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**The relationship between creative style and leader behavior in
chief nurse administrators**

Adams, Carolyn Elaine, Ed.D.

University of San Francisco, 1988

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The University of San Francisco

THE RELATIONSHIP BETWEEN CREATIVE STYLE
AND LEADER BEHAVIOR IN CHIEF NURSE ADMINISTRATORS

A Dissertation

Presented to

the Faculty of the School of Education
Organization and Leadership Program

In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

By

Carolyn Elaine Adams
San Francisco, California

May 1988

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education.

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THE UNIVERSITY OF SAN FRANCISCO

Dissertation Abstract

The Relationship between Creative Style
and Leader Behavior in Chief Nurse Administrators

Innovative initiatives are needed to solve the current nationwide nursing shortage and to create a nursing profession with power and prestige. This study (a) identified the creative style of chief nurse administrators (CNAs), (b) described demographic characteristics of CNAs which may relate to their creative style, and (c) investigated the relationship between creative style and leader behavior in CNAs.

The sample was 66 CNAs in the acute care hospitals in the five county San Francisco Bay area. The response rate to this mailed survey was 86%.


Creative style was measured using the Kirton Adaptation-Innovation Inventory (KAI). This tool divides subjects into Adaptors and Innovators depending on whether they solve problems by doing the same things better (Adaptors) or by doing things differently (Innovators). The Leader Effectiveness and Adaptability Description-Self (LEAD-S) was used

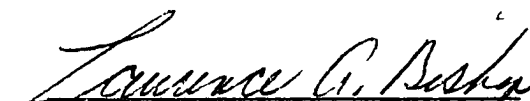
to measure leader behavior. A researcher-developed questionnaire was used to obtain information from the CNAs on experience, education, certification, nursing department organization, and hospital ownership and size.

The data analysis showed that the CNAs were highly innovative problem solvers. Their preferred leadership style was Selling and they scored high on the LEAD-S Effectiveness scale. There were no significant differences between Adaptors and Innovators on the demographic items. A stepwise multiple regression analysis using the three KAI subscales and the seven demographic variables as predictors of leader effectiveness revealed that years of experience in the current CNA position and number of beds in the employing hospital were the only significant predictors of leader effectiveness.

Although CNAs are highly innovative problem solvers, this innovative behavior was not related to their leader effectiveness. Previous research also indicates that innovative behavior is not used/deemed necessary for CNAs' success. To combat the current problems facing health care delivery, to develop new strategies for nursing care, and to evolve a new model

of nursing, CNAs must use their innovative problem solving skills to enhance their effectiveness as leaders in their organizations.


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CHAPTER I

THE PROBLEM

Introduction

In hospitals throughout the United States, the story is the same--there is an acute shortage of registered nurses (RNs). Hospitals employ 68% of working RNs and 85% of the hospitals are reporting vacancies. Between 1985 and 1986, vacancy rates more than doubled, rising from 6.3% to 13.6%. The Pacific, Middle Atlantic, and East North Central regions are experiencing the most acute RN shortages (Curran, Minnick, & Moss, 1987).

The San Francisco Bay area is having severe RN recruitment problems. Since the nursing shortage began in 1986, hospitals on the San Francisco peninsula are averaging from 35 to 60 unfilled nursing positions (Bauer, 1987). Bay area hospitals are advertising for nurses in major cities throughout the United States, trying to lure nurses from foreign countries, and relying on special incentives such as relocation allowances and pay bonuses to attract nurses (Ballman, 1987).

Initially, reports of hospital nursing shortages are perplexing. Over the past 30 years the output of nurses has

doubled, greatly exceeding the population growth. Of the 2.1 million RNs almost 80% are employed full or part-time with fewer than 6% working in occupations outside of nursing. The percentage of RNs employed by hospitals--about 68%--has not changed. Recently, as a result of changes in federal government reimbursement for care of Medicare patients, there has been a substantial decrease in hospital occupied beds. Since 1983 hospitals have closed more than 40,000 beds and in 1986 average hospital occupancy rates dropped to 63.4% (Aiken & Mullink, 1987).

The present nursing shortage is the result of a combination of factors including government regulations, low nursing salaries, population transformations, and changing societal norms and values. First, with passage of the Social Security Amendments in 1983, the way the federal government reimburses hospitals for Medicare patients changed. Instead of paying all bills, the Medicare Prospective Payment System assigns a dollar amount to each patient diagnosis and pays only that amount. Patients are now discharged from hospitals "quicker and sicker" and since 1983, inpatient acuity has increased as much as 20% (Curtin, 1986).

Increased numbers of skilled personnel are needed to care for the acutely ill hospitalized patients. The ratio of nurses to patients increased from 50 nurses for every 100 patients in 1970 to 91 nurses for every 100 patients in

1986, reflecting the intensity of the care required by hospital inpatients. Although hospitals employed 133,376 fewer full-time-equivalent workers in 1986 than in 1983, the number of full-time-equivalent RNs increased by 37,500 during this same period. Aides and vocational/practical nurses are being replaced by more highly skilled RNs (Aiken & Mullink, 1987). In California the hospital nursing shortage is due largely to a dearth of skilled, experienced nurses, educated to provide care in demanding hospital arenas such as emergency rooms and critical care units (California Nurses Association, 1987).

Because of the increased patient acuity and concomitant use of high technology equipment, hospitals have become high stress work environments. Job satisfaction among staff nurses is low (McCloskey & McCain, 1987; Simpson, 1985) and job turnover rates among RNs range from 30% to 70% annually (Prescott & Bowen, 1985).

A second reason for the nursing shortage is the relative wage earned by RNs. Nursing salaries have always been notoriously low and nursing shortages are tied to salaries. From 1946 to 1966 nurses' wages increased 53%, however, teachers' salaries increased 100% and female professional and technical workers' salaries increased 73%. One in five budgeted positions for nurses were vacant in the early 1960s.

Following a substantial wage increase, vacant positions decreased from 23% to 9% by 1971. State rate setting and voluntary hospital cost containment efforts in the 1970s, however, again led to a decline in nurses' wages in relation to other groups and to a shortage of nurses. A wage response began in 1979 and in 1980 and 1981 nurses' wages rose an average of 13% annually. By 1984 the proportion of RN vacancies was only 3.7%.

Since 1982, nurses have received only modest salary increases. Despite the publicity about the nursing shortage, nurses' wages increased only 4% in 1986. In 1985 salaries for teachers were 19% higher than those for nurses and average salaries for all female professional and technical workers were 10% higher than for nurses (Aiken & Mullink, 1987).

A nationwide survey of actual starting salaries of hospital staff nurses showed that salaries vary from a low of \$14,772 at one Dallas-area hospital to a high of \$32,885 at a San Francisco hospital. An American Hospital Association survey of 600 hospitals in the spring of 1987 revealed that there was only a \$7,000 difference between the starting and maximum salary for a hospital staff nurse ("DRGS Still Stymie," 1987).

Because RNs have relatively low salaries, are extremely versatile employees, and require little supervision, they are being used to perform a wide range of nonnursing

functions in hospitals. For example, nurses substitute for physicians under some circumstances, commonly assume hospital management roles after regular work hours, and frequently perform secretarial, clerical, pharmacy, laboratory, physical therapy, and respiratory therapy functions. Nurses employed in these ways are not at the bedside giving patient care and thereby contribute to the shortage of hospital staff nurses (Aiken & Millink, 1987).

Third, population shifts are adding to the nursing shortage. The American population is growing older. In 1975, the elderly numbered 23 million or 10% of the American population. By 1995 these figures will rise to 13% and by 2020 to 21%. The elderly suffer largely from chronic diseases which by definition are not curable and require ongoing nursing care (Morrissey, 1986). Simultaneously, there are fewer young people available to support the aging population. Between 1985 and 1995 the number of college-age Americans is expected to decrease 18%.

Unfortunately, nursing programs are already experiencing reduced enrollments. Nationwide, there was a 13% drop in the number of students enrolled in colleges of nursing from 1985 to 1986. Some universities in California are reporting reduced nursing enrollments exceeding 50%.

Finally, changing societal norms and values are contributing to the nursing shortage crisis. The nursing profession is a profession of women--it is 97% female (California Nurses Association, 1987). But today's young woman is increasingly aware that she is not locked into traditional roles and occupations. She is considering a myriad of professional options. A national survey of first-time college freshman indicated a 50% decline from 1974 to 1985 in the proportion of full-time women students planning to pursue nursing careers. In contrast there was an almost threefold increase in the proportion interested in business careers. For the first time in freshman college classes, more women are intending to be physicians than nurses (Iglehart, 1987).

The entertainment media portrays nursing as woman's work and nurses as domestic housekeepers for the sick. The stereotype of intellectual, male physician and nurturing, nonintellectual, female nurse persists (Kalisch & Kalisch, 1986). This negative image makes nursing unattractive to young career-oriented males and females.

Chief nurse administrators in hospitals, as leaders in the nursing profession and as leaders in the organizations being hardest hit by the nursing shortage crisis, have both a professional and practical reason to address and solve the nursing shortage. The key to a successful response by administrators is to develop programs that emphasize doing

things not "better" but "differently" (Curtin, 1987; Pointer & Pointer, 1985; Sovie, 1986). Stereotypical thinking must change and an attractive nursing profession must be created that allows for power and status (Bower, 1987). The present model of the nurse must be replaced by a new model with the nurse as a clinical expert, knowledge-based practitioner, and aggressive business manager (Spitzer & Davivier, 1987).

Many hospital-based nursing administrators are overwhelmed by the gravity of the nursing shortage (Simpson, 1987). Their response to this crisis is "stuckness." The opposite of creativity, "stuckness" is a state of inertia, helplessness, hopelessness, confusion, despair, uncertainty, worry, boredom, and agitation which results from trying unsuccessfully to solve today's problems with yesterday's worn out answers (Pesut, 1985).

The conservative nature of the health care system may foster the nurse administrators' "stuckness." Individuals and organizations characteristically respond to problems with one of two creative styles--adaptation or innovation. Adaptors try to solve problems by doing things more efficiently; while Innovators' solutions deviate from known positions and procedures. Conservative organizations (e.g., the health care industry) overvalue adaptive creativity. They select, train, and promote Adaptors in preference to

Innovators; therefore, when rapid, radical change is needed to deal with a crisis, there are few people in the organization who can effect innovative change (Kirton, 1982, 1987).

Most chief nurse administrators begin their careers as staff nurses. They are then promoted to head nurse and progress up the administrative chain--supervisor, assistant chief nurse--to chief nurse (McCarty, 1986). If conservative institutions hire, train, and promote individuals who solve problems using adaptive techniques, then most CNAs are Adaptors. Most will have difficulty responding to the present nursing crisis with innovative solutions.

Purpose of the Study

The purpose of this study was threefold. First, the creative style of chief nurse administrators (CNAs) was identified. Do CNAs use an adaptive or an innovative creative problem solving style? Are there innovative CNAs who can respond with novel solutions to the present crisis in nursing? Second, the relationship between creative style and leader behavior was investigated to show empirically if creative style is related to CNAs' effectiveness. Third, selected characteristics of CNAs were studied to describe personal, professional, and organizational variables that are related to creative style. Chief nurse administrator

was defined as the registered nurse responsible for the total operation of the department of nursing in the hospital.

Theoretical Foundations

Creative Style

The major theoretical foundation of this study was Kirton's Adaptation-Innovation Theory of creative style. This theory is one of cognitive style and views problem solving, decision making, and creativity as closely interrelated concepts, or even facets of the same concept. Creative style (what manner) is separate from creative level (how much) and is distinct from the learned techniques (how can) of creativity and problem solving. The theory applies to an individual's preferred way of problem solving alone or as a member of a group (Kirton, 1987).

In his model Kirton proposes two creative styles--the adaptive and the innovative style. For any problem, Adaptors generally accept the theories, policies, and customary viewpoints or paradigms in which the problem is embedded. Innovators "unwrap" the problem from accepted thought, treat the pattern as part of the problem, and reconstruct both the problem and its pattern in pursuit of a solution. Adaptors and Innovators are equally creative but in different ways.

Neither adaptive or innovative behavior is better, more praiseworthy, or more creative. They are simply different ways of behaving. Each behavioral style is perceived or rated as advantageous or disadvantageous depending on (a) the perceiver or rater; (b) the nature of the problem; (c) the nature of the setting or institutional group; or (d) by hindsight or outcome (Kirton, 1987). Actual behavioral characteristics of Adaptors and Innovators are summarized in Table 1.

Although organizations need both Adaptors and Innovators, Adaptors have a privileged position because the adaptive mode prevails more often in organizations. This is particularly true in long-established organizations that have a large investment in personnel and resources. In these organizations risk must be minimized and continuity and stability maximized. Changes must occur in a predictable direction at a manageable pace.

In crisis situations adaptive changes are too slow, too far behind demands, or the wrong kind of change. Innovative changes are needed with all the attendant risks of instability and friction. Unfortunately, when crises occur, there may be too few Innovators in key organizational positions to effect rapid innovative changes.

Table 1

Behavioral Descriptions of Adaptors and Innovators*

Adaptors	Innovators
Precise, reliable, efficient, methodical, prudent, disciplined, conforming.	Undisciplined, thinks tangentially, sees tasks from unsuspected angles.
Concerned with resolving rather than finding problems.	Discovers problems and avenues of solution.
Impervious to boredom.	Delegates routine tasks.
Reduces problems by improvement and greater efficiency, with maximum of continuity and stability	Catalyst to settled groups, irreverent of consensual views, creates dissonance.
Seen as sound, conforming, safe, dependable. Makes goals of means.	Seen as unsound, shocks opposition, impractical. Little regard for means.
An authority within given structures, rarely challenges rules.	Takes control in unstructured situations, often challenges rules.
High self doubt, reacts to criticism with conformity, vulnerable to social pressure and authority.	Low self doubt when generating ideas, maintains certitude in face of opposition.
Essential to function all of the time. Supply stability, order, and continuity.	Is ideal in crisis, can help avoid crisis. Supply task orientation, breaks with the past.
Sensitive, maintains group cohesion/cooperation. Provides safe base for Innovator's risky operations.	Insensitive, threatens cohesion/cooperation. Brings about periodic radical change.

* Adapted from Kirton, 1982, p. 92.

Leader Behavior

The theoretical framework in which leader behavior was explored is Situational Leadership Theory (Hersey & Blanchard, 1976). In this model, leadership is an attempt to influence individuals or groups and the leader is concerned with both results and people. A variety of leadership styles is needed to adapt to different situations or problems. Leader effectiveness depends on the interaction among the leader, the follower(s), and the situation which includes other people in the environment, characteristics of the organization, and job and time constraints.

There are two dimensions of leader behavior: task and relationship. Task behavior, the extent to which a leader spells out duties and responsibilities of individuals/groups, includes telling people what to do; and how, when, and where to do it. There is one-way communication from leader to follower, but the communication need not be nasty or short-tempered. In relationship behavior the leader engages in two-way or multi-way communication. Relationship behavior encompasses listening, encouraging, facilitating, clarifying, and giving socioemotional advice.

Task and relationship behavior are combined to define four styles of leadership: Style 1, high task, low relationship; Style 2, high task, high relationship; Style 3, low task, high relationship; and Style 4, low task, low

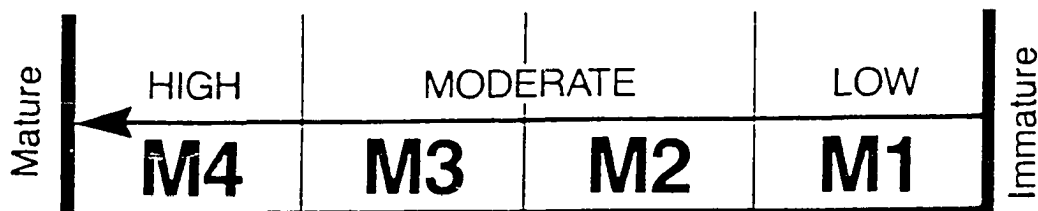
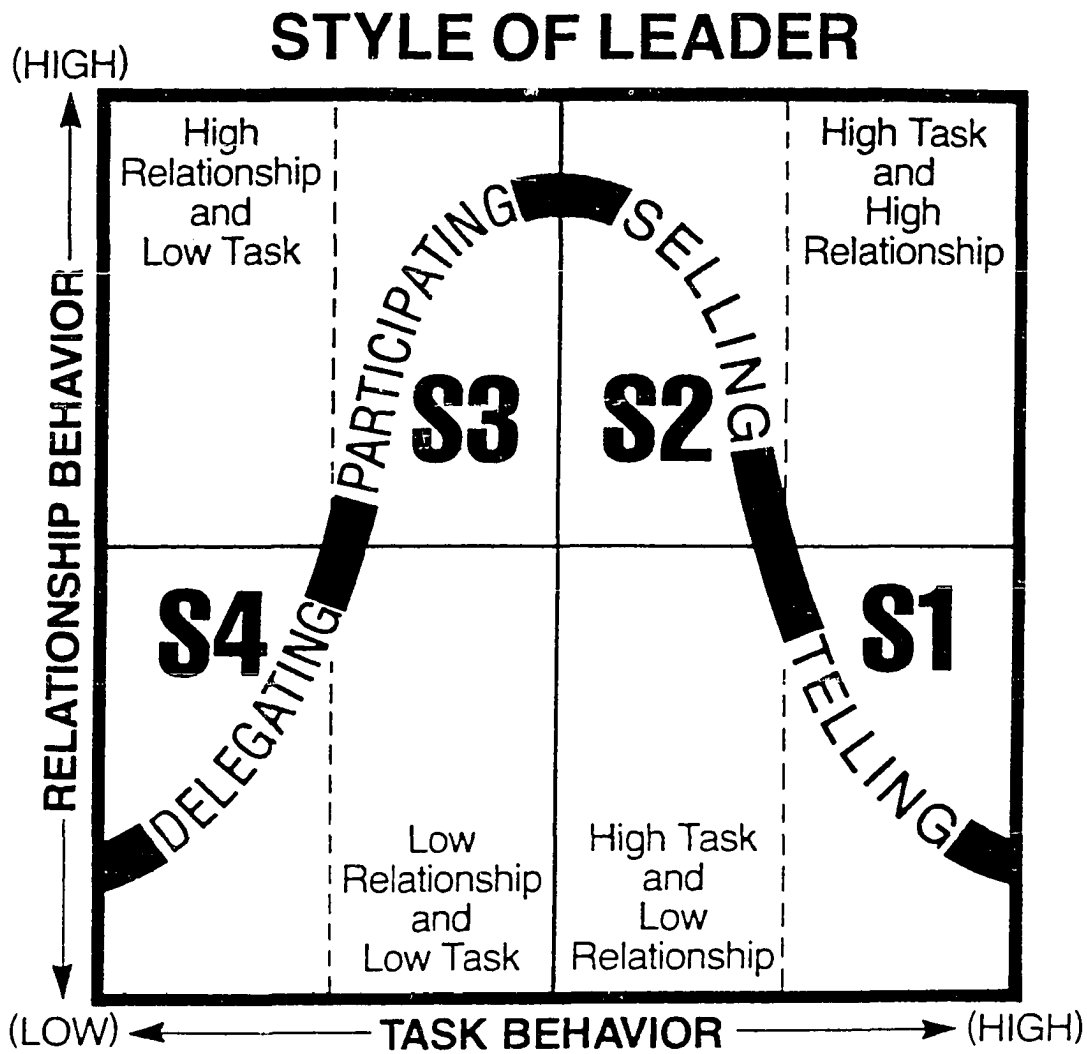
relationship. Figure 1 contains the Situational Leadership model.

For leaders to be effective, their leadership style must match the readiness or maturity level of followers. Follower maturity depends on ability and willingness. Ability is the knowledge, skill, and experience the follower brings to a particular task. Willingness is the confidence, commitment, and motivation to accomplish a specific task or activity. There are four levels of follower maturity: Maturity 1, unable and unwilling/insecure; Maturity 2, unable but willing/confident; Maturity 3, able but unwilling/insecure; and Maturity 4, able and willing/confident.

Effective leaders diagnose the maturity level of followers for the task at hand and use the leadership style appropriate for that situation. For example, an effective leader uses Style 1, high task, low relationship, with followers who are unable and unwilling/insecure to perform (Maturity 1). Style 4, low task, low relationship, behavior will maximize leader effectiveness with followers able, willing, and secure in following through on a certain activity (Maturity 4).

Effectiveness of Chief Nurse Administrators

The effectiveness of chief nurse administrators (CNAs) in acute care hospitals was the third theme of this



MATURITY OF FOLLOWER(S)

FIGURE 1 Situational Leadership

Developed by Paul Hersey and Kenneth H. Blanchard

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dissertation. The traditional responsibilities of nurse administrators are planning, operating, staffing, directing, and controlling (Marriner, 1984). At first glance these functions do not seem different from those of many other chief executive officers, however, there are four unique features of a CNA's role that when combined set the role apart from that of other executives (McClure, 1979).

The nature of the CNA's work is the first unique feature. CNAs have 24-hour responsibility for patient care. They must attract, train, and retain qualified staff to work when other professionals are not working. They must also provide staff to meet patient care requirements even though they are unable to predict and/or control work flow (i.e., patient emergencies, patient census).

Second, the nature of the worker makes the CNA's role unique. CNAs are responsible for a mix of professional and nonprofessional workers with diverse educational preparations. Registered nurses come from 2-, 3-, and 4-year basic educational programs and some are educated at the Master's and doctoral level. Licensed vocational/practical nurses usually have 1 year of education and nursing assistants have only several weeks to several months of training. The CNA must use a variety of leadership styles to maximize the contributions of each of these groups to the nursing organization.

Third, the internal environment of hospitals adds to the uniqueness of the CNA's role in several ways. CNAs deal with two power structures: the hospital executive structure and the physician power structure. Also, nursing is unique in that quality of work (i.e., patient care) does not depend on nurses alone, but on interdependent actions among nurses, physicians, and hospital support personnel. There is also a high degree of interdependency in nursing staff who give patient care 24 hours a day in the same clinical area. All of the problems inherent in small group behavior, which occur as a result of interdependency of functioning, become problems for the CNA.

Finally, external constraints on hospitals and nursing personnel make the CNA's role unique. These constraints include federal and state legislation on labor standards, labor relations, and equal employment opportunity; criminal laws; and laws and regulations relating to professional and nonprofessional nursing practice. The Joint Commission on Accreditation of Healthcare Organizations' standards and guidelines and nursing associations' standards and codes also impact CNAs' decisions.

The traditional roles and responsibilities of CNAs are being examined and challenged; some are disappearing and others are being added. One major indication of this change is the title of the CNA in a hospital. Traditionally, this title was director of nurses. Many, if not most, hospital

directors of nurses are now called vice president, executive director, or some other administrative title indicative of their broader and shared role in the governance of the hospital (Price, Simms, & Pfoutz, 1987).

In the past, both the work and the preparation of the nurse administrator was much simpler. CNAs were selected because they were good bedside nurses and their primary focus was clinical nursing problems. Management decisions of any real significance were made by other administrators and communicated to the CNA for execution. As hospitals have been forced to behave like business organizations, the skills, attributes, and capacities of CNAs have been reshaped and re-emphasized. CNAs now have administrative control of their departments, which means they generally manage the largest number of employees in the hospital and are responsible for the largest single cost center in the hospital. The CNAs' primary focus is now management.

Educational preparations for nurse administrators should be in nursing service administration. For beginning nurse management responsibilities, a Master's degree in nursing service administration is appropriate. The position of CNA in a more complex organization requires post-Master's education, while doctoral preparation is required for CNAs in large and complex organizations, notably university hospitals (Fralic, 1987).

In order to be effective today, CNAs must: (a) address and solve the nursing shortage; (b) promote vision and clarify values; (c) empower other nurses to act, produce, create, and excel; (d) enable participatory management; (e) acquire business savvy; (f) shape the corporate culture; (g) develop and test new approaches to practice; (h) educate nurses for the information age; and (i) seek and form new coalitions (Sovie, 1986). Solving the nursing shortage crisis--the first priority of CNAs--is to a large extent dependent on achieving the other eight priorities, or creating a prestigious, autonomous, clearly defined profession.

Anyone can be taught the maxims of management but it is creativity that sets the excellent CNA, the true leader, apart from the minimum-level performer. The successful CNA must be a creative problem solver who sees what everyone else sees but thinks what no one else has thought. Creative nursing administration demands conceptualization or the ability to lift any idea or problem from the mundane to a level of abstraction so that it may be treated and studied in an innovative manner (Simms, Price, & Ervin, 1985).

Research Questions

The major research questions addressed in this study were:

1. What is the creative style used by chief nurse administrators to solve problems?

2. What is the relationship between the creative style and leader behavior of chief nurse administrators?

The subsidiary research questions addressed were:

3. What is the relationship between years of experience in professional nursing administration and the creative style of chief nurse administrators?

4. What is the relationship between years of experience in the current position and the creative style of chief nurse administrators?

5. What is the relationship between highest academic degree earned and creative style of chief nurse administrators?

6. What is the relationship between professional credentials and the creative style of chief nurse administrators?

7. What is the relationship between organizational structure of the department of nursing and the creative style of chief nurse administrators?

8. What is the relationship between type of ownership of the hospital and creative style of chief nurse administrators?

9. What is the relationship between hospital size and the creative style of chief nurse administrators?

Limitations

The population studied was limited to the 66 chief nurse administrators (CNAs) in the acute care hospitals accredited by the Joint Commission on Accreditation of Healthcare Organizations in the five county San Francisco Bay area. CNAs in other facilities and other types of nurse administrators were not included. The data were collected in the fall, 1987. The findings of the research cannot be generalized beyond this circumscribed group at this particular time.

Creativity and leader behavior were operationally defined as scores on the Kirton Adaptation-Innovation Inventory and on the Leader Effectiveness and Adaptability Description, Self, respectively. No other measures of these constructs were used and the results are limited to these operational definitions.

A correlational design was used and no causality can be implied from this type of design (Borg & Gall, 1983). In a mailed survey the assumption is made that the addressee is the person who actually completes the questionnaire(s) or instrument(s) and that the respondent answer questions truthfully. Both of these assumptions may be false and were limitations of this research.

Significance

The research results identified the creative style of chief nurse administrators (CNAs) in this sample. They were used to determine whether CNAs have the ability to respond innovatively in a crisis situation such as the one now facing the nursing profession.

The leadership styles of CNAs were defined and were related to creative style. By knowing the leadership style that occurs more frequently with a particular creative style, CNAs can choose a particular leadership style to promote more innovative or adaptive behavioral patterns.

Despite the plethora of literature demanding CNAs to be innovative, there is no definitive research linking innovative creative style with leader effectiveness in CNAs. Perhaps in nursing administration an adaptive creative style is more conducive to leader effectiveness than an innovative creative style. This research investigated the relationship between creative style and leader effectiveness in CNAs.

The study described the relationship between selected demographic characteristics and the creative style of CNAs. Characteristics relating more to one style than the other can be used as selection and promotion criteria by hospital administrators who want their CNAs to possess a certain style of creativity.

This study was significant in that it extended the parameters of Kirton's Adaptation-Innovation model to

another population group and it inaugurated an area of much needed research in nursing administration (i.e., a study of the relationship between creative style and leader behavior). The present research also helps to focus future research exploring the relationship between creative style and leader behavior.

CHAPTER II

REVIEW OF LITERATURE

This literature review is organized around three themes: creative style, leader behavior, and effectiveness of hospital chief nurse administrators.

Creative Style

Philosophically, creativity is an attribute of every person and a necessary sequel to being (May, 1975). Through the creative process, humans are freed from the fetters of conditioned responses and usual choices. Creativity enlarges the universe by adding or uncovering new dimensions while concurrently expanding the creator who experiences the new dimensions inwardly (Arieti, 1976).

Historically, a systematic study of creativity began in the United States following J. P. Guilford's 1950 presidential address to the American Psychological Association. Guilford (1950) noted that in the preceding 25 years, less than two thirds of 1% of books and articles indexed in Psychological Abstracts focused on creativity. Calling this neglect of creativity appalling, Guilford identified the economic value of fostering creativity in industry and government including the development of

creative leaders. Most of the subsequent research on creativity focused on four areas: the creative process, the creative person, the creative product, and the creative environment.

Creative Process

As early as 1926, Wallas described the creative process as preparation, incubation, illumination, and verification (Wallas, 1926). Osborn (1963) popularized a group creative problem solving process known as "brainstorming." During brainstorming, ideas are generated but no judgment is made on their efficacy or validity.

Within the context of the structure-of-intellect model of intelligence, Guilford (1975) identified a creative problem solving process known as divergent thinking. In divergent thinking, flexibility, fluency, and originality are used to solve problems that have many possible answers.

Nurses are constantly being confronted with patient care problems with many possible solutions. Using the creative problem solving process in dynamic situations can help nurses cope with stress and increase autonomy in nursing practice (LaBelle, 1974).

Creative Person

The creative person or creative personality is usually studied by looking at traits or characteristics of creative

individuals. Over a century ago Galton (1874) examined outstanding English scientists and described them as enthusiastic with rapid, fluent, firm mental associations, vivid imaginations, and drive rather than control. More recently, MacKinnon (1975) found that creative scientists, architects, and mathematicians were inventive, independent, individualistic, enthusiastic, self-accepting, determined, and industrious while less creative colleagues were virtuous, of good character, rational, and concerned for others.

When Ranzau studied creative nursing students, she found that they were spontaneous, socially poised, dominant, self-accepting, perceptive, intuitive, self-assured, and self-confident (cited in Thomas, 1979). Using photographs with varying levels of complexity to assess level of creativity, Eisenman (1972) found that highly creative ($n = 36$) student nurses were more accepting of mentally ill and physically disabled persons than were less creative ($n = 21$) peers.

Creative Product

Almost all definitions of creative products emphasize novelty (Stein, 1975; Thurstone, 1952). Barron (1955) adds that creative products must also be adaptive to reality. While Amabile (1983) agrees that creative products or responses must be novel and appropriate, she feels that the

task or problem must be heuristic rather than algorithmic. Algorithmic tasks have solution pathways that are clear and straightforward. Heuristic tasks do not have clearly identifiable solutions, in fact, defining the goal may be part of the problem solver's task.

A high creative potential does not mean that nurses produce more or different types of solutions to patient care problems. The creative potential of 112 staff nurses was measured using the Khatana, "What Kind of Person Are You?" test. In simulated patient care situations highly creative staff nurses solved patient care problems using standard nursing textbook solutions the same as less creative peers. Years of experience in nursing and type of basic nursing education did not make a significant difference in the reported nursing decision. Possibly, nurses learn a habitual way of viewing and responding to common situations and follow these response pathways regardless of level of creativity (Hart, 1981).

Creative Environment

What constitutes a creative climate? Can the environment actually facilitate or inhibit the creative process and creative production? Although Maddi (1965) believes that creativity will occur regardless of climate or setting, most researchers (Amabile, 1983; Crutchfield, 1962; Koestler, 1964; Rogers, 1979; Torrance, 1962) assert that

creativity thrives best in an environment free from pressures to conform, free from control, and free from external evaluation. Studies in nursing education showed that nursing students were most creative when they were allowed to develop their own ideas and projects in a trusting environment (Manfredi & DeRestie, 1981; Stepp-Gilbert & Wong, 1985).

While exploring creativity in organizations, Taylor (1972) found that most people who have reshaped the world have done so outside of existing organizations. He believes that organizations emphasize efficiency today and creative ideas that may lead to a better tomorrow are neglected. Gibb (1972), and more recently Peters and Waterman (1982), assert that creativity and innovation are present in the organization and managers foster or hinder it by their behavior. Lack of trust, criticism, competition, and an autocratic boss are the major blocks to organizational creativity (Adams, 1979); while a facilitative leadership style promotes group creativity (Isaksen, 1983).

As part of a study on job satisfaction in nursing, Simpson (1985) reported chief nurse administrators' ($n = 5$) satisfaction with opportunities for creativity in their jobs. Although the directors were not satisfied with their jobs as a whole, they were satisfied with the opportunities for creativity in their jobs. Another study of 12 top-level nurse administrators in nursing education and nursing

service showed that one of the factors that made the administrators' jobs satisfying was the opportunity they had "of creating an environment that fostered creative thinking supportive of the goals of the organization" (Price, Simms, & Pfoutz, 1987, p. 238).

Kirton and associates explored creative styles of managers in different types and divisions of organizations to test the hypothesis that setting generates a need and a climate which requires individuals to use a more adaptive or a more innovative problem solving style. They found that managers who work in systems in which answers to problems can be found tend to use an adaptive problem solving style (e.g., bankers, accountants, and individuals involved in production). Managers who must go outside of their system for answers to problems use more innovative problem solving techniques (e.g., those employed in research, development, planning, personnel, and marketing) (Gryskiewicz, 1982; Kirton, 1987; Thompson, 1980).

Sex Differences and Creative Style

Because most nurses and chief nurse administrators (CNAs) are female, sex differences in creative style need to be explored. The Kirton Adaptation-Innovation Inventory (KAI) showed small, significant, sex differences in creative style. However, the difference accounted for less than 4% of the variance in style of creativity. Males were slightly

more innovative than females. These data were collected on 402 subjects in the United Kingdom. In general populations in the United States, there were no significant sex differences in creative style on the KAI (Kirton, 1987).

Personnel managers in the United Kingdom showed sex differences in creative style on the KAI. Although female personnel managers ($n = 48$) were more innovative than females in the general population, they were still less innovative than male personnel managers ($n = 31$). According to Kirton (1987) the position of women personnel managers on the KAI agrees with the Adaptation-Innovation theory. The women were managers but in an area that has long been considered acceptable for women. As expected they were more innovative than women in general, but not more innovative than their male counterparts.

Women engineer managers ($N = 46$) in the United Kingdom were more innovative than females in general and more innovative than male colleagues. These findings were also predicted by the Adaptation-Innovation Model. The women entered a male-dominated occupational group and they became successful managers in that occupation. It is not surprising that the women engineer managers were more innovative than females in general and more innovative than male counterparts (Kirton, 1987).

Chief nurse administrators (CNAs) are managers, however, they manage in an acceptable woman's occupation. They also manage in very conservative organizations which theoretically indicates they would use an adaptive problem solving style. On the other hand CNAs deal with problems that are not just intradepartmental. They constantly interact with other health care professionals, with service chiefs in nonprofessional departments (e.g., maintenance, housekeeping, and supply), with patients, and with groups outside of the hospital. Managers whose work requires them to interface with other departments or with groups and systems outside of the company are generally innovative problem solvers (Kirton, 1980, 1987; Thomson, 1980).

Leader Behavior

Although leaders must be creative and innovative (Drucker, 1982; Hickman & Silva, 1985; Peters & Waterman, 1982), leadership involves more than just being able to think creatively. Today's leader must combine creative thinking with caring for the customer and working effectively with people in the organization (Peters & Austin, 1985).

There are two generic functions of leadership (Merton, 1984). The integrative function provides for socio-emotional support to group members. The instrumental function promotes effective mobilization and coordination of

activity to enlarge the amount and improve the quality of task performance.

Early research on leadership explored personality characteristics, value systems, and life styles of known leaders. Although some traits were related to successful organizational leadership, none proved to be essential (Kast & Rosenzweig, 1974).

In a nursing leadership course, experienced head nurses listed characteristics of the ideal nurse leader. According to their observations, the competent nursing leader: practices assertive communication skills/gives feedback; seeks resources/is a resource; is organized, delegates tasks, sets priorities; is a change agent, takes initiative in problem solving; objectively supports peers; maintains self-composure; focuses on the patient; and motivates colleagues to provide high quality patient care (Harris, 1986).

Early research on leadership also focused on leadership style. Autocratic, democratic, and laissez-faire leadership styles were studied to determine their differential effect on the quality and quantity of solutions produced by followers. Nurse administrators are generally exhorted to use a democratic leadership style (Cochran, 1982). Being a democratic leader means the nurse administrator creates an atmosphere in which staff are encouraged to become well

informed of the organization's goals and to participate in all departmental planning.

When the leadership style of 341 registered nurses was studied, 75% of the group indicated that they used a democratic leadership style, 12% an autocratic style, and 11% a laissez-faire style. The preponderance of nurses in this sample, 82%, were in management positions (McGee, 1984). In another study on leadership style, nursing supervisors in municipal hospitals were found to use a more autocratic leadership style than supervisors in voluntary hospitals (Mulkowsky, 1978).

Leader behavior of 160 nursing education administrators (Lenz, 1982) and of 290 nursing service administrators (McCarty, 1986) was studied using the Initiating Structure and Consideration subscales of the Leader Behavior Description Questionnaire. Initiating Structure refers to leaders' behavior in delineating the relationship between themselves and members of the work group and endeavoring to establish well-defined patterns of organization, channels of communication, and methods or procedures. Consideration refers to behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between leaders and members of the staff. Initiating Structure and Consideration are separate and distinct dimensions; scores on the two scales are independent of each other.

The mean score of the sample of nursing education administrators on the Initiation of Structure subscale was 40.2, higher than for any of the norm groups studied. The mean Initiating Structure score for the nursing service administrators was 39.3, slightly lower than the nursing education administrators, but still higher than the mean (38.2) for the norm groups. On the Consideration subscale, the mean score of both groups of nursing administrators was 41.3. This score was higher than the mean Consideration score of the norm groups, which was 40.1.

Although the nursing administrators' high scores indicate that they are concerned with both relationship and task behaviors, any conclusions are tentative because the norm groups were primarily male and both nurse administrator groups were primarily female. Demographic factors such as age, education, experience, and institutional size were not significantly related to the nurse administrators' scores on either the Initiating Structure or Consideration subscale of the Leader Behavior Description Questionnaire.

Situational Leadership Theory is an ideal leadership theory for nurses. Not only does it promote flexibility and increased competence in the leader but it also encourages quality patient care and the professional development of staff (Teasley, 1987).

In Situational Leadership Theory (Hersey, 1985) effective leaders adapt their leadership style to the maturity level of followers. Generally, when working with people with low task maturity, leadership Style 1, "Telling," has the highest probability of success. Style 2, "Selling" maximizes success with followers with low to moderate task maturity. Style 3, "Participating," is used with followers who are moderate to high in task maturity. Finally, Style 4, "Delegating," has the highest probability of success when working with followers with high task relevant maturity.

Although delegation is a primary responsibility and a measure of maturity in management, nurse administrators have difficulty delegating tasks and authority (Cochran, 1982). Nurses are not prepared by either professional education nor experience to delegate. They are rewarded for personal accomplishments rather than for directing the achievement of others (Murphy, 1984).

The Leader Effectiveness and Adaptability Description, Self (LEAD-S) was used to measure the leadership style of 136 managers in a southwestern teaching hospital. There were 40 men and 96 women in the sample. Although nurses were represented, separate results were not provided for the nursing sample.

The results showed that the women in the study preferred leadership Style 3, Participating. For the total

group of subjects there was a significant negative correlation between years of managerial experience and the Effectiveness score on the LEAD-S. Level of education and Effectiveness scores were positively correlated (Malone, 1984).

Effectiveness of Chief Nurse Administrators

What characteristics of chief nurse administrators (CNAs) are related to their creative style and leader effectiveness? What characterizes a nursing organization that is able to attract and retain nurses? In 1983, the American Academy of Nursing identified 41 hospitals across the United States that were successful in recruiting and retaining professional nurses and were considered by the nurses working there as a good place to work. These hospitals were called Magnet hospitals. Four of them are in the five county San Francisco Bay area. The majority of the hospitals, 78%, were private, nonprofit institutions and more than one half were between 201 and 500 beds in size.

The CNAs were highly educated--12.2% held doctoral degrees and 68.3% Master of Science in Nursing degrees. They were described as being visible and accessible and using a participatory management style. The nursing organizational structure was decentralized to the nursing unit level (American Academy of Nursing, 1983).

Decentralization of the nursing organization seems to be a potent factor in retention of nursing staff. In a study of 95 staff nurses, both decentralization and increased participation in decision making were found to be significant inverse predictors of sick time, absenteeism, and withdrawal from the job (Barhyte, Counte, & Christman, 1987). Decentralization was also significantly correlated with the job satisfaction of 343 staff nurses (Pryestrzelski, 1987).

Reynolds investigated education, experience, availability of a mentor, and time in present position to determine their effect on CNAs' ($N = 123$) perceived ease of dealing with administrative problems. She found that formal education, extent of previous experience as an administrator, and availability of a mentor did not decrease perceived difficulty with administrative problems. The only statistically significant factor that CNAs felt reduced their difficulty with administrative problems was time in the present CNA position (cited in "Consider this," 1985).

Noting that there is currently a gross undersupply of qualified nurse executives, Freund (1985) surveyed directors of nurses (DONs) and hospital chief executive officers (CEOs) to determine what makes an effective nurse executive. The survey was open ended and effectiveness was not defined. Only university and university-affiliated hospitals were included in the sample.

Both DONs ($n = 172$) and CEOs ($n = 126$) listed general management/health/nursing knowledge as the most important reason and human management skills as the second most important reason for DONs' effectiveness. Neither the DONs nor the CEOs included creativity or innovation as important for a DON's effectiveness; however, the DONs saw flexibility as important for their success.

Another study on leader effectiveness focused on forced resignations in a sample of 66 DONs. Out of the sample, 12 had experience with forced resignations. Of these 12 subjects, almost all felt that their assertive behavior particularly in relation to nursing professionalism was linked to their forced resignations. No special relationship was found among age, educational preparation, and sex and incidence of forced resignation; however, most DONs who were forced to resign were in their positions less than 2 years (Sredl, 1982).

Summary

When the findings from the three literature review themes--creative style, leader behavior, and effectiveness of chief nurse administrators (CNAs) in acute care hospitals--were theoretically applied to the research questions, few definite predictions could be made. The reason for the ambiguity was that the CNA's role is

complex, requires many traditional and nontraditional behaviors, and is in a state of transition.

The most outstanding finding from the literature review is that although CNAs are exhorted to use innovation to solve the nursing shortage crisis, there are no definitive research studies linking leader effectiveness to innovative problem solving in CNAs. Another finding is that few personal and professional characteristics of CNAs are tied to their leader effectiveness. This study applied the rigors of research to determine whether innovative behavior is needed for leader effectiveness in CNAs.

CHAPTER III

METHODOLOGY

Restatement of the Purpose

The purpose of the study was to identify the creative style of chief nurse administrators (CNAs), investigate the relationship between creative style and leader behavior, and describe the relationship between creative style and selected demographic characteristics of CNAs.

Research Methodology and Design

A cross-sectional, time-bound, correlational survey design was used to investigate the research questions for the purpose of exploring, describing, and explaining the relationship(s) among the study variables. A correlational design facilitates the analysis of the relationships among multiple variables in a single study (Borg & Gall, 1983). The data collection instruments were mailed to the subjects who, after completion, returned them by mail to the researcher.

Population and Sampling Frame

The population studied was the chief nurse administrators (CNAs) in acute care hospitals accredited

by the Joint Commission on the Accreditation of Healthcare Organizations in the five county San Francisco Bay area. There are 66 accredited acute care hospitals in the five counties: 22 in Alameda county, 17 in San Francisco county, 14 in Santa Clara county, 8 in San Mateo county, and 5 in Marin county (American Hospital Association, 1986). Appendix A contains the names of the hospitals. All 66 CNAs in the population were used in the sample. The actual name of each CNA was obtained by telephoning each hospital's nursing administration office and requesting the name and title of the CNA.

Data Collection Instruments

Standardized tests were used to measure creative style and leader behavior. The Kirton Adaptation-Innovation Inventory (KAI) operationally defined and measured the independent variable, creative style, and the Leader Effectiveness and Adaptability Description, Self (LEAD-S), operationally defined and measured the dependent variable, leader behavior. Written permission was obtained from the publishers of the instruments to use them in this research. Most of the demographic data were obtained using a researcher-constructed questionnaire; however, type of hospital ownership was obtained from the American Hospital Association Guide to the Health Care Field (American Hospital Association, 1986).

Kirton Adaptation-Innovation Inventory (KAI)

The KAI was developed by British researcher, Michael J. Kirton (1976, 1987). It is based on Kirton's Adaptation-Innovation Theory of creative style, which locates individuals on a single bipolar continuum depending on whether they tend to solve problems by adaptive or by innovative techniques.

The KAI consists of 32 items and takes about 15 minutes to complete. This scale uses five response alternatives; subjects mark whether it is "very easy," "easy," "neither easy nor hard," "hard," or "very hard" to describe themselves by each of the 32 items. Some items are reverse scored. Item scores are summed. Scoring is arranged so that Adaptors get low scores; Innovators high scores.

Theoretically, individual scores range from 32 to 160 with a mean of 96 and standard deviation of 16. Correlations between the KAI and occupation and the KAI and education are nonsignificant. There is a small, significant negative correlation between the KAI and age ($r = -.187$, $p < .001$) and a small, significant positive correlation between the KAI and sex ($r = .195$, $p < .001$). None of these correlations account for as much as 4% of the variance in creative style.

Factor analysis evidences three subscales. The Originality (O) subscale consists of 13 items and has a mean of 40.8 and a standard deviation of 8.89. The O factor

relates to an individual's preference for idea production and must not be confused with capacity to produce original ideas. Adaptors produce a few original ideas that are sound, useful, and relevant to the situation as they see it. Innovators proliferate so many ideas that it is sometimes difficult to select an appropriate, useful, and immediately acceptable solution. The O scale describes an Innovator who is a loner, has little awe of tradition, and is not concerned with consensual rule or decisions.

The Efficiency (E) subscale consists of 12 items and has a mean of 18.8 and a standard deviation of 5.59. A low E score describes the Adaptor as a methodical, precise, reliable person who fits well into the bureaucratic system. The Rule/Group Conformity (R) subscale with its 12 items has a mean of 35.4 and a standard deviation of 8.56. A low score evidences the Adaptor's desire to fit into a bureaucracy through respect for authority and rules. A high score on the E and R subscales means a disinclination for efficiency and for conformity and is indicative of an innovative behavior pattern.

The construct validity of the KAI was established using validity panels of senior managers and successive item analyses. The final 32 items were tested on a sample of 532 heterogeneous subjects and replicated on another 276 subjects. The KAI is negatively correlated with measures of

dogmatism, intolerance for ambiguity, conservatism, and inflexibility. It is positively correlated with measures of extraversion and is not significantly related to intelligence. Creativity tests that are designed predominantly to measure level of creativity (i.e., those that owe their naming and concept to Guilford) are not significantly related to the KAI (Kirton, 1987).

Test-retest reliability with 7 months between tests is .82. Internal reliability of the entire inventory is .88. Internal reliability for the O subscale is .83, for the E subscale .76, and for the R subscale .83 (Kirton, 1987). A copy of the KAI is in Appendix B.

Leader Effectiveness and Adaptability Description,
Self (LEAD-S)

The LEAD-S, developed by Paul Hersey and Ken Blanchard (1976), is based on Situational Leadership Theory and describes a leader in terms of style and effectiveness (adaptability). This instrument consists of 12 situational items each with four response options. Each response option reflects one of four basic styles of leadership. Subjects choose the response which best describes how they would act in the given situation. This paper and pencil test takes about 10 minutes to complete.

Using the subject's response to each item, the number of times each style type is selected is tabulated. The style with the highest selection rate is the subject's

Dominant Leadership Style and the style with the second highest selection rate is the subject's First Alternate Leadership Style. Generally, only the Dominant and First Alternate Styles are used when describing an individual's preferred style of leadership. In the norm group the most commonly occurring leadership style was Style 2, Selling. Style 3, Participating, was the second most frequently occurring leadership style. Style 1, Telling, was the third most frequently occurring leadership style, while Delegating, Style 4, was the least commonly occurring leadership style used by the normative sample.

The Effectiveness (adaptability) score is derived using the subject's response to each of the 12 situations and how that response compares to the one with the highest probability of success based on the Situational Leadership model. If it agrees exactly, a score of +2 is assigned. The second best alternative is scored +1 and the third is scored -1. If the subject's response is the worst possible choice, it is scored -2. Leader Effectiveness scores range from -24 to +24. The higher the score, the more effective the leader.

For the norm group the mean raw Effectiveness score was 9.1 with a standard deviation of 5.00. Raw Effectiveness scores can be converted to normal curve equivalent (NCE) scores by referring to a table in the LEAD technical manual.

The NCE scores are normalized standard scores with a mean of 50 and a standard deviation of 21.06. Because NCE scores have the property of normality, they can be used in parametric statistical analyses. The NCE may be used to interpret subjects' Effectiveness scores in relation to the norm reference group according to the following schema:

Level of Effectiveness	NCE Score
High	94-99
Above Average	72-93
Average	29-71
Below Average	7-28
Low	1-6

The LEAD-S was standardized on 264 subjects ranging in age from 21-64 with varying degrees of management expertise. For the Effectiveness measure the validity for each of the 12 items ranged from .11 to .52, with 10 of the 12 coefficients .25 and over. Content validity was established using expert panels and item analysis. A significant correlation of .67 was found between the Effectiveness scores of managers and independent ratings by their supervisors, evidencing concurrent validity. A modified factor structure supported the four style dimensions of the scale. As hypothesized, correlations with age, sex, years of experience, degree, and management level were low.

In two administrations across a 6-week interval, 75% of the managers in the sample maintained their Dominant.

Leadership Style and 71% maintained their First Alternate Leadership Style. The contingency coefficients were both .71 ($p < .01$) and the coefficient for the Effectiveness measure was .69 ($p < .01$) (Greene, 1980). A copy of the LEAD-S instrument is in Appendix C.

Demographic Questionnaire

The questionnaire used to collect most of the demographic data was constructed by the researcher. The personal, professional, and organizational data solicited from each chief nurse administrator (CNA) included (a) number of years experience in nursing administration, (b) number of years in current administrative position, (c) highest academic degree earned, (d) certification by the American Nurses Association in Nursing Administration, (e) organizational structure of the department of nursing, and (f) size of the hospital where the CNA was employed.

For the first four items on the demographic questionnaire, respondents checked the appropriate response option. The response options were mutually exclusive and exhaustive for these four items. Item 5 required CNAs to check which of the following responsibilities were delegated to the individual nursing units: (a) budgetary control, (b) staff selection, development, and evaluation, (c) staff scheduling, and (d) quality of nursing care to patients. If three or more items were checked, the nursing organization

was designated decentralized. If two or fewer were checked, it was designated centralized. Item 6, the number of operating beds in the CNA's employing facility, required respondents to write in an actual number. Appendix D contains a copy of the demographic questionnaire.

Hospital Ownership

The type of ownership of the hospital employing the CNA was also studied to determine its relationship to creative style. Data on ownership of the hospitals were obtained from the American Hospital Association Guide to the Health Care Field (American Hospital Association, 1986). Hospital ownership was divided into three categories: government, private-nonprofit, and private-for profit. The government category included military hospitals and veterans administration hospitals as well as city and county owned hospitals. Hospital ownership is included in Appendix A.

Data Collection Procedure

A preliminary letter was mailed to each chief nurse administrator (CNA) 7 days before the actual instrument packet was mailed. This letter alerted the CNAs to expect the research packet and briefly explained the nature and importance of the research, that it was being completed for a doctoral degree, and that responses would be confidential.

The first wave of mailing to all 66 subjects included the demographic questionnaire; the Leader Effectiveness and Adaptability Description, Self; the Kirton Adaptation-Innovation Inventory; a stamped, self-addressed envelope for returning the instruments; and a cover letter. The cover letter again explained the nature and importance of the research, that it was being completed for a doctoral dissertation, and that responses were confidential. Subjects were instructed to write directly on the instruments and to return them in the stamped envelope. One week after mailing the research packet, a follow-up reminder postcard was sent to all subjects who had not returned the research instruments.

A second set of research materials, return envelope, and a cover letter was sent to all nonrespondents 21 days after the first mailing. As shown in Table 2, the response rate to the first mailing was 62% or 41 subjects, therefore, only 25 subjects received a second set of instruments and cover letter. Again, 7 days after the second set of research instruments was mailed to the CNAs, a follow-up reminder postcard was sent to all nonrespondents.

A third set of research instruments, return envelope, and cover letter was mailed to all nonrespondents 14 days after the second mailing. The response rate by this time was 80% or 53 of the 66 original subjects (see Table 2).

Table 2

Response to Three Waves of Mailings From the Sample of Chief Nurse Administrators (N = 66)

	Frequency	Percent
Wave 1	41	62%
Wave 2	12	18%
Wave 3	4	6%
Total	57	86%

One week following the third mailing of the research instruments, a final follow-up letter was sent to all nonrespondents. The decision was made to stop data collection 2 weeks after the third mailing. By this time 57 of the 66 CNAs, or 86%, had returned their research instruments. Over the next month two more sets of research instruments were received, however, they were not included in the data analysis or study results.

Data Summary and Analysis

The data were summarized and analyzed to answer the research questions. Before the data were combined, analyses of variance were completed on each major study variable to determine if the wave of return made a significant difference in the responses of the chief nurse

administrators (CNAs). These analyses were nonsignificant ($p > .05$) and the data were aggregated for the subsequent statistical analyses.

The first major research question, what is the creative style of CNAs, was answered using the CNAs' scores on the Kirton Adaptation-Innovation Inventory (KAI). A score on each of the three subscales and a total KAI score was obtained for each subject. The group mean and standard deviation on each of the three subscales and on the total KAI scale were calculated. By comparing the group KAI mean score with the theoretical mean score of the KAI, the creative style of the CNAs was defined. Comparisons using t tests were made between the scores of the CNAs and scores of the norm group on the KAI total test and on the Originality, Efficiency, and Rule/Group Conformity subscales.

The second major research question asked, what is the relationship between creative style and leader behavior. To answer this question the CNAs were divided into Adaptors and Innovators using their scores on the KAI. The Leader Effectiveness and Adaptability Description, Self (LEAD-S) was scored and the Dominant and First Alternate Leadership Styles were identified for the total group of CNAs and for the subgroups of Innovators and Adaptors using frequencies and percentages. Chi-square analyses were used to compare the leadership styles of Adaptors and Innovators.

The LEAD-S Effectiveness raw scores were converted to normal curve equivalent scores; all analyses used these standardized scores. Effectiveness scores for the total group, for the Adaptors, and for the Innovators were described using means and standard deviations. An analysis of variance was used to compare the Effectiveness scores of Adaptors and Innovators. Correlations between the KAI total score and the Effectiveness score and between each of the KAI subscales and the Effectiveness score were completed. A stepwise multiple regression analysis was used to determine the effect of creative style and the demographic variables on leader effectiveness.

The seven subsidiary research questions, which related the selected demographic characteristics of the CNAs to their creative style, were answered last. The CNAs were divided into Adaptors and Innovators according to their scores on the KAI. Chi-square analyses were used to compare the responses of the Adaptors and Innovators on each demographic variable.

On most demographic items, some of the response categories were collapsed to highlight salient features of the response distributions. For example, on Item 4, which studied the number of CNAs who were certified by the American Nurses Association (ANA) in Nursing Administration, only 11 of the 57 CNAs were certified. Six were certified in Nursing Administration and five in Advanced Nursing

Administration. Because so few CNAs were certified, the group was divided into CNAs with and without ANA certification to better depict the relationship between creative style and ANA certification. The Statistical Package for Social Sciences (SPSS) (1988) computer program was used to perform the data analyses.

CHAPTER IV

FINDINGS

Purpose and Design of Study

The purpose of the study was to identify the creative style of chief nurse administrators (CNAs); to investigate the relationship between the creative style and leader behavior of CNAs; and to describe selected personal, professional, and organizational characteristics of the CNAs that were related to creative style. Creative style was measured using the Kirton Adaptation-Innovation Inventory (KAI) and leader behavior by the Leader Effectiveness and Adaptability Description, Self (LEAD-S). A short questionnaire was developed to collect demographic data.

A correlational research design was used. The data were collected by mail from the sample of all CNAs ($N = 66$) in acute care hospitals accredited by the Joint Commission on Accreditation of Healthcare Organizations in the five county San Francisco Bay area. The response rate was 86%; 57 CNAs completed and returned the research instruments.

Plan for Presentation of Findings

The data from the study are presented in four sections. First, the chief nurse administrators (CNAs) are described

using the demographic data. Major research question 1, which asks what is the creative style of CNAs, is then addressed. The second major research question, which investigates the relationship between creative style and leader behavior in CNAs is answered next. Finally, the subsidiary research questions are answered. These questions relate creative style to selected personal, professional, and organizational characteristics of the CNAs.

Description of Respondents

Fifty-seven of the 66 CNAs in the sample responded to the study. As shown in Table 3, most of the chief nurse administrators (CNAs) were experienced administrators. While 44% of the CNAs had from 10-19 years of experience as a nurse administrator, 21% were administrators 20 or more years. Only four of the CNAs had 4 or fewer years of experience in nursing administration. Response category 5-9 years was the single category with the most respondents; it included 28% of the CNAs.

In contrast to the abundance of years of experience in nursing administration, the CNAs were fairly new to their jobs. As outlined in Table 4, 23% were in their current chief nurse position less than 1 year and another 30% were in their position between 1 and 2 years. Eleven of the CNAs, or 19%, were in their current position 6-10 years but only one had a tenure of over 10 years.

Table 3

Years of Experience in Nursing Administration of the Chief Nurse Administrators (N = 57)

Years of Experience	Frequency	Percent
0-4 years	4	7%
5-9 years	16	28%
10-14 years	12	21%
15-19 years	13	23%
20-24 years	7	12%
25+ years	5	9%

Table 4

Years of Experience in Current Position of the Chief Nurse Administrators (N = 57)

Number of Years	Frequency	Percent
< 1 year	13	23
1-2 years	17	30
3-5 years	15	26
6-10 years	11	19
> 10 years	1	2

The CNAs were well educated; 46% had a Master of Science in Nursing degree and another 18% had Master's degrees in an area other than nursing. Only 14%, or eight, chief nurses possessed less than a nursing baccalaureate degree. None of the CNAs were prepared at the doctorate level in nursing, however, two had earned nonnursing doctorates (see Table 5).

Of the 57 CNAs only 11 were certified by the American Nurses Association in Nursing Administration. Of this group of 11 nurses, 6 were certified in Nursing Administration and 5 in Advanced Nursing Administration (see Table 6).

Almost all of the CNAs reported that their nursing departments were decentralized. Only four of the chief nurses had centralized departments; 53, or 93%, were decentralized (see Table 7).

Thirty-six of the hospitals, or 63%, were private, nonprofit hospitals; however, 14, or 25%, were owned by the city, county, or federal governments including military hospitals. Only 7, or 12%, were owned privately and operated for profit (see Table 8).

The final demographic variable studied was the bed size of the hospitals employing the CNAs. As shown in Table 9, hospitals tended to be small. Eighty-five percent had 400 or fewer beds, 25% had between 101-200 beds, and another 25% between 201-300 beds. Only nine CNAs were employed in

Table 5

Highest Academic Degree Held by the Chief Nurse Administrators (n = 56)

Degree	Frequency*	Percent
Diploma or Associate Degree	5	9
Baccalaureate, nonnursing	3	5
Baccalaureate, nursing	10	18
Masters, nonnursing	10	18
Masters, nursing	26	46
Doctorate, nonnursing	2	4
Doctorate, nursing	0	0

*One subject did not answer this question.

Table 6

Chief Nurse Administrators Certified in Nursing Administration (N = 57)

Type of Certification	Frequency	Percent
None	46	81
Nursing Administration	6	10
Advanced Nursing Administration	5	9

Table 7

Centralized and Decentralized Nursing Departments of the Chief Nurse Administrators (N = 57)

Organizational Structure	Frequency	Percent
Centralized	4	7
Decentralized	53	93

Table 8

Type of Ownership of the Hospitals Employing the Chief Nurse Administrators (N = 57)

Ownership	Frequency	Percent
Government	14	25
Private, nonprofit	36	63
Private, for profit	7	12

Table 9

Number of Operational Beds in the Hospitals Employing the Chief Nurse Administrators (N = 57)

Operational Beds	Frequency	Percent
100 or less	9	16
101-200	14	25
201-300	14	25
301-400	11	19
401-500	3	5
501-600	4	7
600 or more	2	3

hospitals with more than 400 beds and another nine in hospitals with less than 100 beds.

Creative Style of Chief Nurses

Major Research Question 1 asked, what is the creative style of chief nurse administrators (CNAs). The scores of the CNAs on the Kirton Adaptation-Innovation Inventory (KAI) were used to answer this question. The mean total KAI score for the CNAs was 108.9 with a standard deviation of 12.56. The theoretical mean of the KAI is 96; subjects scoring below 96 are designated Adaptors and subjects scoring 96 or above are Innovators. The creative style of this group of

CNAs was clearly innovative--their group mean score was three-fourths of a standard deviation above the theoretical mean of the KAI (Kirton, 1987). Only 10 of the 57 CNAs were Adaptors, 47 were Innovators.

The mean scores of the CNAs on each of the three subscales of the KAI were also higher than the scores of the norm groups. Table 10 depicts the means and standard deviations of the CNAs and norm group on the total KAI test and on each of the three subscales. On the Originality subscales the CNAs' mean score was 48.3 with a standard deviation of 6.47 while the norm group's mean score was 40.8 with a standard deviation of 8.89. On the Efficiency subscale the mean of the CNAs and the norm group was only about 2 points different. The norm group mean and standard deviation on the Rule/Group Conformity subscale was 35.4 and 8.56, respectively, while the CNAs mean was higher at 40.2 with a standard deviation of 5.79. The smaller standard deviations of the CNAs reflect their being a more homogeneous group than the normative sample.

As shown by t -tests for independent means, the scores of the CNAs on the KAI and on each of the subscales were significantly higher than the scores of the norm group. Table 11 shows these t values comparing the norm group and the CNAs.

Table 10

Means and Standard Deviations of the Chief Nurse Administrators (N = 57) and of the Normative Group on the KAI Total Test and on the Three KAI Subscales

Scale	Chief Nurses		Norm Group	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Total KAI	108.8	12.56	96.0	16.00
Originality	48.3	6.47	40.8	8.89
Efficiency	20.4	5.20	18.8	5.59
Rule Conformity	40.2	5.79	35.4	8.56

Table 11

Comparisons Between the Chief Nurse Administrators (N = 57) and the Normative Group on the KAI Total Test and on the Three KAI Subscales

Scale	<u>t</u>
KAI Total	7.76**
Originality	8.73**
Efficiency	2.32*
Rule Conformity	6.31**

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

Creative Style and Leader Behavior

The second major research question was concerned with the relationship between creative style and leader behavior of chief nurse administrators (CNAs). Scores on the Kirton Adaptation-Innovation Inventory (KAI) and on the Leader Effectiveness and Adaptability Description, Self (LEAD-S) were used to answer this research question. The Dominant and First Alternate Leadership Style scores were obtained by adding the number of times each response style was selected on the 12 LEAD-S questions. The style with the highest score was designated the Dominant Leadership Style and the style with the second highest score as the First Alternate Leadership Style for each respondent. The leader Effectiveness score was obtained by using the formula provided on the scoring sheet. The Effectiveness raw scores were converted to normal curve equivalent scores using the table in the technical manual (Greene, 1980). All calculations involving Effectiveness scores used the standardized, normal curve equivalent scores.

Leadership Style

As evidenced in Table 12, 48 of the 57 CNAs in the study had one clear Dominant Leadership Style. Eight of the CNAs had two leadership styles tied for the highest score and one CNA had three styles tied for the highest score. The majority of CNAs (54%) used Style 2, Selling, as their

Table 12

Frequency (F) and Percent (%) of Dominant and First Alternate Leadership Styles Used By Chief Nurse Administrators (N = 57)

Style	Dominant F	%	First Alternate F	%
1-Telling	0	0%	1	1.8%
2-Selling	31	54.4%	17	29.8%
3-Participating	17	29.8%	28	49.1%
4-Delegating	0	0%	0	0%
2 and 3 Tied	8	14.0%	9	15.8%
2, 3, and 4 Tied	1	1.8%	1	1.8%
3 and 4 Tied	0	0%	1	1.8%

Dominant Leadership Style while 30% of the subjects reported using Style 3, Participating, as their Dominant Leadership Style. When there was a two-way tie for Dominant Leadership Style, the tie was between Styles 2 and 3. Leadership Style 1, Telling, was never chosen as a Dominant Leadership Style. Style 4, Delegating, was chosen only as part of a three-way tie when the subject forgot to answer one of the 12 questions.

The First Alternate Leadership Style most frequently used was Participating, with Selling as the second most frequently used First Alternate Leadership Style (see Table

12). One CNA's First Alternate Leadership Style was Style 1, Telling. Delegating, Style 4, was never the single choice as the First Alternate Leader Style. Eleven of the CNAs had tied First Alternate Leadership Styles. Again these ties were generally between Styles 2 and 3.

Leadership Style and Creative Style

The relationship between the creative style and the leadership style of the CNAs was described using frequencies, percentages, and chi-square analyses. Only CNAs with non-tied scores were used when the Dominant and First Alternate Leadership Styles were compared with creative style.

As depicted in Table 13, the Dominant Leadership Style for both Innovators and Adaptors was Selling. Although 67%

Table 13

Frequency (F) and Percent (%) of the Dominant Leadership Styles of Adaptors and Innovators

Leadership Style	Adaptors		Innovators	
	F	%	F	%
Selling	5	56%	26	67%
Participating	4	44%	13	33%
Total	9	100%	39	100%

of the Innovators used Selling as their Dominant Leadership style, the percentage of Adaptors who used Selling was somewhat less at 56%. Forty-four percent of Adaptors used Participation as their Dominant Leadership Style. The chi-square analysis comparing the Dominant Leadership Style of Adaptors and Innovators was not statistically significant (see Appendix E, Table 1).

The First Alternate Leadership Style of both Adaptors and Innovators was Participation (see Table 14). Innovators used it 62% of the time, Adaptors 56% of the time. Forty-four percent of Adaptors used Selling as their First Alternate Leadership style in contrast to 35% of Innovators. One Innovator used Telling as a First Alternate Leadership Style. The chi-square analysis comparing the First Alternate Leadership Style of Adaptors and Innovators was not statistically significant and is in Appendix E, Table 2.

Leader Effectiveness

The mean Effectiveness score of the CNAs was 64.6 with a standard deviation of 15.40 (see Table 15). For the normative group the mean was 50 with a standard deviation of 21.06 (Greene, 1980). A t -test comparison showed the Effectiveness score of the CNAs was significantly higher than that of the normative group ($p < .001$).

Table 14

Frequency (F) and Percent (%) of the First Alternate Leadership Styles of Adaptors and Innovators

Leadership Style	Adaptors		Innovators	
	F	%	F	%
Telling	0	0%	1	3%
Selling	4	44%	13	35%
Participating	5	56%	23	62%
Total	9	100%	37	100%

Table 15

Comparison of the Scores of the Chief Nurse Administrators (N = 57) and of the Normative Group on the LEAD-S Effectiveness Measure

Group	M	SD	t
CNAs	64.5	15.40	7.16*
Norm Group	50.0	21.06	

* $p < .001$

Adaptors had a mean Effectiveness score of 62.7 with a standard deviation of 13.39, while Innovators had a mean of 65 with a standard deviation of 15.89. The analysis of variance comparing the Effectiveness scores of Adaptors and Innovators was not statistically significant and is in Appendix E, Table 3.

A Pearson product-moment correlation coefficient described the relationship between the Total KAI score and the Effectiveness score of the CNAs. The CNAs' scores on each of the three subscales of the KAI and their Effectiveness score were also correlated using Pearson product-moment correlations. As outlined in Table 16, the correlations were very low and none was statistically significant ($p > .05$).

The correlation between the total KAI score and the Effectiveness score was .01. The highest correlation, between the Rule/Group Conformity subscale and Effectiveness, was only .11. There was a small negative correlation between Effectiveness and the Originality subscale of the KAI.

A step-wise multiple regression analysis was computed using the LEAD-S Effectiveness score as the dependent (criterion) variable and the three KAI subscales and all seven demographic variables as the independent (predictor) variables. None of the three KAI subscales were statistically significant predictors of leader effectiveness.

Table 16

Correlations Between the LEAD-S Effectiveness Score and the Total KAI Score and the LEAD-S Effectiveness Score and each KAI Subscale Score (N = 57)

Creativity Scales	r	r ²
KAI Total	.012	.0001
Originality	-.105	.011
Efficiency	.031	.001
Conformity	.114	.013

Two demographic variables were significant predictors of leader effectiveness--years in current nursing administration position and number of beds in the employing hospital. When the SPSS (1988) computer program is used to compute stepwise multiple regressions, only statistically significant correlations are printed; nonsignificant ones are not printed. Table 17 contains a summary of the significant multiple regression analysis.

The multiple regression correlation between years in current CNA position and leader effectiveness was .391, significant at the .003 level and accounting for about 15% of the variance of leader effectiveness. When number of beds was added to the stepwise multiple regression, the multiple correlation was increased to .477. About 23% of

Table 17

Summary Table of the Stepwise Multiple Regression Analysis of KAI Subscales and Demographic Variables on the LEAD-S Effectiveness Score (N = 57)

Variable	R	R ²	F level	df
Years in CNA Position	.391	.153	9.718*	54
Number of Beds	.477	.227	7.791**	53

* $p < .003$ ** $p < .001$

the variance in leader effectiveness was accounted for by these statistically significant predictor variables.

Creative Style and Demographic Variables

The subsidiary research questions addressed the relationship between the selected personal, professional, and organizational characteristics of the chief nurse administrators (CNAs) and their creative style. These questions were answered by first dividing the CNAs into Adaptors and Innovators. When a score of 96 on the KAI was used as the criterion separating Adaptors and Innovators, the division showed that only 10 of the 57 CNAs were Adaptors. The mean KAI score of the Adaptors was 90.4 with a standard deviation of 3.10. The 47 Innovators had a mean score of 112.9 with a standard deviation of 9.99.

Meaningful descriptive comparisons between Adaptors and Innovators were not possible because of the small number of CNAs who were Adaptors.

Chi-square analyses were used to explore differences between Adaptors and Innovators on the demographic variables. None of these chi-square analyses were statistically significant ($p > .05$) (see Appendix F, Tables 1-7).

CHAPTER V

DISCUSSION

Introduction

In California, as in most of the United States, the shortage of registered nurses (RNs) is now at a critical level. The present crisis cannot be solved by applying the same measures used to counter previous RN shortages. Sweeping innovation is needed in the organization and delivery of nursing care in hospitals (Buerhaus, 1987). A new model of nursing is needed and hospital chief nurse administrators (CNAs) must provide leadership in developing the new model.

The purpose of this study was to identify the creative style of CNAs, investigate the relationship between creative style and leader behavior in CNAs, and describe the relationship between creative style and selected personal, professional, and organizational characteristics of CNAs. The sample consisted of the 66 CNAs in the acute care hospital accredited by the Joint Commission on Accreditation of Healthcare Organizations in the five county San Francisco Bay area. The response to this mailed survey was 86%.

Creative style was measured using the Kirton Adaptation-Innovation Inventory. Leader behavior was measured using the Leader Effectiveness and Adaptability Description, Self. A one page researcher-developed questionnaire was used to collect the demographic data. The data were analyzed using the SPSS computer program.

The 57 responding CNAs were experienced nurse administrators with about two thirds of their number having more than 10 years of nursing administration experience. Over 50% of the CNAs were in their present position less than 3 years, indicating that there may be frequent turnover in the CNA position. Sixty-four percent of the group possessed Master of Science degrees, however, only two were doctorally prepared. Only 19% of the CNAs were certified by the American Nurses Association in Nursing Administration. Almost all (93%) of the nursing departments were decentralized. Most of the CNAs were employed in private-nonprofit hospitals and hospitals tended to be small, only 15% were over 400 beds in size. Only 3 of the 57 CNAs were males, the remainder were females.

Conclusions and Discussion

Research Question 1

What is the creative style used by chief nurse administrators (CNAs) to solve problems? Scores on the Kirton Adaptation-Innovation Inventory (KAI) showed that

this group of CNAs used an innovative problem solving style. Their mean KAI score was 109; three fourths of a standard deviation above the theoretical mean of the KAI. Clearly, they have the potential to develop new and different models of nursing which will make the profession attractive to individuals considering nursing as a career option and satisfying to nurses already in the profession. The CNAs have the ability to solve the nursing shortage crisis, not by doing the same things more efficiently, but by doing more effective things.

On the total Kirton Adaptation Inventory (KAI) and on each of the three KAI subscales, the CNAs scored significantly higher than the normative group. This difference cannot be the result of the high education level of the CNAs because there is no significant relationship between the KAI and educational level. There is a small statistically significant relationship between sex and KAI score; females have slightly lower scores than males (Kirton, 1987). All but 3 of the 57 CNAs in this study were females but the CNAs' scores were still significantly higher than the scores of the normative group.

In the Adaptation-Innovation Theory of creative style, Kirton (1987) postulates that individuals in conservative organizations generally use an adaptive problem solving style. It is surprising that CNAs in the conservative health care industry were Innovators. Innovators do not

conform and they are not overly concerned with efficiency-- attributes not usually associated with success in a conservative bureaucracy.

Research shows that managers who go outside of their areas to solve problems generally use an innovative problem solving style (Gryskiewicz, 1982; Kirton, 1987; Thomson, 1980). CNAs go outside of their departments to solve problems and to achieve goals; they interact with physicians, with other professionals and nonprofessionals in the hospital, and with groups outside of the hospital on an almost daily basis. These interactions may foster innovative problem solving in the CNAs despite the conservative nature of their organizations.

The CNAs are at the top in a virtually all-female profession, yet their administrative peers in the hospital (i.e., chief executive officer of the hospital, chief of the medical staff, chief of the laboratory, supply, etc.) are almost all men. These CNAs have learned to function and hold their own in negotiations with men. It is no wonder that they are highly innovative--they are administrators and they are administrators in a man's world. It would be interesting to see if their male peers are more or less innovative than the CNAs. The Adaptation-Innovation Theory would probably predict that the male executives are less innovative than the CNAs.

The possibility that CNAs are indeed Adaptors but answered the questions in a way that made them look like Innovators cannot be ruled out as an explanation for the research findings. There are many articles in the nursing literature stressing the need for CNAs to be innovative. Perhaps these articles created a response bias for the CNAs to answer the questions as if they use an innovative rather than an adaptive problem solving style. One of the limitations of this research was the assumption that CNAs answered the questions truthfully.

Research Question 2

What is the relationship between leader behavior and creative style of the chief nurse administrators (CNAs)? The majority of the CNAs in the study used Selling (Style 2) as their Dominant Leadership Style and Participation (Style 3) as their First Alternate Leadership Style. For the subgroups of Adaptors and Innovators, the same pattern was seen. The data analysis showed that there were no statistically significant differences in the leadership styles of the Adaptors and the Innovators.

Selling is characterized by above-average amounts of both task and relationship behavior. The leader is concerned with getting the task done but not at the expense of the individuals in the group. Concurrently, the leader outlines tasks and takes an interest in everyone, accepting

followers' individuality, personal needs, and ideas. Participation emphasizes a high relationship but low task leader behavior pattern.

The style profile Selling/Participation (2/3) is the most frequently identified Dominant and First Alternate Leadership Style combination found in the United States and other countries with a high level of education. Styles 2 and 3 are considered "safe" styles; neither of these response choices on the 12 LEAD-S situations are ever that far from the optimal intervention. People who place the majority of their responses in Styles 2 and 3 do well working with people of average levels of maturity but find it difficult to handle discipline problems and immature work groups and to delegate to competent people to maximize their development (Hersey, 1981).

Leadership patterns emphasizing high task and high relationship behavior are a common finding in CNAs. Top level nursing education administrators (Lenz, 1982) and nursing service administrators (McCarty, 1986) had high scores on both the Initiating Structure and Consideration subscales of the Leader Behavior Description Questionnaire. The Initiation of Structure subscale is similar to Hersey and Blanchard's (1977) Task Behavior concept and the Consideration subscale to the Relationship pattern of behavior.

There is a difference between the Dominant Leadership Style of the CNAs in this study and the Dominant Leadership Style of a group of female hospital managers in a southwestern teaching hospital. The Dominant Leadership Style of the female managers was Participation (Malone, 1984). An obvious difference between CNAs and the female managers is that nursing must be concerned with task achievement. For nursing, task achievement is quality patient care that cannot be neglected; ultimately, it is the reason for nursing's existence. The First Alternate Leadership Style used by the CNAs was Participation, indicating some similarity between the CNAs and other female hospital managers.

The majority of the CNAs were Innovators. Innovators are defined as insensitive to people and threatening to group cohesion and cooperation (Kirton, 1982). From Hersey and Blanchard's model Leadership Style 1, Telling, or Style 4, Delegating, would be expected of the Innovator. Both of these styles are low in relationship behaviors. In Style 1 the leader is concerned more about the task at hand than about the personal feelings and satisfactions of followers. In Style 4 the leader allows followers to direct their own activities and does not spend much time in developing personal relationships with them.

Yet, neither Telling nor Delegating were the Dominant Leadership Style of any of the CNAs. Perhaps the concern and sensitivity that nurses have for people overrides that part of the innovative behavior pattern that makes most Innovators insensitive to others. As Kirton (1987) notes, to be recognized as either an Adaptor or Innovator, it is not necessary to exhibit every one of the personality characteristics identified with the particular style. Further, delegation is not a common management behavior seen in nurses. The typical nurse is not usually prepared by professional education nor experience to accept the concept of delegation. Nursing education has conditioned nurses to achieve through doing rather than through directing the achievement of others (Murphy, 1984).

The CNAs in this study were effective leaders. Their Effectiveness score on the LEAD-S was 65, equivalent to the 76th percentile (Greene, 1980). The mean Effectiveness score of the female hospital managers in Malone's (1984) study was 51, equivalent to the 52nd percentile. The CNAs were more effective leaders than both the standardization sample and the female hospital managers.

An analysis of variance showed that there were no statistically significant differences between Adaptors and Innovators on the Effectiveness measure. Correlations between Effectiveness and total KAI test scores and between Effectiveness and each of the three subscales of the KAI

were not statistically significant. The conclusion from these data analyses is that creative style and leader effectiveness as measured by the KAI and LEAD-S are not related. This difficult-to-accept conclusion needs exploration and explanation.

One reason for the nonsignificant correlation could be that a high creative level is related to leader effectiveness but a particular creative style is not related to effectiveness. It is very clear that when nurse leaders say that creativity is needed in nursing and in nursing administration, they are saying that a high level of creativity is needed (Huckabay, 1982; Kuhn, 1986; LeBreton, 1982; Marriner, 1977; Puset, 1985; Simpson, 1987). It is equally clear that the Adaptation-Innovation model describes creative style, not level. Kirton emphasizes repeatedly that creative level and creative style are distinct concepts and that Adaptors and Innovators are both equally (level) creative but in different ways (manner, style).

Creative style is formed in early childhood, deep-seated, and largely impervious to change (Kirton, 1987). The KAI taps this preferred behavioral style rather than day-to-day manifest behavior. Creative style and creative level are not related; there is no statistically significant relationship between the KAI and tests that measure level of creativity (Kirton, 1987, p. 94). The conclusion stands

that creative style and leader effectiveness are not related in the CNAs in this study. Whether level of creativity and leader effectiveness are related was not studied in this research.

The notion that creativity, whether style or level, is not related to the day-to-day work effectiveness of CNAs is supported by several survey studies. When hospital chief executive officers (CEOs) and directors of nurses (DONs) were asked to list what makes an effective DON, neither included innovative behavior as criteria (Freund, 1987). Head nurses who listed characteristics of the ideal leader did not have creativity and innovation on their list (Harris, 1986). When staff nurses identified the characteristics of the chief nurses in the Magnet hospitals, neither innovation nor creativity were defining characteristics of the CNAs (American Academy of Nursing, 1983).

There is evidence to suggest that not only is creativity not used in nursing administration, but it is not used in nursing. In staff nurses creative level was unrelated to decision making and problem solving in simulated patient care situations (Hart, 1981). As student nurses progress through diploma (Eisenman, 1970), baccalaureate (Thomas, 1979), Registered Nurse/Bachelor of Science in Nursing (Sullivan, 1987) programs their level of creativity decreased. Review of the research literature

on creativity in nursing education programs clearly indicates that creative behavior is not desired nor encouraged in student nurses (Jones, 1983).

If creative style does not contribute to leader effectiveness of CNAs, what factors can be used to predict effectiveness? The multiple regression analysis showed that only two variables were statistically significant predictors of leader effectiveness. These variables were (a) years of experience in the current CNA position and (b) number of beds in the hospital employing the CNAs. KAI subscale scores, years of experience in nursing administration, highest academic degree earned, certification in nursing administration, structure of the nursing department, and ownership of the CNAs' employing hospital were not significant predictors of leader effectiveness.

The results of the multiple regression analysis are consistent with other research results. Reynolds also found that years of experience in the current CNA position was significantly related to perceived ease of dealing with administrative problems and that education and years of experience in nursing were not related to perceived ease of dealing with administrative problems (cited in "Consider this," 1985).

It is not surprising that years in the current CNA position predicted leader effectiveness. CNAs who have been

in their position a number of years have encountered many problems. They know how to respond when the problems re-occur or when similar problems occur. They are also familiar with other executives in the organization and how the executives think on certain issues. Experienced CNAs can tailor their ideas and responses to maximize success for their departments. Of course this explanation also supports the notion that CNAs are really Adaptors who fit well into the system rather than Innovators as their KAI scores indicated.

The finding that bed size was a predictor of leader effectiveness is consistent with the Situational Leadership Model. CNAs in larger hospitals are confronted with more tasks, more people, and more situations than CNAs in smaller hospitals and need to be more effective.

In contrast to the present finding, when the Initiating Structure and Consideration subscales of the Leader Behavior Description Questionnaire (LBDQ) were used to measure leader behavior in CNAs, bed size was not significantly related to either leader behavior measure (McCarty, 1986). Only CNAs in hospitals with 300 or more beds were used in McCarty's study while in the present study bed size was not a criterion for including CNAs in the research. The size of the hospitals in the San Francisco Bay area tends to be small. Only 20 of the 57 CNAs in the study were from hospitals with over 300 beds.

Level of education and the LEAD-S Effectiveness score were positively correlated in hospital managers (Malone, 1984). Similar correlations were not found in the present study, however, the hospital managers included both nonnursing and nursing managers and they were not executive level managers as were the CNAs. In support of the results of this research, McCarty (1986) found that level of education for chief nursing service administrators was not related to either the Initiating Structure or the Consideration subscales of the LBDQ.

Hospital managers' years of administrative experience and Effectiveness scores on the LEAD-S were negatively correlated (Malone, 1984). No such negative correlation was found between administrative experience and the Effectiveness scores of the CNAs in this sample. Similarly, McCarty found that years of administrative experience was not related to nursing service administrators' scores on the Initiating Structure and Consideration subscales of the LBDQ.

The findings that level of education and years of experience were not correlated with Effectiveness scores support the descriptions of the LEAD-S. Correlations between LEAD-S scores and age, sex, years of experience, degrees, or management level should be low (Greene, 1980).

Most of the CNAs in McCarty's study were not certified by the American Nurses Association in Nursing Administration. Similarly, only 11 of the 57 CNAs in this study were certified in nursing administration and certification was not a significant predictor of leader effectiveness.

Subsidiary Research Questions

To answer the seven subsidiary research questions, chief nurse administrators (CNAs) were divided into Adaptors and Innovators on the basis of their KAI scores and compared on the following variables: (a) years of experience in nursing administration, (b) years in current CNA position, (c) highest academic degree earned, (d) certification by the American Nurses Association in Nursing Administration, (e) organization of the nursing department, (f) ownership of employing hospital, and (g) number of beds in the employing hospital. The chi-square analyses were not statistically significant; there were no differences in Adaptors and Innovators on any of these characteristics.

Only 10 of the 57 CNAs were Adaptors, the remaining 47 were Innovators. Many of the response categories on the demographic items were collapsed to enhance salient differences between Adaptors and Innovators; however, the small number of Adaptors and/or the discrepancy between the

number of Adaptors and Innovators may have contributed to these nonsignificant results.

In the normative sample of the KAI, education was not related to KAI score. This present study, using a different population group, also found that educational level was unrelated to KAI score. Kirton found a small negative correlation between age and KAI score in his norm group. None of the subsidiary research questions addressed age exactly, however, an indirect comparable measure is years of administrative experience. There was no statistically significant difference in Adaptors and Innovators on years of experience in nursing administration.

Implications and Recommendations

The research questions need to be repeated using other samples of chief nurse administrators (CNAs) to verify the results. Generalizability of the results would be increased by using CNAs in other regions of the country, in other types of facilities, and in nursing education programs.

Research Question 1

What is the creative style of chief nurse administrators (CNAs)? The responses of the CNAs to the questions on the Kirton Adaptation-Innovation Inventory (KAI) indicated that they used an innovative problem solving style despite working in conservative organizations. They have the ability to solve problems by doing more effective

things not by simply doing the same things more efficiently. To verify this finding a naturalistic study could be initiated in which CNAs are observed at work. Using a checklist of behaviors taken directly from items on the KAI and from the list of behavior characteristics (see Table 1) that Kirton found associated with each creative style, the observer could record CNAs actual on-the-job behaviors. These observations could then be compared with CNAs' KAI scores. It would be necessary for the observer to record CNAs' behavior until the CNAs were acclimated to the observer's presence and then actually collect the research data. This study would be strengthened if the observer did not know the KAI scores of the CNAs prior to recording their behavior.

Another area of investigation is to identify the creative style of nurses as a whole and to determine how creative style is related to administrative level. As administrative level increases do scores on the KAI increase or decrease? The KAI could be given to a cross section of nurses from all administrative levels to identify the style of nurses. The group could then be subdivided into staff nurses, head nurses, supervisors, assistant chief nurses, and chief nurses. The KAI scores could then be correlated with their administrative level to reveal the relationship between creative style and administrative level.

An analysis of variance could be completed on the data to determine if the creative style scores of the nurses at the various administrative levels are significantly different. To make the ANOVA meaningful, at least 15 subjects would be needed at each administrative level. This study would not only identify the creative style of nurses as a group but would show whether an innovative or adaptive problem solving style contributes to upward mobility in nursing administration.

The creative style of CNAs' peer group in the hospital executive structure needs to be determined. Differences in creative style have important implications for problem solving in groups, for policies, for collaboration, for perceived behavior, and for overall organizational fit (Kirton, 1987). If the style of the CNAs and the other members of the hospital executive group are different, training should be initiated to promote understanding of the different styles of thinking and to diversify the problem solving styles of all of the administrators including the CNAs. The Center for Creative Leadership in Greensboro, North Carolina, sponsors creative leadership programs to help managers/leaders to diversify their styles and to understand the behavioral patterns and importance of both creative styles (Gryskiewicz, 1982).

A comparative study of the KAI scores of male and female CNAs would extend the parameters of Kirton's

Adaptation-Innovation theory by adding to the research on sex differences in creative style. Because the profession of nursing is 97% female, it may be difficult to find sufficient numbers of male CNAs to make statistically meaningful comparisons between males and females. In the present research only 3 of the 57 CNAs were males.

Research Question 2

What is the relationship between creative style and leader behavior? Creative style was unrelated to both leadership style and leader effectiveness. The chief nurse administrators (CNAs) used a narrow range of leadership styles. Selling and Participating were used almost exclusively. A response bias could be operating because CNAs did not want to admit that they are sometimes autocratic and use Telling. A way to verify this finding is to give a group of CNAs the Leader Effectiveness and Adaptability Description, Self (LEAD-S) and their immediate subordinates the Leader Effectiveness and Adaptability, Other (LEAD-O). The LEAD-O allows subordinates to define how they see their boss responding to the same situations as are on the LEAD-S. The leadership style of the CNAs from their own perspective and from that of their subordinates could be compared to help determine if a response bias was operating. Effectiveness scores could also be compared to verify that CNAs are as effective as they define themselves.

The implication to nursing of the research finding that there is no relationship between creative style and leader effectiveness cannot be overestimated. CNAs are not using their highly innovative problem solving skills to confront the overwhelming problems facing nursing. Perhaps this is why the nursing profession is in such disarray, failing to recruit and retain high quality nurses, and struggling to cope with the transitions in the health care system.

It is conceivable that up until now CNAs were able to be effective leaders without translating their innovative behavior to on-the-job problem situations, however, this is not true at the present time. Successful leaders of today, and most definitely of tomorrow, must combine the triad of skills of constant innovation, caring for the customer, and stimulating staff (Peters & Austin, 1985). Valid leader effectiveness theories and assessment tools of the future should have a component that addresses innovation/creativity as well as relationship and task behavior.

Mechanisms have to be developed to free CNAs' creativity in their administrative practice. Stifling of innovative thinking begins in basic nursing education programs, and efforts to release the inherent innovation of students must begin in these same programs. All facets of the nursing profession will need to work together to change the educational process of its students.

Simultaneously, nurse administrators must learn how to use their innovation. Nursing cannot afford to wait for the next generation of nurses to solve its problems. CNAs and nursing management organizations should sponsor continuing education programs using faculty from the Center for Creative Leadership to teach CNAs how to apply their innovative creative style to their administrative practice.

CNAs must also begin to use delegation to develop highly mature, competent subordinates. Years in current CNA position was the primary independent variable that predicted leader effectiveness in the CNAs. From this finding, it is clear that experience with actual problems encountered by CNAs is necessary for effectiveness. Classes to help CNAs understand the importance of delegation to the growth and development of nursing departments and to the nursing profession are needed. A reminder of the responsibilities that go with this leadership style should be included in any continuing education program on delegation.

Most of the demographic variables studied were not predictors of leader effectiveness in the CNAs. Although the demographic questions must be repeated using other samples of CNAs, tentatively they have important implications for long accepted practices and behaviors in nursing and health care.

A certain number of years of experience in nursing administration is almost always a job requirement for a CNA

position, but this research showed that years of administrative experience in nursing was not a predictor of leader effectiveness. This finding is important to employers of CNAs. It is possible that years of administrative experience need not be a hiring criterion for CNAs. Simultaneously, years in the CNA position contributed to effectiveness; therefore, employers should try to retain their effective CNAs.

Level of education did not predict leader effectiveness. Nursing education programs preparing nurse administrators (i.e., Master's degree programs) must examine their curricula to determine its relevance to actual nursing administration practice. Major curricular revisions may be needed to develop programs that provide the kind of knowledge and experiences required for effective CNAs in today's health care system.

American Nurses Association (ANA) certification in nursing administration was not a predictor of leader effectiveness. The value of this costly certification, other than as a status symbol, must be evaluated by nurses contemplating certification. Employers who give salary increases or pay bonuses to CNAs with certification will certainly need to rethink this practice.

To investigate the value of ANA certification in nursing administration, an exploratory study could be

initiated on the administrative behavior of CNAs with and without ANA certification in nursing administration. The CNAs, their immediate supervisors, and their subordinates could rate CNAs' effectiveness. The ratings of certified and noncertified CNAs could be compared.

Subsidiary Research Questions

When Adaptors and Innovators were compared on all seven of the demographic variables selected for study, none of the findings were significant. This research question must be repeated using other CNA samples. The disproportionate number of Adaptors to Innovators probably obscured the relationship between creative style and the demographic characteristics of the CNAs in the present research. A future study would need to identify 25-30 CNAs who were Adaptors and Innovators and then the personal, professional, and organizational characteristics of the two groups could be compared using a parametric statistic such as analysis of variance.

Additional characteristics of CNAs (i.e., age, salary, and geographical location) should be identified and studied to determine which, if any, demographic characteristics of CNAs are related to creative style. These characteristics could then be used by nurse and hospital administrators as indicators of the creative style of an applicant when nursing positions are being filled.

Closing

If all chief nurse administrators (CNAs) are as innovative as the CNAs studied in this research, then nursing has the ability to respond to the nursing shortage crisis, or to any problem, with innovative solutions. CNAs are also very effective leaders who can adapt their leadership style to the unique aspects of situations. Further research is needed to explore the parameters of the relationship between creativity and leader effectiveness, however, in these times of transition in society and in the health care industry, it is reassuring for the nursing profession to know that its leaders are both innovative and effective.

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APPENDICES

APPENDIX A

**A List of Hospitals Used in the Study
and their Type of Ownership**

List of Hospitals Used in the Study
and their Type of Ownership

<u>Alameda</u>	<u>Ownership</u>
Alameda Hospital	Private/nonprofit
Alta Bates Hospital	Private/nonprofit
Children's Hospital Medical Ct.	Private/nonprofit
Eden Hospital	Government
Cowell Memorial Hospital	Private/nonprofit
Fairmont Hospital	Government
Hayward Hospital	Private/profit
Highland General Hospital	Government
Humana Hospital-San Leandro	Private/profit
Kaiser--Hayward	Private/nonprofit
Kaiser--Oakland	Private/nonprofit
Laurel Grove	Private/profit
Memorial Hospital--San Leandro	Private/profit
Naval Hospital--Oakland	Government
Oakland Hospital	Private/profit
Peralta Hospital	Private/nonprofit
Providence Hospital	Private/nonprofit
Samuel Merritt Hospital	Private/nonprofit
St. Rose Hospital	Private/nonprofit
Valley Memorial Hospital	Private/nonprofit
Veteran's Administration	Government
Washington Hospital	Government

San Francisco

Children's Hospital	Private/nonprofit
Chinese Hospital	Private/nonprofit
French Hospital	Private/nonprofit
Kaiser--San Francisco	Private/nonprofit
Letterman Army Hospital	Government
Marshall Hale Memorial Hospital	Private/nonprofit
Mt. Zion Medical Center	Private/nonprofit
Pacific Coast Hospital	Private/nonprofit
Pacific Presbyterian Medical Ct.	Private/nonprofit
Ralph K. Davies Medical Center	Private/nonprofit
San Francisco General Hospital	Government
Shriner's Hospital	Private/nonprofit
St. Francis Memorial Hospital	Private/nonprofit
St. Luke's Hospital	Private/nonprofit
St. Mary's Medical Center	Private/nonprofit
University of California	Private/nonprofit
Veteran's Administration	Government

Santa Clara

Alexian Brothers Hospital	Private/nonprofit
Children's Hospital at Stanford	Private/nonprofit
Community Hospital	Private/profit
El Camino Hospital	Government
Good Samaritan Hospital	Private/nonprofit
Kaiser--Santa Clara	Private/nonprofit
Mission Oaks Hospital	Private/profit
O'Connor Hospital	Private/nonprofit
San Jose Health Center	Private/nonprofit
Santa Clara Valley Medical Ct.	Government
Santa Teresa Community Hospital	Private/nonprofit
Stanford University Hospital	Private/nonprofit
Veteran's Administration	Government
Wheeler Hospital	Private/nonprofit

San Mateo CountyOwnership

Chope Community Hospital	Government
Kaiser--Redwood City	Private/nonprofit
Kaiser--South San Francisco	Private/nonprofit
Mills Memorial Hospital	Private/nonprofit
Peninsula Hospital	Private/nonprofit
Sequoia Hospital	Government
Seton Medical Center	Private/nonprofit
St. Catherine Hospital	Private/nonprofit

Marin County

Kaiser--San Rafeal	Private/nonprofit
Kentfield Medical Center	Private/profit
Marin General Hospital	Government
Novato Community Hospital	Private/nonprofit
Ross General Hospital	Private/profit

Source: American Hospital Association (1986).

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These consist of pages:

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APPENDIX D

Demographic Questionnaire

DEMOGRAPHIC QUESTIONNAIRE

DIRECTIONS: Please answer these six questions.

1. How many years have you been a nurse administrator (head nurse or above)?

<input type="checkbox"/>	0-4 years	<input type="checkbox"/>	15-19 years
<input type="checkbox"/>	5-9 years	<input type="checkbox"/>	20-24 years
<input type="checkbox"/>	10-14 years	<input type="checkbox"/>	25 or more years

2. How many years have you been in your current administrative position?

<input type="checkbox"/>	< 1 year	<input type="checkbox"/>	6-10 years
<input type="checkbox"/>	1-2 years	<input type="checkbox"/>	11-15 years
<input type="checkbox"/>	3-5 years	<input type="checkbox"/>	> 15 years

3. What is your highest earned academic degree?

<input type="checkbox"/>	diploma or associate degree
<input type="checkbox"/>	baccalaureate degree, non nursing
<input type="checkbox"/>	baccalaureate degree, nursing
<input type="checkbox"/>	masters degree, non nursing
<input type="checkbox"/>	masters degree, nursing
<input type="checkbox"/>	doctoral degree, non nursing
<input type="checkbox"/>	doctoral degree, nursing

4. In which of these designated areas, if any, are you certified by the American Nurses Association?

<input type="checkbox"/>	none
<input type="checkbox"/>	Certified Nurse Administrator
<input type="checkbox"/>	Certified Nurse Administrator, Advanced

5. Check all of the following responsibilities which are delegated to the individual nursing unit level in your nursing department, i.e. to the head nurse level.

<input type="checkbox"/>	budgetary control
<input type="checkbox"/>	staff selection, development and evaluation
<input type="checkbox"/>	staff scheduling
<input type="checkbox"/>	quality of nursing care to patients

6. What is the total number of operating beds in your hospital?

APPENDIX E

**Summary of Statistical Tests Between Creative
Style and Leader Behavior Measures**

Table E.1

Chi-Square Analysis Comparing Creative Style and Dominant Leadership Style (n = 48)

Creative Style	Leadership Style		Total
	Selling	Participating	
Adaptors	5	4	9
Innovators	26	13	39
Total	31	17	48
Chi-square	df	Significance	Probability
0.058	1	.809	> .05

Table E.2

Chi-Square Analysis Comparing Creative Style and
First Alternate Leadership Style (n = 45)

Creative Style	Leadership Style		Total
	Selling	Participating	
Adaptors	4	5	9
Innovators	13	23	36
Total	17	28	45
Chi-square	df	Significance	Probability
0.006	1	.9387	> .05

Table E.3

Analysis of Variance Comparing Creative Style and LEAD-S Effectiveness Scores (N = 57)

Group	N	Mean	Standard Deviation	
Adaptors	10	62.7	13.39	
Innovators	47	65.0	15.89	
Total	57	64.6	15.39	

Source	Sum of Squares	df	Mean Square	F Value
Between	43.619	1	43.619	.1814*
Within	13228.100	55	240.511	
Total	13271.719	56		

* $p > .05$

APPENDIX F

**Chi-Square Analyses Comparing Creative
Style and Demographic Variables**

Table F.1

Chi-Square Analysis Comparing Creative Style and Years of Experience in Nursing Administration (N = 57)

Style	Years			Total
	0-9	10-19	20+	
Adaptors	3	6	1	10
Innovators	17	19	11	47
Total	20	25	12	57
Chi-square	df	Significance	Probability	
1.514	2	.4692	> .05	

Table F.2

Chi-Square Analysis Comparing Creative Style and Years of Experience in Current Nursing Position (N = 57)

Style	Years			Total
	0-2	3-5	6+	
Adaptors	3	5	2	10
Innovators	27	10	10	47
Total	30	15	12	57
Chi-Square	df	Significance	Probability	
3.772	2	.1517	> .05	

Table F.3

Chi-Square Analysis Comparing Creative Style and Highest Academic Degree Earned (N = 56)

Style	Degree		Total
	Bachelor of Science in Nursing or less	Master of Science in Nursing or more	
Adaptors	5	5	10
Innovators	13	33	46
Total	18	38	56
Chi-square	df	Significance	Probability
0.923	1	.337	> .05

*One subject did not answer this question.

Table F.4

Chi-Square Analysis Comparing Creative Style and American
Nurses Association Certification in Nursing Administration
(N = 57)

Style	Certification		Total
	No	Yes	
Adaptors	8	2	10
Innovators	38	9	47
Total	46	11	57
Chi-square	df	Significance	Probability
0.0	1	1.000	> .05

Table F.5

Chi-Square Analysis Comparing Creative Style and Centralized or Decentralized Structure of Nursing Department (N = 57)

Style	Structure		Total
	Centralized	Decentralized	
Adaptors	1	9	10
Innovators	3	44	47
Total	4	53	57
Chi-square	df	Significance	Probability
0.0	1	1.000	> .05

Table F.6

Chi-Square Analysis Comparing Creative Style and Ownership of Hospital (N = 57)

Style	Ownership			Total
	Government	Non-profit Private	For Profit Private	
Adaptors	1	8	1	10
Innovators	13	28	6	47
Total	14	36	7	57
Chi-square	df	Significance	Probability	
1.643	2	.440	> .05	

Table F.7

Chi-Square Analysis Comparing Creative Style and Number of
Beds in Hospitals (N = 57)

Style	Number of Beds			Total
	200 or less	200-400	> 400	
Adaptors	5	3	2	10
Innovators	18	22	7	47
Total	23	25	9	57
Chi-square	df	Significance	Probability	
0.947	2	.623	> .05	