LEARNING STYLE AND LEADERSHIP STYLE: DETERMINANTS

OF INSTRUCTIONAL STRATEGIES IN

NURSING EDUCATION

DISSERTATION

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The problem of this study was to describe and compare

the relationship of learning style and leadership style upon

the selection of instructional strategies by nursing

educators in associate and baccalaureate degree nursing

programs. Data were collected using Kolb's Learning Style

Inventory, Hersey and Blanchard's Leader Effectiveness and

Adaptability Description, a researcher-developed

Instructional Strategies Inventory, and the Personal Data

Form.

It was found that leadership style was highly

correlated between the associate degree and baccalaureate

degree faculty groups. More of the associate degree faculty

members had basic leadership styles of Low Relationship/Low

Task and High Task/Low Relationship. Most of the

baccalaureate faculty members had Low Relationship/Low Task

leadership styles.

The following conclusions were developed: (a) Nursing

faculty in associate and baccalaureate degree programs have

similar learning and leadership styles; (b) nursing faculty

tend to use the traditional instructional strategies such as lecture, discussion, and case studies at the same frequency of use; and (c) the selection of instructional strategies in nursing education may be affected by variables other than the instructor's learning and leadership styles.

In view of the findings of this study, the following recommendations for further study appear to be warranted: (a) Further research should be conducted to determine the effectiveness or ineffectiveness of identified instructional strategies in nursing education, and (b) more research should be done to identify creativity in the selection of instructional strategies in nursing education.

The following implications are suggested from an analysis of the data: (a) Although faculty characteristics are rarely a determining factor in the design of a nursing curriculum, they must be taken into account when selecting instructional strategies, and (b) the apparent lack of diversity in instructional strategies utilized in the classroom setting emphasizes the need for faculty to expand their knowledge base in this area.

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CHAPTER 1

INTRODUCTION

Nurse educators have the important task of selecting
instructional strategies that enhance nursing students'
total educational experience. The choice of instructional
strategies can make a difference in student learning. While
the process of teaching in general, and in specialized
fields such as nursing education, has been analyzed and
described by various professional groups as well as by
individual faculty members, there is no universally agreed
upon definition of this activity. Nursing education,
furthermore, is carried out in several settings--the
simulated laboratory, the classroom, and various health care
agencies. Because students in nursing education encounter a
variety of situations during the years it takes to complete
the educational process, the nurse educators are faced with
the challenge of providing a variety of ways in which to
carry out course objectives and goals. The questions then
arises as to what variables influence the selection of
instructional strategies in nursing education. A major
principle in the education of all students is to employ
teaching methodologies appropriate to the subject matter and
individual students. Experiences in the clinical setting

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are an integral part of the total educational process for nursing students. This setting cannot be controlled. Therefore, instructional strategies must be selected that provide the opportunity for students to focus clearly on specific objectives for the course and provide support and guidance in those situations for which students cannot possibly be prepared.

Each educator is a unique individual with peculiarities, assets, and liabilities. Such psychological variables as learning style and leadership style are adapted, changed, or enhanced by various life experiences throughout the life cycle. Little is known about the impact of these variables on the teaching behavior of nurse educators. Research is needed to determine whether relationships exist between these variables and the selection of instructional strategies in nursing education. Dependent on the nurse educator's defined leadership style and learning style, the choice of instructional strategies utilized to meet behavioral outcomes and course objectives may be influenced by factors of which the nurse educator is unaware. By gaining an awareness of how instructional strategies relate to the personality factors of learning style and leadership style, nurse educators can improve their teaching abilities.

Statement of the Problem

The problem of this study was to describe and compare the relationship of learning style and leadership style upon the selection of instructional strategies by nursing educators in associate and baccalaureate degree nursing programs.

Purposes of the Study

The purposes of the study were as follows:

1. to determine and identify the most frequently used instructional strategies in the classroom setting by faculty in associate and baccalaureate degree nursing programs,

2. to determine the relationship between learning style and leadership style among faculty in baccalaureate degree nursing programs,

3. to determine the relationship between learning style and leadership style among faculty in associate degree nursing programs,

4. to compare the learning styles of faculty in associate and baccalaureate degree nursing programs,

5. to compare the leadership styles of faculty in associate and baccalaureate degree nursing programs, and

6. to compare the selection and frequency of use of various instructional strategies by faculty in associate and baccalaureate degree nursing programs.

Hypotheses

To carry out the purposes of this study, the following hypotheses were tested:

1. There is no significant difference between the instructional strategies used in the classroom setting by nursing faculty in associate degree nursing programs and those in baccalaureate nursing programs.

2. There is no significant difference between the selection and frequency of use of various classroom instructional strategies by nursing faculty in associate degree nursing programs and those of baccalaureate degree nursing programs.

3. There is a positive relationship between learning styles and leadership styles among nursing faculty in baccalaureate degree nursing programs.

4. There is a positive relationship between learning styles and leadership styles among nursing faculty in associate degree nursing programs.

5. There is no significant difference between the learning styles of associate degree nursing faculty and those of baccalaureate nursing faculty.

6. There will be no significant difference between the leadership styles of associate degree nursing faculty and those of baccalaureate nursing faculty.

Definition of Terms

For the purposes of this study, the following definitions were utilized:

Learning style refers to individual differences in how one perceives, thinks, solves problems, learns and relates to others; it is a feature of personality that is stable over time (Carpenito & Duespohl, 1985, p. 16).

Leadership style refers to the behavior pattern that a person exhibits when attempting to influence the activities of others toward goal achievement in a given situation (Hersey & Blanchard, 1982, p. 83).

Instructional strategies are techniques for imparting knowledge and skills directed toward goal achievement. These strategies can be used in a variety of settings with various student populations.

Nursing faculty or nurse educator is one who teaches nursing content and skills in a junior/community college or university/college setting and holds a baccalaureate degree in nursing as well as a master's or doctorate degree in nursing or some related field. Two levels of nursing faculty were utilized for this study:

1. Associate degree nursing faculty is one who teaches nursing in a junior or community college setting where the nursing degree program is two years in length. The associate degree is awarded upon completion of the program of study.

2. <u>Baccalaureate degree nursing faculty</u> is one who teaches nursing at a college or university setting where the nursing degree program is four to five years in length. The bachelor's degree is awarded on completion of the program of study.

Significance of the Study

As a result of hereditary equipment, particular past life experiences, and the demands of the present environment, most people develop learning styles that emphasize some learning abilities over others. Differences in learning styles, such as one's approach to problem solving and decision making, can create problems for the nurse educators in leadership roles. An individual learns and develops distinctive learning styles that are stable over time (Witkin, Goodenough, & Karp, 1967). In the teaching of nursing, the nursing faculty member may be influenced by the instructional strategies that worked best from previous experiences or by sensory partiality, perceptual preferences, and the environmental factors most conducive to learning.

Leadership ability is essential to creative teaching. The nursing faculty member must learn leadership skills by acquiring certain behavior patterns. Leadership involves processes that are essential in making any nursing role alive according to LaMonica (1986). Contrary to most

opinions, leadership is a learned ability (Carpenito &
Duespohl, 1985). The individual who has acquired leadership
skills, such as decision making and flexibility, becomes
adept in demonstrating the desired qualities of a leader.

Each nurse educator can identify creative approaches to
the classroom and clinical teaching of nursing. The choice
of teaching strategies may be dependent upon characteristics
of the nurse educator such as individual learning style and
leadership style. According to Schweer and Gebbie (1976),
the nurse educator assumes the responsibility for teaching a
given number of students, particularly in the clinical
setting where various assortment of teaching strategies must
be used. Assuming that such teaching is based on
theoretical background and available clinical resources, the
nurse educator must respond to situations which involve
extraneous factors operating at any given point in time.
The nurse educator uses the available scientific knowledge
of medicine and human behavior to examine the previous and
existing factors present in the learning situation.

This descriptive study was conducted in order to
examine important variables, such as learning and leadership
styles, that determine the use of instructional strategies
by nursing faculty in associate degree and baccalaureate
degree programs of nursing. The study, furthermore,

determined if there were differences between the choice of
instructional strategies by faculty in programs of nursing.

More importantly a descriptive study was needed to
identify faculty by inherent characteristics such as
learning and leadership styles. As faculty review their
instructional strategies with a view toward encouraging
creativity, it may be helpful to consider whether the
instruction nursing faculty imparts to students is a
reflection of personal creative strength. What about the
nursing faculty member whose promotion of creativity is
reflected by the use of various teaching strategies? Do
nursing faculty members' personal leadership styles have an
influence on which teaching strategies are most frequently
used to meet the course objectives? Does the cognitive
style of the instructor influence the use of certain
teaching strategies?

As demonstrated by the review of literature, nursing
student populations have most often been used to study
learning styles. However, the one who imparts knowledge and
makes decisions on how objectives are met must be described
in order to develop an understanding of the characteristics
nursing faculty bring to the teaching role.

Conceptual Framework

Experiential Learning Model

For purposes of this study, the experiential learning model represents an integration of many of the intensive lines of research on cognitive development and cognitive style (Kolb, 1981). The final result is a model of the learning process that is consistent with the structure of human cognition and the stages of human growth and development. The model conceptualizes the learning process in such a way that differences in individual learning styles, corresponding learning styles, and corresponding learning environments can be identified. The learning model is a dialectical one, according to which development is attained by higher-level integration and expression of nondominant modes of dealing with the world. The experiental learning model emphasizes the important role that experience plays in the learning process, an emphasis that distinguishes this approach from other cognitive theories of the learning process (Kolb, 1981). The core of the model is a simple description of the learning cycle, of how experience is translated into concepts which in turn are used as guides in the choice of new experiences.

Four prevalent learning abilities were identified by Kolb (1974) utilizing the experiential learning model. The foremost is that learning is conceived as a four-stage

cycle. Immediate, concrete experience is the basis for observation and reflection. These observations are assimilated into a theory from which new implications for action can be deduced. These implications or hypotheses then serve as guides in acting to create new experiences. Four different kinds of abilities are needed to be an effective learner--concrete experience skills, reflective observation skills, abstract conceptualization skills, and active experimentation skills. Concrete Experience (CE) skills refers to the ability to involve oneself fully, openly, and without bias in new experiences. An individual must be able to observe and reflect on these experiences from many perspectives; this description refers to Reflective Observation (RO) skills. From this point, an individual must be able to create concepts that integrate observations into logically sound theories; this refers to Abstract Conceptualization (AC) skills. Active Experimentation (AE) refers to the ability of an individual to use these theories to make decisions and solve problems. Kolb (1974) states that this ideal is difficult to achieve.

A closer examination of the four-stage learning model indicates that learning requires abilities that are polar opposites (Kolb, 1974). The learner must continually choose which set of learning abilities to bring to bear on various learning tasks. More specifically, there are two primary dimensions to the learning process. The first

dimension represents the concrete experiencing of events at one end and abstract conceptualization at the other. The second dimension has active experimentation in one extreme and reflective observation at the other. Thus, in the process of learning, one moves in varying degrees from actor to observer, from specific involvement to general analytic detachment. The learning process is depicted in Figure 1.
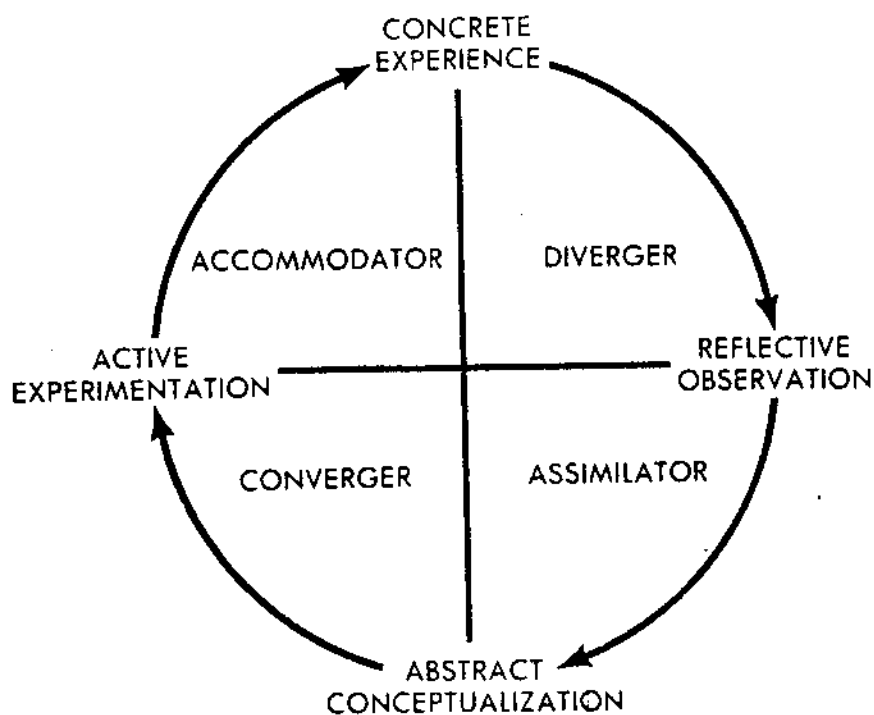
Figure 1. Kolb's learning cycle.

Note. From Learning-Style Inventory by David A. Kolb, 1976, Boston: McBer. Copyright by David A. Kolb. Reprinted by permission.

The concrete/abstract dimension is viewed as a primary dimension on which cognitive growth and learning occur. Goldstein and Scheerer (1941) suggest that great abstractness results in the development of the following abilities: (a) to detach one's ego from the outer world or from inner experience, (b) to assume a mental set, (c) to account for acts to oneself, (d) to verbalize the account, (e) to shift reflectively from one aspect of the situation to another, (f) to hold in mind simultaneously various aspects, (g) to grasp the essential of a given whole, (h) to break up a given into parts to isolate and to synthesize them, (i) to abstract common properties reflectively, (j) to form hierarchic concepts, and (k) to plan ahead ideationally in order to assume an attitude toward the more possible and to think or perform symbolically. On the other hand, concreteness represents the absence of these abilities, the immersion in, and domination by, immediate experiences. As the circular model of the learning process implies, abstractness is not exclusively good and concreteness is not exclusively bad. To be creative requires the ability to experience anew, freed from the constraints of previous abstract concepts (Kolb, 1974).

The other major dimension of cognitive growth and learning is the active/reflective dimension. Thought becomes more reflective and internalized as growth occurs. There is more manipulation of symbols and images than overt

actions. Active experimentation and reflection stand in opposition to one another like abstractness/concreteness. Reflection tends to inhibit action and vice versa.

Situational Leadership

The theory used for this study was Paul Hersey's and Kenneth Blanchard's Situational Leadership Model (1982). This theory suggests that the traits required of a leader differ according to varying situations (Marriner, 1982). The variables which determine the effectiveness of leadership style include such factors as the personality of the leader, performance requirements of the leader and followers, attitudes, needs, and expectations of the leader and followers, degree of interpersonal contact possible, time pressures, physical environment, organizational structure, nature of the organization, stage of organizational development, and influence of the leader outside of the group. A person may be a leader in one situation and a follower in another, or a leader at one time and a follower at others. The type of leadership needed is dependent upon the situation.

The four quadrants in the situational leadership theory can be explained as follows:

1. High structure/task and low consideration/ relationships. The leader in this situation primarily defines the task, explains to the group each person's

responsibility, and states when tasks should be done.
LaMonica (1986) states that one-way communication
characterizes the leader's behavior even though the low
relationship behavior should be observable. The low
relationship behavior is simply respect and warmth toward
another and positive reinforcement after a goal is
completed. No group decision making is included in this
style.

2. High structure/task and high consideration/
relationship. This type of leader balances concern for the
intricacies of getting a task accomplished with a concern
for the beliefs, desires, and needs of the group. The
leader might define a goal, designate what needs to be done
and who has specific responsibilities, and invite questions
or reactions. The leader's original plan might be altered
according to the followers' reactions. In this style of
leadership, the leader is still in full control but group
interaction is begun.

3. High consideration/relationship and low
structure/task. In this style, the leader's primary concern
is not the task and its various intricacies. Rather,
concern is for the process, for getting the group to work
together effectively to accomplish the task. The leader
still has some control over how the group accomplishes the
task. In this style, a leader might define the problem and

ask the group members to make further decisions about how they will work together to accomplish the task.

4. Low structure/task and low consideration/relationship. The leader maintains a low profile in this style, permitting followers to function within previously-defined limits. At times, the leader may be available for consultation, to give direction, or for positive reinforcement. Such interaction is not planned on a regular basis but rather occurs as the need arises. This leader behavior style is delegation because control is shifted from the leader to the follower(s).

The two types of behavior, task and relationship, which are central to the concept of leadership style and discussed previously, are defined as follows:

Task behavior is the extent to which leaders are likely to organize and define the roles of members of their group (followers); to explain what activities each is to do and when, where, and how tasks are to be accomplished; characterized by endeavoring to establish well-defined patterns of organization, channels of communication, and ways of getting jobs accomplished (Hersey & Blanchard, 1982).

Relationship behavior is the extent to which leaders are likely to maintain personal relationships between themselves and members of their group (followers) by opening up channels of communication, providing socioemotional

support, psychological strokes, and facilitating behaviors (Hersey & Blanchard, 1982).

Determination of the appropriate leader behavior style is necessary before a leader develops solutions to a problem. Once in the leader behavior model, the leader moves forward one quadrant or backward one quadrant in response to the growth or the regression of the system in relation to accomplishing the task. The speed with which leader behavior movement occurs is variable, depending solely on the system. The goal of the leader is to move the system to requiring low structure and consideration. Furthermore, according to LaMonica (1986) when a system is mature it can monitor itself and accomplish the task. The leader can then delegate to the system and be free to work toward getting another task accomplished.

The Teaching Process

Education is a dynamic process that involves the teaching process. This process is a complex activity that is shared between two or more individuals and involves interaction of the participants with a mutual goal directed toward some type of behavioral change on the part of the learner (Carpenito & Duespohl, 1985). Within this context, learning is the acquisition of new knowledge and skills that requires both mental activity and behavioral change. Thus, when learning is discussed, one must realize

that more than classroom and clinical knowledge is internalized by the student. The importance of the educator as a role model must be recognized as the student consciously or unconsciously acquires knowledge and skills that are not specifically taught by the instructor. Some of the educator's own attributes and values flow through the use and choice of instructional strategies.

The diversity of students presents many challenges to the nurse educator who strives to provide optimum learning to all students enrolled in various settings. The varying backgrounds of the students should be considered in organizing classroom, laboratory, and clinical experiences. It is often very difficult for an educator to provide students with an educationally stimulating environment in which they can all learn with equal comfort and ease. Regardless of the seeming impossibility of this task, the educator should strive to meet the educational needs and levels of all students. Thus, the learner is the focal point of all instruction and the learner must be afforded the opportunity to be an active participant in the educational process. This philosophy directly affects the planning of educational experiences for the nursing student by the instructor.

Basic Assumptions

The following assumptions were considered essential for this study:

1. It was assumed that all nursing faculty participants completed the research instruments in an honest manner.

2. It was assumed that nursing faculty recognized behaviors or characteristics which describe their individual learning and leadership styles as well as instructional strategies.

Delimitations

The following delimitations were imposed on this study:

1. The study was delimited to full-time nursing faculty in associate degree and baccalaureate schools of nursing in Texas which were accredited by the National League for Nursing.

2. The selection of instructional strategies was limited to those identified by the Instructional Strategies Inventory.

CHAPTER 2

SYNTHESIS OF RELATED LITERATURE

Introduction

This study is not unique in its effort to measure the learning styles and leadership styles of baccalaureate and associate degree nursing faculty. Instead, it adds to the body of knowledge currently existing regarding learning styles and leadership styles in a select population. In addition, this study adds significantly to the research involving learning styles and their effect on the selection of instructional strategies in the classroom setting in the delivery of nursing education. The literature reviewed in this section is illustrative of the wide variety of material available on learning styles, leadership styles, and methodology in nursing education.

Review of Literature on Learning Styles

Highfield (1988) discusses student learning styles and how information about these styles can help faculty educate students. Three questions raised by this study include: (a) What are the primary learning styles of baccalaureate nursing students within their first and last years of clinical studies? (b) Are there differences in learning

styles between baccalaureate nursing students in the first
semester of clinical studies and senior baccalaureate
nursing students in the last semesters of clinical studies?
(c) What is the relationship between age or previous nursing
education and learning style?

The Learning Styles Inventory was distributed by
Highfield (1988) to a convenience sample of 65 volunteers,
primarily minority, baccalaureate nursing students.
Although learning style has been identified as a significant
factor affecting how well students learn, few researchers
have used Kolb's model to investigate the learning style of
nursing students (Highfield, 1988). Results of Highfield's
study indicate that the predominant learning style of these
nursing students was assimilation, a combination of
reflective observation (watching) and abstract
conceptualization (thinking). Fifty-five percent of the
junior group, 56% of the senior group, and 56% of the total
sample preferred an assimilative learning style. Previous
researchers suggest that nursing students and clinicians
tend to be Accommodators or Divergers who learn better in
concrete, feeling-oriented situations (Christensen, Lee, &
Bugg, 1979; Kolb, 1984; Laschinger & Boss, 1984; Merritt,
1983). Assimilators, as described by Kolb (1984), are
less active, task-oriented, and more passive in their
approach to learning. They organize information, but are
not as involved in the application of that information.

Findings of Highfield's (1988) study indicate that there are two possible explanations for the high number of Assimilators within his sample. First, baccalaureate nursing education emphasizes information management and may attract students with an assimilative style and promote their reflective watching and thinking. Second, because of the clustering of scores among the nursing students, these students may use more than one learning style and may be able to switch to an assimilative mode when needed. Because of these findings, Highfield (1988) offers three suggestions for improving educational strategies: (a) Nursing faculty should become familiar with the concept of learning style to enhance student learning, (b) nursing faculty should assess the learning styles of their own student group to provide a basis for individual counseling and advising and for structuring effective teaching-learning strategies, (c) faculty should maximize current student learning and enhance future learning by assisting students in the development of new styles. Once existing student learning styles are assessed, the goal for desired learning styles should be identified. Written decision-making and problem solving behavioral outcome criteria for program graduates reflect the desired adaptive learning style.

A significant study conducted by Bahrenburg (1982) investigated relationships between Cognitive style (field-dependent-independence), belief system, creativity,

and the teaching strategies employed in teaching nursing in baccalaureate nursing programs. The hypothesis tested was that faculty of baccalaureate nursing programs with certain personality factors use more non-traditional teaching strategies than traditional teaching strategies. The sample consisted of 104 nursing faculty who were teaching content and clinical nursing courses in baccalaureate nursing programs. The measurement instruments that were used to test the hypothesis were the Group Embedded Figures Test, the Dogmatism Scale-Form E to identify the open-closed belief system, and the Remote Associative Test to identify the creative ability of the participants. The teaching strategies were identified from a Teaching Style Inventory. A Personal Data Sheet was also utilized. The results identified traditional strategies as the most frequently used. A statistically significant relationship was found between field independent and high creativity and field dependent and low creativity. The field dependent and field independent participants used a common core of both traditional and nontraditional strategies.

Miller (1979) determined to what extent preferences for the lecture or discussion method of instruction could be differentiated by cognitive style criterion groups. The 60 male subjects who participated in the study completed the Instructional Method Preference Inventory and the Group Embedded Figures Test. It was concluded that even

though only a moderate, but significant, relationship between the field-dependence/field-independence and lecture-discussion method preference variables was revealed, the results suggested that relatively field-dependent students tend to prefer the lecture method. In addition, cognitive style has been demonstrated to be a significant variable in the preferences which students express with regard to differential instructional methods.

The relationship between leadership style dimensions and field dependence/independence was investigated by Buckenmaier (1981). It involved 67 elementary school administrators who were administered Fielder's Least Preferred Co-Worker Test and Witkin's Group Embedded Figures Test. There was no significant correlation between field dependence/independence and task and relationship oriented leadership style.

Weissenberg and Gruenfeld (1966) conducted a study using 73 civil service supervisors from a state department of taxation and finance. The question under study was whether the field-independent person would be higher on the structure component of Fleishman's Leadership Opinion Questionnaire and lower on Fielder's Least Preferred Co-Worker scale. Witkin's Embedded figures Test was also used to determine whether a participant was field dependent or field independent. This study concluded that two of the popular measures of leadership style are related field-

dependence/independence as measured by the Embedded Figures Test. The relationships were curvilinear rather than linear. These data indicated that persons intermediate between the extremes of field dependence and field independence discriminate most sharply between their least and most preferred coworkers.

Frainier (1986) investigated the effects of cognitive style, course structure, and perceptions regarding a current learning experience on continuing education of registered nurses. The research was based on several hypotheses which assumed that individuals would be satisfied with course structure congruent with their cognitive style. However, courses with low-level structure result in perceptions of having a successful learning experience. Data from 159 participants were analyzed after completion of three instruments. The results indicated that field independent individuals expressed satisfaction with courses of high structure and field dependent individuals expressed satisfaction with low course structures. Therefore, the adult participants expressed satisfaction with course structures that appeared incongruent with their cognitive style.

Merritt (1983) employed the Kolb (1976) and Canfield (1980) models of learning style to determine the relationship of age, and age and professional nursing employment experience to learning style preferences of basic

and registered nurse students, respectively. The study also
determined the differences in learning style preferences of
basic and registered nurse students. The sample consisted
of 466 basic and registered nurse students enrolled in
required upper-division nursing courses in six National
League of Nursing accredited generic baccalaureate programs.
Results of statistical procedures yielded no significant
difference between groups of basic students defined by age.
However, there were significant differences among the mean
learning style preference scores expressed by basic students
for both the Kolb (1976) and Canfield (1980) models. After
other statistical procedures were employed, the mean
preference scores for the various aspects of learning style
as measured by the Kolb model did not differ statistically
between groups of registered nurse students defined by age,
work experience, or age by work experience.

Based upon the patterns of preferences expressed by the
adult learners who participated in Merritt's study, as well
as the differences in the condition and mode preferences
found between the two student groups, several propositions
were devised. Nontraditional learners were defined as basic
baccalaureate nursing students. Traditional learners were
defined as basic baccalaureate nursing students. One
proposition stated that nontraditional adult learners are
less positively oriented than traditional learners toward
the learning environment and the methods commonly used in

formal settings. Another proposition was that both student groups prefer structure environments within which course expectations and requirements are clearly defined and content is presented in a logical, organized manner. The third proposition stated that nontraditional adult learners prefer that instructional methods include both passive and active modes of learning. Traditional learners prefer to be actively involved in learning which includes direct contact with the content or situation being studied. Finally, nontraditional and traditional adult learners tend to prefer learning environments that are not competitive and teacher-enrolled.

It was suggested by Merritt (1983) that consideration needs to be given by faculty to developing different teaching-learning situations for younger-aged versus older, experienced adult learner groups. Additionally, since older experienced learners are less positively oriented toward the conditions and modes of learning commonly associated with formal 4-year collegiate situations than young learners, these learners may need assistance with orienting themselves to the learning behaviors they are expected to demonstrate in these settings. It was proposed from this study that alternative ways or methodologies be considered to account for individual differences in the way adults prefer to learn.

Ostrow (1986) conducted a study on cognitive style, teaching methodology, and cumulative grade-point average in

baccalaureate nursing students investigated the interaction of these variables on examination performance, three-month retention of knowledge, and evaluation of the instructional method, Personalized System of Instruction (PSI), or lecture. Senior nursing students in a baccalaureate program were subjects in the study. Cognitive style was measured by the Group Embedded Figures Test.

From Ostrow's investigation, it was concluded that the Personalized System of Instruction (PSI) is a powerful instructional method that results in higher examination scores and higher satisfaction with the methodology than does the lecture method. The PSI, for Ostrow's study, was defined as a method of instruction with written objectives and study guides for each of four units of instruction. Three forms of quizzes were used to test each unit which students were required to master at 90% criterion. The PSI class met once each week for three hours to study guides, take quizzes, and receive feedback. Students with opposite cognitive styles and differing intellectual aptitude as measured by cumulative grade-point average all had higher examination scores, represented by a whole grade difference, for PSI than for lecture. As a result, there were fewer failures than in the lecture condition.

Laschinger and Boss (1984) used Kolb's Learning Style Inventory to examine learning characteristics of nursing students which were then compared to those of advanced

nursing students. As a result, a majority of students were found to have concrete learning styles even though nursing students were represented in all learning style categories. The most frequently occurring learning style in the first-year group was Diverger. Fifty-nine percent of the students in this group were either Accommodators or Divergers. Furthermore, there was no statistically significant difference between the proportion of students with Accommodator learning styles among the first-year group and the advanced student group. It was concluded by Laschinger and Boss (1984) that knowledge concerning the preferred styles of learning of nursing students may be useful in the selection of teaching-learning strategies in nursing education. Kolb (1976) suggests that students learn best when teaching matches their learning style and, therefore, nurse educators may wish to consider these factors in their teaching approaches to individual students (Laschinger & Boss, 1984).

Keenan, Hoover, and Hoover (1988) challenged nursing faculty members to find ways to prepare students to function responsibly as active, contributing members of a participatory, decentralized nursing system. To do so, they suggested that nursing faculty examine the teaching strategies used and be flexible when interacting the students. Application of Hersey and Blanchard's (1982) Situational Leadership Theory in various learning settings

can help students participate more responsibly in their learning experiences (Keenan, Hoover, & Hoover, 1988). These theories are based on the premise that an effective leaders' decisions are consistent with the needs and demands of the environment and of the individuals who are to be led.

Keenan, Hoover, and Hoover (1988) further stated that faculty members must be able to accurately assess not just the students' learning needs but also the demands of the situation to determine how much participation to expect from students. The positive benefit of this is that students' participation in setting and putting in place learning goals and activities helps the students to better understand and accept the goals for the course. It can also lead students to evaluate their progress toward meeting goals and to develop ways to achieve them. As educators become adept at incorporating this theory into their teaching methods, students reap the benefits of participatory learning and are prepared to take their position in organizations that demand participation and accountability (Keenan, Hoover, & Hoover 1988).

Partridge (1983) distinguished between generic cognitive styles and student behavior. From a review of various models of cognitive style, Partridge found that the student is more likely comfortable with the educational interaction and probably learns more efficiently and effectively if several learning styles are used. However, if a student habitually utilizes only one learning style, he

or she may be at a serious disadvantage when confronted with the necessity to utilize a different style. It was further suggested by Partridge (1983) that the purpose of the educational endeavor must be identified in order to decide whether it is best to match or mismatch a student with instructional modes. Potential matching strategies must include four factors: (a) the developmental level of the learner--younger learners may be more responsive to mixtures and mismatching because they are generally more malleable than older learners; (b) the subject matter to be learned--capitalization matches may be more useful when the subject matter is highly structured or has specific stylistic and skill demands; (c) the surrounding context, which includes the receptivity of the learning to the various matches and the reality of the availability or unavailability of various teaching aids; and (d) the goals of education which include the desired educational outcomes from a personal, institutional, and societal perspective. Curricula and policy should be designed to foster a diverse repertoire of styles for each student.

Huch (1982) conducted a research study which described nursing students who enrolled in accredited baccalaureate nursing programs, identified locus of control and learning style of generic and registered nurse students, and determined if there were significant relationships in locus of control and learning style compared with satisfaction in

the program of study on the part of adult students enrolled in accredited baccalaureate nursing programs sponsored by universities in the State of Mississippi. Rotter's (1975) Internal-External Scale, Kolb's Learning Style Inventory, and a researcher-developed questionnaire to obtain demographic data were used to gather data in Huch's (1982) study. The sample included 82 generic students and 66 registered nursing students.

The results of data analysis showed that as a group, the registered nurse students were older, had previous formal education, and had a clear understanding of the role of the registered nurse. There were no statistically significant differences in the learning style of the two groups of students. There was a statistically significant difference in the locus of control scores of the two groups. The registered nurse students were significantly more satisfied than the generic students with the program of study. Finally, those students who had an Accommodator learning style tended to be satisfied with their program of study. Those students with a Diverger style were the group indicating most dissatisfaction with their program of study.

A study was conducted by Cranston and McCort (1985) to determine whether statistically significant differences existed among performance levels of beginning undergraduate nursing students when compared according to cognitive style and learning style subgroups. The sample consisted of 60

nursing students enrolled in an introductory clinical
nursing course at a regional community college.

Cranston and McCort (1985) proposed that cognitive
style differed from learning style in measurement criteria.
Cognitive style was defined as one's preferred way of
receiving information or of gaining meaning from the
environment. On the other hand, learning style focuses on
the student's attitude toward learning, teaching method,
teachers, and peer relationships.

The sample subjects were randomly assigned to an
experimental or control group and were administered separate
learning analysis instruments. The 30 students in the
control group were given a cognitive style mapping
assessment, while the 30 students in the experimental group
were given a learning style assessment. Students in each
group were asked to use the interpretive data as they saw
necessary to assist them in studying, completing
assignments, or getting along with other students.

Results of Cranston's and McCort's (1985) study
revealed that there was no statistically significant
difference in scores among the two groups. The data seemed
to suggest little difference in performance between the two
groups. The cognitive style group, while able to have
personal contact with the instructor for interpretation and
learning prescription, did not show significant improvement
over the learning style group. Findings revealed that

nursing students who were in the learning style group performed comparably with the cognitive style group. Personal instructor contact for the cognitive style group did not appear to give students a sizable advantage in the class (Cranston & McCort, 1985). It was also assumed that students in the learning style group were probably equally motivated and were equally aware of some learning preferences.

Kirk (1986) assessed the relationship of learning style to levels of cognitive development. The sample consisted of 70 adult learners who had designed their interdisciplinary college major/minor at a large state college. Related questions also studied by Kirk were the influences of age, gender, college major/minor, grade-point average, and parental education on the students' learning styles.

The subjects were assessed on intellectual development as evaluated by the Knefelkamp Measure of Intellectual Development, on the preferred learning style by the Kolb Learning Style Inventory, and on developmental growth by interview and questionnaire. Differences in hierarchial levels of cognitive development were significantly related to the students' learning styles. Students with an intellectual position had a predominantly accommodative learning style which reveals learning strengths of concrete experience and active experimentation. Accommodators also

earned the highest grade-point averages. A large variety of individual learning styles were identified which indicates the need for a range of teaching methods adapted to learning style differences (Kirk, 1986). It was further suggested by Kirk that curricular designs should be adapted by institutions or by learners to enhance development, to lower attrition rates, and to aid degree completion.

Ostmoe, Van Hoozer, Scheffel, and Crowell (1984) reviewed studies on learning style and learning preferences as factors which should affect the selection of learning strategies, particularly the factor of students' preferences for different types of strategies. Responses from students in their last nursing course suggested that students' preferences for the more nontraditional or innovative learning strategies tend to decrease as students move through the undergraduate program and are exposed to these strategies (Ostmoe, Van Hoozer, Scheffel, & Crowell, 1984). It was believed that this could be due to the fact that students in the lower level nursing courses experienced a concentration of these strategies early in the curriculum.

Of the studies reviewed, it was found that student preferences and strengths should be considered when planning instruction (Ostmoe, Van Hoozer, Scheffel, & Crowell, 1984). Student characteristics, such as learning style and preferences, however, are not the only factors to consider when selecting learning strategies. Other student

characteristics to be considered include the type and level of the program, the nature of the subject matter, the learning outcomes that need to be attained, the availability of facilities and resources, the characteristics and potential attributes of the strategies themselves, and teacher preferences and style.

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Review of Literature on
Leadership Styles

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Few studies were found that examined the leadership styles of nursing educators as they related to their teaching roles. After a search of the literature, some of the more closely related studies were summarized that do not necessarily include nurse educator populations.

Malone (1984) examined the relationship between managers' cognitive style on the field-dependence-independence dimension as identified by Witkin and associates, and adaptability (the ability to diagnose the most appropriate leadership style for a specific management situation) as identified by Hersey and Blanchard (1982). The sample consisted of 136 hospital managers who completed the Group Embedded Figures Test by Witkin and the Leadership Effectiveness and Adaptability Description--Self, by Hersey and Blanchard. Significant positive correlations were found between manager cognitive style and adaptability and years of education as well as between manager adaptability and years of education. No significant correlation was found

between manager cognitive style and years of managerial experience. Most managers were field-dependent. Field dependents preferred the use of Leadership Style One (telling) while field independents preferred the use of Leadership Styles Three (participating) and Four (delegating).

A study conducted in 1983 by Ward tested the hypothesis that the field-dependence of secondary school principals would be positively related to a relationship-oriented style of leadership, consideration and initiating structure in leader behavior, and teacher loyalty to the principal. Leadership style data were collected from the principal by administering Fielder's Least Preferred CoWorker Scale and Group Atmosphere Scale. Leader behavior data for the principals were gathered from a random sample of teachers in each school using the Leader Behavior Description Questionnaire. Witkin's Embedded Figures Test was used to determine each principal's cognitive style. The results showed that a significant relationship existed between cognitive style and leadership style; the greater the field-dependence of the principal, the more relationship-oriented the style.

A similar study conducted in 1984 by Bradley, involved high school principals from Jesuit schools and from public schools in the United States. This sample completed the Reddin Educational Administrative Style Diagnosis Test, the

Rest Defining Issues Test, and an information sheet for obtaining personal, educational, and school data. The purpose of the study was to investigate relationships between the level of cognitive moral development of leaders and their leadership .styles and effectiveness. No significant relationship existed.

Another study by Kelley, in 1967, attempted to determine what relationship, if any, existed between the social perceptions of chief school administrators and their style of educational leadership. The procedures incorporated in this study were an assessment of the level of cognitive complexity of 24 school superintendents within a prescribed area of New York State, a description of the leadership style of these superintendents as seen by their administrative subordinates, and the examination of these data to determine what relationships existed between them. After data were collected by measuring instruments, the relationships were analyzed. The results indicated that a minimum level of cognitive complexity was necessary in order to perform certain administrative functions adequately but beyond the minimum level; increased complexity did not significantly affect these behaviors.

Community education coordinators were subjects of a study conducted by Bivona in 1980. The primary purpose of this study was to utilize Hill's educational cognitive style to examine the relationship between leadership effectiveness

and the cognitive style of community education coordinators. A secondary purpose was to examine the degree of cognitive style match between community education coordinators and their staffs to determine if there was a relationship with respect to leadership effectiveness.

This study included 35 community education coordinators, their immediate supervisors, and 587 staff members. The staff members and their immediate supervisors completed the Leader Behavior Description Questionnaire to determine the perceived leadership effectiveness of community education coordinators. The 35 community education coordinators and staff members completed the Cognitive Style Interest Inventory which measured their cognitive style.

The findings of Bivona's (1980) study indicated few significant relationships between specific cognitive style characteristics of community education coordinators and their perceived leadership effectiveness. Furthermore, a significant relationship was found between degree of overall cognitive style match and perceived leadership effectiveness. From these findings, it was recommended that further empirical evidence be provided to support further exploratory leadership efforts utilizing the Hill model.

Keenan, Hoover, and Hoover (1988) believe that by applying Hersey and Blanchard's Situational Leadership Theory within clinical learning settings, clinical

instructors can help students participate more responsibly in their learning experiences. Situational leadership theories are based on the premise that an effective leader's decisions are consistent with the needs and demands of the environment and of the individuals who are to be led (Hersey & Blanchard, 1982). According to situational leadership theories, a leader's activities should be judged based on the demands of the particular situation (Yuki, 1981). Nurse educators can use the Leader Effectiveness and Adaptability Description--Self to determine their primary leadership style. It is the nurse educator's responsibility to adapt his or her leadership style to the students' maturity level (Keenan, Hoover, & Hoover, 1988). Therefore, both students and educators can participate in finding ways to meet learning objectives. Keenan, Hoover, and Hoover (1988) asserted that as educators become adept at incorporating the situational leadership theory into their teaching methods, students reap the benefits of participatory learning.

Review of Literature on Instructional Methods

Because of the wide range of literature on teaching strategies and the improvement of college teaching, the review of literature reflects those studies that describe the use of various instructional strategies in the clinical, classroom, and laboratory teaching of nursing. It is from these sources that the Instructional Strategies Inventory

was developed. Most of these studies reflect the usefulness of these instructional strategies to nursing education.

Arnold (1975) piloted a study to determine which of three teaching strategies employed in a fundamentals nursing course for freshman associate degree nursing students was the most effective. The teaching strategies studied included lecture-discussion, programmed materials, and student choice. A posttest-only control group-experimental group design was used. A written test and a performance test were used to evaluate the students' achievement in each teaching strategy group. Two major findings after the analysis of data were that the three teaching strategy groups did not respond differently on the three instruments, and that little correlation was found between the students' written test results of the classroom instruction and what they demonstrated on the college laboratory performance tests. Implications of this study suggested the use of a greater variety of teaching strategies in nursing and greater freedom of teachers to use the strategies of their choice (Arnold, 1975).

Teaching roles in clinical laboratory settings in baccalaureate and higher degree nursing programs were described by Bowman in 1976. An instrument was developed to aid in the categorization of teaching roles. The roles were grouped into five broad categories: advising, conferring, steering, socializing, and overseeing. Thirty nurse faculty

volunteers from two state-supported schools of nursing participated in the study. One conclusion of this study was that faculty members with a clinical focus area in medical-surgical nursing reported the greatest number of clinical teaching roles. Even though this does not directly relate to teaching strategies, it can be suggested that clinical teaching roles reflect and include various teaching methodologies as descriptors of this clinical teaching role (Bowman, 1976).

McCabe (1985) summarized existing information on instructional behaviors which were reported to make a difference in student learning. First of all, there was no universally agreed upon definition of clinical instruction. Currently, clinical instruction is viewed as a primary responsibility of the nursing faculty. Reports of Infante's study by McCabe (1985) demonstrate that nursing faculty need to give more attention to the development of strategies and skills of teaching which enable faculty to function as teachers rather than nurses who just happen to be teachers. These findings indicate that nursing faculty are a long way from agreeing about their purpose and function in the clinical setting. Perhaps this finding provides a plausible explanation as to why there has been so little research in the area of clinical instruction in nursing (McCabe, 1985).

A study by Barquin and Yonke (1979) was conducted with a non-nursing population to identify and address the special

problems related to the task of clinical instruction of medical students. Video tapes of clinical faculty revealed that the faculty used lecture as a method of choice rather than engaging in problem-solving activities with the students. A problem identified from their study was that the faculty had difficulty utilizing and selecting other teaching strategies. Although there has been no systematic study of the functioning of nursing faculty in the clinical area, there are numerous articles in which individual faculty members discuss similar concerns and issues which were identified in this study. These are identified in this review.

Meleca, Shimpfhauser, Witteman, and Sachs (1981) report the findings of a study with faculty in nursing, medicine, and dentistry. These faculty members teach in the clinical setting. The researchers developed a questionnaire which reflected current teaching practices in clinical nursing education. The most frequently used instructional strategies by the sampled faculty were conference and study assignments, with less emphasis and interest given to demonstration, lecturing, programmed instruction, tutoring, performance exercise, and combined methods. A discrepancy was also found between what the faculty members actually did and what they considered to be ideal.

Various methods of teaching, described by Cooper (1978a, 1978b, 1979a, 1979b) in a series of articles, were

found useful in teaching adults: informal discussion, nursing care conference, brainstorming, and games and simulation. Informal group discussion has three advantages: stimulates attentive listening and encourages thinking, provides an opportunity for each person to express one's point of view, provides an opportunity for solving mutual problems, and takes advantage of the experience of the members. Nursing care conferences focus on a specific nursing problem or aspect of nursing care. Brainstorming is designed to provide an opportunity for everyone in the group to suggest solutions to a specific problem. The concept of brainstorming is based on two psychological factors: (a) Creative thinking is stimulated by exposure to other ideas on the subject, and (b) applying immediate reasoning or judgment to suggestions stifles many good tentative suggestions for solutions to problems. Games and simulations are not new to nursing (Cooper, 1979b). Often the school's laboratory was designed as a simulated nursing station. By definition, simulation is total patient care.

Skurski (1985) defines educational imagery as "a teaching method that guides the students into decision-making situations through directed day-dreaming or fantasizing without coercement or bias on the part of the instructor" (p. 167). The instructor describes the decision-making environment with as much detail as possible and students are invited to respond. When the actual time

of decision-making occurs, the students individually complete the scenario according to the information they receive and the values they hold. The entire group of students is actively and purposefully engaged in the decision-making process.

In 1984, Smith and Hudson described physical assessment rounds as a teaching strategy. This involves student demonstration of a final systematic, orderly, thorough, sequential, and technically proficient physical examination on a well patient. The rounds serve to increase student appreciation of normal variations and abnormal findings; provide immediate, repetitive individualized student feedback; and aid transfer and enhance assessment skills from well student partners to the creation of a situation that mimics processes or conditions that occur in real life. A game is patterned to mimic aspects of the real world but is structured in a game format with rules, goals, activities, resources, constraints, and payoffs. Games and simulations can provide variety and may be used for different purposes in order to attain various learning objectives.

Other nurse educators have also focused on games and simulations as acceptable teaching strategies that provide a more creative way of introducing a topic (Clark, 1976; Joos, 1984; Whitis, 1985). Furthermore, simulated experiences are very effective in identifying student strengths and

weaknesses and provide learning in a controlled environment
that increases the students' confidence. In addition,
simulation is a means of bringing clinically-related
experiences into the school. Even though games and certain
types of simulations were never popular as a teaching method
in nursing, there is growing interest in using games and
simulations in nursing education because it can provide
opportunities for critical thinking, problem solving, and
decision-making in the conduct of ill patients. Nursing
rounds, in summary, should be "purposeful and planning
should be an essential component" (Holm, Llewellyn, &
Ringuette, 1978, p. 35). It was determined by Holm,
Llewellyn, and Ringuette (1978) that the concept of nursing
rounds evolved into a teaching-learning experience for all
participants. The derived benefits such as shared
experiences in the clinical area, on-the-spot decision-
making, refinement of assessment skills, and increased
enthusiasm of everyone involved, facilitate continuity of
care. This strategy should have a continued use in nursing
curricula (Holm, Llewellyn, & Ringuette, 1978).

Roberts and Thurston (1984) conducted a study to
compare knowledge acquisition and retention of subject
matter presented to nursing students when using two teaching
modalities: lecture supplemented with audio-visual aids and
traditional nonmodal lecture. The subjects were junior year

diploma nursing students who completed a 50-question multiple-choice achievement examination. Group A, the control group, was exposed to a nonmodal presentation of a lecture while Group B, the experimental group, was exposed to the same content using a multimodal presentation with audio-visual aids. The results of this study demonstrated that if educators continue to use lecture presentation as a primary teaching method, consideration should be given to improving its quality. This means that teachers should become adept in the preparation and appropriate use of audio-visual materials that enable greater learning and retention of information for further use. The benefits derived from the use of audio-visual materials include the fact that retention is significantly increased by appropriate use of multimodal sensory teaching strategies (Roberts & Thurston, 1984).

Summary

A synthesis of the literature indicates that additional research is needed to identify and support a relationship between learning styles and leadership styles with nursing faculty populations. According to Keenan, Hoover, and Hoover (1988), nursing faculty members be aware of the effects the teacher-student relationship may have on the learning process, help students progress toward more self-directed learning, and adapt instructional strategies

to students' learning style preferences. It is also important that the educator be knowledgeable of the different types of learning styles and leadership styles and appropriately use instructional strategies to meet students' needs.

The review of literature also reveals a need for more reliable measures of instructional strategies and a means of evaluating the effectiveness of these strategies. The results of such investigations may have far-reaching implications for both nurse educators and students, especially in relation to a healthy, positive, effective learning environment. The use of instructional strategies by nurse educators can also contribute to methods that students use to solve problems. Kolb (1981) states that the solution to almost every problem encountered on the job and in everyday life involves identifying the problem, selecting the problem to solve, seeing different solutions, evaluating possible results, and implementing the solution.

CHAPTER 3

METHODS AND PROCEDURES

Introduction

To describe and compare the relationship of learning style and leadership style upon the selection of instructional strategies among nursing educators in associate and baccalaureate schools of nursing, several instruments were used. The purposes of the study were:

1. to determine and identify the most frequently used instructional strategies utilized in associate and baccalaureate degree nursing programs;

2. to compare the selection and frequency of use of various instructional strategies by nursing faculty in associate and baccalaureate degree nursing programs;

3. to determine the relationship between learning style and leadership style among nursing faculty in baccalaureate degree nursing programs;

4. to determine the relationship between learning and style leadership style among nursing faculty in associate degree nursing programs;

5. to compare the learning styles of nursing faculty in associate and baccalaureate degree nursing programs;

6. to compare the leadership styles of nursing faculty
in associate and baccalaureate degree nursing programs.

The Research Instruments

Four instruments were used to collect data for this
study. The measurement instruments consisted of a Personal
Data Form, the Learning-Style Inventory to assess the
participants' learning style, the Leadership Effectiveness
and Adaptability Description to determine the participants'
leadership style, and an Instructional Strategies Inventory
to identify instructional strategies used by the nursing
faculty participants in the classroom setting.

The Personal Data Form consisted of questions and
responses that describe the sample. The demographic data
included such factors as degrees held, primary area of
responsibility, job title, length of time in present
position, and teaching setting. Several questions described
other characteristics of the population.

The Learning Style Inventory

The Learning Style Inventory (LSI) is a simple
self-description test, based on experiential learning
theory, designed to measure learning style. It does not
measure this variable with 100% accuracy but is an
indication of how an individual describes oneself as a
learner. The particular form of the inventory measures an
individual's relative emphasis on four learning abilities:

Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). The test is valid in that the measures of learning styles predict behavior in a way that is consistent with the theory. Studies conducted by Bennett (1978), Clarke, Oshiro, Wong, and Yeung (1977), Eden and Mathis (1984), Freedman and Stumpf (1978), and Hofer (1977) are a few of the many studies utilizing Kolb's Learning Style Inventory.

The following summary of the four basic learning-style types is based on both research and clinical observation of these patterns of LSI scores:

The Converger's dominant learning abilities are Abstract Conceptualization (AC) and Active Experimentation (AE). This person's greatest strength is the practical application of ideas. A person with this style seems to do best in situations such as conventional intelligence tests in which there is a single correct answer or solution to a question or problem. This person's knowledge is organized in such a way that through hypothetical-deductive reasoning the person can focus the knowledge on specific problems. Research on this style of learning shows that Convergers are relatively unemotional, preferring to deal with things rather than people. They tend to have narrow technical interests, and often specialize in the physical sciences. This learning style is characteristic of many engineers.

The <u>Diverger</u> has the opposite learning strengths of the Converger. The Diverger is best at Concrete Experience (CE) and Reflective Observation (RO). The person's greatest strength is imaginative ability; the person excels in viewing concrete situations from many perspectives. This style is labeled Diverger because a person with this style performs best in situations that call for generation of ideas, such as brainstorming sessions. Research shows that Divergers are interested in people and tend to be emotional as well as imaginative. They have broad cultural interests and often specialize in the arts. This style is characteristic of individuals with humanities and liberal arts backgrounds. Counselors, organizational development specialists, and personnel managers tend to be characterized by this learning style.

The <u>Assimilator's</u> dominate learning abilities are Abstract Conceptualization (AC) and Reflective Observation (RO). This person's greatest strength is the ability to create theoretical models; the person excels in inductive reasoning and in assimilating disparate observations into an integrated explanation. Like the Converger, the Assimilator is less interested in people than in abstract concepts, but unlike the Converger, the Assimilator is not much concerned with the practical use of theories. For the Assimilator, it is more important that the theory be logically sound and precise; when a theory or plan does not fit the facts, this

person is likely to disregard or reexamine the facts. As a result, this learning style is more characteristic of persons in the basic sciences and mathematics than of the applied sciences. In organization, the Assimilator is found most often in the research and planning departments.

The Accommodator has the opposite learning strengths of the Assimilator. This person is best at Concrete Experience (CE) and Active Experimentation (AE). The Accommodator's greatest strength is doing things--carrying out plans and experiments--and involvement in new experiences. This person tends to be more of a risk-taker than people characterized by any of the other three learning styles. This person is labeled Accommodator because one tends to excel in situations in which adaptation to immediate circumstances is necessary. When a theory or plan does not fit the facts, this person most likely discards the plan or theory. The Accommodator tends to solve problems in an intuitive trial-and-error manner, relying heavily on others for information, rather than personal analytic ability. The Accommodator is at ease with people but is sometimes seen as impatient and pushy. This person's education is often technical or practical, such as training in business administration. In organizations, people with this learning style are found in action-oriented jobs, such as marketing and sales.

The interrelations between the words that comprise the four learning style scales and the total scale scores show that no words correlate less than .45 with its scale total. Most correlations fall between .50 and .60. In addition, the words comprising each scale show similar, but somewhat lower, correlations with the theoretical scale opposite (e.g., CE words correlate negatively with the AC scale total). With few exceptions, words comprising a scale do not correlate significantly with the two scales theoretically orthogonal to it (e.g., RO words do not correlate highly with the CE scale total, or the AC scale total). The words comprising the four primary LSI scales have both high convergent and high discriminant validity.

With the Abstract/Concrete dimension, CE correlated -.85 and AC correlated .90. With the Active/Reflective dimension, AE correlated .85 and RO correlated -.84. Therefore, two combination scores used to measure the Abstract/Concrete dimension and the two combination scores used to measure the Active/Reflective dimension correlate negatively with each other.

Reliability coefficients for the two combination scores AC-CE and AE-RO are consistent across five samples and are on a par with most psychological self-report instruments. The result was coefficients of about .80, which reflect that the combination scores AC-CE and AE-RO are highly reliable indices suitable for most research applications.

The Leader Effectiveness and Adaptability
Description--Self (LEAD-Self)

The LEAD-Self measure specified aspects of leader behavior in terms of the Situational Leadership theoretical model. The LEAD-Self yields four ipsative style scores and one normative adaptability (effectiveness) score. The scale was originally designed to serve as a training instrument, and the length of the scale (12 items) and time requirement (10 minutes) clearly reflect the intended function.

The 12-item validities for adaptability score ranged from .11 to .52 and 10 of the 12 coefficients (83%) were .25 or higher. Eleven coefficients were significant beyond the .01 level, and one was significant at the .05 level. Each response option met the operationally defined criterion of less than 80% with respect to selection frequency.

The stability of the LEAD-Self was moderately strong. The contingency coefficients were both .71 and each was significant (p < .01). The correlation for the adaptability scores was .69 (p < .01). The LEAD-Self scores remain relatively stable across time, and the user may rely upon the results as consistent measures.

The logical validity of the scale was clearly established. Face validity was based upon a review of the items. Content validity emanated from procedures employed

to create the original set of items (Hersey & Blanchard, 1982).

Based upon several empirical validity studies, satisfactory results were reported supporting the four style dimensions of the scale using a modified approach to factor structure. The LEAD-Self, therefore, is deemed to be an empirically sound instrument.

Instructional Strategies Inventory

The Instructional Strategies Inventory is a researcher-developed inventory that requires respondents to indicate at what frequency various instructional strategies are used in the classroom setting. A comprehensive listing of instructional strategies was developed after the review of literature regarding teaching strategies in nursing education. The instrument was evaluated by volunteer faculty members from associate degree and baccalaureate degree nursing programs in the Dallas-Fort Worth metroplex. The inventory can be easily administered, interpreted, and scored. It yielded an index obtained by counting the frequencies for each instructional strategy. Also, the common strategies used by the faculty groups were obtained.

The Research Population

The population for this study consisted of a convenience systematic sampling from the defined population. All nursing schools accredited by the National League for

Nursing in the State of Texas were placed on a list in random order. A sample of 23 baccalaureate nursing schools and 17 associate degree nursing schools were selected. The dean of the programs were contacted for permission to invite the faculty to participate in the study. The size of the invited population included 100 associate degree nursing faculty members and 100 baccalaureate nursing faculty members. There were 506 full-time faculty members teaching in baccalaureate nursing programs, according to the fall 1988 census of the Board of Nurse Examiners for the State of Texas. Associate degree nursing programs in Texas employed 428 full-time faculty members. The percentage of invited faculty members to participate in the study constitute approximately 20% of the total number of full-time baccalaureate nursing faculty and 23% of full-time associate degree nursing faculty. A return of 60% of the completed questionnaires was considered satisfactory for drawing conclusions and testing the hypotheses.

According to the previous definition of the faculty, the research participants held a minimum of a master's degree in nursing or a related field. This is the minimum state requirement for faculty who teach in schools of nursing in Texas. Participants were also full-time employees in schools of nursing.

Selection of the Sample

A separate listing of the associate degree and baccalaureate degree programs accredited by the National League for Nursing was retrieved from <u>Nursing and Health Care</u> (1986a, 1986b), a journal published monthly by the National League for Nursing. Listings are published annually in the journal. The listings used for the associate degree and baccalaureate degree programs were based on the status of the accredited programs as of March 30, 1986. The names of the schools were placed on slips of paper, folded, and placed in a container. One-half of the associate degree and one-half of the baccalaureate degree nursing programs were selected randomly from two separate containers. Because of economic factors and the large number of nursing faculty in the State of Texas, all nursing faculty were not considered for this study.

When the schools of nursing were chosen, the deans of each program were asked by letter for a list of the faculty of the nursing programs with their names and mailing addresses. The purpose of the study and intended use of the faculty's participation were addressed in this invitational letter to the deans. Confidentiality was assured and maintained so that misuse of the faculty's names and addresses was not a threat. Return stamped, self-addressed envelopes were included for return of the deans' responses and faculty lists.

The faculty members' names that were sent by the dean were mailed letters asking for their participation in the study. Included in the letter was a set of the research instruments. Completion and return of the questionnaires was construed as informed consent from the faculty members to participate in the study and to be a part of the research sample. The invited participants were given two weeks to complete the instruments and return them in the enclosed stamped, self-addressed envelopes. A follow-up letter was sent one week after the instruments had been mailed to the participants to remind and encourage them to complete and return the instruments.

Research Design

This descriptive study was designed to determine the relationship between learning style and leadership style as they influence the selection of instructional strategies in nursing education. The aim of descriptive studies is to describe relationships among variables rather than to infer cause-and-affect relationships. There was no control over the independent variables of learning style and leadership style.

Procedures for Collection of Data

One hundred faculty members in associate degree programs and 100 faculty members in baccalaureate nursing

programs in Texas were mailed a copy of each of the research instruments, a cover letter, and a return stamped, self-addressed envelope. A period of 2 weeks was allowed for return of the completed instruments. A follow-up letter was mailed 1 week after the instruments were distributed to remind participants to return the instruments. A return of at least 60 questionnaires from each of the faculty groups constituted a 60% response to receive significant results by which to test the hypotheses.

For protection of human subjects, it was noted on the letter of introduction that completion and return of the research instruments constituted informed consent. Responses remained anonymous and did not require the participants' signature.

Research instruments were scored according to instructions in the accompanying technical manual. The Personal Data Form results were used to describe the sample. A score was not formulated.

Procedure for Analysis of Data

When all instruments were scored, the data for each was scored individually. Each instrument, except the demographic data form, yielded an individual score. Each hypothesis was stated in the null form for testing. The level of significance was reported for each test and the interpretation of the significance of the obtained

relationship was described. The scoring of the instructional strategies measuring instrument involved the analysis of frequencies. The data were described in tables.

Testing of Hypotheses

Hypothesis One

There will be no significant differences between the instructional strategies used in the classroom setting by faculty in associate degree nursing programs and those in baccalaureate degree nursing programs.

Each instructional strategy was averaged for both groups of faculty participants to determine the difference of means for frequency of use. An independent t-test for the significance of difference between two independent samples was computed at the .05 level of significance.

Hypothesis Two

There will be no significant difference between the selection and frequency of use of various classroom instructional strategies by nursing faculty in associate degree nursing programs and those in baccalaureate schools of nursing.

The relationships between the variables was identified by the chi-square analysis of frequency. A binomial distribution was also used to generate expected probabilities of use of various instructional strategies by

nursing faculty in the classroom setting. The significance
of the difference was tested at the .05 level of
significance.

Hypothesis Three

There will be a positive relationship between learning
styles and leadership styles among faculty in baccalaureate
degree nursing programs.

The Pearson-r-Product Moment Correlation Coefficient
was used to test this hypothesis. It determined the extent
of relationship between the two variables. The level of
significance was established at the .05 level.

Hypothesis Four

There will be a positive relationship between learning
styles and leadership styles among faculty in associate
degree nursing programs.

The Pearson-r-Product Moment Coefficient Correlation
was used to test this hypothesis. The findings show the
extent of relationship between the variables. The level of
significance was established at the .05 level.

Hypothesis Five

There will be no significant difference between the
learning styles of associate degree nursing faculty and
those of baccalaureate degree nursing faculty.

A correlated t-test was used to obtain a correlation coefficient on two independent samples. The level of significance was established at the .05 level.

Hypothesis Six

There will be no significant difference between the leadership styles of associate degree nursing faculty and those of baccalaureate degree nursing faculty.

A correlated t-test was used to obtain a correlation coefficient on two independent samples. The level of significance was established at the .05 level.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Introduction

In this chapter, the procedures for treatment of data and the results of the statistical treatment of data are presented. Data treatments described were related to the purposes and research hypotheses contained within this study. All data presented reflect the responses of nursing faculty in associate degree and baccalaureate degree nursing programs who completed the Leader Effectiveness and Adaptability Description, the Learning Style Inventory, and the Instructional Strategies Inventory. These instruments were used to carry out the purposes of the study which were to:

1. determine and identify the most frequently used instructional strategies in the classroom setting by faculty in associate and baccalaureate degree nursing programs;

2. determine the relationship between learning style and leadership style among faculty in baccalaureate degree nursing programs;

3. determine the relationship between learning style and leadership style among faculty in associate degree nursing programs;

4. compare the learning styles of faculty in associate and baccalaureate degree nursing programs;

5. compare the leadership styles of faculty in associate and baccalaureate degree nursing programs; and

6. compare the selection and frequency of use of various instructional strategies by faculty in associate and baccalaureate degree nursing programs.

Treatment of Data

After completion of data collection, the data were tabulated, and statistical procedures were applied in order to test the research hypotheses. The data were tabulated for statistical treatment by hand scoring only those instruments containing complete demographic data. The statistical analysis for this study was computed on two sets of data. One set consisted of 69 associate degree nursing faculty who returned the completed questionnaires while the other set was comprised of 66 baccalaureate degree nursing faculty who returned the completed questionnaires.

Scoring the Leader Effectiveness and Adaptability Description questionnaire included totaling the number of circles for each sub-column under Column I (Style Range) and

Column II (Style Adaptability). The total scores were
entered in the spaces provided below each sub-column.

Sub-column totals from Column I are located on the
basic styles (the middle portion) of the Tri-Dimensional
Leader Effectiveness Model in Figure 2. The column numbers
correspond to the quadrant numbers of the leadership model
as follows:

Sub-Column (1)--alternative action choices describe
Quadrant 1, (High Task/Low Relationship Behavior);

Sub-Column (2)--alternative action choices describe
Quadrant 2, (High Task/High Relationship Behavior);

Sub-Column (3)--alternative action choices describe
Quadrant 3, (High Relationship/Low Task Behavior);

Sub-Column (4)--alternative action choices describe
Quadrant 4, (Low Relationship/Low Task Behavior).
Each of the totals associated with the four basic leadership
styles was entered in the boxes provided on the leadership
model shown in Figure 2.

Processing data from Column II (Style Adaptability)
involved multiplying the totals entered in sub-columns (a),
(b), (c), and (d) by the positive and negative factors in
the same sub-columns. The product was then entered in the
space provided directly below. Afterward, all four figures
were added and the sum was recorded in the box designated
TOTAL. The TOTAL score was then marked at the corresponding
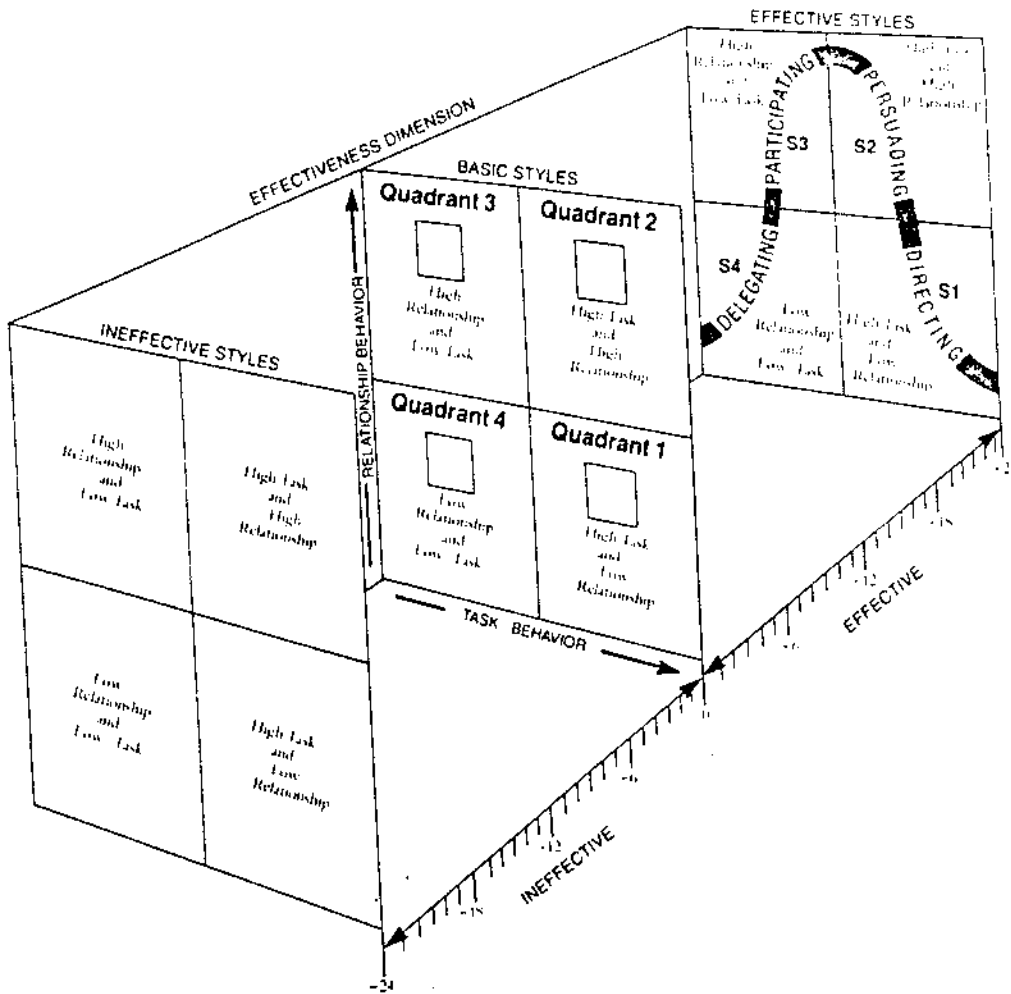
Figure 2. Tri-Dimensional Leader Effectiveness Model by Hersey and Blanchard.

Note. From Management of Organizational Behavior: Utilizing Human Resources by Paul Hersey and Kenneth Blanchard, 1982, Englewood Cliffs, N.J.: Prentice-Hall.

number along the ineffective or effective dimension of the leadership model. Scores for effective behavior ranged from 0 to +24. Scores for ineffective behavior, on the other hand, ranged from 0 to -24.

The Learning Style Inventory was self-scored by the respondents or the researcher. The respondents ranked the endings for 12 different statements according to how well they thought each one described how they would go about learning something. In the spaces provided, the respondents ranked the sentences with a "4" for the sentence ending that described how they learned best, down to a "1" for the sentence ending that seemed least like the way they would learn.

The scores from each column were totalled. These four columns relate to the four stages in the Cycle of Learning from Experience. This cycle contains four learning modes: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE).

Two combination scores were obtained by taking the scores from the four learning modes, AC, CE, AE, and RO and subtracting as follows:

| _____ | - | _____ | = | _____ | | _____ | - | _____ | = | _____ |
| AC | | CE | | AC-CE | | AE | | RO | | AE-RO |

The two combination scores, AC-CE and AE-RO, were then plotted on a grid at their point of interception or data point. This data point indicated which of the four learning styles was most dominant for each participant. The grid is found in Figure 3. The four quadrants of the grid, labeled Accommodator, Diverger, Converger, and Assimilator, represent the four dominant learning styles.

The Instructional Strategies Inventory was tabulated as a frequency checklist. Respondents placed a check mark in the appropriate column according to the following key: 5 = all the time, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = never used. The responses were entered for each group, the associate degree faculty and the baccalaureate degree faculty, in the SAS program. Total scores were not completed due to lack of significance for one composite score.

Statistical Implications

Several statistical tests were used to test the research hypotheses. The Pearson-r-Product Moment Correlation Coefficient was used to test hypotheses 3 and 4. According to Borg and Gall (1983), the magnitude of a correlation coefficient provides an index of the practical significance of an observed relationship between two or more variables. The larger the coefficient, the larger the
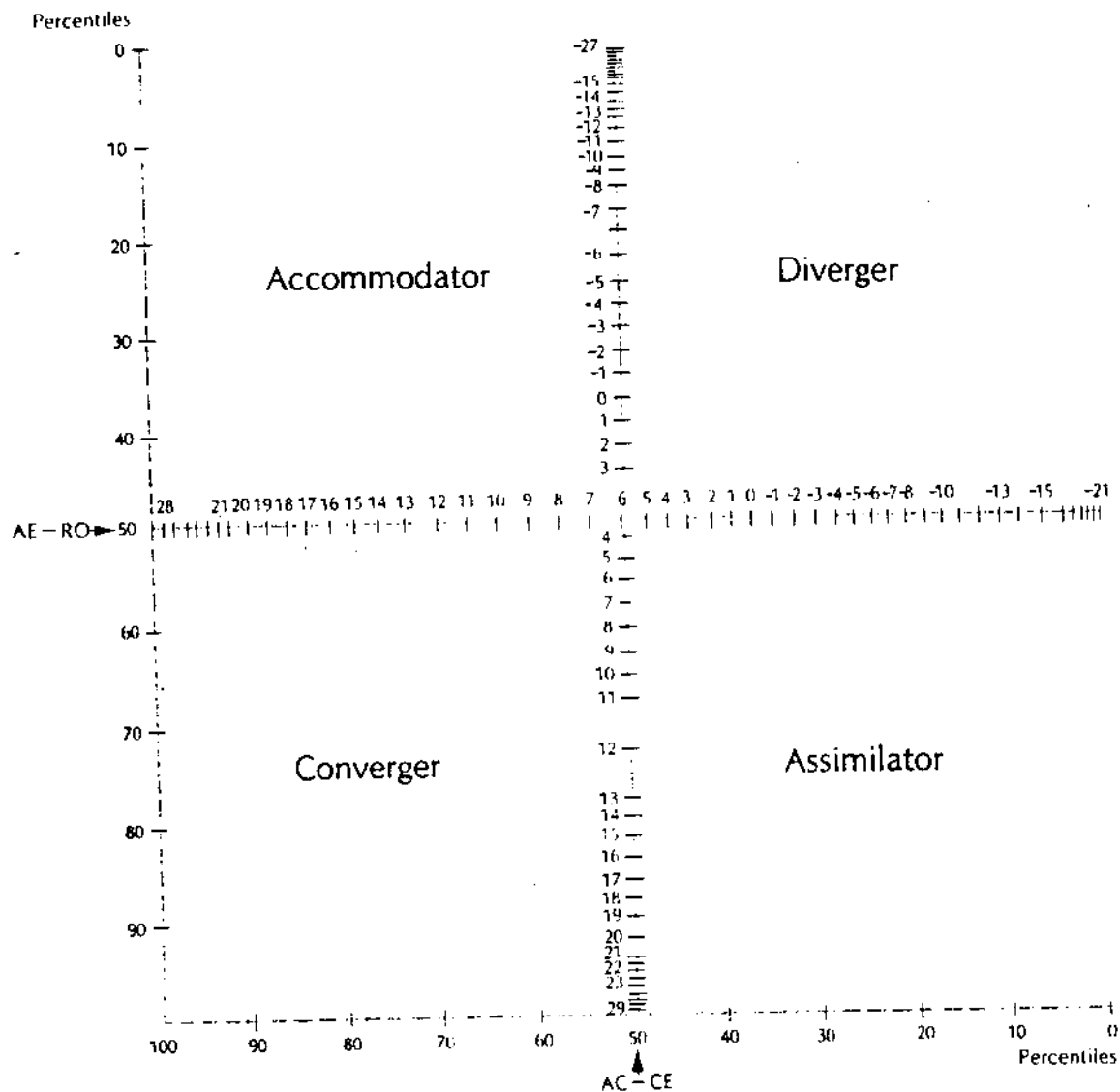
Figure 3. Learning Style Type Grid.

Note. From _Learning Style Inventory Self-Scoring Test and Interpretation Booklet_ by David A. Kolb, 1976, Boston, Massachusetts: McBer and Company. Copyright 1976 by David A. Kolb. Reprinted by permission.

relationship between the two or more variables being correlated. A coefficient of +1.00 or -1.00 indicates a maximum relationship. The educational significance of the variables being measured, the distribution of scores on the measures, and characteristics of the sample each have an affect on how the magnitude of a correlation coefficient is to be interpreted (Borg & Gall, 1983). Findings that suggest a nonsignificant or minimum or significant relationship does not indicate that the observed result is important or meaningful.

Chi-square is a nonparametric statistical test that is used when the research data are in the form of frequency counts (Borg & Gall, 1983). The chi-square method was used to test hypothesis 2. These frequency counts can be placed into two or more categories. Chi-square was used to investigate the selection and frequency of use of various classroom instructional strategies by nursing faculty in associate degree nursing programs and in baccalaureate programs.

The chi-square test is used most often when the categories into which frequencies fall are discrete rather than continuous (Borg & Gall, 1983). A discrete variable can take specific values only (Ferguson, 1981). A continuous variable may take any value within a defined range of values (Ferguson, 1981).

Chi-square involves the comparison of sets of observed and theoretical frequencies. Inspection of this definition shows that chi-square is a descriptive measure of the magnitude of the discrepancies between observed and expected frequencies (Ferguson, 1981).

A correlated t-test was used to test the significance of the difference between a set of paired observations. Hypotheses 5 and 6 were tested using this statistical test. By assuming the null hypothesis that the value of the correlation coefficient is equal to 0, or HO: $p = 0$, a test of significance was then applied using the distribution of t (Ferguson, 1981). In this case, the set of paired observations consisted of the associate degree nursing faculty and the baccalaureate degree nursing faculty. The variables studied were learning styles and leadership styles.

The binomial distribution was used to generate expected probabilities of use of various classroom instructional strategies by nursing faculty in the classroom setting. This is a theoretical distribution which associates possible outcomes with probabilities of occurrence.

Sample Representation

Follow-up postcards encouraging prompt response to the research instruments were mailed to all of the participants.

The sample consisted of 69 associate degree nursing faculty members and 66 baccalaureate degree nursing faculty members who responded to the research instruments. These two groups represented several community colleges and universities across the State of Texas.

All of the study participants held a master's or doctorate degree with varied academic areas of specialization. Seventy-seven percent of the associate degree faculty group held a master's degree as their highest academic achievement. Of the faculty members in baccalaureate nursing programs, 66% held an earned doctorate. These results are indicative of the requirements of nursing programs across the nation; that is, the required level of education to teach at the community college is a master's degree. The college/university setting requires a master's degree but preference is given to an earned doctorate. The data are presented in Table 1.

The nursing population in this study, furthermore, had academic areas of specialization in nursing or education. The minimum requirement to teach nursing in the State of Texas is a master's degree and/or 18 graduate hours in nursing beyond the bachelor's degree. Only one faculty member held a specialization in administration.

The primary area of responsibility of nursing faculty in schools of nursing was teaching. Faculty assignments

Table 1

Highest Degree Held by Nursing Faculty

Type of Program	Master's	Doctorate
Associate	53	16
Baccalaureate	22	44

Note. Total N for Associate = 69.

Total N for Baccalaureate = 66.

ranged from teaching only the clinical component; teaching classroom and clinical components; or teaching clinical, classroom, and simulated components. A work week consisted of 30 to 40 hours. Several faculty members also admitted to 45 to 50 hours of work per week.

Two of the questions that the study participants were asked to respond was the length of time employed in nursing and the length of time in nursing education. These data are presented in Table 2 and Table 3. As reflected by the data, 48% of associate degree nursing faculty had 16 to 20 years of experience in nursing. This includes experience since completion of the participants' training and licensure for registered nurses. Forty-one percent of the baccalaureate degree nursing faculty had 16 to 20 years of experience in

Table 2

Length of Time Employed in Nursing

Time in Years	Associate	Baccalaureate
0-5	0	0
6-10	13	10
11-15	17	10
16-20	33	27
21 or more	6	19

Note. Total N for Associate = 69.

Total N for Baccalaureate = 66.

Table 3

Length of Time in Nursing Education

Time in Years	Associate	Baccalaureate
0-5	17	10
6-10	21	13
11-15	16	20
16-20	11	15
21 or more	4	8

Note. Total N for Associate = 69.

Total N for Baccalaureate = 66.

nursing. The entire nursing faculty population in this study had at least 6 years of experience in nursing.

Again, the length of time in nursing education was measured by years of experience ranging between 0 to 5, 6 to 10, 11 to 15, 16 to 20, and 21 years or more. The percentages among associate degree nursing faculty were 25%, 30%, 23%, 16%, and 6%, respectively. The variability among the length of time in nursing education was fairly close among four of the subgroups.

The baccalaureate faculty group included 30% of the population having 11 to 15 years of experience in nursing education. Twenty-three percent had 16 to 20 years of experience; 12% had 21 or more years of experience in nursing education.

Other characteristics of the nursing faculty population in this study included the length of time in the present position. Respondents were asked to respond to the number of years in their present teaching role. The data are presented in Table 4. Thirty-eight percent of nursing faculty in associate degree nursing programs had 0 to 5 years of experience in their teaching role followed closely by 30% of this population who had 6 to 10 years of experience. Among the baccalaureate nursing faculty population, 48% had 0 to 5 years of experience in their present teaching role. Thirty percent of the baccalaureate

nursing faculty had 6 to 10 years of experience in their present role. Only 2% of the entire nursing faculty study group had 21 years or more of teaching experience.

Table 4

Length of Time in Present Position

Type of Program	0-5	6-10	11-16	16-20	21 & over
Associate	26	21	10	12	0
Baccalaureate	32	20	7	4	3

Note. Total N for Associate = 69.

Total N for Baccalaureate = 66.

Other demographic data included age range, sex, and ethnic background. These data were requested in order to further describe the study population. As is typical of nursing populations, this study group contained 95% female respondents. Ninety-six percent of this population was Caucasian. Forty-one percent of the baccalaureate nursing faculty members participating in this study were 50 years old or more; 30% were between the ages of 40 and 49. In the associate degree faculty group, 37% were 50 years of age or greater, and 40% were between the ages of 40 and 49.

In summary, the baccalaureate and associate degree
nursing faculty groups were similar in their demographic
characteristics. Their length of time in nursing education
and in their present teaching role were also descriptively
similar. The greatest difference was in the two groups'
highest educational level attained. The majority of the
baccalaureate nursing faculty had earned doctorates whereas
the majority of associate degree faculty had earned master's
degrees.

Examination of the Study Hypotheses

The tenability of each stated hypothesis was determined
by statistical analysis. Each hypothesis was either
rejected or retained according to the .05 level of
significance. Results of such statistical testing are
presented in the remainder of this chapter.

Hypothesis 1

Null hypothesis 1 stated that there would be no
significant differences between the instructional strategies
used in the classroom setting by faculty in associate degree
nursing programs and those in baccalaureate degree nursing
programs. In order to statistically test this hypothesis,
each instructional strategy was averaged for both groups of
faculty participants in order to determine the difference of
means for frequency of use. An independent t-test for the

significance of difference between two independent samples
was computed at the .05 level of significance. The data for
hypothesis 1 are presented in Table 5.

Examination of the data presented in Table 5 indicates
that 42 of the 45 instructional strategies used by nursing
faculty in the classroom setting did not significantly
differ between associate degree and baccalaureate degree
faculty groups. However, variables 15, 26, and 33 were
statistically significant at the .05 level. These variables
correspond with tutorial groups, interactive lecture, and
seminar, respectively, from the Instructional Strategies
Inventory. Therefore, the null hypothesis can be retained
since only 3 of the 45 instructional strategies were
statistically significant and exceed the given significance
level of .05. That is, the selection of instructional
strategies by associate and baccalaureate degree faculty
members could have occurred by chance in less than 5 out of
100 cases. It can be said that both faculty samples used
tutorial groups, interactive lecture, and seminar groups in
the classroom setting.

A testing of the null hypothesis indicates no
significant difference between the selection of strategies
between the two faculty groups. It cannot be assumed that
the strategies were not used by faculty members in the
classroom setting. Furthermore, it cannot be assumed that

Table 5

t-Test Analysis of Instructional Strategies

Variable	A M1	B M2	t Probability
1	2.594	2.636	.81
2	3.057	3.333	.15
3	3.420	3.500	.63
4	4.188	4.227	.80
5	4.072	4.121	.73
6	4.014	4.242	.12
7	3.637	3.681	.79
8	4.173	4.257	.55
9	3.608	3.500	.50
10	4.362	4.333	.80
11	4.202	4.166	.77
12	2.637	2.757	.54
13	3.971	3.984	.92
14	2.304	2.545	.15
15	2.594	2.242	.04*
16	2.623	2.924	.11
17	2.405	2.454	.82
18	3.710	3.893	.30
19	4.594	4.348	.06

Table 5.   (Continued)

Variable	A	B	t Probability
	M1	M2	
20	2.217	2.166	.81
21	3.376	3.045	.17
22	2.898	2.954	.79
23	2.426	2.363	.77
24	2.971	3.045	.73
25	1.942	1.681	.23
26	3.724	3.303	.04*
27	3.855	3.696	.34
28	2.942	2.909	.86
29	3.144	3.181	.85
30	2.449	2.348	.58
31	2.420	2.151	.15
32	2.565	2.530	.86
33	2.753	3.196	.02*
34	2.115	2.121	.97
35	3.304	3.272	.88
36	2.217	2.500	.14
37	2.028	1.923	.54
38	2.739	2.606	.53
39	1.753	1.666	.59

Table 5.   (Continued)

Variable	A	B	t Probability
	M1	M2	
40	2.840	2.787	.79
41	1.739	1.833	.62
42	2.652	2.363	.16
43	1.840	1.863	.89
44	1.855	2.242	.05
45	1.811	1.833	.90

*p < .05.

these are ineffective strategies for use in the nursing curriculum. Other factors such as time, familiarity with the technique, the students' learning style, and the desired learning objective may limit the frequency of use of these strategies. Further research would be needed to identify any uncontrollable or dependent variables which would have an affect upon the findings of the study.

Hypothesis 2

Stated in the null form, it was predicted that no significant difference would be found between the selection and frequency of use of various classroom instructional

strategies by faculty in associate and baccalaureate degree nursing programs. The chi-square analysis of frequency was used to test the hypothesis at the .05 level of significance. The data are presented in a contingency table. These findings are found in Table 6.

The Instructional Strategies Inventory was in the form of frequency counts placed in five categories with discrete data. Chi-square values and probabilities from each of the instructional strategies are presented in Table 6. There were no statistically significant probabilities; therefore, the null hypothesis was retained. This supports the assumption that both faculty groups select and use the same instructional strategies at the same frequency of use.

It is interesting to note that three of the instructional strategies are at or near the .05 level of significance but do not exceed the value. These strategies, as depicted in Table 6, are items 26, 31, and 33. These correspond with the instructional strategies of interactive lecture, computer simulation, and seminar. Therefore, the faculty do not significantly differ from the general nursing population in their selection and frequency of use of various instructional strategies.

Additional statistical data included the generation of the binomial distribution which depicts the expected probabilities of the use of various instructional strategies

Table 6

Chi-Square Analysis of Instructional Strategies

Variable	Chi-Square Value	Probability
1	1.257	.86
2	4.176	.38
3	1.066	.90
4	1.333	.86
5	0.349	.98
6	3.146	.53
7	0.739	.94
8	4.703	.19
9	3.321	.50
10	2.911	.57
11	0.424	.93
12	1.229	.87
13	1.503	.82
14	2.825	.58
15	4.750	.31
16	5.205	.26
17	2.113	.71
18	2.196	.70
19	5.459	.24
20	1.626	.80

Table 6. (Continued)

Variable	Chi-Square Value	Probability
21	3.384	.49
22	1.708	.78
23	1.182	.88
24	2.822	.58
25	2.390	.66
26	9.426	.05*
27	1.757	.78
28	1.843	.76
29	2.134	.71
30	2.956	.56
31	9.152	.05*
32	0.494	.97
33	8.245	.08*
34	0.575	.96
35	1.332	.85
36	4.871	.30
37	0.830	.84
38	1.526	.82
39	2.816	.58
40	1.465	.83
41	1.368	.85

Table 6. (Continued)

Variable	Chi-Square Value	Probability
42	2.600	.62
43	1.695	.79
44	6.543	.16
45	1.074	.89

*Near but not statistically significant.

probabilities of the use of various instructional strategies by nursing faculty in the classroom setting. The binomial distribution demonstrated whether the faculty members used an instructional strategy or not. The number of faculty members who used each strategy was also given. The theoretical and actual distributions are depicted in Figure 4. The binomial distribution, furthermore, looks at equal probability of occurrence. For purposes of this study, the actual distribution or frequency of use of instructional strategies closely resembles the theoretical distribution. The differences between the exact binomial probabilities and the corresponding normal approximations are small. As n (the number of faculty using a strategy) increases in size, the accuracy of the approximation

improves. For any n, as p departs from 1/2, the approximation becomes less accurate.
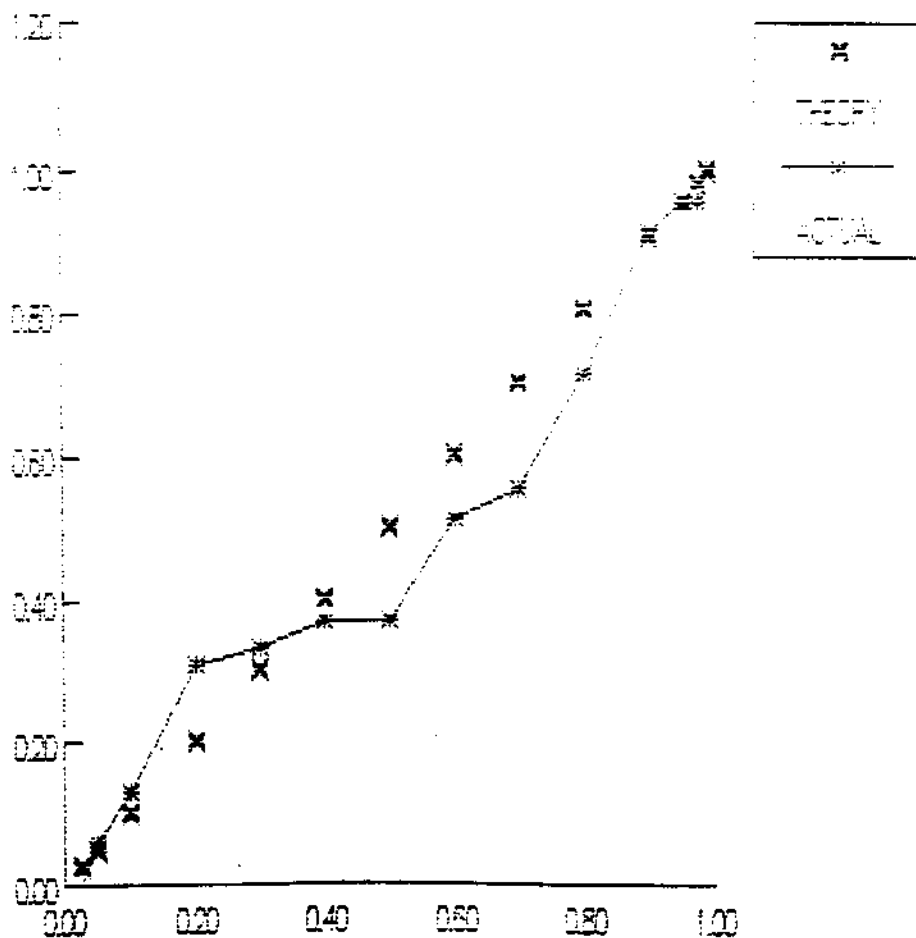
Figure 4. The binomial distribution of expected probabilities of the use of classroom instructional strategies by nursing faculty.

<u>Hypothesis 3</u>

The directional hypothesis 3 stated that there would be a positive relationship between learning styles and leadership styles among faculty in baccalaureate degree nursing programs. The Pearson-r-Product Moment Correlation Coefficient was used to test this hypothesis. The hypothesis was tested in the null form at the .05 level of significance. The findings are presented in Table 7.

Table 7

<u>Pearson-r-Product Moment Correlation Coefficient Analysis of Learning Styles and Leadership Styles Among Nursing Faculty in Baccalaureate Programs</u>

	XAXIS	YAXIS	LEAD
XAXIS	–	-0.10741	-0.04600
		0.3944*	0.7160*
YAXIS	–	–	0.11748
			0.3513*

*Indicates probability; values are not significant at .05 level.

The Learning Style Inventory was coded using four quadrants. When analyzing the headings of Table 7, the XAXIS and the YAXIS, it can be determined that these lines intersect to form the four quadrants, as depicted in Figure 5. There were no statistically significant correlations between learning styles and leadership styles when tested at the .05 level of significance using data gathered from the baccalaureate faculty group. However, further manipulation of the data yielded more significant findings as explained under hypothesis 5. Because there were no statistically significant findings, the hypothesis was rejected.

4	1
Accommodator	Diverger
3	2
Converger	Assimilator
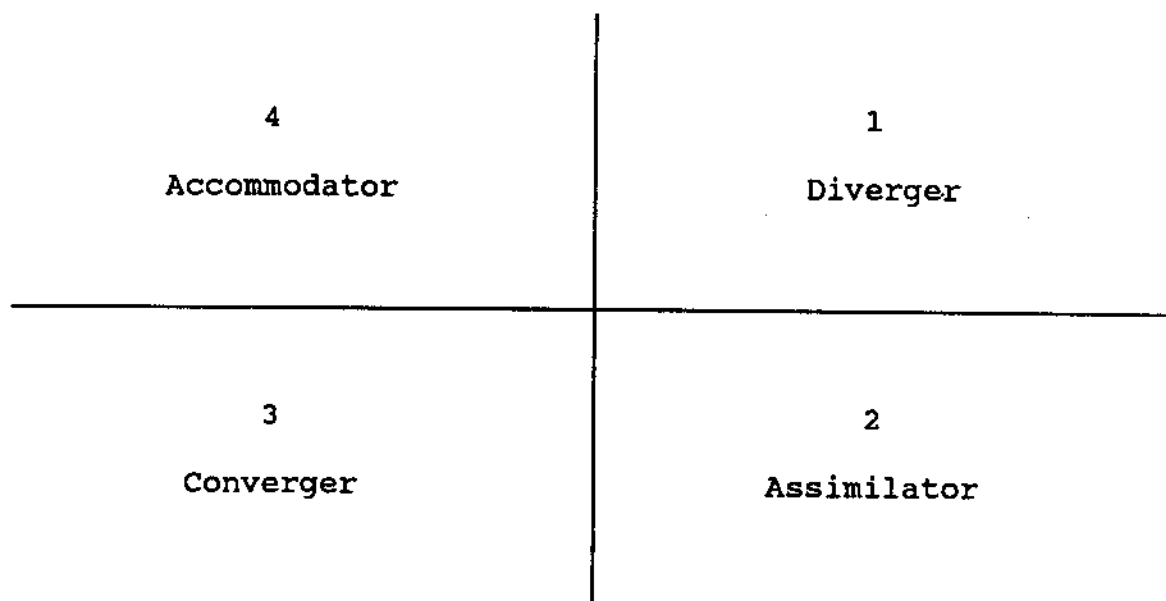
Figure 5. Identification of the four quadrants of the Learning Style Inventory.

If r = 0.1074, 0.0460, and 0.1174 as presented in Table 7, then r^2 = 0.01, 0.00, and 0.01, respectively. It can be stated that 1% or less of the variance of the one variable (learning style) is predictable from the variance of the other variable (leadership style). Thus, r^2 can quite meaningfully be interpreted as a proportion, and r^2 x 100 as a percentage. In attempting to conceptualize the degree of relationship represented by a correlation coefficient, according to Ferguson (1981), it is generally more meaningful to think in terms of the square of the correlation coefficient instead of the correlation coefficient itself. Therefore, there is a low association in terms of predictability of variance.

Further findings suggested after analysis of the data include a chi-square analysis of each quadrant of the Learning Style Inventory using associate degree and baccalaureate degree faculty as independent groups. Data related to these findings are presented in Table 8. These findings support the explanation for the significance of the XAXIS by group.

As shown in Figure 5, Quadrants 1 and 2 represent Diverger and Assimilator learning styles, respectively. Analysis of the data revealed that the associate degree faculty comprised a greater percentage of the respondents who were depicted as Convergers and Accommodators. This is

Table 8

Chi-Square Analysis of Learning Style Inventory Quadrants by
Groups

Frequency

  Percent

  Row Pct.

Col. Pct.	1	2	3	4	Total
0	10	11	25	23	69
Associate	7.46	8.21	18.66	17.16	51.49
	14.49	15.94	36.23	33.33	
	83.33	73.33	41.67	48.94	
1	2	4	35	24	65
Baccalaureate	1.49	2.99	26.12	17.91	48.51
	3.08	6.15	53.85	36.92	
	16.67	26.67	58.33	51.06	
Total	12	15	60	47	134
	8.96	11.19	44.78	35.07	100.00

also reflected as being on the right side of the XAXIS.
Baccalaureate nursing faculty, on the other hand, tended to
comprise the larger percentage of respondents who were also
characterized as Convergers (Quadrant 3) and Accommodators

(Quadrant 4). Eighty percent of the total group were depicted as Convergers and Accommodators, which is graphically described as the left side of the XAXIS. Furthermore, these faculty members share the common learning mode of Active Experimentation in which learning takes an active form--experimenting with influencing or changing situations. These faculty members would have a practical approach and a concern with what really works, as opposed to watching a situation.

Associate degree faculty were described as having a learning mode consistent with RO, which is depicted as the right side of the XAXIS. In this stage of the learning cycle, people understand ideas and situations from different points of view. In a learning situation, these faculty members would rely on patience, objectivity, and careful judgment but would not necessarily take any action. They would rely on their own thoughts and feelings to form opinions.

Hypothesis 4

Directional hypothesis 4 stated that there would be a positive relationship between the learning styles and leadership styles of faculty in associate degree nursing programs. The Pearson Product Moment Coefficient of Correlation was used to test this hypothesis at the .05

level of significance. The findings suggest the extent of relationship between the variables. The hypothesis was tested in the null form. The findings are presented in Table 9.

Table 9

Pearson r Product Moment Correlation Coefficient Analysis of Learning Styles and Leadership Styles Among Nursing Faculty in Associate Degree Nursing Programs

	XAXIS	YAXIS	LEAD
XAXIS	—	-0.10587 0.3866*	-0.20825 0.0860*
YAXIS	—	—	0.12669 0.2996*

*Indicates probability; values are not significant at .05 level.

It is of interest to note the closeness of $p = 0.0860$ to the .05 level of significance. The value of $p = 0.0860$ reflects a closeness between XAXIS of the learning style model to leadership. However, this value is not statistically significant. The null hypothesis that there

will be no significant relationship between the learning
styles and leadership styles among nursing faculty in
associate degree nursing programs is, therefore, retained.
In its directional form, as earlier stated, the hypothesis
is rejected. Leadership style and learning style do not
correlate as supported by analysis of the data among
associate degree nursing faculty.

Hypothesis 5

Hypothesis 5 stated that there would be no significant
difference between the learning styles of associate degree
nursing faculty and those of baccalaureate nursing faculty.
The null hypothesis was tested using a correlated t-test to
obtain a correlation coefficient on two independent samples.
The level of significance was established at .05. The
results of the data analysis are presented in Table 10.

Table 10

Correlated t-Test Analysis of Learning Styles Between
Associate Degree and Baccalaureate Degree Nursing Faculty

Group	N	t	M	Probability
Associate	69	2.594	−2.342	0.815
Baccalaureate	66	2.636	−2.338	0.815

After an analysis of the data, the null hypothesis was retained. The findings did not suggest a statistically significant difference when tested at the .05 level. Further testing using the Pearson Product Moment Correlation Coefficient also yielded non-significant findings. Leadership was correlated with the XAXIS and the YAXIS of the Learning Style Inventory. The level of significance was set at .05. The total $\underline{N}$ consisted of both faculty groups. The data are presented in Table 11.

Table 11

Pearson Correlation Coefficients of Leadership Style and Learning Style

	XAXIS	YAXIS	LEAD
XAXIS	0.32330	0.02552	-0.08073
	0.0001**	0.7698*	0.3538*
YAXIS	-	0.02505	0.06042
		0.7739*	0.4880*
LEAD	-	-	-0.00581
			0.9469*

*$\underline{p}$ > .05; indicates non-significance at the .05 level.

**$\underline{p}$ < .05; indicates significance at the .05 level.

In evaluating the results presented, the difference between the correlations is not significant at the .05 level. Where p = .0001, this indicates a difference in the degree of relationship between the variables. It is also interesting to note that neither the XAXIS nor YAXIS of the Learning Style Inventory was correlated with leadership style. The probabilities are non-significant at the .05 level. Furthermore, none of the values of the correlation coefficients is closer to +1.00 or -1.00. This could be evaluated to mean that there is neither a positive nor a negative relationship between leadership style and learning style of the nursing faculty group.

Hypothesis 6

Null hypothesis 6 stated that there would be no significant difference between the leadership styles of associate degree nursing faculty and those of baccalaureate degree nursing faculty. A correlated t-test was used to obtain a correlation coefficient on two independent samples. The level of significance was established at .05. The data are presented in Table 12.

Leadership style was highly correlated at the .05 level of significance between the associate degree and baccalaureate degree faculty groups. There is a statistically significant difference between the leadership

Table 12

Correlated t-Test of Leadership Styles of Associate Degree
and Baccalaureate Degree Faculty

Group	Mean	$\underline{t}$	Probability
Associate	2.88	-2.3731	0.192*
Baccalaureate	3.24	-2.3473	0.204*

*$\underline{p}$ < .05; indicates significant value.

styles of the two groups. Therefore, the null hypothesis is
rejected. When the Tri-Dimensional Leader Effectiveness
Model was depicted by quadrants, more of the associate
degree nursing faculty members had basic leadership styles
of Low Relationship/Low Task and High Task/Low Relationship.
Most of the baccalaureate faculty members had Low
Relationship/Low Task leadership styles. The quadrants of
the Tri-Dimensional Leader Effectiveness Model were labelled
for testing purposes, as shown in Figure 6. The associate
degree faculty and the baccalaureate faculty groups were
separated according to the four cells representing the basic
styles of leadership.

As shown in Figure 6, the four quadrants of the
Tri-Dimensional Effectiveness Model depict an XAXIS and a
YAXIS. In Quadrant 3 of this model, the number of

4 High Relationship and Low Task	1 High Task and High Relationship
3 Low Relationship and Low Task	2 High Task and Low Relationship
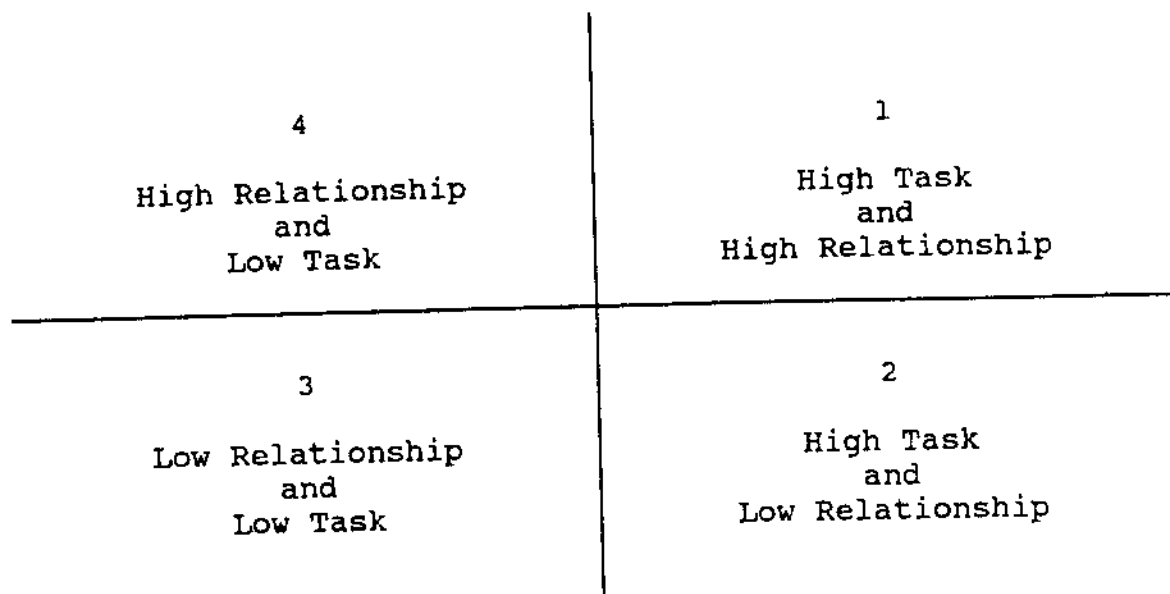
Figure 6. Four quadrants of the Tri-Dimensional Leader Effectiveness Model.

baccalaureate faculty (n = 35) explains the significance of the XAXIS by group. The greatest number of baccalaureate and associate degree faculty members are found in Quadrant 3. Quadrant 3 is depicted as the Low Relationship/Low Task leadership style. When the left side of the XAXIS is compared to the right side of the XAXIS, it is of interest to note that 20.15% of the faculty members are depicted by the right side of the XAXIS (Quadrants 3 and 4), and 79.85% of the faculty members are depicted by the left side of the XAXIS (Quadrants 1 and 2).

Additional statistical findings included use of the Pearson-r-Product Moment Correlation Coefficient to identify

the degree of relationship between baccalaureate and associate degree faculty groups with the XAXIS and YAXIS of the leadership model as depicted in Figure 6. The level of significance was established at .05. The findings are presented in Table 13.

Table 13

Pearson-r-Product Moment Correlation Coefficient Analysis of Leadership Style According to XAXIS and YAXIS with Associate and Baccalaureate Degree Faculty Members

Group	XAXIS	YAXIS	LEAD
XAXIS	0.32330	0.02552	-0.08073
	0.0001**	0.7698*	0.3538*
YAXIS	–	0.02505	0.06042
		0.7739*	0.4880*
LEAD	–	–	-0.00581
			0.9469*

*p > .05; indicates non-significance at the .05 level.

**p < .05; indicates significance at the .05 level.

Analysis of the findings reveals one significant relationship between the faculty group and the XAXIS of the leadership model. At the .05 level of significance, p =

.0001. This finding supports the t-test analysis and the frequency cell counts where most faculty members' leadership style is clustered in Quadrant 3. Quadrant 3 falls along the left side of the XAXIS. Furthermore, Quadrant 3 is depicted by the Low Relationship/Low Task leadership style.

The General Linear Models Procedure, a form of analysis of variance, was also used to evaluate the findings. The data related to leadership are presented in Table 14. The probability (p = .80) is not significant at the .05 level. The mean square estimate is 11.34. The mean of the leadership variable is 3.73. The F ratio is .40. The mean squares provide estimates of variance components; they are used to test interaction effects. The F ratio is an overall screening that indicates that the value of .40 is nonsignificant at the .05 level of significance. This also corresponds with the t-test probability that is nonsignificant.

Summary of the Results

Based on the statistical analysis of the six hypotheses of this study, it was found that null hypotheses 1 through 5 were accepted or retained, and null hypothesis 6 was rejected at the .05 level of significance. General findings related to the purposes of the study were also presented. The study population was described according to the

Table 14

Analysis of Variance of Leadership and Faculty Group

Source	Sum of Squares	Mean Square	DF	Probability	Variance
Lead Model	205.23	51.30	4	.80	303.98
Error	16597.09	128.65	129		
Cor'd. N	16802.32		133		

demographic survey completed by the participants. Chapter 5 includes the summary, discussion, conclusions, recommendations, and implications for nursing education.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, RECOMMENDATIONS,
AND IMPLICATIONS FOR NURSING EDUCATION

Summary

The emphasis of this study was the description and comparison of the relationship of learning style and leadership style upon the selection of instructional strategies among educators in associate and baccalaureate degree nursing programs. The instruments used to identify the learning and leadership styles of the research population in this study were Kolb's Learning Style Inventory and Hersey and Blanchard's Leader Effectiveness and Adaptability Description.

The purposes of this study were to:

1. determine and identify the most frequently used instructional strategies by nursing faculty in associate and baccalaureate degree nursing programs in the classroom setting;

2. compare the selection and frequency of use of various instructional strategies by faculty in associate and baccalaureate degree programs of nursing;

3. determine the relationship between learning style and leadership style among faculty in baccalaureate degree nursing programs;

4. determine the relationship between learning style and leadership style among faculty in associate degree nursing programs;

5. compare the learning styles of faculty in associate and baccalaureate degree nursing programs; and

6. compare the leadership styles of faculty in associate and baccalaureate degree nursing programs.

The emphasis of this study was placed on the identification and comparison of learning styles and leadership styles of faculty in associate degree and baccalaureate degree programs in nursing. The goal of this study was to identify the impact of learning styles and leadership styles on the selection of instructional strategies in the classroom setting. The basic instruments used in this study to identify the kinds of learning styles, leadership styles, and instructional strategies were Kolb's Learning Style Inventory, Hersey and Blanchard's Leader Effectiveness and Adaptability Description, and the Instructional Strategies Inventory. Another instrument, a demographic survey, was used to collect data about the study population.

The first phase of the study consisted of mailing questionnaires to faculty members in selected associate degree and baccalaureate programs of nursing. Permission was obtained from the deans, directors, or heads of the selected nursing programs. Follow-up postcards were mailed one to one and one-half weeks after the questionnaires were mailed to remind faculty members to return the instruments. The second phase consisted of treatment of the research hypotheses by analysis of variance, t-test techniques, chi-square analysis, and Pearson-r-Product Moment Correlation Coefficients. Each hypothesis was tested in the null form, and, subsequently, rejected or retained based on the findings produced by data analysis. The research sample was described by such means as highest degree held, primary teaching area, length of time in nursing education, and identification of type of nursing program. Additional findings from data analysis were also included.

The results of this study led to the retention of null hypotheses 1 through 5. Hypothesis 6 was rejected. The data revealed that the learning styles and leadership styles of associate degree and baccalaureate faculty were not statistically different. Instructional strategies used by faculty members in both groups were not different when used in any program of nursing. One of the major findings resulting from analysis of the data was that leadership

styles and learning styles do not have an impact on the
selection of instructional strategies in nursing education.

Discussion

Data collected for hypotheses 1 through 6 were analyzed
by an independent t-test, chi-square, a binomial
distribution, Pearson-r-Product Moment Correlation
Coefficient, and General Linear Models Procedure. The SPSS
software computer package for the Behavioral Sciences was
used for the data analysis. The level of significance was
established at .05.

1. Null hypothesis 1 stated: There will be no
significant differences between the instructional strategies
used in the classroom setting by faculty in associate degree
nursing programs and those in baccalaureate degree nursing
programs.

The Instructional Strategies Inventory identified 45
useful teaching techniques for classroom settings. The data
analysis indicated that strategies 5, 26, and 33 were
statistically significant at the .05 level. These
strategies were identified as tutorial groups, interactive
lecture, and seminar, respectively. The faculty groups did
not differ in their use of these instructional strategies in
the classroom setting. However, there were no statistically

significant differences in the remaining 42 strategies. Therefore, the null hypothesis was retained.

The findings from hypothesis 1 are consistent with the results of a study piloted by Arnold (1975). After Arnold's analysis of the data, it was suggested that nursing faculty use a greater variety of teaching strategies in the classroom with greater freedom to use those of choice. Lecture-discussion still tends to be the method of choice for use in the classroom setting.

Cooper (1978a, 1978b, 1979a, 1979b) identified various methods of teaching in a series of articles. These strategies were found useful in teaching adults: informal discussion, brainstorming, games, and simulation. Lecture is still the most widely used method for dispersing information in the classroom setting (Cooper, 1978a).

Another study conducted by Roberts and Thurston (1984) was designed to compare knowledge acquisition and retention of subject matter presented to nursing students when using two teaching modalities: lecture supplemented with audiovisual aids and the traditional nonmodal lecture. The results of this study demonstrated that if educators continue to use lecture presentation as a primary teaching method, consideration should be given to improving its quality. This means that nursing educators should become adept in the preparation and appropriate use of audiovisual

materials that enable greater learning and retention of information for future use.

In relation to the present study, it was found that both faculty groups demonstrated similarities in their selection of instructional strategies in nursing education. Interactive lecture was a common strategy used by both groups.

2. Null hypothesis 2 stated: There will be no significant difference between the selection and frequency of use of various classroom instructional strategies by faculty in associate degree nursing programs and those in baccalaureate degree nursing programs.

The Instructional Strategies Inventory was developed in the form of a frequency count distribution of five categories with discrete data. The categories were labeled according to frequency of use: all the time, frequently, occasionally, rarely, and never used. Respondents had to identify the frequency with which they used the defined instructional strategies. After a chi-square analysis, it was found that, overall, there were no statistically significant probabilities out of the 45 identified methods. Only 3 strategies had probabilities close to the established .05 level of significance but were greater than the probability. Therefore, the null hypothesis was retained. This supports the assumption that both faculty groups select

and use the same instructional strategies at the same frequency of use. There were not enough statistically significant results to warrant rejection of the hypothesis.

Few studies have been done that identify the differences in teaching methodologies of instructors in associate degree and baccalaureate degree programs of nursing. Meleca, Schimpfhauser, Witteman, and Sachs (1981) reported the findings of their study with faculty in nursing, medicine, and dentistry. The most frequently used instructional strategies by the sampled faculty were conference and study assignments, with less emphasis and interest given to demonstration, lecturing, programmed instruction, tutoring, performance exercise, and combined methods. It was also found that a discrepancy existed between what the faculty members actually did and what they considered to be ideal.

A study conducted by Bahrenburg (1982) investigated the hypothesis that faculty of baccalaureate nursing programs with certain personality factors use more non-traditional teaching strategies than traditional teaching strategies. The teaching strategies were identified from a Teaching Style Inventory. The results identified traditional strategies as those most frequently used. A statistically significant relationship existed between field independent with high creativity and field dependent with low creativity. However, the field dependent and the field

independent participants used a common core of both traditional and nontraditional strategies.

Nurse educators have focused on games and simulation as effective and acceptable teaching strategies that provide a more creative way of introducing a topic (Clark, 1976; Joos, 1984; Whitis, 1985). Computer-assisted instruction (CAI) is now being marketed as an acceptable teaching modality in many classroom settings. It involves the direct interaction between a student and a computer for the achievement of learning some specific task or information (de Tornyay & Thompson, 1987). Relatively few studies are available that have investigated the effectiveness of CAI in nursing education.

Kirchhoff and Holzemer (1979), using a posttest design without a control group, examined the effectiveness of using a CAI program for teaching students in a baccalaureate program about postoperative nursing care. It was their conclusion that the students learned the material, since posttest scores were significantly better than those on the pretest. Kirchhoff and Holzemer also determined that students with an active experimentation learning style, using Kolb's Learning Style Inventory, benefitted most from the use of CAI.

In summary, there was not a statistically significant difference in the frequency of use in the list of identified instructional strategies. Three of the identified

strategies had close probabilities to the .05 level of significance. Therefore, the null hypothesis was retained.

3. Null hypothesis 3 stated: There will be no significant relationship between learning styles and leadership styles among faculty in baccalaureate degree nursing programs.

The Pearson correlation coefficient was used to test this hypothesis. The data analysis revealed no statistically significant findings of a positive relationship. Therefore, the null hypothesis was retained. In its directional form, the hypothesis was rejected.

Additional findings of this study include the identification of baccalaureate faculty as mostly Convergers and Accommodators according to Kolb's Learning Style Inventory. The Converger's strengths lie in the evaluation of solution consequences and solution selection. Weaknesses of the Converger include the lack in testing of ideas and scattered thoughts.

The Accommodator's problem-solving strengths lie in executing solutions and in initiating problem-finding based on some goal or model about how things should be. Kolb (1974) identified weaknesses of the Accommodator as being not directed to goals, having impractical plans, and not completing work on time. The typical model of the problem-solving process compared to the experiential learning model is shown in Figure 7. An observation of the

findings from hypotheses 3 and 4 reveals that 80% of the

respondents were Accommodators and Divergers.

Choose a
Model or Goal

Compare It
with Reality

Execute the
Solution

Concrete
Experience

Identify
Differences
(Problems)

Accommodator | Diverger

Active
Experimentation

Reflective
Observation

Select a
Solution

Converger | Assimilator

Select a
Problem

Evaluate
Consequences
of Solutions

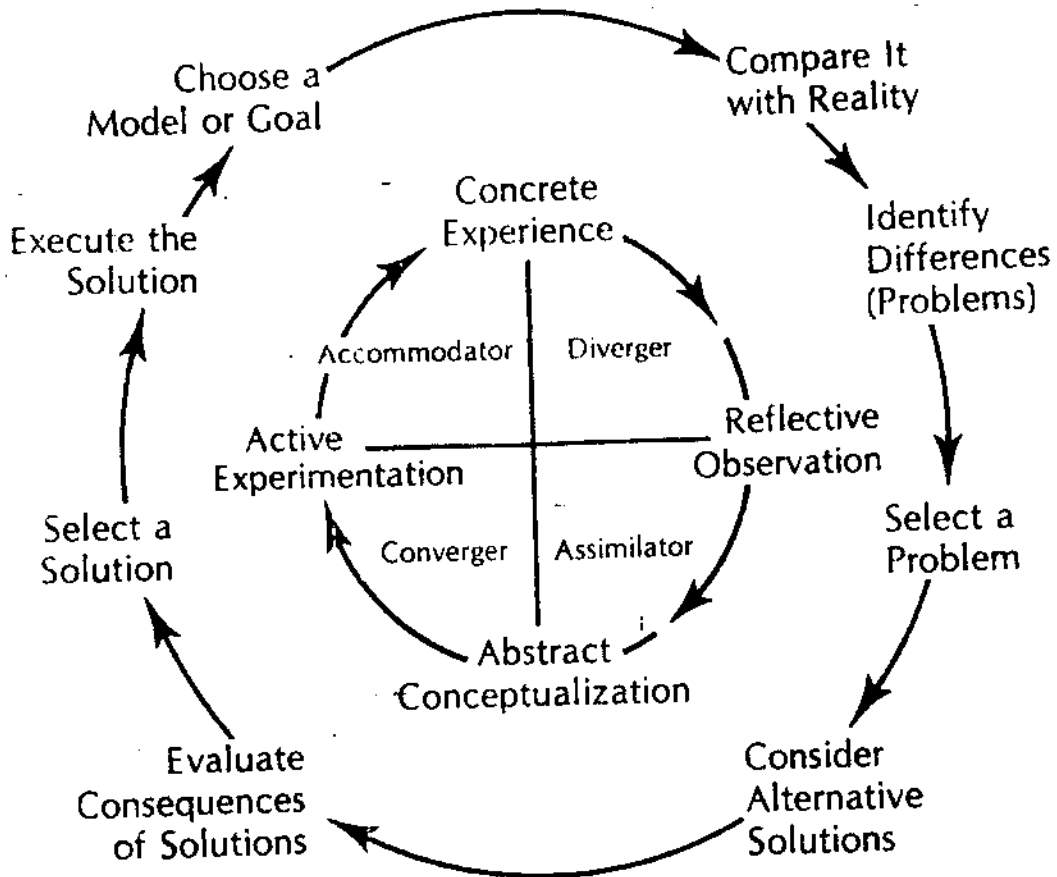Abstract
Conceptualization

Consider
Alternative
Solutions

Figure 7. Typical model of the problem-solving process

compared with the experiential learning model.

Note. From Learning Style Inventory Self-Scoring Test and

Interpretation Booklet by David A. Kolb, 1976, Boston,

Massachusetts: McBer and Company. Copyright 1976 by David

A. Kolb. Reprinted by permission.

As in previous research done by Highfield (1988), it was found that baccalaureate nursing education emphasizes information management which may attract students with an Assimilator style and promote their reflective watching and thinking. Highfield's research also indicated that nursing students in baccalaureate programs may use more than one learning style with the ability to switch to an assimilative mode when needed. These findings, perhaps, can be related to this study's findings in that nursing faculty identified as Assimilators can change their learning mode when a situation warrants. If the nursing faculty members' learning style was promoted during their years in nursing school, it could be assumed that this style may be a dominant model for managerial decision-making and problem-solving in the classroom setting. Research has not been conducted which explores this phenomenon. More and more emphasis is being placed on writing grants and conducting research on instructor learning styles and teaching methods.

4. Null hypothesis 4 stated: There will be no significant relationship between learning styles and leadership styles among faculty in associate degree nursing programs.

The Pearson-r-Product Moment Correlation Coefficient was used to test this hypothesis. The findings do not

suggest a positive relationship between the two variables. In other words, there were no statistically significant correlations between learning styles and leadership styles when tested at the .05 level. The null hypothesis was retained. In its directional form, the hypothesis was rejected.

One of the additional findings suggested by data analysis is that the associate degree faculty comprise a greater percentage of the respondents who are depicted as Convergers and Accommodators, two of the types of learning styles identified by Kolb's Learning Style Inventory. Different characteristics describe each learning mode. Theoretically, there are two goals in the experiential learning process (Kolb, 1974). One is a goal to learn the specifics of a particular subject matter. The other goal is to learn about one's own strengths and weaknesses as a learner, such as learning how to learn from experience. This understanding of learning strengths and weaknesses helps in the application of what has been learned and provides a framework for continual learning on the job. According to Kolb (1974), day-to-day experience becomes a focus for testing and exploring new ideas. Learning is no longer a special activity reserved for the classroom, but becomes an integral and explicit part of work itself.

Figure 7 is a typical model of the problem-solving process overlaid on the experiential learning model.

As identified in this study, there is no significant relationship between leadership style and learning style. A similar study conducted by Buckenmaier (1981) explored the relationship between leadership style dimensions and field dependence/independence among elementary school administrators. There was no significant correlation between field dependence and independence which are considered cognitive/learning styles and task and relationship-oriented leadership style. These results are consistent with the results from this study with a sample population representative of nursing faculty members.

As found from the study results, associate degree faculty tend to be identified as Divergers and Assimilators. The Diverger's problem-solving strengths lie in identifying the multitude of possible problems and opportunities that exist in reality. Divergers have an imaginative ability, understand people, recognize problems, and brainstorm. Their weaknesses include being paralyzed by alternatives to the point of not making decisions (Kolb, 1974).

The Assimilator, on the other hand, plans, creates models, defines problems, and develops theories (Kolb, 1974). The Assimilator excels in abstract model building that is necessary to choose priority problems and

alternative solutions. Weaknesses of a person identified by
the Learning Style Inventory as an Assimilator include the
inability to make practical application, inability to learn
from mistakes, having no sound basis for work, and having no
systematic approach to problem-solving.

5. Null hypothesis 5 stated: There will be no
significant difference in the learning styles of associate
degree nursing faculty and those of baccalaureate degree
nursing faculty.

After an analysis of the data, the null hypothesis was
retained. The findings did not suggest a statistically
significant difference when tested at the .05 level with a
correlated t-test. Further testing using the Pearson
product moment correlation coefficient also yielded
nonsignificant findings. Neither the XAXIS nor YAXIS of the
Learning Style Inventory is correlated with leadership
style.

A review of the literature did not yield any
significant findings relating learning style to leadership
style. Furthermore, studies that identify the learning
styles of nursing faculty in associate degree and
baccalaureate degree programs have not been developed.

It is interesting to note the findings of a study by
Laschinger and Boss (1984). When Kolb's Learning Style
Inventory was used to examine learning characteristics of

nursing students at the beginning of the program with those who were more advanced, it was found that a majority of the students had concrete learning styles. However, nursing students were represented in all learning style categories. The most frequently occurring learning style in the first year or beginning group was Diverger. Advanced students displayed the Accommodator learning style most frequently. Kolb (1976) suggested that students learn best when teaching matches their learning style. Nurse educators may wish to consider these factors in their teaching approaches to individual students (Laschinger & Boss, 1984).

Kolb's research on learning styles has identified the fact that undergraduate college students majoring in nursing tend to be Convergers. The Convergers' dominant learning abilities are abstract conceptualization (AC) and active experimentation (AE). Their greatest strengths lie in the practical application of ideas. This learning style is so named because a person with this style seems to do best in those situations where there is a single correct answer or solution to a question or problem (Kolb, 1976). Convergers are recognized as relatively unemotional, preferring to deal with things rather than persons. Kolb's data shows that one's undergraduate education is a major factor in the development of an individual's learning style. In summary, it is debatable whether this is because individuals'

learning styles are shaped by the fields they enter or because of selection processes that place persons in and out of disciplines (Kolb, 1976). Most probably, both factors are operating--people choose fields which are consistent with their learning style and are further shaped to fit the learning norms of their field once they are in it. When there is a mismatch between the field's learning norms and the individual's learning style, the individual will either change or leave the field.

6. Null hypothesis 6 stated: There will be no significant difference between the leadership styles of associate degree nursing faculty and those of baccalaureate nursing faculty.

After analysis of the data, the correlated t-test yielded a statistically significant finding at the .05 level of significance. Therefore, the null hypothesis was rejected. Leadership style was highly correlated between the associate degree and baccalaureate degree faculty groups. When the Tri-Dimensional Leader Effectiveness Model was depicted by quadrants, more of the associate degree nursing faculty members had basic leadership styles of Low Relationship/Low Task and High Task/Low Relationship. Most of the baccalaureate faculty members had Low Relationship/Low Task leadership styles.

The Tri-Dimensional Leader Effectiveness Model by Hershey and Blanchard consists of four basic leadership styles and dimensions. As identified in the theoretical framework, each style has certain characteristics specific to each of the dimensions. The Low Relationship/Low Task dimension is characterized by the leader maintaining a low profile, thereby, permitting followers to function within previously-defined limits. At times, the leader may be available for consultation, to give direction, or for positive reinforcement. Such interaction is not planned on a regular basis but rather occurs as the need arises. This leader behavior style is delegation, because control is shifted from the leader to the follower(s).

The High Task/Low Relationship dimension, on the other hand, is characterized by a leader who primarily defines the task, explains to the group each person's responsibility, and states when tasks should be done. The low relationship behavior is simply respect and warmth toward another and positive reinforcement after a goal is completed. No group decision-making is included in this style since one-way communication characterizes the leader's behavior.

Few of the studies reviewed examined the leadership styles of nursing educators as they relate to their teaching roles. The analysis of the data from this study supports the need for more research in this area. The leadership

styles depicted by the study population yield findings that suggest that nurse educators at the associate degree level and the baccalaureate degree level do not differ in their leadership approaches. It would be interesting to examine and identify the leadership styles reflected in the clinical setting by nursing educators.

Conclusions

Based upon the findings of this study, the following conclusions were developed:

1. Nursing faculty in associate and baccalaureate degree programs have similar learning and leadership styles.

2. Nursing faculty tend to use the traditional instructional strategies such as lecture, discussion, and case studies at the same frequency of use.

3. The selection of instructional strategies in nursing education may be affected by variables other than the instructor's learning and leadership styles. It is difficult to predict the selection of instructional strategies based solely upon a person's learning and leadership styles.

Recommendations

In view of the findings of this study, the following recommendations for further study appear to be warranted:

1. Further research should be conducted to determine the effectiveness or ineffectiveness of identified instructional strategies in nursing education.

2. An experimental study should identify nursing students' learning styles so that students can be placed in classes with instructors with the same learning styles whenever possible.

3. Nursing students' learning style should be assessed at the beginning of the nursing program and after they have matriculated through the program 2 years later. Comparisons should be made between these findings and research conducted to identify the intervening variables.

4. Since research has shown that the Learning Style Inventory is not 100% accurate, comparisons should be made with other instruments that measure learning style. Participants should be assessed with more than one instrument to measure or identify learning styles.

5. Research utilizing the Learning Style Inventory and the Leadership Effectiveness Adaptability Description should be replicated.

6. There should be research to examine the use of computer simulations in nursing education. More utilization of computer simulations and computer-assisted instruction should be implemented at all levels of nursing education.

7. More research should be conducted to identify creativity in the selection of instructional strategies in nursing education.

Implications for Nursing Education

The following implications are suggested from an analysis of the data:

1. Although faculty characteristics are rarely a determining factor in the design of a nursing curriculum, they must be taken into account when selecting instructional strategies.

2. Nursing faculty should give more attention to the development of instructional strategies which could enable them to function as educators rather than nurses who just happen to be educators. Knowledge of available and creative strategies that enhance learning need to be explored and used in the classroom setting.

3. Analysis of the limited amount of research which focuses on classroom instruction, learning style, and leadership styles of nursing educators is quite revealing. An obvious question comes to mind. Why is not more research done that would provide knowledge about the strategies in nursing education? Faculty research efforts need to be directed into these areas.

4. The apparent lack of diversity in instructional strategies utilized in the classroom setting emphasizes the need for faculty to expand their knowledge base in the area of teaching strategies. There is a need to determine the basis for the apparent discrepancy which exists between those characteristics of the instructor and the selection of instructional strategies in nursing education.

5. There appears to be a growing interest among nursing educators to examine and research the area of instructional strategies both in the classroom and clinical settings. More funding and support is being granted by various research bodies to explore these areas.

6. Teaching processes that deal with the selection of instructional strategies in nursing education cannot always be readily identified. They exist in a variety of operations and are reflected by the individual instructor's distinctive manner of performance in any given situation. Giving a name to the instructional strategy may not be a perception of the nursing instructor.

7. Leadership style remains a dimension of nursing educators that is essentially untapped. More research needs to be done that examines how nursing instructors develop and use leadership skills in their teaching roles.

APPENDIX A

LETTER TO POTENTIAL RESPONDENTS

15710 Nedra Way
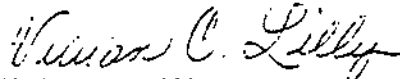Dallas, Texas   75248

November 4, 1986

Dear Nursing Faculty Member:

    I am a graduate student at the University of North Texas where I am working toward the doctor of philosophy degree. My research involves assessing the learning style and leadership style of selected nursing faculty in associate degree and baccalaureate degree programs in Texas. Furthermore, there is an instrument that contains various instructional strategies that could be used in nursing in the classroom setting. If you decide to partipate in this study, you will be asked to check the strategies you use in teaching nursing and the frequency of use. A personal data form is also included. The approximate length of time for completing the instruments is 20 minutes.

    Participation in the study is voluntary. Return and completion of the instruments will be construed as informed consent. It is not necessary to sign your name. Responses will be kept strictly confidential. Completed questionnaires should be returned to me by November 19 in the enclosed stamped, self-addressed envelope. Only group data will be reported.

    Thank you in advance for your participation in my study. Your responses will be vital to my study results.

Sincerely yours,

Vivian C. Lilly, M.S., R.N., C.S.

APPENDIX B

LETTER FROM DAVID A. KOLB

CASE WESTERN RESERVE UNIVERSITY · CLEVELAND OHIO 44106
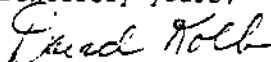
July 9, 1987

Ms. Vivian C. Lilly
157120 Nedra Way
Dallas, Texas   75248

Dear Ms. Lilly:

You have my permission to use the Learning Style Inventory in your
doctoral research.   In order to obtain copies of the LSI, you
should contact McBer & Co., 137 Newbury St., Boston, Mass. 02116,
617/437-7080.   I would appreciate receiving a copy of your
research when it is completed.

Sincerely yours,

David A. Kolb
Professor and Chairman

DAK/rn

APPENDIX C

PERSONAL DATA FORM

Instructions: Please complete the following information. Place an "x" in the appropriate space or fill in the blank. Mark only 1 answer per questions.

Highest degree held:

_____bachelor's
_____master's
_____doctorate

Academic area of your highest degree:

_____nursing
_____education
_____administration
_____other; area _____

Primary area of responsibility:

_____teaching
_____service
_____research
_____administration

Job title:

_____faculty
_____instructor
_____assistant professor
_____associate professor
_____professor
_____other; title _____

If your primary area of responsibility in your nursing role is teaching, in what areas do you teach: (check all that apply)

_____clinical
_____classroom
_____simulated laboratory
_____administrative

Number of hours per week during long term: _____/week

Number of hours per summer term: _____/week

Type of program you are employed:

_____associate degree
_____baccalaureate degree
_____graduate
_____LVN
_____diploma

Place where you are presently employed:

_____community/junior college
_____college/university

Length of time employed in nursing:

_____0 - 5 years
_____6 - 10 years
_____11 - 15 years
_____16 - 20 years
_____21 years or more

Length of time you have taught nursing:

_____0 - 5 years
_____6 - 10 years
_____11 - 15 years
_____16 - 20 years
_____21 years or more

Length of time in present position:

_____0 - 5 years
_____6 - 10 years
_____11 - 15 years
_____16 - 20 years
_____21 years or more

Age range:

_____20 - 29 years
_____30 - 39 years
_____40 - 49 years
_____50 years or over

Your sex:
_____male
_____female

Your ethnic background:

_____Caucasion
_____Afro-American
_____American Indian
_____Hispanic
_____Other

APPENDIX D

INSTRUCTIONAL STRATEGIES INVENTORY

INSTRUCTIONAL STRATEGIES INVENTORY

INSTRUCTIONS: below is a comprehensive list of various teaching/instructional strategies used in college teaching settings. Identify the frequency with which you use each strategy by placing a checkmark in the appropriate column according to the following key:

5 - All the time
4 - Frequently
3 - Occasionally
2 - Rarely
1 - Never Used

	5	4	3	2	1
pretest/posttest					
independent study					
student presentations					
formal lecture					
audiovisual aids (slides, films)					
group/class discussion					
patient/situational case study					
use of self as role model					
pictorial illustrations					
lecture/discussion					
overhead projector					
motion pictures					
handouts/brochures					
panel discussion					
tutorial groups					
oral report					
lecturette					
study assignments					
written tests					
oral examinations					
process recording					
learning module					
learning contracts					
brainstorming					
fishbowling					
interactive lecture					
questioning technique					
task-oriented groups					
student-to-student interaction					
gamed simulation					
computer simulation					
written simulation					
seminar					
guided design					
individualized instruction					

(SEE REVERSE SIDE)

	1	4	3	2	1
student self-pacing					
buzz groups					
small group clustering					
nominal group technique					
case incident					
colloquy					
round table discussion					
sociodrama					
symposium					
educational imagery					

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