40.0	46.1	
Administration	-	-	-	-	-	-	-	-	-	2	2	4
	-	-	-	-	-	-	-	-	-	50.0	50.0	5.2
	-	-	-	-	-	-	-	-	-	50.0	15.5	
Nurses as Subjects	1	2	3	2	2	3	2	-	2	1	2	20
	5.0	10.0	15.0	10.0	10.0	15.0	10.0	-	10.0	5.0	100	30.0
	100.0	66.6	60.0	28.8	25.0	37.5	28.8	-	15.0	10.0	15.5	
Total	1	3	5	7	8	8	7	7	8	10	13	77
	1.3	3.9	6.5	9.0	10.3	10.3	9.0	9.0	10.3	13.0	16.9	100.0

$$\chi^2 (50, N = 77) = 56, p = .3039$$

this subject area has increased from 1977 (20.0%) to 1984 (46.1%); therefore, moving toward homogeneity. Chi-square test of association indicated no significant statistical relationship between the subject area of nursing and years surveyed.

Researchers at UTA conducted 100% of the studies that investigated nursing administration (4) and history and status of the discipline (2). In addition, one-half of the studies that addressed nursing education (10) were also conducted at UTA. Studies that addressed nursing practice were conducted most frequently at CU (15, 50%) and least frequently at TWU. Dissertations that addressed nurses as subjects were distributed evenly between UTA (6, 30%) and CU (6, 30%). Only one (100%) dissertation from TWU addressed nursing research. Chi-square test indicated a significant statistical association between school and the subject area of nursing' therefore, these variables are dependent. Cramer's V indicated a low relationship between these variables. These data are presented in Table 51.

Chi-square goodness of fit test indicated that significant statistical differences exist in the subcategory of the subject area of nursing. Therefore, this subcategory is heterogeneous. However, the data indicate that of the areas in this subcategory, nursing

Table 51

Chi-Square Test of Association for the Subject Area
Nursing and School

Nursing	UTA	UAB	TWU	UMA	CU	Total
History and Status of the Discipline	2 100.0	- -	- -	- -	- -	2 2.6
Education	10 50.0	3 15.0	2 10.0	1 5.0	4 20.0	20 30.0
Research	- -	- -	1 100.0	- -	- -	1 1.3
Practice	5 16.7	7 23.3	4 13.3	- -	15 50.0	30 39.0
Administration	4 100.0	- -	- -	- -	- -	4 5.2
Nurses as Subjects	6 30.0	4 20.0	2 10.0	1 5.0	6 30.0	20 30.0
Total	27 35.0	14 18.1	9 11.7	2 2.6	25 32.4	77 100.0

$\chi^2 (20, N = 77) = 45, p = .0001$
 $V = .382$

practice is the least subject area understudied. Table 52 presents this data.

Table 52

Chi-Square Goodness of Fit for the Subcategory
of the Subject Area: Nursing

Nursing	Cases		
	Observed	Expected	Residual
History & Status of the discipline	2	33.84	-31.84
Education	20	33.84	-13.84
Research	1	33.84	-32.84
Practice	30	33.84	- 3.84
Administration	4	33.84	-29.84
Nurses as Subjects	20	33.84	-13.84
Total	77		

$$\chi^2 (5, N = 77) = 550.13, p = .0001$$

When the dissertations are grouped together by subject area, the area which has received the most attention over the years is the subject of health promotion (Table 53). For the total period surveyed, the subject of health promotion accounted for 62 (22.2%) of the 280 dissertations written; illness prevention, 44 (15.8%); and nursing

Table 53
Subject Areas Investigated, 1974-1984,
Frequency and Percent

Subject Area	Frequency	Percent
Health:		
Promotion	62	22.2
Prevention	44	15.8
Rehabilitation	11	3.9
Maintenance	6	2.1
Environment:		
Physical	6	2.1
Cultural	2	0.7
Emotional	8	2.9
Social	4	1.5
Holistic Person:		
Infants	2	0.7
Children	3	1.0
Adolescents	8	1.9
Adults	10	3.6
Elderly	15	5.4
Others	22	7.9
Nursing:		
History and Status	2	0.7
Education	20	7.1
Research	1	0.3
Practice	30	10.7
Administration	4	1.4
Nurses as Subjects	20	7.1
Total	280	100.0

practice, 30 (10.7%). The areas of nursing education and nurses as subjects each accounted for 20 (7.1%) of the dissertations, holistic person, others, 22 (7.9%), and the elderly 15 (5.4%). Areas that received the least attention in the dissertations are the cultural environment and infants (2, 0.7%), respectively, children (3, 1.0%), the social environment and nursing administration (4, 1.5%), respectively, and nursing research (1, 0.3%).

Question Category IV: Concepts

Research question 5: What are the focal concepts of concern to nurses?

Focal Concepts

An examination of the data in Table 54 indicate that 29 focal concepts were investigated 385 times during the period surveyed. Self-concept/self-image was the most frequently studied concept, occurring 49 (13%) times in the 280 dissertations. The concept of nursing practice, which encompasses various diagnoses, treatments and evaluations occurred 37 (9.6%) times; anxiety/stress occurred 35 (9.2%) times.

Both concepts, wellness/health and decision making, occurred in the dissertations 27 (7.1%) times, maladaptation/illness occurred 21 (5.5%), and role expectation/socialization occurred 18 (4.7%). Each of the

Table 54
 Concepts of Concern to Nurses, 1974-1984.
 Frequency and Percent

Concepts	Frequency	Percent
Self-concept/self-image	49	13.0
Nursing practice	37	9.7
Anxiety/Stress	35	9.2
Wellness/Health	27	7.1
Decision Making	27	7.1
Adaptation/Coping	24	6.3
Maladaptation/illness	21	5.5
Role expectation/ Socialization	18	4.7
Self-care	15	3.9
Mothering/maternal attachment	15	3.9
Adaptation/coping	14	3.7
Depression	13	3.4
Compliance/noncompliance	12	3.2
Caring	12	3.2
Nursing Knowledge	11	2.9
Locus of control	9	2.4
Social Support	9	2.4
Communication	7	1.8
Life Satisfaction	6	1.6
Teaching	6	1.6
Burnout	4	1.0
Growth/Development	4	1.0
Job Satisfaction	4	1.0
Touch	4	1.0
Loneliness	2	0.5
Abuse	1	0.3
Grief	1	0.3
Power	1	0.3
Trust	1	0.3
Total	380	100.0

concepts, locus of control, self-care and mothering/maternal attachment occurred 15 (3.9%) times. Other concepts that occurred three percent of the time were adaptation/coping (14, 1.7%), depression (13, 3.4%), compliance/noncompliance and caring (12, 3.2%), respectively, and nursing knowledge (11, 3%).

Focal concepts that occurred in the dissertations 2% of the times included locus of control and social support (9, 2.4%) respectively. The concepts of communication (7), life satisfaction (6), and teaching (6) occurred over 1% of the time (1.8% and 1.6%, respectively). Five concepts, burnout (4), growth/development (4), job satisfaction (4), and touch (4) occurred 1% of the time. The concepts that occurred least frequently were abuse (1), grief (1), power (1), and trust (1).

Linking Variables

Variables to which focal concepts were linked are presented in Table 55. During the period surveyed 26 variables were linked to the 29 focal concepts. Quality of care was the most frequent linkage, occurring 68 (19.9%) times in the 180 dissertations. Loneliness (1, 0.3%) and role socialization (11, 0.3%) occurred less frequently.

Life satisfaction occurred 38 (11.1%) times as a linking variable and maladaptation/illness occurred 33

Table 55

Linking Variables, 1974-1984, Frequency and Percent

Links	Frequency	Percent
Quality of Care	68	19.9
Life Satisfaction	38	11.1
Maladaptation/Illness	33	9.7
Nursing Education	24	7.0
Patient Education	22	6.5
Compliance/Noncompliance	17	5.0
Patient Satisfaction	15	4.4
Aging	13	3.8
Improved Health	12	3.5
Educational Program	10	2.9
Nurse-Patient Relationship	10	2.9
Parenting	10	2.9
Invasive Procedures	9	2.6
Life Styles	9	2.6
Culture	8	2.3
Depression	7	2.1
Pain Relief/Comfort	7	2.1
Social Support	7	2.1
Adolescents	6	1.8
Job Satisfaction	4	1.2
Adaptation	3	0.9
Obesity	3	0.9
Communication	2	0.6
Maternal Attachment	2	0.6
Loneliness	1	0.3
Role Socialization	1	0.3
Total	341	100.0

(9.7%) times. The variables of nursing education and patient education were used as links 24 (7.0%) times and 22 (6.5%) times, respectively. Compliance/noncompliance was used 17 (5.0%) times as a link and patient satisfaction was used 15 (4.4%) times.

Links that occurred in the dissertations 3% of the time were aging (13, 3.8%) and improved health (12, 3.5%). The links that occurred slightly under 3% of the time were educational programs (diploma, ADN, BSN), nurse-patient relationship, and parenting (10, 2.9%, respectively). Invasive procedures such as abortion and fetal monitoring and life styles such as smoking and lack of exercise were used as links nine (2.6%) times. Other links that occurred 2% of the time were culture (8, 2.3%) and depression (7), pain relief/comfort (7) and social support (7), 2.1%, respectively. Links that occurred slightly higher than one percent of the time included adolescents (6, 1.8%) and job satisfaction (4, 1.2%).

Of the 29 focal concepts investigated, all were operationally defined. However, most were limited to time and space. The exception to the latter were, in most instances, the concepts of self-concept/self-image, anxiety/stress, self-care, and wellness/health.

Table 56 shows a cross tabulation of the focal concepts and their links which occurred together more than

Table 56
Crosstabulation of Focal Concepts and Links

Focal Concepts	Links							
	Patient Education	Quality Care	Life Satisfaction	Patient Satisfaction	Nursing Education	Maladaptation/ Illness	Aging	Improved Health
Compliance/ Noncompliance	15	5		5				
Role expectation/ Socialization		11			5			
Anxiety/Stress		6	7			9		
Nursing Knowledge		6		6	8			
Nursing Practice		9		7	10			
Decision Making	5	11			5			
Wellness/Health	6	8	5					
Maladaptation/ Illness		6	5				5	
Self Concept/ Self-Image	3		12			6	7	5
Locus of Control			9	5			6	5
Self-Care	10					5		
Adaptation/Coping	5		5			8		

five times. Examination of these data indicate that compliance or noncompliance to treatment is linked with patient education, quality of care and patient satisfaction. Maladaptation/illness is linked to quality of care, life satisfaction, and aging. Similarly, adaptation/coping is linked to patient education, life satisfaction and maladaptation/illness. Anxiety/stress is also linked to maladaptation/illness, life satisfaction and quality of care.

Wellness/health is linked to patient satisfaction, quality of care and life satisfaction. Self-concept/self-image is linked to life satisfaction, maladaptation/illness, aging, and improved health. Locus of control is linked to life satisfaction, patient satisfaction, aging, and improved health, and self-care is linked to patient education and maladaptation/illness.

Role socialization of nurses is linked to the quality of care a patient receives and nursing education. Moreover, nursing knowledge and practice are linked to the quality of care a patient receives, patient satisfaction, and nursing education. Decision making is linked to both patient education and nursing education as well as to the quality of care a patient receives.

Measure of Consensus

The central question of this study was: What consensus exists among nurse scholars regarding theory, methodology, subject areas studied and concepts? In addition to the chi-square statistic, a measure of consensus developed by Gibbs and Martin (1962) provided an adjunctive method for evaluating the paradigmatic status of nursing. The computation of the measure of consensus developed by Gibbs and Martin was explained in Chapter 3. This measure was used to ascertain the degree of agreement within each of the categories.

Theoretical Orientation

Examination of the data in Table 57 indicate that over the years the increase in agreement to use theory to guide research is very strong. A trend is noted from complete consensus (00.0) in the nonuse of theory in 1974 to frequent use of theory to guide research in 1984.

Methodology

The greatest degree of consensus is readily apparent in the classification of population studied. The median value for this category is 47.0, indicating a substantial degree of consensus in this category. There is a moderate degree of consensus in the subcategories of type of sampling (60.4) and research strategy (70.2). In addition,

Table 57

Measures of the Degree of Consensus Among Nursing Dissertations, 1974-1984

Classification	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Median Value
Theoretical Orientation	00.0	90.7	92.2	96.0	81.3	97.3	96.4	99.0	92.0	99.0	96.3	85.5
Type of Dissertation	96.0	70.9	100.0	92.0	94.0	96.4	80.2	90.2	86.5	83.5	91.0	80.1
Purpose of Research	84.0	98.0	95.4	93.0	99.0	86.0	85.1	80.4	77.0	90.5	83.4	83.4
Source of Data	96.2	77.7	92.2	65.6	59.3	88.5	85.4	80.7	72.0	69.3	68.6	77.7
Sample Size	96.0	100.0	74.0	02.6	64.6	98.3	97.4	79.6	89.6	84.9	82.6	78.2
Research Strategy	00.0	98.0	55.5	88.0	79.5	67.5	85.4	82.0	82.0	67.1	67.5	70.2
Type of Sampling	00.0	100.0	69.1	98.4	76.2	75.0	96.0	79.3	80.0	48.2	42.0	60.4
Population Studied	00.0	44.0	39.5	44.0	58.0	47.0	38.0	43.5	63.2	67.0	72.1	47.0
Ethnic Population	64.0	92.0	93.0	76.2	83.1	73.2	97.0	61.2	49.3	47.5	52.2	71.7
Subject Area	96.0	88.0	95.2	98.4	96.0	96.3	98.2	98.0	93.0	92.3	97.0	95.3
Concepts	98.4	82.3	74.2	92.1	94.0	97.2	87.4	88.6	82.0	80.0	87.5	87.5

*The lower the percent the higher the degree of consensus.

00.0--all frequencies are in same category of classification.

100.0--frequencies evenly divided between two or more categories of classification.

there was complete consensus (00.0) in these categories at one time interval. In the subcategories, ethnic population (71.7) and source of data (77.7), an increase in consensus is noted throughout the years surveyed, moving away from 64.0 to 52.2 and 96.2 to 68.6, respectively. The indications are that a low degree of consensus exists in these two categories. A low degree of consensus also exists in the subcategory of sample size (78.2), moving away from 100.0 in 1975 to 82.6 in 1984. Type of dissertation (80.1) and purpose of research (83.4) show the least amount of consensus in the category of methodology.

Subject Area

In the subject area which nurses consider important to study, negligible consensus is apparent. The measure remains at 88% or above throughout the years surveyed, indicating heterogeneity in this category.

Focal Concepts

The median value for the category, focal concepts, is 87.5, indicating a low degree of consensus. However, an increase in consensus is noted throughout the years surveyed, moving away from 98.4 in 1974 to 87.5 in 1984.

Summary

The analysis reveals various degrees of consensus among the categories with certain research characteristics exhibiting a stronger measure of consensus than others. However, variations in the measures of consensus are extreme. The median value of the measures of consensus for the classification of population studied was 47.0, indicating substantial consensus, while the median value of subject area was 95.3, low consensus. Consensus measures for the categories, theoretical orientation, type of dissertation, purpose of research, sample size and concepts indicate a trend toward more consensus and have a median value of 87.5 or lower. The categories source of data, research strategy, type of sampling, population studied and ethnic population studied have median values that range between 77.7 to 47.0.

In addition, areas that are understudied have been identified in all categories. In the category of theoretical orientation, the use of nursing theory to guide research is neglected. Dissertations with the explicit purpose of theory development is scarce throughout the years surveyed. Studies conducted for the purpose of tool development and of an explanatory nature are neglected. In the category, source of data collection, methods that involve the researcher as an active participant such as

interview and observation are infrequently used. Likewise, sample sizes 500 are infrequently used. Research strategies to control for variables are also used sparingly.

In the category of population studied, all populations with the exception of adults, are understudied. Similarly, in the category of ethnic populations, all populations are understudied with the exception of mixed groups and whites.

Areas of neglect identified in the category of subject area studied include illness prevention, health maintenance and rehabilitation. In addition all areas of the environment, holistic person, and nursing are understudied.

CHAPTER 5

SUMMARY OF THE STUDY

This study analyzed the current status of nursing science as reflected in doctoral dissertations of five schools from 1974 through 1984. Explanations of nursing scientific progress have evolved but are debated. Concern over the debate, and for the progress in the development of nursing knowledge prompted questions regarding the state of the art of the discipline. Progress in the development of nursing knowledge, as in other scientific disciplines, demands periodic reassessment. The assessment of the status of nursing knowledge reported in this study was based on Kuhn's (1962, 1970) concept of a scientific paradigm. As defined by Kuhn, the essence of a paradigm is the degree of consensus within a scientific community concerning theory, methodology, subject areas studied and concepts.

Summary

This study focused on the population of dissertations from five schools. Dissertations were chosen as the unit of analysis because they are scholarly works that are representative of the discipline. Moreover, they become

the major source of publications in nursing research journals. To formulate the degree of consensus among nurse scholars in the dissertations, five research questions were explored.

1. What are the theoretical orientations of nursing dissertations?

2. Is nursing research empirical, empirical-theoretical, theoretical, or practice oriented?

3. What are the research characteristics of nursing dissertations?

4. What are the subject areas of concern to nurses?

5. What are the focal concepts of concern to nurses?

A content analysis of each dissertation was made to elicit answers to the research questions. Research question number three composed the area of methodology. Within this area, data were collected on types of dissertations, purpose of research, source of data, sample size, research strategy, type of sampling, population studied, and ethnic population studied.

The content of each dissertation was placed in appropriate categories according to specific criteria. The data were grouped by year and schools. Chi-square test of association was used to determine whether significant relationships existed between the categories, and the years surveyed and schools. Chi-square goodness of fit was used

to determine whether differences existed within the categories. In addition to the chi-square statistic, a measure of consensus was calculated for the data generated in each category. This measure indicated the amount of consensus among nurse researchers in the dissertations as to categories utilized and the frequencies within the categories.

Discussion of Findings

The findings are summarized according to the determinant of a paradigm: theory, methodology, subject areas studied, and concepts. Table 58 presents these findings. In each category, the classification with the highest percent is listed, the trend in the category is indicated, and the interpretation of the median value of the degree of consensus in each category is given.

Theoretical Orientation

The dominant theoretical orientations are sociological (65, 23.3%) and psychological (65, 23.2%) in nature. Through the years the use of both theoretical orientations have increased. These findings are congruent with those observed by Brown, Tanner and Padrick (1984) concerning theoretical orientations of published articles. These researchers also found that the most frequently used theoretical orientations were sociological and

Table 58

Summary of Findings Related to the Determinants of the Paradigmatic Status of Nursing

Category	Classification with Highest Percent			Interpretation of Median of Consensus Value
	Classification	Percent	Trend*	
Theoretical Orientation	Sociological	23.2	+	Low
	Psychological	23.2	+	Low
Research Characteristics:				
Type of Dissertation	Empirical-Theoretical	43.7	+	Low
Purpose	Combination of Purposes	39.1	+	Low
Source of Data	Primary	95.4	+	Low
Sample Size	30-100	44.1	+	Low
Research Strategy	Not Applicable	66.2	+	Low-Moderate
Type of Sampling	Nonprobability	70.7	+	Moderate
Population Studied	Adults	73.4	+	Substantial
Ethnic Population	Mixed	69.0	+	Low
Subject Area	Health	44.0	+	Negligible
Focal Concept	Self-Concept/Self-Image	13.0	<u>+</u>	Low

* + Percentage increasing over the years.

- Percentage decreasing.

+ Percentage fluctuating, no trend indicated.

psychological in nature. Additionally, they found that both theoretical orientations had increased over the years.

Several explanations may be plausible for the increased use of sociological and psychological orientations. First, nursing is moving away from the medical model which compartmentalizes individuals and focuses on disease entities to a holistic approach. The holistic approach to nursing requires knowledge about individuals as rational, sentient, valuing, reacting, and interacting beings. Therefore, theoretical orientations of a sociological and psychological nature are to be expected. Schlotfeldt (1971) summarized this idea.

Knowledge about holistic man which includes his behavior and values as they relate to health and with threats to health, with disease and with disability is becoming more essential to nursing. Such knowledge must be broadly conceived to encompass that which is not only physiologic but also psychologic and social. (p. 140)

Second, there is an emerging conceptualization of nursing that emphasizes growth and health. The goal is to stimulate individual's health seeking behaviors. To accomplish this goal, nursing must focus on strategies to activate, develop, or enhance an individual's achievement of a sense of well-being, optimal physical and mental functioning, or effective coping with whatever prevents or limits such achievement. This view of nursing requires organization of knowledge from sociology and psychology

that supports or stimulates growth, or leads to effective coping.

Dissertations that did not use a theoretical orientation (64, 22.8%) accounted for 23 % of the total population. The relative frequency in this category has fluctuated over the years but has decreased from 100% in 1974 to 20% in 1984. Additionally, this practice is more prevalent in some schools than in others. The indications are (a) these dissertations did not meet the basic criterion of scientific inquiry as described by Gibbs (1972) and Kerlinger (1973), (b) their conceptual/theoretical orientations were neither explicitly or implicitly explicated, and (c) the investigators were more interested in gathering facts than advancing theory.

Gibbs (1972) and Kerlinger (1973) noted that the basis criterion for scientific inquiry is that theoretical/conceptual frameworks guide research. This criterion sets research apart from the common sense approach and systematized ideas. Batey (1977) and Brown, Tanner, and Padrick (1984) agreed with Gibbs and Kerlinger. These researchers concluded from their analyses of journal articles that lack of explicitly or implicitly stated theoretical orientations was a major scientific limitation of nursing research. They argued that facts not cast in the mold of theory had little or no value in describing,

explaining, or predicting the phenomena of interest to nursing.

Over 77% of the dissertations in this study used theoretical orientations. Additionally, this practice has increased over the years. There are several plausible explanations for this finding.

First, during the past decade nursing education has placed emphasis on the use and value of theory to guide research. This fact is evident in nursing texts and journals and has been transmitted to nurse-researchers. Second, nurse-researchers have begun to realize the necessity of using theory to advance the scientific status of the discipline and to gain control of its practice area. Chinn and Jacobs (1983) have noted that theory clarifies purpose within professions and, therefore, helps establish professional boundaries. Finally, Brown, Tanner, and Padrick (1984) have stated that nurses have come to realize that replication of studies is difficult if facts are not cast in the mold of theory. DeTornyay (1977) has suggested that replication of studies allows extension of propositions about the relationships among phenomena. This suggestion seems imperative if nursing science is to advance. Only two of the dissertations in this analysis were replicated studies.

Dissertations with a nursing theoretical orientation (43) accounted for 15.4% of the population. The relative frequency in this category has fluctuated over the years, reaching a peak of 50% in 1979 and steadily decreased thereafter. The paucity in the use of nursing theory was addressed by several nurse scholars in the literature review. This practice does not link nursing research with activities of a scientific discipline. Nursing is responsible for developing, monitoring, and refining its knowledge base. Knowledge that is unique to nursing will advance only through these activities, thus advancing nursing science. In response to the paucity in the use of nursing theory, Meleis (1981) stated nursing was in dire need of true scholars who not only empirically test nursing theories but also who continue to refine them.

Consensus as to theory is measured by categorizing the theories used in the dissertations. The median consensus for the dominant theoretical orientation is 85.5, indicating a low degree of consensus. The low degree of consensus is due to the equal distribution of sociological and psychological orientations.

Research Characteristics

The findings of this study indicate an emerging trend and consensus toward empirical-theoretical

dissertations (122, 43.7%). Similarly, dissertations related to nursing practice (104, 37%) have increased in relative frequency indicating an emerging trend in this type of research. Dissertations that are empirical have decreased over the years. However, over half of these dissertations (28) were written between 1980-1984. This finding is more prevalent in some than others. In a few instances were nurse-researchers concerned with the explicit purpose of theory development.

The finding that empirical-theoretical studies dominate the field agrees with Brown, Tanner, and Padrick's (1984) conclusion after they analyzed the content of articles published in journals over the past three decades. They found that from 1952 to 1970 empirical studies outnumbered empirical-theoretical studies. Beginning the early 1970s, this trend was reversed. This finding indicates that nurse-researchers are concerned with the advancement of theory. This finding is also directly related to the increase noted in the use of theoretical orientations to guide research.

Gortner (1980) described the 1970s as a time of expansion in practice research. This expansion was reflected in the present study. Practice oriented dissertations accounted for 37% (104) of the dissertations. O'Connell (1983) reached a similar

conclusion in her analysis of research articles from 1970 to 1979. During the 10-year period surveyed, 145 (38%) of the studies published in Nursing Research were classified as practice oriented.

Brown, Tanner, and Padrick's (1984) conclusion regarding practice oriented studies also parallels the finding of the present study and O'Connell's study. Brown and her associates found a 63% increase in practice oriented studies over the past three decades. Additionally, the studies were spread across a number of specialty areas; no trend was apparent for specialty areas.

The results of this analysis challenges the commonly held belief that nursing research is not practice oriented. A shift toward practice oriented research is definitely discernable. Such a shift is in accord with the profession's best interest. This reveals that researchers do take a pragmatic approach to the study of nursing and signifies professional growth.

Dissertations of an empirical nature were noted throughout the years surveyed. One might argue that theories concerning the phenomena of interest to nursing can develop only when empirical findings are discussed in terms of theoretical concerns. Eighteen percent of the dissertations in the present study reported findings without theoretical interpretation or discussion. Gortner

(1980) commented that this practice has lead onlookers to characterize most nursing research as "discrete, nonaggregated studies of empirical phenomena for which an underlying explanatory theory is either unknown or undefined" (p. 205).

The Brown, Tanner, and Padrick (1984) study reported that in 1952-1960, 79% of their sample reported findings without interpretation or discussion. From 1970 to 1980, discussion and interpretation of findings were evident in 80% of their sample. However, the trend to discuss findings in terms of past research and theoretical concerns was weaker. These researchers concluded that in 1980, 48% of the articles analyzed "restricted their discussions to a consideration of limitations of methods, or to practical issues, and have failed to tie their findings to theory so that their research can be integrated into a larger whole" (p. 29).

Two plausible explanations may be related to studies that are empirical in nature. First, nursing is a fairly new scientific discipline. Many areas have not been explored, and facts must be gathered before they can be cast in the mold of a theory. Second, nursing studies complex phenomena. Often, the phenomena are of such complexity that theory to explain it has not developed.

The facts are gathered first and theory concerning these facts are developed later.

A small minority of dissertations (2, .7%) were explicitly concerned with the development of new theories. This lack of concern with developing new theories may impede the scientific growth of nursing. The median value of the consensus measure for type of dissertation (80.1) is low.

Purpose of Research

The majority of studies were designed for a combination of purposes (109, 39.1%). Included in this combination were 60 (55%) descriptive/explanatory studies and 49 (45%) descriptive/exploratory studies. The relative frequency of studies with a combination of research purposes have increased throughout the years surveyed. Correspondingly, the relative frequency of studies designed solely for exploratory, descriptive, or explanatory has decreased. It may be inferred from these findings that nurses have heightened their interest in formulating problems for more precise investigation, and seeking relationships between variables. These findings agree with O'Connell's (1983) observation that the purpose of nursing research is shifting away from simply describing phenomena toward exploration and the testing of hypothesis.

Studies designed for the explicit purpose of tool development are scarce throughout the years surveyed. The indication is that nurses rely heavily on tools developed by other disciplines. The greater number are drawn from the field of psychology. Batey (1977) commented that frequently these tools bear only loose correspondence to the conceptual meanings of the variables of interest to nursing.

Nursing is responsible for developing its own measurement tools. The practice of relying heavily on tools developed by others is not a characteristic of a scientific discipline and does not advance nursing science. The median value of consensus for purpose of research (83.4) is low.

Source of Data

An overwhelming majority of nurses (267, 95.4%) used primary sources rather than secondary sources of data. These two methods of data collection have retained their relative positions over the years with primary sources for outnumbering secondary sources.

The main techniques in collecting primary data are first, questionnaires (167, 62.5%) and second, observation and interview or questionnaire (39, 14.6%). Through the years there is a strong reliance on the questionnaire over

every other method; however, an increased trend in the use of observational techniques is noted. Most of the researchers using secondary data made use of a combination of sources including survey data, records, and literature reviews.

Brown, Tanner, and Padrick (1984) and O'Connell (1983) estimated that 18% to 22% of their sample obtained self-reports through interview and 31% to 37% through questionnaires. The use of observational techniques (10% to 11%) was considerably less common. Participant observation, in particular, was rare. Physiological measures were employed less frequently than anticipated. Records were rarely exploited and personal documents were completely untapped as sources of information. These researchers concluded that nurses have relied mainly on the construction of questionnaires and interviews to collect data. In this respect, there has been little change over the years in techniques used to collect data.

The heavy reliance on questionnaires as a technique of data collection represents a bias in research methods. The indication is that nurses depend more on verbal reports that reveal attitudes and opinions of the respondent rather than actual observation of behavior. Direct observation would enable nurse-researchers to get a more realistic view of the subject.

A finding of the present study which is consistent with Ellis' (1977) observation is the increased use of observation and interview or questionnaires as a technique of data collection. This triangulation of data indicates an attempt to minimize possible sources of error by collecting different types of data from different sources. The method allows the investigator to examine the correspondence between what subjects say they will do, and what they actually are observed doing. Therefore, the investigator can have more confidence in the data. In this respect there has been change over the years in techniques used by nurses to collect data. This can be interpreted as a sign of increased research sophistication.

The type of data collection used by nurses in this study covers a wide range of techniques. These techniques include those in which contact is made between researcher and subject, and those in which no contact is made. The median value for the consensus measure for the source of data (77.7) is low.

Sample Size

The most frequently used sample size fell within the range of 31 - 100 (123, 44.1%). Slightly more than one-half of the sample sizes falling within this range used 60 or more subjects. With the exception of the year 1981,

the relative frequency of this sample size was consistently higher than any other. In 1981, the use of a sample size of 101 - 500 doubled that of previous years from seven in 1979 and 1980 to 14 in 1981, then declined to 11 in 1984. The smallest sample size reported was in a case study using one subject. The largest sample size reported was in an exploratory study using over 1,500 participants.

Brown, Tanner, and Padrick (1984), Ellis (1977), and O'Connell (1983) reported that over half of the research studies they analyzed used fewer than 50 subjects. Case studies (2) were rare and sample sizes over 1,000 (3) were infrequently used. Although sample sizes over 1,000 were infrequently observed in the present study, data obtained indicate a trend toward the use of larger sample sizes. O'Connell also noted a trend toward the use of larger sample sizes as the decades progressed.

The increase in the use of larger sample sizes may be partially due to society's willingness to participate in research; thus, more subjects are available. Watson (1981) noted that society grants or withholds science privileges based on the prevailing philosophical views of the times. The indications are that attitudes regarding the nature of research and participation in research are changing. This may reflect a temporary situation

signifying heightened interest in the results and benefits of research to society.

Another plausible explanation for the increased use of larger samples is the recognition by nurses that small samples are not convincingly generalizable. Such recognition on the part of nurses signifies growth in research methodology. Additionally, the availability and more frequent use of secondary data have allowed nurses to obtain larger samples. The use of survey and census data permits the researcher to generalize to the total population within the scope of the study. This adds to the body of knowledge and the confirmation status of theory concerning the phenomena of interest to nursing.

Case studies may be used infrequently because they produce findings that are rarely generalizable. Similarly, Abdellah (1970) and O'Connell (1983) acknowledged that sample sizes of 1,000 or more may be used infrequently because it is sometimes impossible or impractical to use them in clinical research. The median value for the consensus measure for sample size (78.2) is low.

Research Strategy

The category, non-applicable, applies to studies that did not use techniques to manipulate or control independent variables. Approximately 66% (198) of the studies in the

present analysis fell within this category. Experimental studies (54, 19.3%) have progressively increased over the years surveyed. In contrast, studies using multivariate analysis (42, 15.1%) have fluctuated, and no trend toward an increase in the use of this research strategy is noted.

O'Connell (1983) found that over half of the studies in her sample used experimental designs. The discrepancy between the findings of O'Connell's study and the present analysis may be related to the sample sizes used.

O'Connell's sample consisted of 145 studies. The present analysis consisted of 280 studies which encompassed the total population of studies from five schools.

Some may regret the current preponderance of studies that do not manipulate or control variables. O'Connell and Duffey (1978) wrote, "It would seem that if nursing practice is going to be affected by nursing research, it will be those studies that use experimental designs that will contribute most to constructive change" (p. 168).

Brown, Tanner, and Padrick (1984) also expoused the superiority of the experimental design. This attitude regarding the superiority of experimental designs is within the tenets of the Received View tradition of science and may not be totally appropriate for the discipline of nursing.

The experimental design is essential to scientific inquiry. However, many of the problems encountered in nursing are often of a nature that experimental designs are unethical, not feasible or even impossible. In addition, sufficient knowledge does not exist today to design appropriate experimental interventions for many nursing problems.

The median value for the consensus measure for research strategy (70.2) is low moderate. This consensus measure is due to the magnitude of the use of research strategy that did not control for variables.

Type of Sampling

There is a definite trend toward the use of nonprobability sampling procedures (198, 70%) and the underuse of probability sampling procedures (76, 27%). These findings concur with those reported by Brown, Tanner, and Padrick (1984). In the present analysis, nonprobability samples were usually dictated by convenience. Of the 76 studies that claimed probability procedures, samples were usually from a pool of readily accessible subjects meeting the criteria for inclusion. It is questionable whether this type of probability sampling increases the generalizability of results to broader populations.

The tendency to select samples by nonprobability procedures may be attributed to the clinical nature of nursing research. With certain health problems or conditions that need investigating, random sampling is often impractical and sometimes impossible. O'Connell (1983) commented on the difficulty of adhering to sampling rules in conducting research associated with clinical problems, and, therefore, stressed the necessity of replication to permit generalizability of clinical results. Unfortunately, this advice has not been followed. The value of nursing research will be enhanced by the use of probability sampling and replication of studies. Infrequent use of these methods may suggest the embryonic nature of research methodology in the discipline.

The median value for the consensus of type of sampling (60.4) is moderate. The moderate degree of consensus in this category is due to the magnitude of the use of nonprobability sampling in contrast to other methods of sampling.

Population Studied

An overwhelming majority of the studies focused on the adult population (204, 73.4%). Only two studies (0.7%) concentrated on infants and seven (2.5%) on children. The lack of studies concentrating on problems of adolescents

(17, 6.1%) and the elderly (18, 6.5%) is apparent; however, progressive interest in these populations is discernible. A trend toward the study of families (22, 7.9%) is also noted.

The current findings regarding the adult and elderly populations, parallel findings reported by Brown, Tanner, and Padrick (1984) and O'Connell (1983). Brown, Tanner, and Padrick (1984) reported that nearly half of their sample (N = 137) focused on the adult population, and from 1952 to 1980, only four studies focused on the elderly. O'Connell reported that slightly over one-half of the articles analyzed (N = 148) concentrated on the adult population. In contrast, over a 10-year period only 30 studies concentrated on the elderly. However, O'Connell noted that studies of the elderly increased sixfold from 1975 to 1980.

Several factors may be accountable for the heavy concentration on the adult population. First, a sizeable portion of the studies (60, 2%) in the current analysis sampled student nurses. Students of nursing are readily accessible populations. Second, the technique most frequently employed by nurses to collect data, questionnaires, almost always dictates an adult population. Third, adults can sign consent forms which alleviate many ethical issues. Finally, adults comprise

the largest portion of the population encountered by health professionals.

The lack of concentration on the study of infants, children, adolescents, and the elderly may be related to ethical issues and stringent research guidelines encountered when members of these populations become subjects of research. The prevailing philosophical attitude is that members of these populations have rights that society must protect. O'Connell (1983) commented on the difficulty of adhering to rules in conducting research with these populations. She stressed the importance of adhering to these rules, and views this step as a sign of academic and scientific maturity.

The median value for the consensus measure for population studied (47.)) is substantial. The substantial degree of consensus in this category is due to the magnitude of the use of adults as subjects.

Ethnic Population

A mixed ethnic population (192, 69.0%) is the most frequently studied group. Only three (1.0%) studies focused on hispanics and 13 (4.7%) on Blacks. Ironically, the ethnic populations who have the most health problems are the least studied.

The frequent use of mixed ethnic groups in research may be interpreted as a desire of investigators to make the results more generalizable. However, in the present analysis, the distribution of minorities in the mixed groups was not representative of ethnic distribution in the general population. Therefore, the generalizability of the results of these studies are questionable. The indications are that most of these studies were convenient samples of subjects meeting specific criteria, and no deliberate attempt was made to include minorities.

The infrequent use of minorities as study populations may be attributed to several factors. First, minorities may be inaccessible as subjects. Negative experiences with the health care system and research endeavors aimed at improving health and well-being, combined with a knowledge of patients' rights, are plausible explanations for this inaccessibility. These acts have fostered distrust in health care professionals and researchers and have created a reluctance to participate in research. Second, pragmatic researchers select problems and populations to study that will yield results which are generalizable to larger populations. Third, funding to support research that addresses problems specific to minorities is often scarce. Fourth, apathy exists among nurse-researchers concerning minority health problems. Finally, there is a lack of

research mentors who are interested in minority health problems and a lack of minority students prepared to engage in research. One can only speculate that if this trend continues, nursing will not address the needs of vulnerable groups as specified by the American Nurses' Association research priorities of the 1980s. The median consensus value for ethnic population (71.7) is low.

Subject Area

The findings of this analysis indicate that nurses investigate a variety of areas related to health (123, 44%), the environment (20, 7%), holistic person (60, 21.4%), and nursing (77, 27.5%). Overall, topics related to the subjects of health promotion (62, 22%), illness prevention (44, 16%), and nursing practice (30, 11%) appeared to be of major concern to nurses. The relative frequency in these categories has increased over the years. Subject areas that were of least concern to nurses are nursing research, the cultural environment, and holistic infants. Each area accounted for less than 1% of the topics studied.

Topics related to nursing education (20, 30%) and to nurses as subjects (20, 30%) have decreased over the years. Administrative issues (4, 5.2%) have received attention only in 1983 and 1984. Brown, Tanner, and

Padrick (1984) found the same diversity in the pattern of subject areas studied by nurses. From their data, prevention, health promotion, and nursing practice were the preferred topics. Each topic increased in relative frequency over the years. Additionally, they noted a decreased interest in the subject areas of administrative, nursing education, and nurses as subjects.

Although Loomis (1985) used slightly different classifications of subject areas, she did discuss the major areas of interest. She found that 78.4% (N = 250) of the studies in her analysis were related to issues in nursing practice. Additionally, she noted that 20% of the studies addressed health maintenance; 49.3%, health promotion; and 39%, prevention.

The broad range of subject areas studied by nurses may account for the paucity of theoretical type dissertation. Few areas receive sufficient attention to produce a cumulative body of research to serve as a foundation for the development of theory. However, there may be strength in the diversity of subject areas studied. The more problem areas studied, the more specific knowledge nurses will gain about the phenomena of interest to nursing.

The findings of this analysis certainly document the central position of nursing practice as an integral part of nursing research. Research over the past decade have

reversed the trend noted by Abdellah (1977) that nursing research did not address practice. Additionally, the trend toward prevention and health promotion is in accord with the professional interest of nurses in "wellness." These trends signify professional growth.

The median value of consensus for subject area (95.3) is negligible. The indication is that there is no consensus as to which subject areas merit attention. This finding must be qualified by the limitation noted in Chapter 3 pertaining to the classification of subject areas. If the areas could have been placed into fewer categories, it is possible that more consensus would have been noted.

Focal Concepts

The focal concept of concern to nurses is self-concept/self-image. Although the use of this concept to study the phenomena of interest to nursing has fluctuated over the years, it has remained relatively consistent as the foci of interest to nurses. This concept is linked most frequently to the concepts of life satisfaction (12), aging (7), maladaptation (6), and improved health (5). This finding may be related to the sociological and psychological orientations of nursing dissertations and the availability of published tools to

measure this concept. This finding may also reflect nurses increased interest in promoting health, health-seeking behavior, and client well-being by focusing on changing or improving the self-concept of clients.

An interesting observation is that the focal concept compliance/noncompliance is overwhelmingly linked to patient education. These findings suggest that nurses are concerned with factors associated with improved client care.

Quality of care is the variable most frequently linked to the focal concepts. It is linked to the focal concepts role socialization (11), decision making (11), nursing practice (9), wellness/health (8), anxiety, nursing knowledge maladaptation/illness (6, respectively), and compliance/noncompliance (5).

Although previous studies did not address focal concepts of concern to nurses, their existence have been noted. O'Connell (1983) observed the concept of nursing practice was used frequently. Additionally, several studies in her analysis focused on feelings of control over one's life, touch, and communication. Approximately, one-fifth of the studies were concerned with emotional and social support and one-third with anxiety. The findings may be indicative of the increasing emphasis on the

assessment of clients needs and signifies professional growth.

Operational definitions were offered for all focal concepts, thus decreasing measurement problems and enhancing replicability of the studies. This finding suggests growth in research methodology. However, most of the focal concepts were limited to time and space. This is an expected finding since most nursing research takes place in various health care settings and deals with clients at specific points during the life process. The median value of consensus for concepts (87.5) is low. The low degree of consensus in this category is due to the wide diversity of concepts studied.

Conclusions

The purpose of this study was to assess the state of the art of nursing science in regard to the paradigmatic status of the discipline. The findings provide support for the thesis that there is no paradigm in nursing at this time. However, the degree of consensus found in the broad theoretical orientations, and methodology point to the possibility that a paradigm may develop in the near future.

The developing paradigm views the phenomena of interest to nursing from a sociological and psychological

perspective. The predominant concern is with empirical-theoretical studies. Research is designed for a combination of purposes with a shift away from predominately descriptive studies toward testing relationships. However, replication of studies is rare. Questionnaires have consistently remained the primary source of data collection. By far, most tools used to collect data are from the field of psychology. Tool development in nursing is rare. Adults are the most frequently studied population; however, the findings indicate an increased awareness of problems of the elderly and families. Due to pragmatic philosophical views, a mixed ethnic population is studied and problems specific to minorities are infrequently investigated.

Nonprobability procedures are the major sampling techniques employed in nursing research. This technique may devalue research findings. Research strategies to control variables are of interest to nurses; however, often the clinical nature of nursing does not allow such manipulation.

This conclusion will be met with resistance or mixed blessings. To some nurse scientists, controlled experiments in which the manipulation of variables can be observed are the only methods to secure verifiable knowledge. This opinion is a fragment of the Received View

of science. Other nurse researchers are critical of this research strategy and often find it impossible or impractical to manipulate variables. The difficulties inherent in both research strategies are often compounded by physical and emotional limitations of the sample.

Although nurses have investigated many topics, there is no area which is of central concern. However, interest is sustained in the topics of health and nursing practice, while little consideration is given to environmental factors affecting health. Decreased interest in factors affecting health care delivery is apparent due to the increased emphasis placed on nursing practice. Contemporary developments in nursing stress wellness and holistic person throughout the life span; however, infants and children are rarely studied due to ethical and legal issues.

It is to be expected that most of the focal concepts studied by nurses have their origin in the disciplines of sociology and psychology. Nurses have studied numerous concepts from these disciplines; however, interest has been sustained in the concept of self-concept.

Paradigmatic Limitations and Implications

Some of the changes and consensus that have occurred over the past decade are gratifying, but gaps and

limitations in the emerging paradigm are clearly evident. Research regarding nurse characteristics, nursing education, and nursing administration should not be completely abandoned in favor of issues relating to nursing practice. These factors profoundly affect the quality of care a client receives and the type and quality of care nurses deliver. Methodological investigations are scarce and substantial effort should be directed toward developing instruments to measure phenomena of interest to nursing. At present nurse researchers primarily use questionnaires to generate data. A variety of data collection sources should be explored. These sources should include observational techniques, unobstructive measures, records, and other qualitative materials.

In view of the nonprobability nature of most clinical samples, replication is particularly important. Moreover, in recognition of the complexity of clinical research, bivariate analysis must at times give way to multivariate analysis. The prominent nursing theories must be explored as theoretical orientations. Only by trial and error will they continue to be developed and refined.

Based on the findings of the study, other obvious omissions in the emerging paradigm appear in the subject area of the environment--social, cultural, and physical. Contemporary developments in the discipline include the

recognition of the environment as a salient factor affecting the health status of individuals.

The major limitation of the emerging paradigm is that there is little evidence that research activities are directed toward the systematic building of a science. Additionally, research is not linked clearly to prior research.

Recommendations

The findings of the study provide support for these recommendations.

1. There is a need for more theory building to provide integration of present knowledge. More consideration should be given to nursing theories as a framework for research.
2. Replication of studies is needed and must be encouraged at both the masters and doctoral levels of education.
3. Research techniques which possess the greatest potential for nursing as a mature discipline should be explored further. This would include the use of probability sampling, strategies to manipulate variables, and research techniques which bring the researcher into direct contact with the subject.

4. Tool development must be encouraged. Interested scholars should be allowed to contract for a portion of this activity as a dissertation project.
5. There is a dire need for more studies to examine problems of infants, children, adolescents, elders, and minorities.
6. There is a need for cross-cultural studies which examine differences in health problems which may result from variations in cultural settings.
7. There is a continuous need for research concerning nursing education, administration, research, and history of the discipline.
8. Environmental factors affecting the health status of individuals must be investigated.

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2(4), 1-7.

APPENDIX A

SURVEY INSTRUMENT

SURVEY INSTRUMENT

Dissertation Title _____

Author _____

Year Completed _____

School _____

Problem Statement _____

Question Category I: Theory

1. Theoretical Orientation

a. Nursing _____

Name of theory _____

b. Sociology _____

Name of theory _____

c. Psychology _____

Name of theory _____

d. Others _____

Name of theory _____

Question Category II: Methodology

1. Type of Dissertation

a. Empirical: straight presentation of empirical
findings _____

- b. Empirical-theoretical: presentation of empirical findings as interpreted through some theoretical scheme _____
 - c. Theoretical: presentation of abstract or concrete concepts with implied or explicit stated relationships _____
 - d. Practice oriented _____
2. Purpose of research
- a. Exploratory: to formulate a problem for more precise investigation _____
 - b. Descriptive: to produce an accurate description of the phenomena being investigated _____
 - c. Explanatory: to discover relations among facts or explain a given phenomenon _____
 - d. Combination of purposes _____
 - e. Tool development _____
 - f. Other _____ Specify _____
3. Source of data (technique used to collect data)
- (1) Primary (original data)
- a. Questionnaire _____
 - b. Interview _____
 - c. Both questionnaire and interview _____
 - d. Observation (participant and non-participant)

e. Observation and interview or questionnaire _____

f. Other _____ Specify _____

(2) Secondary (data already collected and compiled)

a. Census data _____

b. Other records, literature, surveys _____

c. More than one secondary source _____

4. Sample size

a. 30 or less _____

b. 31 - 100 _____

c. 101-500 _____

d. 501-1,000 _____

e. Other _____ Specify _____

5. Research strategy (technique to control variables)

a. Experiment _____

b. Multivariate analysis _____

c. Not applicable _____

6. Type of sampling

a. Probability (based on author's statement that a random sampling design was used) _____

b. Nonprobability (no random techniques mentioned in description of sample) _____

c. Both probability and nonprobability _____

d. Total population _____

e. No indication _____

7. Population studied

- a. Infants: age 0 - 12 months _____
- b. Children: age 13 months - 12 years _____
- c. Adolescents: age 13 - 21 years _____
- d. Adults: age 22 - 64 years _____
- e. Elderly: age 65 years and beyond _____
- f. Others _____

8. Ethnic Population Studied

- a. Black _____
- b. White _____
- c. Hispanic _____
- d. Mixed _____
- e. Other _____ Specify _____

Question Category III: Subject Areas

1. Health

- a. Promotion _____
- b. Prevention _____
- c. Maintenance _____
- d. Rehabilitation _____

2. Environment

- a. Physical _____
- b. Cultural _____
- c. Emotional _____
- d. Social _____

3. Holistic Person According to Developmental Stages

- a. Infants _____
- b. Children _____
- c. Adolescents _____
- d. Adults _____
- e. Elderly _____
- f. Others _____ Specify _____
 - (a) Mothers _____
 - (b) Fathers _____
 - (c) Mothering/Fathering _____
 - (d) Families _____

4. Nursing

- a. History and status of the discipline _____
- b. Education _____
- c. Research _____
- d. Practice _____
- e. Administration _____
- f. Nurses as subjects _____

Question Category IV: Concepts

1. Focal concept or dependent variable(s) _____
 linked to _____
 - a. Derived: operationally defined _____
 - b. Primitive: not operationally defined _____
 - c. General: not limited to time and space _____
 - d. Limited: limited to time and space _____

Miscellaneous:

1. If a nursing intervention was used, specify.

2. State the Hypothesis(es) or Research Questions.

- a.

- b.

- c.

- d.

APPENDIX B

JUDGES' STUDY

JUDGES' STUDY

THE STATE OF THE ART OF NURSING SCIENCE: A CONTENT
ANALYSIS OF DOCTORAL DISSERTATIONS, 1974-1984 - Instrument
Developed by Ethel S. Amos
Doctoral Student, Texas Woman's University, Denton, Texas.

Please Do Not Duplicate Any Materials

Thank you for consenting to be a judge for this instrument. Your efforts are part of a procedure designed to establish content validity and interrater reliability. Please complete the enclosed forms anonymously and return all materials in the enclosed envelope within two weeks.

Your tasks are as follows:

1. Judge the relevance of each category and subcategory of the instrument to assess the state of the art of nursing within the conceptual framework and purposes of the study. Next to each item, write the number that corresponds with your judgment, according to the following code:

Not relevant - 1

Somewhat relevant - 2

Quite relevant-3

Very relevant -4

2. Read the enclosed dissertation and assign its contents to the categories according to the specified criteria.

For the purpose of describing the judges of this study, please indicate your academic rank, degree, and school affiliation. A copy of the results of the study will be sent to the dean of your school.

Academic rank _____

Degree _____

School Affiliation _____

Ethel S. Amos, MSN
817-387-0740

APPENDIX C

NURSING THEORETICAL ORIENTATIONS, 1974-1984:
FREQUENCY AND PERCENT

NURSING THEORETICAL ORIENTATIONS, 1974-1984:
FREQUENCY AND PERCENT

Theory	Frequency	Percent
Orem's Self-Care	20	47.0
Roy's Adaptation	7	16.3
Rogers' Unitary Person	6	14.0
Johnson's Behavioral Model	4	9.3
Newman's Health Model	3	7.0
Neuman's Systems Model	2	4.6
King's Goal Attainment	<u>1</u>	<u>2.3</u>
Totals	43	100.0