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**ENVIRONMENTAL TURBULENCE AND INNOVATION
DURABILITY IN SELECTED PATIENT CARE UNITS**

By

Nahida Ali Jabur

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A Dissertation Submitted to the Faculty of the

COLLEGE OF NURSING

**In Partial Fulfillment of the Requirements
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DEDICATION

To my brothers Yahya and Karim for their constant encouragement and support.

To the memory of my parents and my sister Amal, who I miss so much.

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TABLE OF CONTENTS

| | |
|--|----|
| LIST OF FIGURES | 9 |
| LIST OF TABLES | 10 |
| ABSTRACT | 12 |
| CHAPTER 1 | 14 |
| INTRODUCTION | 14 |
| Statement of the Problem | 19 |
| Purposes of the Study | 22 |
| The Research Questions and Hypotheses | 23 |
| Question # 1 | 23 |
| Question # 2 | 24 |
| Question # 3 | 24 |
| Question # 4 | 25 |
| Summary | 25 |
| CHAPTER 2 | 27 |
| LITERATURE REVIEW | 27 |
| Theoretical Underpinnings: Contingency and Learning Organization Theories | 27 |
| Theoretical Framework | 31 |
| Perceived Uncertainty: External Environment | 35 |
| Perceived Uncertainty: Internal Environment | 36 |
| Innovation related behaviors | 37 |
| Innovation Durability | 38 |
| Innovation Outcomes | 39 |
| The Differentiated Group Professional Practice | 40 |
| The DGPP Practice Model Components..... | 41 |
| The DGPP Research Model Components..... | 41 |
| Practice Model Implementation | 45 |
| The Implementation Phase..... | 46 |
| The Evaluation Phase..... | 52 |
| Summary | 53 |
| CHAPTER 3 | 55 |
| METHODOLOGY | 55 |
| The Research Design | 55 |
| The Sample and Setting | 56 |
| Protection of Human Subjects | 56 |
| Data Collection | 58 |
| The Instruments | 59 |
| Perceived Environmental Uncertainty Scale | 59 |
| Innovation related behaviors Scale | 62 |

TABLE OF CONTENTS - Continued

| | |
|---|---------|
| The DGPP Durability Scale | 63 |
| Control Over Nursing Practice Scale | 65 |
| Index of Work Satisfaction | 66 |
| Data Analysis Plan | 67 |
| Summary | 68 |
| CHAPTER 4 | 69 |
| DATA ANALYSIS AND RESULTS..... | 69 |
| Reliability Estimation of the Instruments | 69 |
| Characteristics of the Sample | 71 |
| Correlation Analysis | 74 |
| Regression Analysis..... | 79 |
| Descriptive Analysis of Staff Nurse Data..... | 98 |
| Differences in DGPP Model Outcomes over Time | 102 |
| Summary | 104 |
| CHAPTER 5 | 107 |
| DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS..... | 107 |
| DGPP Model Durability Relative to Perceived Environmental Uncertainty and Innovation Related Behavior | 108 |
| Research Hypothesis # 1 | 108 |
| Research Hypothesis # 2..... | 110 |
| Research Hypothesis # 3..... | 111 |
| Research Hypothesis # 4..... | 113 |
| Research Hypothesis # 5..... | 115 |
| Model Durability and Outcomes..... | 114 |
| Research Hypothesis # 6 and # 7 | 114 |
| Descriptive Analysis of Staff Nurse Data..... | 119 |
| Differences in DGPP Model Outcomes over Time | 121 |
| Conclusions..... | 122 |
| Limitations of the study | 124 |
| Recommendations for Future Research and Implications for Nursing Practice | 125 |
| Summary | 129 |
| APPENDIX A - Protection of Human Subjects | 131 |
| APPENDIX B - Disclaimer Statement | 133 |
| APPENDIX C - Participant Profile Information | 135 |
| APPENDIX D - Perceived Environmental Uncertainty Scale | 137 |
| APPENDIX E - Innovation-Related Behavior Scale | 140 |
| APPENDIX F – The DGPP Durability Scale..... | 142 |

TABLE OF CONTENTS - Continued

| | |
|---|------------|
| APPENDIX G - Control Over Nursing Practice Scale | 145 |
| APPENDIX H - Index of Work Satisfaction | 148 |
| REFERENCES | 153 |

LIST OF FIGURES

| | |
|---|-----|
| FIGURE 1- Theoretical Framework | 32 |
| FIGURE 2- DGPP Practice Model | 42 |
| FIGURE 3- DGPP Research Model | 43 |
| FIGURE 4- Empirical Model for Equations 1, 1A, 1B, and 1C | 82 |
| FIGURE 5- Empirical Model for Equation 2 | 86 |
| FIGURE 6- Empirical Model for Equation 3 | 89 |
| FIGURE 7- Empirical Model for Equation 3A..... | 92 |
| FIGURE 8- Empirical Model for Equation 3B..... | 95 |
| FIGURE 9- Empirical Model for Equation 3C..... | 97 |
| FIGURE 10- Empirical Model for Equations 3D and 3E..... | 101 |

LIST OF TABLES

| | |
|--|-----|
| TABLE 1- Questionnaire Response Rates by Units | 57 |
| TABLE 2- Conceptual Definitions and Measurement Tools | 60 |
| TABLE 3- Results of Estimation of Reliability..... | 70 |
| TABLE 4- Demographic Characteristics of Staff RNs: Frequencies and Percent of Sample (1997) | 72 |
| TABLE 5- Demographic Characteristics of Staff RNs: Sample Means for 1992 and 1997 | 75 |
| TABLE 6- Correlations among Variables All Units Combined..... | 77 |
| TABLE 7- Explained Variance in DGPP Model Durability | 81 |
| TABLE 8- Explained Variance in Control over Nursing Practice | 85 |
| TABLE 9- Explained Variance in RNs' Overall Work Satisfaction..... | 88 |
| TABLE 10- Explained Variance in RNs' Satisfaction with Time for Tasks | 91 |
| TABLE 11- Explained Variance in RNs' Satisfaction with Organizational Policies | 93 |
| TABLE 12- Explained Variance in RNs' Satisfaction with Pay | 96 |
| TABLE 13- Explained Variance in RNs' Satisfaction with Interaction with Nurses | 99 |
| TABLE 14- Explained Variance in RNs' Satisfaction with Interaction with Physicians | 100 |
| TABLE 15- Mean Scores and Standard Deviations for Empirical Measures (October, 1997)..... | 103 |

LIST OF TABLES - Continued

TABLE 16- Mean Scores, Standard Deviations, F ratio, and
t value for Control over Nursing Practice and
Work Satisfaction All Units Combined
(1992 and 1997)105

ABSTRACT

A previously unexamined issue, innovation durability relative to perceived environmental uncertainty and nursing unit culture among staff nurses (N = 48), was investigated. The Differentiated Group Professional Practice (DGPP) in Nursing project was selected for this five-year follow-up study. Verran, Milton, Murdaugh, and Gerber developed the DGPP model in two urban hospitals and one rural hospital in Arizona in 1988. Model implementation and evaluation was completed in 1992.

The theoretical model incorporated elements of contingency and learning organization theories. A descriptive correlation research design was used to explore the relationships among environmental uncertainty, nursing unit culture, innovation durability and two innovation outcomes: control over nursing practice and work satisfaction. Data were collected in October 1997 at three selected patient care units in one rural hospital. The hospital was selected because the implementation of the DGPP model was successful, and no other redesign activity was implemented between 1992 and 1997. Structured self-report scales were used to measure each of the concepts within this study.

RNs' perceptions of the current nursing practices suggested that the DGPP model was in existence on the three patient care units at the time data were collected. Nursing unit culture ($\beta = .53$) was the best predictor of the DGPP model durability ($R^2 = .28$) and its sub-components of group governance ($R^2 = .24$) and shared values ($R^2 = .49$). Group governance and innovation related behaviors showed significant individual and combined effects on RNs' perceived control over nursing practice ($R^2 = .55$). Decision making,

innovation related behaviors, and group governance accounted for the variance in RNs' overall work satisfaction ($R^2 = .50$). Although perceived control over nursing practice remained unchanged over a period of 5 years, decreases were found in overall work satisfaction and satisfaction with organizational policies. The findings provided support for the conceptual model as expected with one exception, the positive correlation between DGPP model durability and perceived uncertainty in the internal environment.

In summary, the findings suggested the inclusion of environmental uncertainty and nursing unit culture in studies of innovation durability and innovation outcomes.

CHAPTER 1

INTRODUCTION

Two recent historical trends in the American health care system deserve close attention. First, a massive prospective payment system introduced in 1983 mandated that hospitals design care delivery to be affordable, and reduce length of stay without interfering with the quality of care (Flarey, 1995). Second, severe cyclic national nursing shortages have been reported by American hospitals (AHA & ANA, 1990; McDonagh, 1993; McKibbin, 1990; Miller, 1987). The combination of these trends have resulted in a growing national interest in improving care delivery through redesigning patient care units, and creating new processes and structures to meet the increasing challenges. Readiness to commit all the resources of health organizations to redesign initiated a wave of redesigning care delivery (McDonagh1993).

Redesigning patient care units for greater effectiveness has been a topic for nursing research, and redesign projects have been studied from varying theoretical and practical perspectives. These past research efforts have provided valuable information about the initiation, implementation and assessment of these projects. In some studies emphasis was placed more on the pre-adoption and implementation stages more than the post-adoption. No study has gone beyond the redesign process and investigated the relationship between the durability of the redesign projects and turbulence in health care environments. A new approach is needed to study care delivery redesign projects. The survival of health care organizations and the success of the redesign processes are determined not only by the redesign projects themselves but may also be affected by the

level of turbulence in the health care organization's environment.

There are many reasons to consider environmental turbulence in nursing research. Environmental turbulence refers to instability and change in the external environment created by forces operating outside the organization such as regulatory groups, suppliers, customers and competitors (Salzer, 1995). Turbulence in the hospital's external environment, in turn, introduces uncertainty into the internal environment and various elements of work in patient care units. Therefore, constant change in health care environments requires more than introducing efficient and cost effective alternatives in nursing care delivery. Improvement of care delivery requires a better understanding of the relationships between environmental variables and the components of these alternatives or projects. Solovy (1995) stated that the health care environment is changing very fast and there is a need to align health organizations with the external environment. Furthermore, innovative ways of delivering care within health organizations are required to deal with inefficiencies and system problems that prevent the delivery of high-quality, cost-effective services (Flarey, 1995).

The mid- and late-1980s witnessed the development and implementation of various projects which involved redesigning patient care units' structures, processes, and jobs in ways that were expected to positively affect outcomes (Adams, et al, 1995; Anderson & Stetler, 1995; Beck & Kinnear, 1995; Fernandez, et al, 1995; Fralic & Flarey, 1995; Koerner & Karpink, 1994; Milton, Verran, Murdaugh & Gerber, 1992). A number of hospitals, many with the collaborative efforts of nurse researchers, have redesigned the delivery of patient care (Parsons & Murdaugh, 1994; Dimola, et al, 1995;

Duprat, et al, 1995; Hill, 1995; Kohles, 1995; Medden, et al, 1995; Scharf, 1995; Verran, Melton, Murdaugh & Gerber, 1995). Behind each of these efforts was the goal of controlling escalating costs while providing affordable high quality health care.

Although numerous redesign models have been developed and implemented in many patient care units since the late 1980's (Dann, et al, 1995; Shendell-Falik, 1995; Spitzer-Lehman & Flarey, 1995), some evaluation strategies have focused on process and quality outcomes (Dimola, et al, 1995; Flarey, 1995; Robinson, 1995; Spitzer-Lehman & Flarey, 1995). Some models have focused on patient-provider outcomes such as satisfaction; others on organizational outcomes like cost of care (Beck & Kinnear, 1995; Dann, et al, 1995; O'Day & Fisher, 1995; Tornabeni & Debaca, 1995), and others on the impact of the redesign on work environment (Shendell-Falik, 1995).

Despite the current uncertainty and chaotic environment of health care organizations (Flarey, 1995; Robinson, 1995), none of the previous studies investigated the relationship between environmental uncertainty and the durability of these redesign projects. In addition, no attention has been given to evaluating the outcome results in light of perceived uncertainty in the external and internal environments of the redesigned patient care units. This study was designed to describe the relationship between innovation durability and perceived environmental uncertainty in selected patient care units. The innovative model selected for this study was the Differentiated Group Professional Practice (DGPP) in Nursing project, an innovative professional registered nurse practice model of delivering nursing care. The DGPP model was developed, implemented, and its effectiveness evaluated (Verran, Milton, Murdaugh & Gerber,

1995). The current study of the DGPP model was based on RNs' perceptions of the existence of this model relative to environmental uncertainty over a period of 5 years. Roger (1983) and West and Farr (1990) concluded that researchers should examine perceptions of innovation from the perspectives of those involved, not just those initiating and managing the process in order to prevent individual blame bias.

The concepts of interest in this study were perceived uncertainty in the external and internal environments, innovation related behaviors, innovation durability, and innovation outcomes of control over nursing practice and nurse work satisfaction. The term environment may include everything that is not part of an organization (Charns & Schaefer, 1983). This view, which includes changes in the state of nature and in society at large, is too broad to be of practical value for defining organizational environment here. Because previous management studies suggest that uncertainty in the external environment has a major impact on the internal environment or the internal operating practices (Miller & Friesen, 1983; Russell & Russell, 1992), the environment in this study was conceptualized as both external and internal.

External environment refers to forces operating outside the boundaries of the organization or the hospital. Three variables of the external environment were identified in the literature: dynamism, hostility, and complexity (heterogeneity) (Miller & Friesen, 1978, 1983).

Internal environment refers to the relevant factors within the boundaries of the organization, the hospital, or specific decision making unit that are taken into consideration in the decision making behavior of the individuals in that system (Zaltman,

et al, 1973). Internal environment was conceptualized in terms of decision making and innovation (Miller & Friesen, 1973, 1983; Salyer, 1995). Innovation refers to the implementation of internally generated or borrowed, unusual, novel solutions, or services and risk-taking by managers to improve services (Miller & Friesen, 1983; Zaltman, Duncan & Holbeck, 1973).

The current study investigated only one concept of the nursing unit culture, innovation related behaviors. Innovation related behaviors refer to the behavioral norms within the work group that encourage and support innovation and change. Innovation related behaviors could potentially alter the relationship between environmental turbulence and organizational culture and ultimately innovation (Russell & Russell, 1992). Baets (1998) believes that for sustainable development in a dynamic environment, the culture should be a learning one allowing staff to take initiatives and to learn from these initiatives (Baets, 1998).

Innovation durability refers to the existence of an innovation for an extended period of time with retention of its original qualities. The innovation selected for this study was the Differentiated Group Professional Practice in Nursing (DGPP), a model for the practice of professional nursing in an acute care hospital setting. The DGPP was introduced as a unit level change in practice for dealing with recurrent nursing shortages in the mid-1980's. It was intended to increase staff nurse participation, which would, in turn, lead to quality care at the same or lower cost. The DGPP model was initiated in 1988 in two urban hospitals and one rural hospital in Arizona. Model implementation and evaluation was completed in 1992. The DGPP model was conceptualized in terms of

three major components: 1) Group governance, which contained four sub-components: participative unit management, shared decision making, RN peer review, and RN salaried status. 2) Differentiated care delivery incorporated differentiated RN practice, use of nurse extenders, and primary case management. 3) Shared values in a culture of excellence, which contained three sub-components: value of excellence and quality of care, support for intrapreneurship, and formal and informal recognition (Milton, Verran, Murdaugh, & Gerber, 1990, 1992; Verran, Milton, Murdaugh & Gerber, 1995).

Innovation outcomes were conceptualized in terms of staff nurse outcomes such as control over nursing practice and work satisfaction. Control over nursing practice refers to the freedom to evaluate and modify nursing practice and to influence others (Verran, et al., 1995). Work satisfaction refers to perceived contentment with professional status, pay, satisfaction with time for tasks, satisfaction with interaction among nursing staff and nursing staff and physicians, and satisfaction with organizational policies (Verran, et al, 1995).

Statement of the Problem

Although the redesign trend in nursing became more visible in the mid-1980s, empirical studies conducted during that period were limited conceptually. Nursing research has focused primarily on quality outcome evaluation, patient and staff satisfaction, and cost containment/reduction. Undeniably, previous studies provide an understanding of the operating problems researchers, hospitals, and nursing departments experienced during and after the implementation of the redesign models. In addition, the findings provide valuable information regarding patient and staff satisfaction, staff

retention, and cost containment/reduction. These results are widely appreciated both theoretically and practically. However, the fact that patient care units exist, operate, interact, and create congruence with their competitive and ever-changing environment was largely ignored.

What had not been investigated, was the study of these innovative models within their environmental contexts. How uncertainty in the external environment is related to the durability of these models has been unknown. That is, environmental uncertainty may be directly related to model durability or may work indirectly through staff perception of uncertainty in the internal environment or the internal operating practices to influence behaviors within the hospital and patient care units and quality outcomes. Uncertainty in the external environment may be perceived more or less stable, complex, and heterogeneous with corresponding implications for internal functioning (Georgopoulos, 1986; Miller & Friesen, 1983).

Thus, neglect of perceived uncertainty in the external environment in the investigation of these projects has led to incomplete knowledge on which to base decisions. The extent to which innovation projects remain in practice cannot be judged by relying only on outcome results. There may be other variables, particularly environment-related variables in hospitals and patient care units that hinder or enhance the durability of these projects and their outcomes. In short, we lack knowledge about how the durability of these innovative models correlates with perceived uncertainty in the external and internal environments, innovation related behaviors, and innovation outcomes.

In management, Staw (1984) divides most empirical studies on innovation into three levels of analysis according to the main unit of adoption or production of innovations, individual, group, and organizational. The distinction, however, is not always that clear (West & Farr, 1990). A review of management literature shows that much is known about the relationships between the environment and innovation. There is agreement among researchers on the positive impact of environmental uncertainty on organizational innovation (Baldrige & Burnham, 1975; Kimberly, 1981; Miller & Friesen, 1983; O'Hare, 1988; Russell & Russell, 1992; Tushman & O'Reilly, 1997; Van de Ven, Angle, & Poole, 1989). Aiken and Alford (1970) state that a high degree of instability and unpredictability in the environment stimulates innovation by making the organization more aware of cues to innovation. In nursing, environmental turbulence has been studied in relation to its impact on nurse performance (Salyer, 1995), and on decision making in patient care units (Allred, et al, 1994a; Allred, et al, 1994b). However, no attention has been given in the nursing literature to the study of the relationships among perceived uncertainty in the external and internal environments, nursing unit innovation related behaviors, the durability of innovation, and innovation outcomes.

Environment is a very broad and abstract concept. Although uncertainty in the external environment has been conceptualized, defined, and operationalized by using many variables in both nursing and management literature, this study focused on three indicators of perceived uncertainty in the hospital's external environment: dynamism, hostility, and complexity. Additionally, two variables of perceived uncertainty in the

internal environment or the internal operating practices were measured: decision making and innovation.

Purposes of the Study

The purposes of this study were to: 1) describe the relationships among perceived uncertainty in the external and internal environments, nursing unit culture, and the durability of the Differentiated Group Professional Practice (DGPP) in Nursing model as perceived by staff RNs employed in three selected patient care units; 2) describe the relationships among perceived DGPP model durability and staff nurse outcomes of control over nursing practice and work satisfaction, 3) describe staff nurses' perceptions of uncertainty in the external and internal environments, innovation related behaviors on nurses' patient care units, the current existence of the DGPP model components as well as their control over nursing practice and work satisfaction, and 4) compare current staff RNs' perceptions of control over nursing practice and work satisfaction with those reported by staff RNs five years earlier (between 1992 and 1997).

This follow up study was conducted at Hospital A. In this rural health care facility, the model was implemented in three patient care units: two medical surgical units, one with 23 beds, and one with 17 beds. The 10-bed critical care and 6-bed transcare units were combined to form a third unit since they both were under the supervision of the same nurse manager.

Hospital A was selected for two reasons: 1) a previous case study of this hospital revealed that the implementation of the DGPP model at Hospital A was successful because of the commitment of the administrators, managers, and nursing staff (Geller,

Huonker, & Sundali, 1993); and 2) no other redesign activity was implemented between 1992 and 1997.

Research Questions and Hypotheses

As with many innovation projects, a major concern was whether or not the changes would continue over time. Although staff commitment was evident at Hospital A during the implementation of the DGPP model, there was a need to answer the following questions:

Question # 1

What are the relationships among perceived uncertainty in the external and internal environments, nursing unit culture and the durability of the innovation in selected patient care units?

Based on the review of the literature on environmental turbulence and innovation (Russell & Russell, 1992; Miller & Friesen, 1983), it was proposed that innovation durability would be related to perceived uncertainty in the external and internal environments, and innovation related behaviors. This proposition served as the basis for hypotheses 1, 4, and 5. In addition, hypotheses 2 and 3 proposed that the DGPP model durability would be negatively related to uncertainty in the external and internal environments. This is based on two possible explanations: first, a turbulent environment forces organizations to generate more innovations to adapt to environmental demands (Deevy, 1995; Miller & Friesen, 1983); and second, due to the pace of environmental turbulence, there is no guarantee that any skill will be required indefinitely (Martin & Freeman, 1998).

H1: The durability of the DGPP model will be positively related to perceived innovation related behaviors.

H2: The durability of the DGPP model will be negatively related to perceived uncertainty in the external environment.

H3: The durability of the DGPP model will be negatively related to perceived uncertainty in the internal environment.

H4: RNs' perceptions of innovation related behaviors will be positively related to perceived uncertainty in the external environment.

H5: RNs' perceptions of innovation related behaviors will be positively related to perceived uncertainty in the internal environment.

Question # 2

What are the relationships among control over nursing practice, work satisfaction and the durability of the DGPP model?

Nursing literature indicated that control over nursing practice and work satisfaction were positively related to the Differentiated Group Professional Practice in Nursing (Verran, et al., 1995). This served as the basis for hypotheses # 6 and # 7.

H6: RNs' perceptions of control over nursing practice will be positively related to the durability of the DGPP model.

H7: RNs' perceptions of work satisfaction will be positively related to the durability of the DGPP model.

Question # 3

What are the RNs' perceptions of uncertainty in the external and internal environments,

innovation related behaviors on their patient care units, the current existence of the DGPP model components as well as their control over nursing practice and work satisfaction?

Question # 4

Is there a significant difference in RNs' perceptions of control over nursing practice and work satisfaction over a period of 5 years (between 1992 and 1997)?

This study was expected to contribute and add to the existing nursing knowledge base in three ways. First, a preliminary theoretical model, which summarizes previously established relationships in the literature, was developed and tested. Second, the relationships among perceived uncertainty in the external and internal environments, innovation-related behavior within the patient care unit, the durability of the innovative practice model, and specific staff related outcomes were described. Third, knowledge was generated about the relationship between staff nurse perception of uncertainty in the external and internal environments and the durability of innovation.

Summary

The increasing national interest in improving health care quality led to redesigning patient care units to deliver affordable quality care. Studies of the redesign models in patient care units which have dominated nursing research mainly focused on the development of these models, the process of implementation, quality outcomes, and staff work satisfaction. None of the known previous research investigated the durability of innovative model within the environmental context. In this study, the durability of the DGPP model was examined relative to perceived uncertainty in the environment, and innovation related behaviors in selected patient care units. Results of this study are

beneficial to nurses who participate in improving the care delivery by redesigning patient care units. Moreover, it is hoped that a new approach to studying innovation in patient care units will challenge the traditional assumptions guiding innovation research and provide a better understanding of the durability of innovative nursing projects in ever-changing health care environments.

CHAPTER 2

LITERATURE REVIEW

This chapter is divided into three sections. The first and second sections describe the theoretical underpinnings and the theoretical framework. The third section provides a detailed description of the implementation and evaluation phases of the earlier Differentiated Group Professional Practice (DGPP) in Nursing project.

Theoretical Underpinnings:

Contingency and Learning Organization Theories

Contingency theory has frequently provided a framework for the study of organizations. The contingency theory is built on the constructs devised by the systems school and maintains that organization theory must be based on the open-systems concept, in contrast to the static view held by the classicists. The essence of the contingency theory is based on the proposition that an organization's relationship to other organizations, as well as to its total environment, "depends on the situation." Such a view requires both theorists and managers to be adaptable, flexible, and even ingenious in their decision-making processes. Thus, the contingency theory rejects the all-purpose principles and constructs suggested by the classicists and substitutes for them a new perspective, an adaptive view of the organization (Hodge & Anthony, 1988). Lawrence and Lorsch (1969, 1983, & 1986) were among the first researchers to discover a contingent relationship between an organization and its environment. Their research demonstrated that successful organizations appeared to be structured in a way that was consistent with environmental demands. Successful organizations were found to have

orientations consistent with their environments. There was a contingent relationship between these organizations and how they were structured to deal with their environments. Environmental demands were thus formally recognized as an important factor in decision-making (Hodge & Anthony, 1988).

Advocates of contingency theory (Galbraith, 1973; Lawrence & Lorsch, 1967, 1986; Mintzberg, 1979) doubt that there exists a single, ideal way to design an organization and placed special emphasis on the role of the external environment. Further, they suggest that organizational success depends on the particular circumstances in which the organization finds itself. For health care organizations, contingency thinking means each organization must create its unique quality improvement system. In other words, there is no "packaged model" that can be applied to all organizations (Ziegenfuss, 1993). Therefore, an organization's structure, strategy, technology, and employees must fit with the external environment. The fit or congruence between one or more of these elements and the external environment is crucial for organizational effectiveness and survival in today's turbulent environments.

Learning organization theory is a relatively new theory in management. The concept of the learning organization was first introduced by Argyris and Schon (1978) in their book, *Organizational Learning*. The concepts of single-loop and double-loop learning incorporate both assimilation and accommodation as they relate to evaluating, learning, and adapting a task or program (Mink, Esterhuysen, Mink, & Owen, 1993). According to Argyris and Schon (1978, 1996), a learning organization is one that is capable of not only solving problems (single-loop learning), but also of increasing its

ability to solve problems in the future (double-loop learning). According to this view, an organization characterized by double-loop learning is an organization that learns how to learn and can therefore reproduce success over time.

More recently, Senge (1990) in *The Fifth Discipline* identified five learning disciplines or skills that would facilitate the transition of an organization to a learning organization. According to Senge (1990), learning organizations and their members are characterized by qualities such as shared vision, mental models, systems thinking, team effectiveness, and personal mastery. Shared vision means everyone in the organization is deeply committed to a clear vision of the future of the organization, and learning is focused on developing the knowledge and skills needed to work toward making the vision a reality. Mental models refer to understanding how organization members' different views of the world shape how they think and act, and their ability to meld these views into creative solutions to complex problems. Systems thinking refers to the invisible bounds of interrelated actions in the organization and the ability to see the bigger picture and how every part of the organization relates to all other parts. Team effectiveness refers to the strong spirit of teamwork that pervades all aspects of the organization. Finally, personal mastery is the discipline of continually clarifying and deepening one's personal vision, developing patience, and seeing reality objectively.

The review of the growing literature on the learning organization revealed that the concepts of learning organizations and organizational learning overlap. Marquardt (1996) distinguished between the two concepts and identified the difference between the terms learning organization and organizational learning. Marquardt (1996) defined the

learning organization as one that learns powerfully and collectively and is continually transforming itself. Additionally, it uses and builds on knowledge for success. It empowers people within and outside the organization to learn as they work. According to Marquardt, learning is accomplished by the organizational system as a whole, almost as if the organization were a single brain. The concept of learning organizations focuses on the *what*, and describes the systems, principles and characteristic of organizations that learn and produce as a collective entity.

Organizational learning, on the other hand, refers to *how* organizational learning occurs such as the skills and processes of building and utilizing knowledge. According to this view, organizational learning is just one dimension or element of a learning organization. Marquardt's (1996) description of the important characteristics of a learning organization is similar to that of Senge (1990).

Learning organization advocates have rejected the idea that "*if it ain't broke, don't fix it*" (Deevy, 1995), and have argued that the survival of the fittest is quickly becoming the *survival of the fittest-to-learn* (Marquardt, 1996). According to the learning organization view, it is difficult for organizations to live up to the expectations of the turbulent environment by creating congruence without an adequate knowledge base and the capability to update and put it into practice. It is believed that the organization's ability to adapt is greatly improved as learning occurs and that learning unleashes the full potential of the organization and enables it to continuously adapt to environmental changes (Applegate, et al., 1988; Mariotti, 1997; Merron, 1995). To remain viable, organizations need to make a paradigm shift in how the staff perceives

their roles, environment, and everyday activities. Organizations need to encourage staff to transform their old businesslike mental model of supervisors, workers, and activities into a new learning-oriented mental model (Marquardt, 1996). Organizations need a new kind of learning, learning that is grounded in shared vision, systems thinking, mental models, team effectiveness, and personal mastery. Systems thinking encourages managers to analyze inputs and outputs from a holistic perspective including organizational processes, structures, services, reward systems, and staff related issues (Stata, 1989; Senge, 1990; and Thach & Woodman, 1994). The holistic systems approach is a clear departure from a reductionist philosophy which involves breaking down phenomena into their smallest parts and may result in misrepresentation or oversimplification of the complexities of human interaction in learning processes (Neilson, 1997). Ziegenfuss (1993) described organizations as dynamic entities that never attain the ideal but continuously seek high quality. Similarly, Garvin (1993) characterizes organizational learning as a continual search for new ideas. In this view, the type of learning needed for a health organization to survive must extend beyond creating a contingent relationship with the environment through simple problem detection and correction efforts. Health organization survival is dependent on learning through which the organization makes sense of its environment and broadens the range of staff capability to fit environmental demands.

Theoretical Framework

The key concepts in the model that were used to guide this study are illustrated in Figure 1. The theoretical model incorporates some elements of contingency theory along

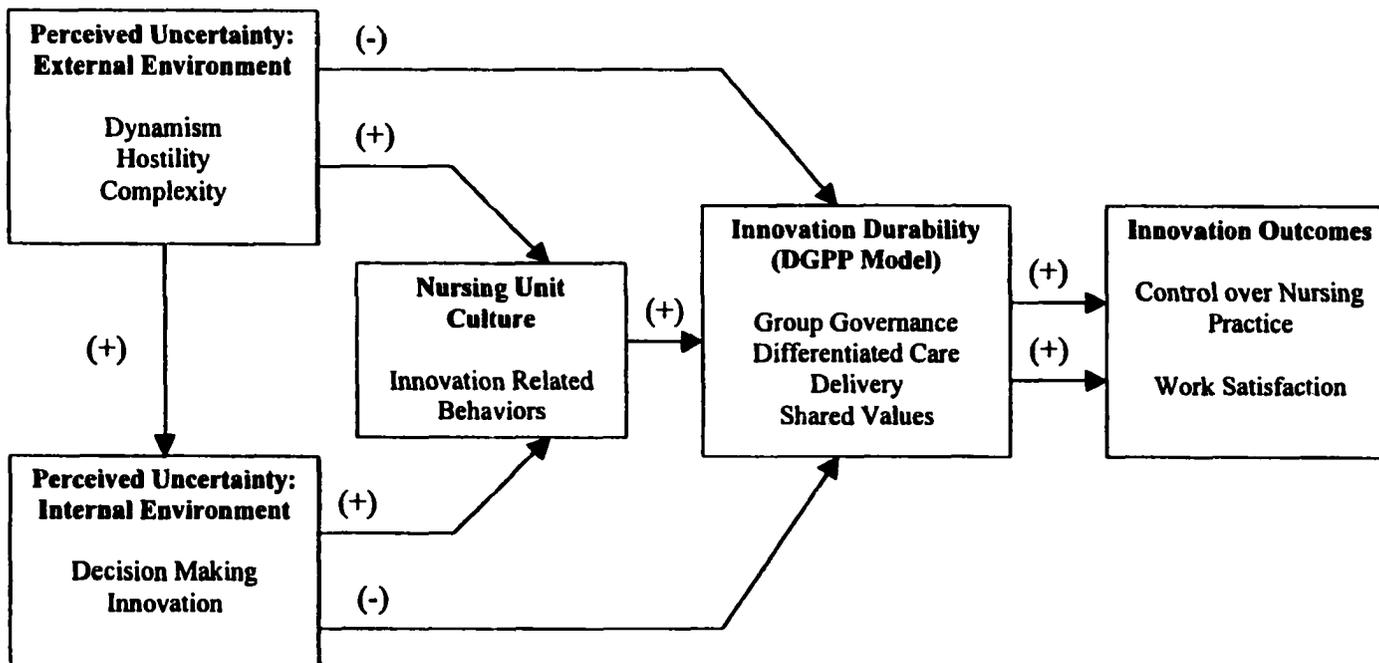


Figure 1. Theoretical Framework

with the learning organization theory. The DGPP as an innovative learning model was based on the learning disciplines identified by Senge (1990). The theoretical model of the current study proposed the contingent relationship between this innovative unit-based learning model and its external and internal environments.

The theoretical model was based on four underlying theoretical assumptions: (a) hospitals exist in and interact with their external environments; (b) uncertainty in the internal environment or the internal operating practices increases with significant uncertainty in the external environment; (c) environmental uncertainty results in an organization's continual search for innovative ideas to remain viable; this phenomenon may influence innovation durability; and (d) uncertainty in the environment requires an organizational culture that is sensitive, adaptable, and quick to respond.

The environment in this model was conceptualized as a "total" entity (Ginsberg & Grant, 1985; Miller & Friesen, 1983; Pettigrew, 1987). Like other modern organizations, the broader sociocultural environment in which hospitals operate influences them (Johnson, Kast, & Rosenzweig, 1973). Organizations receive inputs, transform them in some way, and return outputs to the environment. Hospitals interact with their environmental complex, and respond to the needs of their environments (Charns & Schaefer, 1983). Therefore, a health care organization's environment must be explicitly considered in the redesigning processes to improve the quality of service (Ziegenfuss, 1993). Hospitals should be concerned with how well a particular solution will fit with the structure, resources, and goals; and take environmental variables into consideration when redesigning the delivery of patient care.

Because today's hospitals face increasingly complex and rapidly changing environments, innovation has become an essential survival strategy for health care organizations. Therefore, hospitals' abilities to understand and cope with environmental uncertainty are crucial for survival. Other major determinants of hospital success and survival are the nursing department, the way nursing care is delivered, and the patient care unit's internal operating practices.

In terms of the contingency and learning organization, patient care units are seen as complex work-performing, problem-solving, and decision-making subsystems that are designed and organized to provide certain kinds of care within the hospital system. Patient care units are not freestanding; they are interdependent with other departments, as well as with the hospital as a whole and its external environment. The external environment has a subtle influence on the internal operating practices of patient care units and their staffs' beliefs, values, and behaviors. Therefore, to survive in turbulent environments, continuous learning and adaptation to environmental changes are critical. The implementation of innovative redesign models by patient care units represents one learning strategy to create a "fit" between changes in health care environments and the internal operating practices as units continue to face challenges of containing health care costs, enhancing the quality of care, and managing recurrent nursing shortages. Consequently, it is believed that the durability of an innovative redesign model may be influenced by uncertainty in the external and internal environments, and by staff nurse innovation related behaviors in patient care units. In the following sections each concept in the theoretical framework will be discussed.

Perceived Uncertainty: External Environment

Organizational innovation has been found to be positively correlated with environmental uncertainty when conceptualized in terms of complexity and dynamism (McGinnis & Ackelsberg, 1983; Russell & Russell, 1992). Uncertain environments are likely to provide a richer source of innovation opportunity than relatively certain ones (Utterback, 1971). The external environment refers to forces operating outside the boundaries of the organization, hospital, or of a specific decision making unit to which the organization or the unit is exposed and that are taken into consideration in the decision making behavior of individuals in that system (Duncan, 1972; Zaltman, et al, 1973). Three variables within the external environment were identified in the model: dynamism, hostility, and complexity (heterogeneity). All three variables have been identified as having a major influence on internal environment or internal operating practices (Miller & Friesen, 1983). These environmental variables are the most important variables affecting organizations (Khandwalla, 1972). Dynamism, which often is called uncertainty in the environment, refers to the rate of change of customers and the unpredictability or uncertainty of competitors (Miller & Friesen, 1978 & 1983). Hostility refers to a perceived threat to the organization's primary goals. Hostility in the environment is evidenced by price of product or service, technological and distribution competition, severe regulatory restrictions, shortage of staff or materials, and unfavorable demographic trends (Khandwalla, 1972; Miller & Friesen, 1978, 1983). Complexity, or heterogeneity in the environment, means the differences in competitive tactics, customer needs, services or products, and channels of distribution (Khandwalla, 1972;

Miller & Friesen, 1978, 1983; Porter, 1979).

Perceived Uncertainty: Internal Environment

Perceived internal environment refers to the internal operating practices in nursing units. Internal environment consists of the relevant factors within the boundaries of the organization, the hospital, or specific decision making unit that are taken into consideration in the decision making behavior of the individuals in that system (Zaltman, et al, 1973). Internal operating practices were found to be positively correlated with significant uncertainty in the external environment. Changing the internal operating practices is considered an adaptation in response to increased uncertainty in the external environment, an adaptation by which the organization abandons its current core strategies for another set that it believes will provide a better position for continued viability in a turbulent environment (Shortell, Morrison, Friedman, 1990). Two internal environment variables were identified in this model: decision making and innovation.

Decision making relative to perceived uncertainty in the internal environment refers to a systematic way of making decisions by taking into account more factors, integrating different decisions, and planning for future contingencies (Miller & Friesen, 1983). By systematic analysis a profile of external and internal environments of the hospital can be developed. Also, analysis helps to identify strengths and weaknesses of a hospital's internal environment and opportunities and threats of the external environment (Schulz & Johnson, 1990).

Innovation relative to perceived uncertainty in the internal environment refers to the rate of introducing new services, seeking unusual and novel solutions, risk-taking by

managers to improve services, and the attempt to lead rather than to follow competitors (Miller & Friesen, 1983; Zaltman, Duncan & Holbeck, 1973). Complexity and uncertainty in the external environment has brought with it a growing concern about organizational innovation. Organizations today must deal with rapid and complex environmental changes that they never before experienced. Innovation has become the most vital ingredient of strategic success and the most pressing challenge facing organizations. Some argue that to regain competitiveness and survive, organizations must innovate and be creative to guarantee success (Hosking & Anderson, 1992; O'Hare, 1988).

Innovation related behaviors

One concept of the nursing unit culture was investigated in this study relative to innovation related behaviors. Russell & Russell (1992) proposed a concept of "innovation related behaviors" to mediate, or encourage innovation through norms, and change the influence of environmental turbulence on organizational culture, and ultimately, on innovation. Kimberly (1981) noted that effective innovation requires not only external stimulants, but also internal receptivity to change. Internal receptivity among nursing staff in the patient care units can be developed by establishing norms that shape and influence ongoing behaviors and attitudes of nursing staff toward the implementation of innovation. Norms, in turn, are based on staff values and expected behaviors and are the "group-decided codes of conduct" (Kuczarski, 1996). The strengths and weaknesses in the values and beliefs or staff innovation related behaviors represent a major input in the implementation of innovation (Russell & Russell, 1992).

Many organizations, express support for the development of new and improved ways of working, but often do not provide practical support. It is useful therefore to distinguish between articulated and enacted support for innovation. High levels of articulated and enacted support for innovation lead to more attempts to introduce significant innovations (West & Farr, 1990). Schroeder, Van de Ven, Scudder, Polley, (1987) found that innovations are more likely to be pursued when managers two or more levels above the initiation level support the idea. Developing innovation norms and values is imperative to overcoming internal resistance to innovation.

Innovation Durability

Innovation durability refers to the DGPP model's existence for an extended period of years while retaining its original qualities. The DGPP model was a patient care unit-level strategy to create a "fit" between changes in the health care system environment, and professional practice in nursing.

According to Verran and colleagues (1995), the DGPP model was an innovative practice model designed to increase nursing autonomy and to foster commitment to professional nursing practice and quality patient care. The central purpose behind the development of the DGPP model was to retain of Registered Nurses (RNs) in hospitals. The DGPP model was conceptualized in terms of group governance, differentiated care delivery, and shared values in a culture of excellence. Group governance, which was designed to create a self-governing nursing group practice at the nursing unit level, contained four sub-components: participative unit management, shared decision making through staff bylaws, RN peer review, and RN salaried status. Differentiated care

delivery, which referred to patient care delivery systems based on practice expectations consistent with outcome competencies of educational programs for nurses, incorporated differentiated RN practice, nurse extenders, and primary case management. Shared values in a culture of excellence refers to the adoption of homogenous attitudes and beliefs by those employed within the work group, included staff valuing excellence and quality patient care, support for intrapreneurship, and formal and informal recognition (Verran, et al., 1995). The Verran, et al. study intended to examine RNs' perceptions of the existence of the DGPP model components as well as its staff outcomes. The DGPP model will be described in more detail later.

Innovation Outcomes

For the purpose of this study two major outcomes of the DGPP model were studied, control over nursing practice and work satisfaction among staff RNs. Control over nursing practice refers to the freedom to evaluate and modify nursing practice and to influence others. Control over nursing practice has been shown to increase significantly after the implementation of the professional practice model (Verran, et al, 1995).

Work satisfaction refers to perceived contentment with such conditions as professional status, pay, satisfaction with time for performing tasks, interaction with nurses and physicians, and organizational policies. Satisfaction with professional status refers to perceived contentment and esteem felt for one's profession while performing activities for pay. Satisfaction with pay refers to perceived contentment with the monetary value placed upon and received for the performed activities. Satisfaction with time for tasks refers to perceived contentment with the time available to perform assigned

activities. Satisfaction with interaction with nurses refers to perceived contentment with quality of communication among nursing staff. Satisfaction with interaction with physicians refers to perceived contentment with quality of communication among nursing staff and physicians. Satisfaction with organizational policies refers to perceived contentment with the development and maintenance of the procedures the organization proposes related to the activities performed for pay. At the group level, staff satisfaction significantly increased after the implementation of the DGPP model, specifically satisfaction with time for task, pay, and with organizational policies (Verran, et al, 1995).

In sum, the current study was designed to examine the relationship between perceived uncertainty in the external and internal environments and the durability of the DGPP model in selected patient care units. As shown in Figure 1, the durability of the DGPP model was proposed to be positively correlated to staff RNs' innovation related behaviors and innovation outcomes, and negatively related to external environment variables of dynamism, hostility and complexity, and variables of the internal operating practices of decision-making and innovation.

Differentiated Group Professional Practice

The DGPP project was developed in response to a nursing shortage by creating a fit between patient care units and increasing environmental challenges through organizational learning. It was designed to increase nursing autonomy and enhance commitment to professional nursing practice and quality patient care which, in turn, was expected to lower the cost of nursing care delivery. In the following sections, the DGPP practice and research models will be described. In addition, the practice model initiation,

development and evaluation will be presented.

The DGPP Practice Model Components:

The demonstration practice model had three major integrated components and multiple sub-components within each major component (Figure 2). The first component was group governance, which was designed to create a self-governing nursing group practice at the nursing unit level (Verran, et al., 1995). Group governance contained four sub-components: participative unit management, shared decision making through staff bylaws, RN peer review, and RN salaried status.

The second component was Differentiated Care Delivery which referred to patient care delivery systems based on practice expectations consistent with outcome competencies of educational programs for nurses (Verran, et al., 1995). Differentiated care delivery incorporated differentiated RN practice, use of nurse extenders, and primary case management.

The third component was shared values in a culture of excellence. Verran and colleagues (1995) defined the concept of shared values as the adoption of homogenous attitudes and beliefs. Values of excellence and quality of care, support for intrapreneurship, and formal and informal recognition were the three sub-components of shared values. Although the DGPP model components are described as separate, they actually are interrelated and complement one another.

The DGPP Research Model Components:

The key dimensions of the model guiding the research portion of the project are illustrated in Figure 3. The research model indicated that implementation of the DGPP

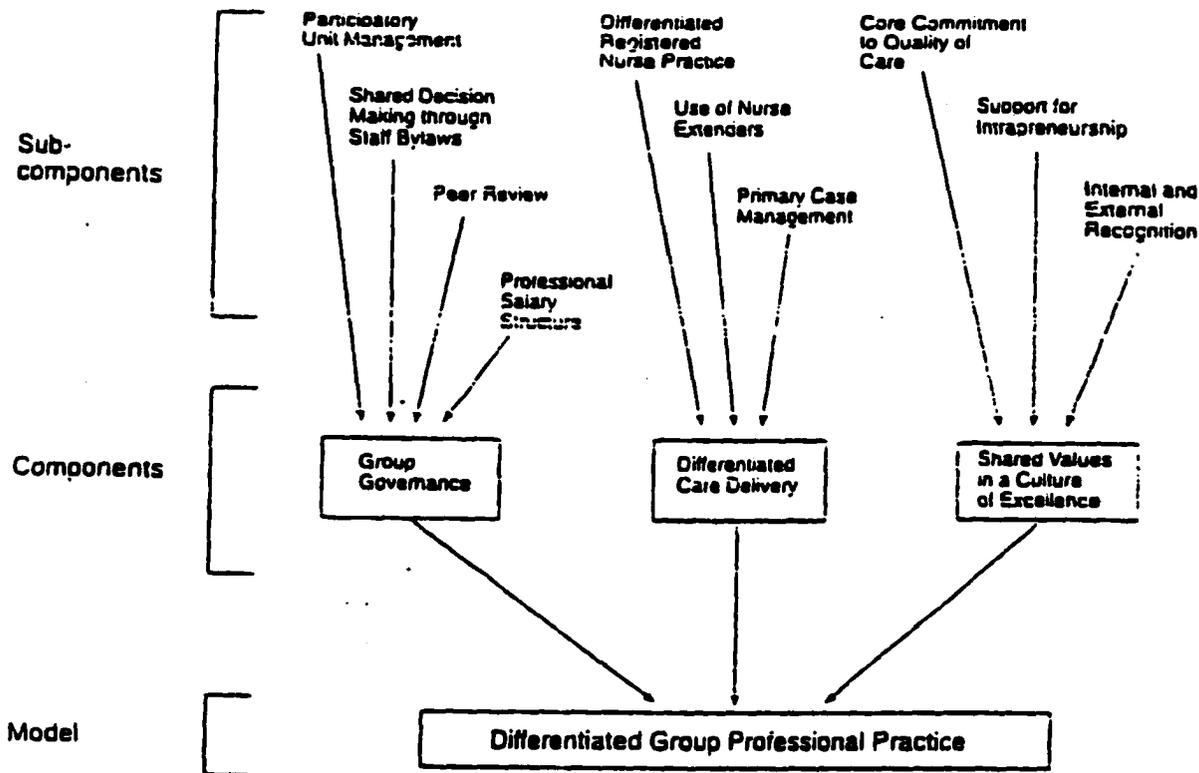


Figure 2. The DGPP practice model

Source: Verran, et al., (1995). The Differentiated Group Professional Practice in Nursing. Final Report.

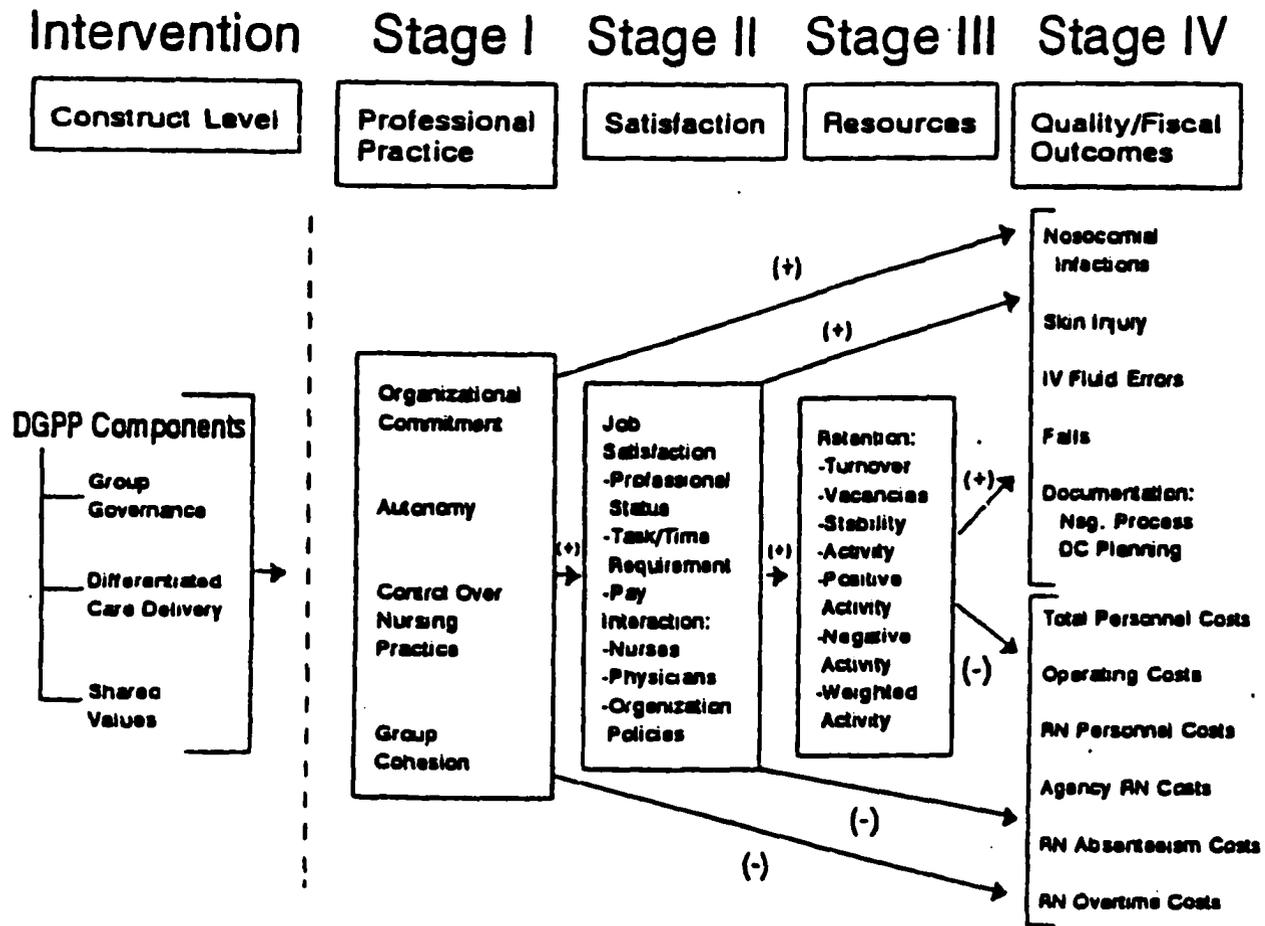


Figure 3. The DGPP research model

Source: Verran, et al., (1995). The Differentiated Group Professional Practice in Nursing. Final Report.

demonstration model would enhance the professional practice on the unit in which the nurse was employed. Professional practice variables (or indicators) in stage one of the research model would then positively affect nurse satisfaction in stage two, nurse resources in stage three, and quality outcomes in stage four. Nurse satisfaction, in turn, would positively affect nurse resources in stage three and quality outcomes in stage Four. Finally, stage I, II, and III constructs were anticipated to result in either no change or reduced fiscal outcomes in stages IV. At the less abstract and concept level of the model, the implementation of the DGPP model was expected to positively affect organizational commitment, autonomy, control over nursing practice, and group cohesion in stage I of the research model. These concepts in turn were expected to affect overall job satisfaction and six specific aspects of work satisfaction in stage II. In addition, the stage I concepts were expected to affect seven indicators of nurse resources, six indicators of quality outcomes and five indicators of fiscal outcomes. The indicators in stage II would directly affect nurse resource indicators in stage III as well as all the stage IV concepts. Nurse resource concepts would positively affect the indicators of quality outcomes and fiscal outcomes (Verran, et al., 1995).

In their longitudinal study of change over time, Verran and colleagues spent three years testing and describing the nature of the relationships between the main constructs of the model. The redesign processes and outcomes were carefully observed and tracked in different patient care units as they occurred over time and showed evidence to substantiate relationships between the innovation processes and the DGPP outcomes of professional practice, nurse satisfaction, nurse resources and quality and cost outcomes.

In sum, the DGPP model was consistent with the trends of the late 1980's and the early 1990's in redesigning the delivery of nursing care to improve the quality of services, and to maintain the cost of services at or below current levels in American hospitals.

Practice Model Implementation:

The DGPP efforts were launched and completed by the Co-Principal Investigators (Co-PIs) at the University of Arizona, College of Nursing, Tucson and financed by the National Center for Nursing Research (NCNR) and the Division of Nursing, Department of Health and Human Services (DHHS). Implementation of the DGPP demonstration model was an active, collaborative, and co-learning endeavor that was undertaken by the researchers, managers, and nursing staff at demonstration sites to create a constructive relationship, to gain their commitment, and to make ideas action-oriented rather than vague and philosophical.

The model was implemented on selected Medical-Surgical and Intensive Care Units (ICU) in three hospitals in Arizona. Further, comparable units in other non-demonstration hospitals allowed for comparison and explanation of results. The DGPP interventions were implemented over three years. They began with an initial visit to the demonstration sites in late 1988 and continued to the final data collection and termination of relationships with the hospitals in 1992.

The DGPP demonstration model was introduced at each demonstration site where formal slide presentations were made to nursing and non-nursing staff, managers, and administrators and their questions and concerns were addressed. The presentation

included the purpose for the interventions, a suggested plan for how to proceed, possible pitfalls, and the expected outcomes.

In all demonstration sites, the model was introduced to the administrators and managers as an innovative mechanism for RN retention, quality improvement, patient and staff satisfaction, and for cost reduction. General descriptive information and a slide presentation about the model helped minimize change-related concerns, and aroused staff interest.

Hospital A was a 99-bed facility located in north central Arizona, approximately 100 miles north of Phoenix. This rural health care facility has approximately 89 medical-surgical beds, an operating room, an emergency room, an obstetrical unit, home health, and hospice. When the DGPP project was initiated in 1988, the nursing staff consisted of 84 full-time RNs, 13 part-time RNs, and 14 Licensed Practical Nurses (LPNs) (Verran, et al, 1988). Two general phases of model implementation can be described, the implementation phase and the evaluation phase. Model implementation and evaluation will be described relative to Hospital A.

Implementation Phase:

This phase included setting the overall goals, organizing the project, developing a communication plan, identifying nursing staff learning needs, and gathering and analyzing baseline data. The interventions extended over three years. The first year had a dual goal: to refine the DGPP demonstration model for implementation in three different and unique hospital settings, and to implement the DGPP model in the demonstration sites on selected Medical-Surgical and ICUs. Similarly, there were dual

goals for the second and third years. These were to continue to implement the DGPP model in the four demonstration hospitals on selected Medical-Surgical and ICUs, and to maintain the DGPP model with appropriate growth modifications on the selected demonstration units (Verran et al, 1995).

Two change strategies were used in this stage, the empirical-rational and the normative-reeducative. According to the empirical-rational approach, a person will accept the proposed change if it can be rationally justified and if there will be gain from the change. The normative-reeducative strategy assumes that change in a pattern of practice will occur only as the individuals involved are brought to change their normative orientation to old patterns and develop commitment to new ones (Bennis, et al, 1979).

At the beginning of the process, Co-PIs identified staff learning needs. Because having access to information was a key to understanding the DGPP in general and the implementation process in particular, several workshops were planned for the working groups; these were open to staff and managers at each demonstration site. Workshops on peer review sub-components, bylaws and governance, and on differentiated practice were held at various sites during the first year of the project. At Hospital A, fifteen staff nurses, several unit managers, and the PC completed a one-day developmental workshop as partial preparation for the model implementation. A special case management workshop was also held because in Hospital A the majority of the nurses held associate degree in nursing (ADN) and diploma graduates and were unfamiliar with this innovation which involved differentiation by basic RN education.

Organizing the project involved developing a structure for change and an efficient

reporting process. This was the backbone of the process that included employing half-time, on-site Program Coordinators (PCs) and establishing four major project committees to coordinate and monitor the entire multi-site project.

Program Coordinators were hired and oriented to the DGPP demonstration model through well-developed workshops and seminars, which prepared them for their new roles and furthered their overall vision of the project. At Hospital A, a PC was employed who assumed the responsibility for coordinating on-site implementation activities throughout the small rural hospital, and who devoted the most time and effort to the three demonstration units.

With regard to the major committees, the Coordinating Committee, which included the PIs and the PCs met at The University of Arizona, College of Nursing, in Tucson. A major effort was devoted to guide the initiation of the DGPP demonstration model and the progress of the project. Simply, the Coordinating Committee was responsible for generally managing the project and maintaining consistency in model implementation.

The Monitoring Committee was composed of external nurse experts from various institutions and organizations across the country for the purpose of theoretical and research advisement. Members of this committee were appointed for their reputation and expertise in the components designated in the DGPP demonstration model as well as their knowledge of the theory and methods underlying the research model.

The Steering Committee consisted of twenty members including the four co-investigators on the project. The other sixteen members were equally represented across

each of the study hospitals as follows: a) the chief nurse executive for hospital, b) the on-site Program Coordinator, c) a Nurse Case Manager, and d) a Nurse Case Associate. The major responsibility of the Steering Committee was to provide project guidance regarding implementation progress, achievement of deadlines, consistency across the demonstration sites, securing necessary human resources in the study hospitals, and to insuring the availability of data needed to test the model.

Professional Practice Project Teams (PPPTs) were established at each demonstration site. Teams were assigned to oversee and to coordinate the operations at the demonstration sites and to discuss issues related to overall implementation. Team size varied depending on the hospital and need.

In addition to the major project committees, on-site committees or work groups were established in each hospital to facilitate implementation of the model sub-components. These committees were composed of staff nurses and representative middle managers.

At Hospital A, the DGPP project committees were: 1) Group Governance and Bylaws, 2) Differentiated Practice, 3) Credentialing and Peers Review, and 4) Shared Values and Intrapreneurship. Based on the notion that involvement leads to commitment, all managers and staff within the department of nursing were encouraged to become voluntarily involved in committee activities. The managers did not appoint staff members. Managers were encouraged to participate in committees as members, not as chairpersons. The overall goals for these working groups were identified and the methods of assessing the achievement of those goals were developed by the Co-PIs. In

addition, plans for implementation were established and time frames for each activity were set up. The working groups met frequently with the PCs and PIs at each site. It was believed that staff involvement was critical for effective implementation of the DGPP model.

A communication plan was developed and every effort was made to keep staff fully informed. A formal, planned, two-way information sharing was established between the PIs and the PCs to update the PIs about progress in the implementation process, to nurture and support the PCs, and to solve problems jointly. Meanwhile, the on-site PCs regularly informed the nurse executive about the progress of the project and sought opinion when questions arose. Further, a variety of formal communication methods were used including official monthly hospital newsletters, meeting minutes, computer networks, and teleconferencing. Informal information-sharing was ongoing, especially in Hospital A which is a small health care facility where all staff members knew each other and the DGPP model was viewed as a positive activity. Informal networking among staff and verbal updates at staff and management meetings were effective means of transmitting information.

Implementation of the DGPP model extended over three years. Goals, plans, time frames for activities, and criteria to assess achievement were clearly specified and detailed for each year. Two unique characteristics of this intervention can be identified. First, although the interventions were focused at the unit level, equal attention was provided to both the individual and the group for their potential influence on the redesign process. This alteration insured that individual staff nurse's visions were congruent with

one another and with the patient care unit and the hospital. Thus, everyone was aligned with the new vision, established shared values and became a source of energy for individual learning and group problem solving. Second, monitoring the intervention was an ongoing learning process that helped nursing staff to be self-organizing and work as a team. In addition, the model and the outcomes of the interventions were continually observed and evaluated, and ensured that all demonstration sites addressed the same goals and activities.

During Year I, Co-PIs focused on activities necessary to plan for and begin the redesign process of the patient care units in all demonstration sites. Early on, and after baseline data were collected, Program Coordinators were employed, committees were established, and all work groups engaged in the redesign process were given a working familiarity with the DGPP model components through several workshops and training programs. During Year I the collaborative efforts of all involved helped to develop the differentiated RN practice, and to implement nursing case management on a simulated basis. In addition, the belief systems on nursing units were changed, creative approaches to problem solving were encouraged, and high quality care was formally and informally recognized.

Year II focused on enhancing the consistency in implementing the DGPP model across the four demonstration sites. During this year, the implementation of the differentiated RN practice continued at Hospital A, the group governance structure was developed and implemented, and a culture of excellence was developed. On-site committees and work groups continued to meet regularly with the PC and Co-PIs to carry

out the developed plans. The steering and monitoring committees held several meetings to discuss issues related to the implementation in each site. Newsletters, electronic mail, and teleconferencing were used to facilitate an exchange of information in a timely and efficient manner, which in turn, helped to maintain consistency in the implementation of activities across the demonstration sites.

All activities during Year III focused on enhancing the consistency in implementing the DGPP model and modifying the group governance structure and differentiated RN practice in the patient care units. Furthermore, efforts were continued to develop the culture of excellence. Growth modifications were made depending on the needs of particular units. In addition, a series of workshops concerning communication skills necessary for implementing the professional practice model were developed and presented at one of the demonstration sites.

The Evaluation Phase:

Although the dynamics of organizational innovation are complex and difficult to study, redesign agents can successfully evaluate interventions if an appropriate evaluation approach is incorporated into the overall change plan. It is useful to refer to the evaluation process used by Verran and colleagues to evaluate the DGPP model. The assessment and measurement plans of the DGPP components and sub-components were considered from the initial planning phase of the project. Measurable objectives were stated for the proposed interventions, time frames for activities were specified, and measures to assess accomplishment of those activities were used throughout the study. The Co-PIs did not rely on post-intervention evaluation alone. The post-intervention

evaluation was part of a series of assessments conducted at the end of each activity. The assessments were based on carefully developed or selected instruments to measure the outcomes of the interventions and to compare results with the baseline data. The evaluation used data obtained from interviews, observations, and written survey instruments as well as from hospital administrative and patient records.

Two scales were developed to measure the redesign progress: the Degree of Implementation Scale, and the Degree of Synthesis Scale (Milton, Verran, Gerber, & Fleury, 1995). The Degree of Implementation Scale was developed to measure or monitor steps in the implementation process. The other was developed to measure the extent to which several components of the model were implemented separately and seen as an integrated model. In addition, the control over nursing practice scale was developed and tested to measure nurse's freedom to evaluate and modify nursing practice (Gerber, et al., 1990).

In sum, the redesign process was optimized by developing mutual trust, recognizing and accepting individual differences, giving and receiving feedback, and solving problems throughout the intervention process. The unique character of this project is that the interventions were detailed and eloquently done, the sub-components of the model were given equal weight in the implementation of the project, and there was a clear balance between the three phases of the redesign.

Summary

In this chapter the conceptual framework which incorporates perceived uncertainty in the external and internal environments, nursing unit culture, innovation

durability, and innovation outcomes was presented along with empirical evidence to support the framework. This framework allows to investigate a previously unexamined issue, innovation durability relative to perceived environmental uncertainty and innovation related behaviors in the patient care units. The theoretical model incorporates elements of contingency and learning organization theories. Literature emphasized the importance of contingency and systems thinking for health care organizations to survive in ever-changing environment. Creating congruence between health care organization structure, strategies, and processes requires continual search for new ideas and innovations. It is believed that the durability of these innovations is influenced by an organization's continual search for new ideas.

CHAPTER 3

METHODOLOGY

The methodological plan of the study is presented in this chapter. It consists of the research design, sample and setting, protection of human subjects, data collection procedure, and data analysis. In addition, the instruments are presented and described.

Research Design

A descriptive correlational design was used in this study. This research design was selected because it is excellent for laying the groundwork for future experimental research (Brink & Woods, 1989). Initial explanations of the relationships among variables are necessary before conducting experimental research. The theoretical framework, described in Figure 1, was applied explicitly to three participating patient care units at Hospital A. The variables of research interest were selected for their relevance and anticipated importance to the primary purpose of this study. Therefore, the dependent variables were Innovation Durability (its three sub-components were: group governance, differentiated care delivery, and shared values within a culture of excellence) and Innovation Outcomes. The independent variables were: Perceived External Environment conceptualized in terms of uncertainty relative to dynamism, hostility, and complexity; Perceived Internal Environment conceptualized in terms of decision making and innovation; and the Nursing Unit Culture. Additionally, Innovation Outcomes were compared with results from the earlier Verran and colleagues (1992) study to describe any differences in RNs' perceptions of their control over nursing practice and work satisfaction over a period of 5 years.

Sample and Setting

Criteria for selection of subjects included the following: 1) licensure a registered nurse (RN), 2) employed as full-time or part-time in one of the three patient care units where the DGPP model was implemented. That is, subjects practiced on one of the two medical surgical units, or the ICU/Transcare unit at Hospital A.

Hospital A was a 99-bed facility located in north central Arizona approximately 100 miles north of Phoenix. This rural health care facility had approximately 89 medical-surgical beds, an operating room, an emergency room, an obstetrical unit, home health, and hospice. When the DGPP project was initiated in 1988, the nursing staff consisted of 84 full-time RNs, 13 part-time RNs, and 14 Licensed Practical Nurses (LPNs) (Verran, et al, 1988). Staffing was similar when data were collected in 1997.

Hospital A was selected for this follow up study for two reasons: 1) the implementation of the DGPP components was relatively successful, and the staff were committed and willing to participate in the follow-up study, 2) no other significant redesign activity was implemented between 1992 and 1997.

A total of 56 RNs employed as full-time and part-time in the three patient care units were invited to participate in the study. During data collection two RNs resigned and left the hospital. Six subjects chose not to participate. Forty-eight of the 56 questionnaires were returned for an overall response rate of 85.7 percent (Table 1).

Protection of Human Subjects

A copy of the research proposal was submitted to the Human Subject Committee at The University of Arizona for review. Approval to conduct this study was provided

Table 1.
Questionnaire response rates by units ^a

| Care Unit | Returned N | Response Rate % |
|------------------|-----------------------|----------------------------|
| Unit 1 | 12 | 92.3 |
| Unit 2 | 11 | 84.6 |
| Unit 3 | 22 | 73.3 |
| Missing data | 3 | 6.3 |
| Total | 48 | |

^a Overall response rate 85.7 %

(Appendix A). A disclaimer was used to inform all participants that no potential risks or benefits were identified in this study (Appendix B). Participants were assigned code numbers to assure anonymity and confidentiality throughout the study. Returned questionnaires were kept by the researcher in a locked file.

Data Collection

The researcher briefed a volunteer on-site data collector on the study during a visit to Hospital A in August 1997. The volunteer data collector was an RN who held a B.S.N. degree and was employed full time by Hospital A. The data were obtained using five scales in packet format. The five scales were printed on five different light colors: blue, green, pink, lavender and yellow. To avoid subject response bias, the sequencing of the five scales was randomly organized within the questionnaire booklet. The participant profile information was attached at the end of the questionnaire (Appendix C). Detailed instructions were provided on each scale to help RNs respond accurately. All questionnaires were given to the volunteer data collector with instructions for distribution. Phone calls were made to the data collector to discuss the distribution of the questionnaires and the progress of data collection. All RNs were invited to participate voluntarily in the study. A cover letter emphasized the confidentiality of the responses. Providing each with an envelope enhanced protection of respondents' confidentiality. RNs were asked to return the completed questionnaires in sealed envelopes and put them in a closed box. The volunteer data collector mailed all completed questionnaires to the researcher. The data collection took place during October and early November 1997.

The Instruments

Five instruments were used for their relevance to the purposes of this study. Concepts, indicators and measures are summarized in Table 2. Instruments are found in Appendices D-H. The five instruments were: the Perceived Environmental Uncertainty Scale adapted from Miller and Friesen (1983), the Innovation-Related Behavior Scale adapted from Russell and Russell (1992), the DGPP Durability Scale which was developed and tested by the researcher for the purpose of this study, the Control over Nursing Practice Scale (Gerber, Murdaugh, Verran, & Milton, 1990), and the Index of Work Satisfaction adapted from Stamps and Piedmonte (1986).

Perceived Environmental Uncertainty Scale

The Perceived Environmental Uncertainty (PEU) scale, adapted from Miller and Friesen (1983), was a 17-item Likert-type scale that contained two subscales. One subscale measured perceived uncertainty in the external environment and another measured perceived uncertainty in the internal environment. The original scale was developed to measure top managers' perceptions of uncertainty in the external and internal environments in business organization. Uncertainty in the external environment was conceptualized in terms of dynamism, hostility, and complexity. The perceived uncertainty in the external environment sub-scale consisted of three items each measuring dynamism and hostility in the external environment, and one item measuring complexity. Uncertainty in the internal environment was conceptualized in terms of decision making and innovation. Six items measuring decision making and four items measuring innovation were used in the perceived uncertainty in the internal environment subscale.

Table 2.
Conceptual definitions and measurement tools

| Concepts | Conceptual Definitions | Measurement Tools |
|---|--|--|
| Perceived Uncertainty/ External Environment: | Perceived forces operating outside the boundaries of the hospital such as regulatory group, suppliers, competitors, and patients which is characterized by dynamism, hostility and complexity. | Perceived Environmental Uncertainty Scale (Adapted) Miller & Friesen (1983) |
| Dynamism: | Refers to the perceived rate of change in patients' needs and preferences, and unpredictability of competitors. | |
| Hostility: | Refers to the perceived threat to the hospital primary goals evidenced by type and cost of service provided, technological competition, and shortage of staff and materials. | |
| Complexity: | Refers to the perceived differences in competitive tactics, patient's needs, services, and channels of distribution. | |
| Perceived Uncertainty/ Internal Environment: | Perceived relevant factors within the boundaries of the hospital that are taken into consideration in decision making and innovation. | Perceived Environmental Uncertainty Scale (Adapted) Miller & Friesen (1983) |
| Decision making: | Refers to the systematic way of taking into account more factors, integrating different decisions and planning for future contingencies. | |
| Innovation: | Refers to perceived rate of unusual, novel solutions, services and risk-taking by hospital's managers to improve patient care. | |
| Innovation Related Behaviors: | The behavioral norms that encourage innovation and change and which reflect the patient care unit's culture and ultimately the adoption of an innovation. | Innovation Related Behavior Scale (Adapted) Russell & Russell (1992) |

Table 2.
(continued)

| Concepts | Conceptual Definitions | Measurement Tools |
|--|---|---|
| Innovation Durability: | Refers to the existence of an innovation for an extended period of time with retention of its original qualities. | DGPP Durability Scale Jabur (1997) |
| Control over Nursing Practice: | Refers to the freedom to evaluate and modify nursing practice and to influence others. | Control over Nursing Practice Scale Gerber, et al. (1990) |
| Work Satisfaction: | Perceived contentment with one's job. | |
| Satisfaction with Professional Status: | Perceived contentment with esteem felt for one's profession while performing employment-related activities. | Index of Work Satisfaction (Adapted) Stamps & Piedmonte (1986) |
| Satisfaction with Time for Tasks: | Perceived contentment with the time available to perform assigned activities | |
| Satisfaction with Pay: | Perceived contentment with the monetary value placed upon and Received for the performed activities. | |
| Satisfaction with Organizational Policies: | Perceived contentment with the development and maintenance of the procedures the organization proposes related to the activities performed for pay. | |
| Satisfaction with Interaction: Nurses | Perceived contentment with quality of communication among nursing staff. | |
| Satisfaction with Interaction: Physicians | Perceived contentment with the quality of communication among nursing staff and physicians. | |

For the purpose of this study, all items on the PEU scale were necessarily reworded to reflect the external and internal environments relative to the hospital and the patient care units. Also, the scaling format was changed to be consistent with other seven-point agree-disagree responses. This adapted version was presented to three doctoral candidates who were recognized for their knowledge and experience in the nursing profession. They were asked to review the items and indicate whether the items represented concepts of perceived uncertainty in the external and internal environments. Accordingly, some items were re-phrased, the PEU scale was then administered to thirteen RNs who were graduate students at the University of Arizona, College of Nursing. They were asked to assess the clarity of the items and provide suggestions for improvement. The PEU scale was refined and used in this study (Appendix D).

Subjects were asked to rate their perceptions by responding to a seven-point scale of agreement from 7 (high) to 1 (low). The scale contained some negative items to decrease response bias. As reported by Miller and Frieses (1978, 1983), the reliability of the original scale was very satisfactory, although they did not report a reliability estimate (coefficient alpha) for this scale.

The Innovation related behaviors Scale

The Innovation related behaviors (IRB) scale was adapted from Russell and Russell (1992). The original scale was based on stages of the innovation process as defined by Zaltman, Duncan, and Holbeck in 1973. The IRB scale was developed to use in business organizations. It consisted of eight items of innovation-related behaviors and cognition around which organizational norms exist. According to Russell and Russell

innovation related behaviors in a unit can be distinguished on the basis of knowledge awareness of potential innovation, attitude formation toward the innovation, the innovation decision process and its implementation. The scale provided partial tapping of the nursing unit culture.

For use in this study, the items in the IRB scale were re-phrased to reflect norms that support innovative ideas in the hospital and patient care units. The scale was given to a panel of judges and graduate students at The University of Arizona, College of Nursing to assess the items relative to the concept to be measured, and to determine the clarity of the items. The scale was refined and formatted on a seven-point Likert-type scale (Appendix E). RNs in the three patient care units at Hospital A were asked to rate their degree of agreement or disagreement with each statement using a range from 7 (agree) to 1 (disagree). Russell and Russell (1992) examined the content validity and reliability of the original IRB. No reliability figures were reported for the original measure.

The DGPP Durability Scale

The DGPP Durability Scale (DGPP/DS), a self-reported scale, was developed by the researcher to measure RNs' perceptions of the existence of the DGPP model (Appendix F). Durability refers to the state of being durable and able to exist for a long time while retaining the original qualities. The development of the DGPP/DS can be described as follows: Step 1: the writing of a pool of items derived primarily from the definitions of the DGPP model components and sub-components as defined for the Differentiated Group Professional Practice in Nursing project (Verran, et al. 1992),

Step 2: content validation by a panel of judges, and by a group of graduate students at the University of Arizona, College of Nursing.

In Step 1, items were generated based on the content of the upper levels of the DGPP Implementation Scale (Milton, et al., 1995). Thirty-seven potential items measuring the three major components of the DGPP model included: group governance, differentiated care delivery, and shared values in a culture of excellence. To achieve an acceptable Cronbach's alpha, a minimum of 30 items are needed (Nunnally, 1978). All items were stated in the form of nursing practices performed by RNs in the three patient care units at the time data were collected. The items made no specific reference to the DGPP model or to its sub-components. Several items were stated negatively to decrease response bias. Twenty items were designed to measure group governance and its sub-components of participative management, shared decisions-making/bylaws, RN peer review, and RN salary structure. Eight items measured differentiated care delivery and its sub-components of differentiated RN practice, use of nurse extenders, and primary case management. Nine items measured shared values and its sub-components: excellence/quality, support for intrapreneurship, and formal and informal recognition.

In Step 2, the thirty-seven item list was given to three judges who were selected on the basis of their knowledge and the nursing profession. All judges were doctoral candidates. They were asked to indicate whether the items represented the concepts under study. Accordingly, eight items were identified as unrelated and other items re-phrased. Thus, eight items out of thirty-seven items of DGPP durability were eliminated from the list. The remaining twenty-nine items were identified by the judges as related to

the durability of the DGPP model.

A questionnaire containing the remaining 29 items was presented in random order to thirteen RNs graduate students at the College of Nursing. The graduate students were asked to assess the clarity of the items, and, if unclear, to re-phrase the statement the way they believed it should be. Ten questionnaires were returned for a response rate of 76.92 percent. Seventy percent of the students agreed that “professional nursing organization” was misleading and not applicable, and 40 percent changed “non-RN tasks” to “non-professional tasks” and “innovation to improve care” to “innovative techniques to improve care”. Forty percent changed “would miss the peer review” to “would regret not having the peer review.” Based on the above assessments, 29 items were refined and administered to RN subjects employed in the three patient care units (n = 48). Based on item analysis, four more items were dropped. In sum, the final version of the DGPP/DS consisted of 25 items to measure the durability of the DGPP model. Thirteen of the items measured group governance, five measured differentiated care delivery, and seven measured shared values in a culture of excellence.

Control Over Nursing Practice Scale

The Control over Nursing Practice (CONP) scale which contains 21-item was developed by Gerber, et al. (1990) to measure a nurse’s freedom to evaluate and modify nursing practices (Appendix G). The CONP scale was constructed for and tested extensively within the Differentiated Group Professional Practice in Nursing project. Subjects rated each item on a 7-point Likert-type scale from 7 (high) to 1 (low) perceived control. RNs in the three patient care units at Hospital A were asked to rate their degree

of agreement and disagreement for each item. The CONP alpha reliability consistently ranged between .89 and .94 for initial testing (Gerber, et al. 1990) and for subsequent use in the DGPP project (Verran, et al., 1995).

Index of Work Satisfaction

The Index of Work Satisfaction (IWS) was adapted from Stamps and Piedmonte (1986) to measure work satisfaction among RNs (Appendix H). The 44-item Likert-type scale was designed to measure staff contentment with their work. The IWS consisted of seven subscales that measure satisfaction with professional status, pay, time for tasks, interaction among nurses, nurse-physician interaction, autonomy, and organizational policies. The original IWS consisted of seven items measuring each of professional status and organizational policies; five items measuring each nurse-nurse interaction and nurse-physician interaction; six items measuring satisfaction with pay and satisfaction with time for tasks; and eight items measuring autonomy.

Following a thorough psychometric evaluation within the DGPP project, the original IWS was adapted by eliminating the 7-item satisfaction with autonomy subscale and deleting seven other items from various other subscales. The autonomy subscale was eliminated to allow for comparison of results with the Verran, et al., (1992) study. No professional status data were analyzed because of the low reliability of the subscale. However, the four professional status subscale items were included in all analyses of the total IWS.

The remaining 30 items contained both positive and negative items. RNs in the three patient care units at Hospital A, were asked to rate their degree of agreement and

disagreement with each statement by responding to a seven-point scale in which ranged from agree (7) to disagree (1).

Data Analysis Plan

Data collected from the three patient care units at Hospital A were entered into the computer and analyzed using the Statistical Packages for the Social Sciences (SPSS) software in the College of Nursing Data Lab. The probability level for statistical significance was set at $p \leq .05$ level. Descriptive statistics of mean, standard deviation, frequency, and percent were used to describe the participants' characteristics. The same statistics were used to answer research question # 3 concerning RNs' perceptions of the existence of the DGPP model. Cronbach's alphas (alpha coefficient) for all scales were computed to estimate the internal consistency reliability of the items. The Pearson Product-Moment correlation (Pearson's r) was calculated to answer research question # 1 and # 2 (hypothesis # 1 through # 7), and to establish the direction and the strength of the relationships among the variables.

Shelley (1984) stated that when correlation research design is used, the researcher can take the analysis a step further and perform regression analysis to predict the individual and combined contribution of the independent variables to the dependent variable. Therefore, a regression analysis was conducted to describe the contribution of innovation related behaviors and perceived environmental uncertainty to DGPP model durability. Also, regression analysis was performed to describe the effect of DGPP model durability, innovation related behaviors, and perceived environmental uncertainty on control over nursing practice and work satisfaction. Research question # 4 was

addressed by using a t-test to compare the mean score differences between RNs' perceptions of control over nursing practice and work satisfaction over a period of 5 years, between 1992 and 1997.

Summary

A descriptive correlational research design was used to explore the relationships among innovation durability, nursing unit culture, and environmental turbulence in three selected patient care units in one rural hospital. In addition, a step further was taken to describe the contribution of the independent variables to the dependent variable. A total of 48 RNs participated in the study. Structured scales were used to measure each of the concepts within this study: DGPP Durability scale, Innovation Related Behavior scale, Perceived Environmental Uncertainty scale which consisted of two sub-scales: the Perceived Uncertainty in the Internal Environment and the Perceived Uncertainty in the External Environment sub-scales, Control over Nursing Practice scale, and the Index of work satisfaction. Data were analyzed by using descriptive statistics, Cronbach's alpha, Pearson Product-Moment correlation coefficient, multiple regression, and t-test to answer the four research questions.

CHAPTER 4

DATA ANALYSIS AND RESULTS

In this chapter, the psychometric assessment of the instruments is described. Next, there will be a description of characteristics of the sample, relationships among RNs' perceptions of DGPP model durability, perceived uncertainty in the external and internal environments, perceived innovation related behavior, control over nursing practice and work satisfaction.

Due to the small samples on individual patient care units, data were combined and analyzed as "all-units" in the form of means computed on a seven-point scale.

Reliability Estimation of the Instruments

Psychometric assessment of the scales consisted of estimating internal consistency for each scale when used with this particular sample. To examine the degree to which the items in a scale are internally consistent or to estimate the homogeneity of the items, the Cronbach's alpha was computed (Cronbach, 1951). A measure of reliability is important because it indicates that results are repeatable and consistent (Ferketich, 1990).

All the scales demonstrated an acceptable level of reliability ($\sigma \geq .70$) with the exception of the Perceived Environmental Uncertainty Scale (PEU) related to perceived uncertainty in the external environment and the professional status subscale of the Index of Work Satisfaction (IWS). The PEU subscale related to the external environment and the IWS professional status subscale had low reliability coefficients of $\sigma \geq -.24$ and $\sigma \geq .34$ respectively (Table 3). The low reliability coefficients of these subscales

Table 3.
Results of estimation of reliability

| Instrument | Alpha Coefficient | Number of Items | Items Number |
|---|-------------------|-----------------|---|
| Perceived Environmental Uncertainty/ | | | |
| External Environment: | .24 | 7 | |
| -Dynamism | | 3 | 1 to 3 |
| -Hostility | | 3 | 4 to 6 |
| -Complexity | | 1 | 7 |
| Perceived Environmental Uncertainty/ | | | |
| Internal Environment: | .81 | 10 | |
| -Decision-Making | .71 | 6 | 8 to 13 |
| -Innovation | .70 | 4 | 14 to 17 |
| Nursing Unit Culture: | | | |
| Innovation Related Behaviors | .94 | 8 | 1 to 8 |
| DGPP Model Durability: | | | |
| -Group Governance | .86 | 25 | |
| | .78 | 13 | 5, 6, 8, 11,12, 14,15, 17, 19, 21, 25, 27, 28 |
| -Differentiated Care Delivery | .70 | 5 | 3, 4, 10, 18, 29 |
| -Shared Values | .71 | 7 | 1, 9, 13, 20, 22, 24, 26 |
| Control over Nursing Practice | .96 | 21 | 1 to 21 |
| Index of Work Satisfaction | | | |
| -Professional Status | .86 | 30 | |
| | .34 | 4 | 3, 6, 12, 24 |
| -Time for Tasks | .82 | 4 | 1, 16, 28, 33 |
| -Pay | .86 | 6 | 9, 13, 18, 21, 26, 42 |
| -Organizational Policies | .74 | 6 | 2, 8, 14, 35, 39, 41 |
| -Interaction: Nurses | .70 | 5 | 20, 23, 27, 31, 36 |
| -Interaction: physicians | .86 | 5 | 5, 10, 30, 32, 34 |

raised some doubt about the conceptual clarity of these subscales and they were, therefore, omitted from the analysis. The alpha reliability estimates for other scales in the study were as follows: perceived uncertainty in the internal environment (.81), innovation related behaviors scale (.94), control over nursing practice scale (.96), and the overall index of work satisfaction (.86). As a new scale, the DGPP model durability scale had an alpha coefficient of .85 which was above the “acceptable level” identified by Nunnally (1978). However, it must be noted that the sample size was relatively small (N=48) and there was a small amount of missing data for each scale.

Characteristics of the Sample

Demographic characteristics of 48 RNs who participated in the study are summarized in Tables 4 and 5. As shown in Table 4, the majority of the RNs (90%) were females. More than half of the RNs (56%) were married compared to 27% of RNs who were divorced and 13% of RNs who were single. The initial or basic education of the subjects ranged from a high of 73% for ADN to 21% for Diploma, only 2% were BSN prepared. Compared to 58% of the RNs who mentioned ADN as their highest degree, a relatively small percentage (8%) indicated BSN as their highest degree. It is interesting to note that 4% of the RNs specified a non-nursing baccalaureate degree as their highest degree. Slightly more than 85% of the RNs were employed full-time and the remainder (8%) worked part-time. Approximately 44% of the RNs indicated working the day shift and 33% working the night shift. About half of the RNs (52%) reported working a 12 hour shift, while one third (33%) of the RNs were working an 8 hour shift.

RNs' ages ranged from 23 to 60 years with a mean of 41.4 ($SD = 10.77$) years

Table 4.
Demographic characteristics of staff RNs: Frequencies and percent of sample (1997)

| Characteristics | All Nursing Units (N=48) | | Unit 1 (N=12) | | Unit 2 (N=11) | | Unit 3 (N=22) | |
|--------------------------------|-------------------------------------|----------|--------------------------|----------|--------------------------|----------|--------------------------|----------|
| | N | % | N | % | N | % | N | % |
| <u>Gender:</u> | | | | | | | | |
| Male | 3 | 6 | 0 | 0 | 1 | 9 | 2 | 9 |
| Female | 43 | 90 | 12 | 100 | 10 | 91 | 20 | 91 |
| Missing data | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| <u>Marital Status:</u> | | | | | | | | |
| Single | 6 | 13 | 3 | 25 | 0 | 0 | 3 | 14 |
| Married | 25 | 56 | 6 | 50 | 7 | 64 | 11 | 50 |
| Divorced | 13 | 27 | 3 | 25 | 3 | 27 | 7 | 32 |
| Widowed | 1 | 2 | 0 | 0 | 1 | 9 | 0 | 0 |
| Missing data | 3 | 6 | 0 | 0 | 0 | 0 | 1 | 4 |
| <u>Basic Education:</u> | | | | | | | | |
| Diploma | 10 | 21 | 3 | 25 | 4 | 36 | 3 | 14 |
| ADN | 35 | 73 | 9 | 75 | 7 | 64 | 19 | 86 |
| BSN | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Missing data | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| <u>Highest Degree:</u> | | | | | | | | |
| ADN | 28 | 58 | 8 | 67 | 7 | 64 | 13 | 59 |
| BSN | 4 | 8 | 1 | 8 | 0 | 0 | 2 | 9 |
| BS non Nursing | 2 | 4 | 0 | 0 | 0 | 0 | 2 | 9 |
| Missing data | 14 | 29 | 3 | 25 | 4 | 36 | 5 | 23 |

Table 4.
Continued

| Characteristics | <u>All Nursing Units</u> (N=48) | | <u>Unit 1</u> (N=12) | | <u>Unit 2</u> (N=11) | | <u>Unit 3</u> (N=22) | |
|---------------------------|------------------------------------|----|-------------------------|-----|-------------------------|-----|-------------------------|----|
| | N | % | N | % | N | % | N | % |
| <u>Employment Status:</u> | | | | | | | | |
| Full-time | 41 | 86 | 12 | 100 | 11 | 100 | 17 | 77 |
| Part-time | 4 | 8 | 0 | 0 | 0 | 0 | 4 | 18 |
| Missing data | 3 | 6 | 0 | 0 | 0 | 0 | 1 | 5 |
| <u>Shift:</u> | | | | | | | | |
| Day | 21 | 44 | 5 | 42 | 4 | 37 | 11 | 50 |
| Evening | 5 | 11 | 0 | 0 | 3 | 27 | 2 | 9 |
| Night | 16 | 33 | 5 | 42 | 3 | 27 | 8 | 36 |
| Rotate | 1 | 2 | 1 | 8 | 0 | 0 | 0 | 0 |
| Missing data | 5 | 10 | 1 | 8 | 1 | 9 | 1 | 5 |
| <u>Shift Length:</u> | | | | | | | | |
| 8 hours | 16 | 33 | 0 | 0 | 9 | 82 | 6 | 27 |
| 10 hours | 1 | 2 | 0 | 0 | 1 | 9 | 0 | 0 |
| 12 hours | 25 | 52 | 12 | 100 | 0 | 0 | 13 | 59 |
| Missing data | 6 | 13 | 0 | 0 | 1 | 9 | 3 | 14 |

(Table 5). The length of time since becoming licensed was diverse and ranged from 3 months to 39 years with a mean of 12.7 ($SD = 11.72$) years. One third of the RNs ($N=16$) were licensed for less than five years, and 13% ($N=6$) were licensed for less than one year. RNs reported they were employed in the hospital between 2 months to 19 years with a mean of 6.4 ($SD = 5.13$) years (Table 5). The number of years employed in the unit as reported by RNs ranged from one month to 18 years with a mean of 4.6 ($SD = 4.84$) years. It is interesting to note that 42% of the RNs were employed by the hospital for less than 5 years, and more than one half (54%) of the RNs were employed by the unit for less than 5 years. More than 10% of the RNs were employed by the hospital for less than a year, and 25% of the RNs were employed for less than one year. The number of years RNs lived in this community ranged from 2 months to 42 years with a mean of 10.2 ($SD = 8.42$) years. Only one RN lived outside this community.

A comparison of means between 1992 and 1997 (Table 5), suggested that RNs who participated in this study (\underline{M} age = 41.4) were somewhat younger than 1992 participants (\underline{M} age = 43.0) but had been employed by the hospital and the units for a somewhat longer period of time. The mean number of years since basic education reported by RNs was greater (\underline{M} years = 13.5) than those reported by 1992 participants (\underline{M} years = 8.5). The mean number of years RNs reported living in the community was greater (\underline{M} years = 10.2) compared to RNs' responses in 1992 (\underline{M} years = 7.0).

Correlation Analysis

To answer the question related to the relationships among perceived uncertainty in the external and internal environments, perceived innovation related behavior and the

Table 5.
Demographic characteristics of staff RNs: Sample means for 1992 and 1997

| Characteristics | By Time | | By Unit | | |
|----------------------------------|------------------------------------|-------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| | <u>All Units</u> (N=41) 1992 | <u>All Units</u> (N=48)* 1997 | <u>Unit 1</u> (N=12) 1997 | <u>Unit 2</u> (N=11) 1997 | <u>Unit 3</u> (N=22) 1997 |
| Age : in years | 43.0 | 41.4 | 39.9 | 43.3 | 41.4 |
| # of Years Licensed | 12.1 | 12.7 | 7.8 | 15.5 | 14.3 |
| # of Years at this Hospital | 4.4 | 6.4 | 4.7 | 5.7 | 7.9 |
| # of Years in this Unit | 3.1 | 4.6 | 2.6 | 4.6 | 5.9 |
| # of Years Since Basic Education | 8.5 | 13.5 | 8.6 | 15.5 | 17.3 |
| # of Years Lived in Community | 7.0 | 10.2 | 7.9 | 11.9 | 11.0 |

* 3 unspecified units.

durability of the DGPP model in selected patient care units, a Pearson correlation (r) was computed (Table 6). Results demonstrated that the durability of the DGPP model was positively correlated with RNs' perception of innovation related behavior ($r = .51$; $p \leq .001$). As expected, these results supported the first hypothesis, which stated that the durability of the DGPP model will be positively related to perceived innovation related behavior. Hypothesis two, which suggested that the durability of the DGPP model would be negatively related to perceived uncertainty in the external environment, could not be tested due to an unacceptable low alpha coefficient. Therefore, this variable was omitted from the analysis. With respect to hypothesis three, which proposed that the durability of the DGPP model would be negatively related to perceived uncertainty in the internal environment measured by decision making and innovation, results revealed a positive correlation ($r = .34$; $p \leq .020$). Hypothesis three was not supported. The relationship between RNs' perception of innovation related behaviors and perceived uncertainty in the external environment, Hypothesis 4, was not tested due to low reliability of the perceived uncertainty in the external environment sub-scale. Neither did results support hypothesis five. The correlation between RNs' perception of innovation related behaviors and perceived uncertainty in the internal environment was found to be positive ($r = .42$; $p \leq .009$).

In response to the second research question regarding the relationships among control over nursing practice, work satisfaction and the durability of the DGPP model, results demonstrated that the durability of the DGPP model was positively related to control over nursing practice ($r = .60$; $p \leq .001$) and work satisfaction ($r = .62$; $p \leq .001$)

Table 6.
Correlations among variables all units combined

| Variables | 1 | 2 | 3 | 4 | 5 |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|------|
| 1 Perceived Internal Environment | | | | | |
| 2 Innovation Related Behavior | .42 ^a (<i>p</i> =.009) | - | | | |
| 3 DGPP Durability | .34 ^b (<i>p</i> =.020) | .51 ^a (<i>p</i> =.001) | - | | |
| 4 Control over Nursing Practice | .39 ^b (<i>p</i> =.017) | .69 ^a (<i>p</i> =.001) | .60 ^a (<i>p</i> =.001) | - | |
| 5 Work Satisfaction | .49 ^a (<i>p</i> =.001) | .55 ^a (<i>p</i> =.001) | .62 ^a (<i>p</i> =.001) | .58 ^a (<i>p</i> =.001) | - |
| Number of Valid Cases | 46 | 40 | 48 | 40 | 48 |
| Scale <i>M</i> | 4.36 | 4.09 | 4.40 | 5.41 | 4.09 |
| Scale <i>SD</i> | .80 | 1.25 | .74 | .98 | .63 |

^a Correlation is significant at the .01 level (2-tailed).

^b Correlation is significant at the .05 level (2-tailed).

(Table 6). These results support hypotheses six and seven.

As shown in Table 6, findings revealed unhypothesized positive correlations between control over nursing practice and innovation related behavior ($r = .69; p \leq .001$), and perceived uncertainty in the internal environment ($r = .39; p \leq .017$). A positive correlation was also found between work satisfaction and innovation related behavior ($r = .55; p \leq .001$), and perceived uncertainty in the internal environment ($r = .49; p \leq .001$). Work satisfaction was also found to be positively related to control over nursing practice ($r = .58; p \leq .001$).

In sum, the results of the correlation analysis revealed positive correlations among the durability of the DGPP model and innovation related behavior, perceived uncertainty in the internal environment, as well as with DGPP model outcomes: control over nursing practice and overall work satisfaction. Four distinct patterns of relationships were found among the variables examined in the above section. First, DGPP durability correlated positively with innovation related behavior and perceived uncertainty in the internal environment. Second, DGPP durability correlated positively with control over nursing practice and work satisfaction. Third, innovation related behavior correlated positively with control over nursing practice and work satisfaction. Finally, control over nursing practice correlated positively with work satisfaction.

Correlation analysis has made it clear that the dependent and independent variables, as well as innovation outcomes (control over nursing practice and work satisfaction), were associated as expected, with one exception. Specifically, testing of hypothesis three revealed an unexpected positive correlation between the durability of the

DGPP model and uncertainty in the internal environment. Since these variables were significant correlates, perhaps they were also important determinants of the durability of the DGPP and its outcomes.

The question then arose as to how much of the variance in the dependent variable of DGPP model durability can be accounted for by the independent variables. There was a desire to explore the individual and combined contribution of particular variables to the explained variance in the durability of the DGPP model and its outcomes. To answer these questions, a series of regression analyses were performed. According to Bryman and Cramer (1990) regression analysis provides a reasonable tool to summarize the nature of the relationship between variables combined and individual, and for making predictions of the proportion of the variation in the dependent variable explained by the independent variables. In the following sections the results of regression analyses will be presented.

Regression Analysis

To further examine relationships among DGPP model durability, innovation related behaviors, perceived uncertainty in the internal environment, and DGPP model outcomes, regression analyses was performed. The stepwise regression method was used for deciding the sequence of the entry of each independent variable into the equation and for revealing the magnitude of its contribution to R square. The F ratio test was calculated as a test for statistical significance for the equation as a whole since the multiple correlation (R) reflected how well the independent variables collectively correlate with the dependent variable. Also, the F ratio test allowed the researcher to test

the null hypothesis that the multiple correlation (R) was zero in the population from which the sample was taken (Munro & Page, 1993).

In equation 1, the dependent variable was DGPP model durability as a multifaceted and integrated model. The independent variables were innovation related behaviors and perceived uncertainty in the internal environment conceptualized in terms of decision making and innovation. As shown in Table 7, the regression analyses revealed that: a) innovation related behaviors variable was the only predictor entered into the equation; b) as indicated by the F statistic, the relationship between innovation related behaviors and DGPP durability was a significant phenomenon and not one due to chance so the null hypothesis was rejected; c) as indicated by R Square, innovation related behavior accounted for 28% of the variance in the DGPP model durability ($\beta = .53$, $R^2 = .28$, and $p < .01$). Perceived uncertainty in the internal environment did not enter the equation (Figure 4).

Additional series of regression analyses were performed entering each one of the DGPP model sub-components separately into the equation. In equation 1A, group governance was used as a dependent variable. Differentiated care delivery and shared values were not included in order to predict the individual and combine effects of the independent variables on this DGPP model sub-component. This analysis used innovation related behaviors, perceived uncertainty in the internal environment represented by decision making and innovation as predictors. As presented in Table 7, the results were similar to those from equation 1. Briefly stated, uncertainty in the internal environment represented by decision making and innovation were excluded from

Table 7.
Explained variance in DGPP model durability

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|--|---|---------|-----------------|----------------|------------------------|
| DGPP Model Durability (Total) | Nursing Unit Culture: Innovation Related Behavior | .53 | < .01 | .28 | < .01 |
| | Perceived Uncertainty/ Internal Environment | ns | | | |
| <u>DGPP Sub-Components:</u> | | | | | |
| Group Governance | Nursing Unit Culture: Innovation Related Behaviors | .49 | < .01 | .24 | < .01 |
| | Perceived Uncertainty/ Internal Environment | ns | | | |
| Differentiated Care Delivery | Nursing Unit Culture: Innovation Related Behaviors | ns | | | |
| | Perceived Uncertainty/ Internal Environment | ns | | | |
| Shared Values | Nursing Unit Culture: Innovation Related Behaviors | .70 | < .01 | .49 | < .01 |
| | Perceived Uncertainty/ Internal Environment | ns | | | |

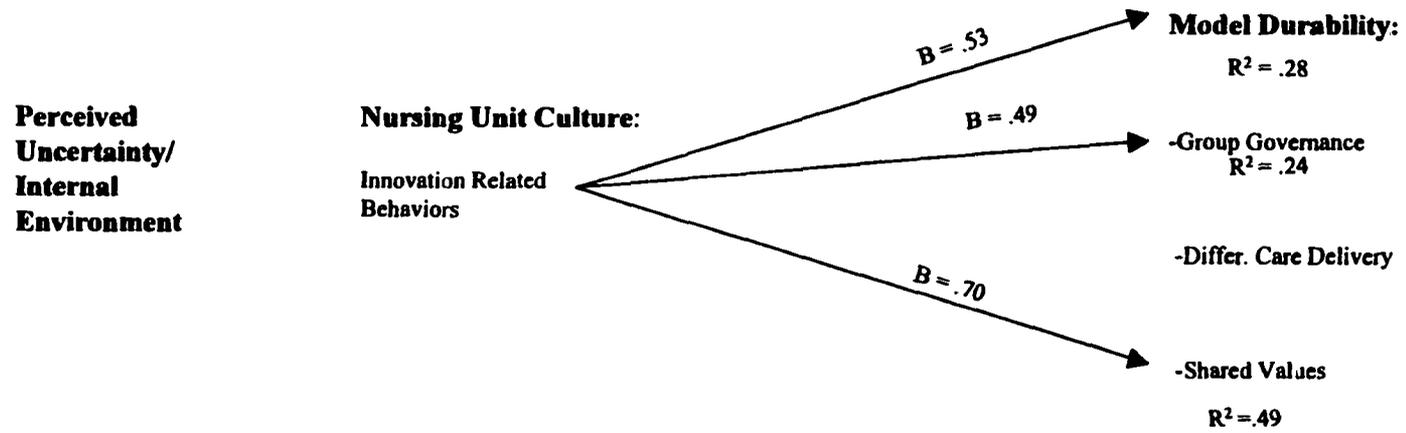


Figure 4. Empirical model for equations 1, 1A, 1B, and 1C

the equation. Again, results revealed that innovation related behaviors accounted for 24% of the variance in group governance ($\beta = .49$, $R^2 = .24$, $p < .01$) (Figure 4). With regard to equation 1B, differentiated care delivery was used as a dependent variable. Group governance and shared values were not included. The independent variables used were innovation related behaviors, and perceived uncertainty in the internal environment conceptualized in terms of decision making and innovation. Results indicated that none of the independent variables were entered into the equation (Figure 4). In other words, neither innovation related behaviors nor perceived uncertainty in the internal environment significantly accounted for the variance in differentiated care delivery (Table 7). In equation 1C, shared values variable was used as an independent variable; group governance and differentiated care delivery were excluded. The independent variables were innovation related behaviors and uncertainty in the internal environment conceptualized in terms of decision making and innovation. The regression results of this equation were similar to those from regression analysis of group governance but stronger. As shown in Table 7 and Figure 4, results also suggested that innovation related behaviors accounted for 49% of the variance in RNs' shared values ($\beta = .70$, $R^2 = .49$, $p < .01$)

Overall, the regression analysis results presented in the above section revealed that a significant part of the durability of the DGPP model, as an integrated model, would be accounted for by innovation related behaviors. It also turned out to be the best predictor of the durability of two of the DGPP model's sub-components: group governance and shared values.

The next series of equations involved two of the DGPP model outcomes: control over nursing practice and work satisfaction. Control over nursing practice was used as the dependent variable in regression equation 2. The independent variables included in this set of predictors were the following: group governance, differentiated care delivery, and shared values; innovation related behaviors; decision making and innovation relative to uncertainty in the internal environment. As presented in Table 8 results indicated that only two independent variables entered stepwise into the equation: innovation related behaviors and group governance (Figure 5). The innovation related behaviors variable accounted for 49% of the variance in RNs' control over nursing practice with group governance held constant ($\beta = .70$, $R^2 = .49$, $p < .01$). Jointly, innovation related behaviors and group governance were found to account for 55% of the variance in RN's reported control over nursing practice ($\beta = .29$, $R^2 = .55$, $p < .01$).

In short, findings presented in this section show significant individual and combined contribution of innovation related behaviors and group governance to the explained variance in RNs' control over nursing practice. These results indicated that one component of the DGPP model (group governance) significantly contributed to the explained variance in RNs' control over nursing practice.

Other series of regression analyses were performed on RNs' perceptions of overall work satisfaction, as well as RNs' satisfaction with time for tasks, organizational policies, pay, interaction with nurses, and interaction with physicians. In these analyses the following were used as predictors or independent variables: DGPP model durability represented by its sub-components of group governance, differentiated care delivery, and

Table 8.
Explained variance in control over nursing practice

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|--|--|---------|-----------------|----------------|------------------------|
| Control over Nursing Practice | DGPP Model Durability: | | | | |
| | Group Governance | .29 | < .05 | .55 | < .01 |
| | Differentiated Care Delivery | ns | | | |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .70 | < .01 | .49 | < .01 |
| | Perceived Uncertainty Internal Environment: | | | | |
| | Decision-Making | ns | | | |
| | Innovation | ns | | | |

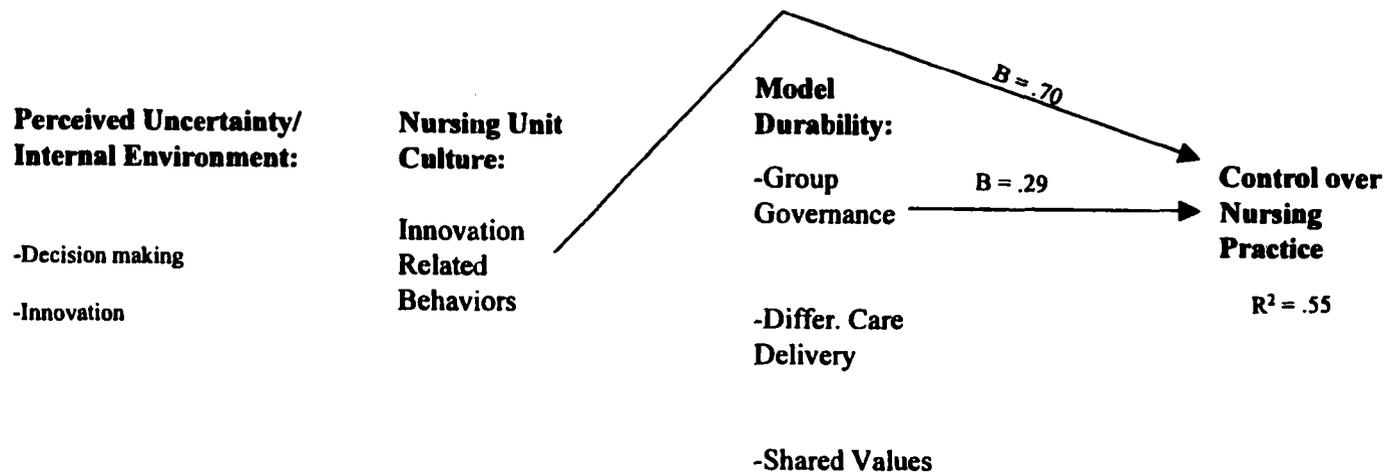


Figure 5. Empirical model for equation 2

shared values; innovation related behaviors; and perceived uncertainty in the internal environment conceptualized in terms of decision making and innovation. The results obtained from equation 3 revealed that for RNs' overall work satisfaction, three predictors entered stepwise into the equation: innovation related behaviors, perceived uncertainty in the internal environment conceptualized in terms of decision making, and DGPP model durability represented by group governance respectively. As shown in Table 9, findings are briefly summarized as follows: 1) with decision making and group governance held constant, innovation related behaviors accounted for 34% of the variance in RNs' overall work satisfaction ($\beta = .58$, $R^2 = .34$, $p < .01$); 2) when group governance was held constant, innovation related behaviors and decision making together accounted for 41% of the variance in RN s' overall work satisfaction ($\beta = .29$, $R^2 = .41$, $p < .01$); 3) together, innovation related behaviors, decision making, and group governance tended to be a better predictors (Figure 6). Together these variables accounted for 50% of the variance in RNs' overall work satisfaction ($\beta = .35$, $R^2 = .50$, $p < .01$). These results revealed that neither differentiated care delivery nor shared values accounted for the variance in RNs' overall work satisfaction.

A regression analysis was performed on the work satisfaction subscale level. For equation 3A, RNs' satisfaction with time for tasks was used as a dependent variable (satisfaction with organizational policies, pay, interaction with nurses, and interaction with physician were not included). The independent variables were DGPP model durability represented by group governance, differentiated care delivery, and shared values; innovation related behaviors; and uncertainty in the internal environment

Table 9.
Explained variance in RNs' overall work satisfaction

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|----------------------------------|---|---------|-----------------|----------------|------------------------|
| Overall Work Satisfaction | DGPP Model Durability: | | | | |
| | Group Governance | .35 | < .05 | .50 | < .01 |
| | Differentiated Care Delivery | ns | | | |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .58 | < .01 | .34 | < .01 |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision Making | .29 | < .05 | .41 | .01 |
| | Innovation | ns | | | |

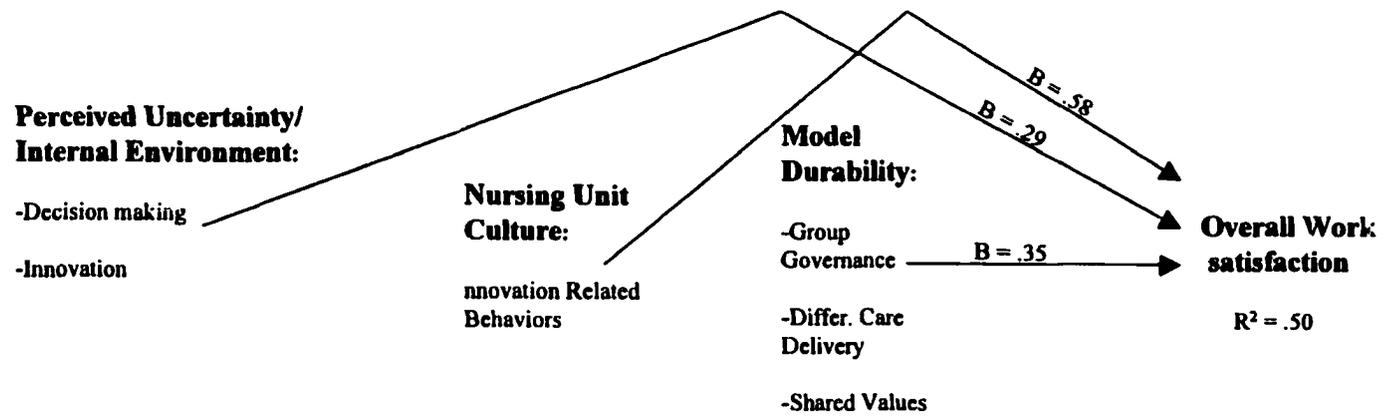


Figure 6. Empirical model for equation 3

conceptualized in terms of decision making and innovation. Two predictors entered stepwise into equation 3A, innovation related behaviors and differentiated care delivery. Findings indicated that innovation related behaviors accounted for 13% of the variance in RNs' satisfaction with time for tasks when differentiated care delivery was held constant ($\beta = .36, R^2 = .13, p < .05$). Together, innovation related behaviors and differentiated care delivery accounted for 23% of variance in RNs' satisfaction with time for tasks ($\beta = -.32, R^2 = .23, p < .01$) (Table 10). As presented in (Figure 7), the innovation related behaviors variable, as an individual predictor, demonstrated a significant effect on RNs' satisfaction with time for tasks. Differentiated care delivery was found to have a significant negative effect.

With respect to RNs' satisfaction with organizational policies, organizational policies variable was used as a dependent variable in equation 3B (satisfaction with time for tasks, pay, interaction with nurses and interaction with physicians were not included). The predictor variables were DGPP model durability represented by group governance, differentiated care delivery, and shared values; innovation related behaviors, and uncertainty in the internal environment conceptualized in terms of decision making and innovation. The results revealed that three predictors entered stepwise into the equation: innovation related behaviors, DGPP durability represented by group governance and shared values (Table 11). Innovation related behaviors accounted for 13% of the variance in RNs' satisfaction with organizational policies when group governance and shared values held constant ($\beta = .36, R^2 = .13, p < .05$). Together, innovation related behaviors and group governance accounted for 28% of the variance in this variable with

Table 10.

Explained variance in RNs' satisfaction with time for tasks

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|--|---|---------|-----------------|----------------|------------------------|
| Work Satisfaction: Time for Tasks | DGPP Model Durability: | | | | |
| | Group Governance | ns | | | |
| | Differentiated Care Delivery | -.32 | < .05 | .23 | .01 |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .36 | < .05 | .13 | .05 |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision Making | ns | | | |
| | Innovation | ns | | | |

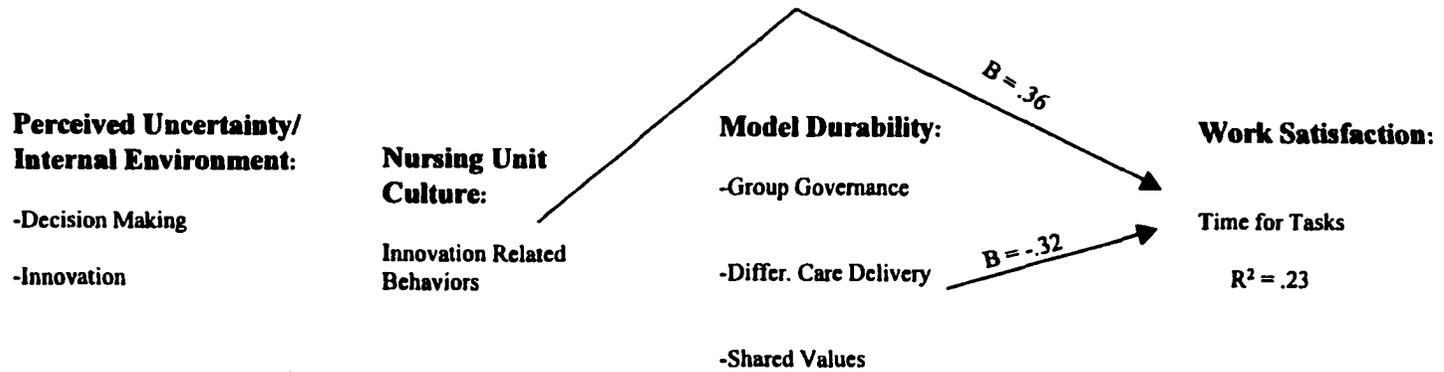


Figure 7. Empirical model for equation 3A

Table 11.
Explained variance in RNs' satisfaction with organizational policies

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|---|---|---------|-----------------|----------------|------------------------|
| Work Satisfaction: Organizational Policies | DGPP Model Durability: | | | | |
| | Group Governance | .45 | < .01 | .28 | < .01 |
| | Differentiated Care Delivery | ns | | | |
| | Shared Values | .50 | < .05 | .37 | .01 |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .36 | < .05 | .13 | .05 |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision-Making | ns | | | |
| | Innovation | ns | | | |

shared values held constant ($\beta = .45$, $R^2 = .28$, $p < .01$). Innovation related behaviors, group governance, and shared values combined accounted for 37% of the variance in RNs' satisfaction with organizational policies ($\beta = .50$, $R^2 = .37$, $p < .01$). When innovation related behaviors variable was removed from the equation, findings revealed similar results. Group governance and shared values together accounted for 37% of the variance in this variable when innovation related behaviors variable was removed from the equation (Figure 8). This suggested that shared values significantly affect RNs' satisfaction with organizational policies, followed by group governance, and innovation related behaviors.

In equation 3C, RNs' satisfaction with pay was used as a dependent variable (satisfaction with time for tasks, organizational policies, interaction with nurses and interaction with physicians were not included). The independent variables were DGPP model durability represented by group governance, differentiated care delivery, and shared values; innovation related behaviors, and uncertainty in the internal environment conceptualized in terms of decision making and innovation. Results indicated that the only predictor entered into the equation was DGPP model durability represented by differentiated care delivery. Differentiated care delivery accounted for 15% of the variance in RNs' satisfaction with pay ($\beta = .38$, $R^2 = .15$, $p < .05$) (Table 12). The other five predictors were excluded from the equation, and findings suggested that none of the five predictors were statistically significant (Figure 9).

RNs' satisfaction with interaction with nurses (equation 3D), and interaction with physicians (equation 3E) were examined separately. The predictors for equation 3D and

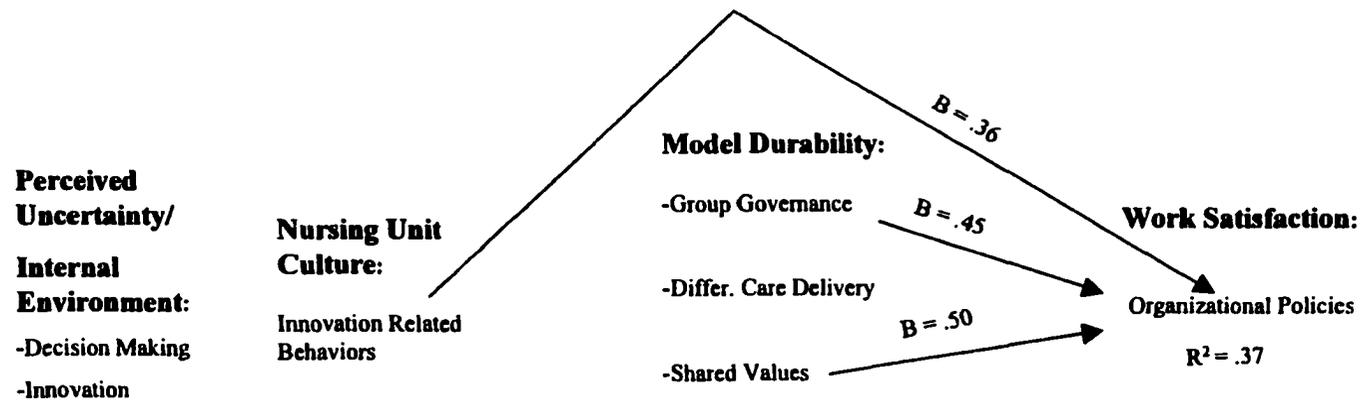


Figure 8. Empirical model for equation 3B

Table 12.

Explained variance in RNs' satisfaction with pay

| Dependent | Independent | β | β Sig. | R ² | R ² Sig. |
|-----------------------------------|---|---------|-----------------|----------------|------------------------|
| Work Satisfaction: Pay | DGPP Model Durability: | | | | |
| | Group Governance | ns | | | |
| | Differentiated Care Delivery | .38 | < .05 | .15 | < .05 |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | ns | | | |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision-Making | ns | | | |
| | Innovation | ns | | | |

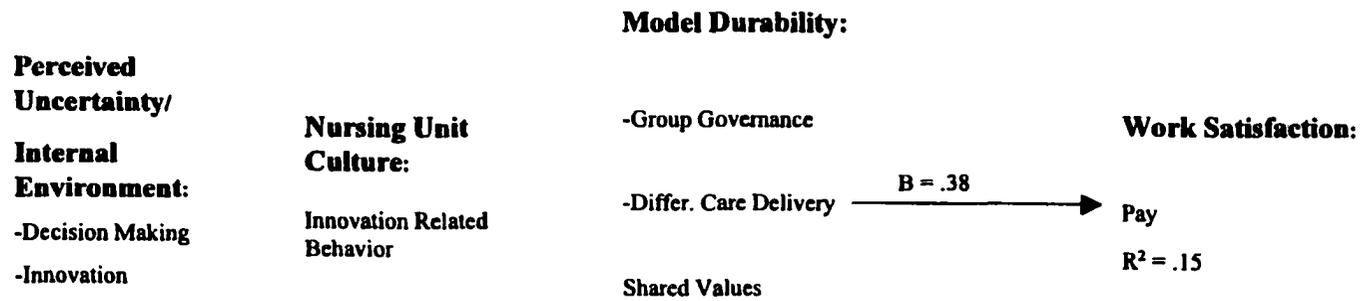


Figure 9. Empirical model for equation 3C

3E were DGPP model durability represented by group governance, differentiated care delivery, and shared values; innovation related behaviors, and decision making and innovation relative to uncertainty in the internal environment. For equation 3D, the findings presented in Table 13 showed that only one predictor entered into the equation; innovation related behaviors accounted for 34% of the variance in RNs' satisfaction with interaction with nurses ($\beta = .58$, $R^2 = .34$, $p < .01$). With respect to equation 3E, similarly, results revealed that innovation related behaviors variable was the only predictor entered into the equation, though a weaker effect was evident for this predictor (Table 14). Innovation related behavior accounted for 13% of RNs' satisfaction with interaction with physicians ($\beta = .35$, $R^2 = .13$, $p < .05$). As shown in Figure 10, regression results revealed that innovation related behaviors accounted for a somewhat greater proportion of the variance in interaction with nurses than in interaction with physicians.

In sum, findings presented in this section showed that innovation related behaviors, decision making relative to perceived uncertainty in the internal environment, and group governance accounted for the variance in RNs' overall work satisfaction. Additionally, innovation related behaviors accounted for the variance in RNs' satisfaction with time for tasks, organizational policies, and interaction with nurses and physicians.

Descriptive Analysis of Staff Nurse Data

To find out how RNs ($N = 48$) perceived uncertainty in the internal environment, innovation related behaviors, and the existence of the DGPP model components, as stated in research question three, a descriptive analysis of the of empirical measures was

Table 13.

Explained variance in RNs' satisfaction with interaction with nurses

| Dependent | Independent | β | β Sig. | R^2 | R^2 Sig. |
|--|---|---------|-----------------|-------|---------------|
| Work Satisfaction: Interaction: Nurses | DGPP Model Durability: | | | | |
| | Group Governance | ns | | | |
| | Differentiated Care Delivery | ns | | | |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .58 | < .01 | .34 | < .01 |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision-Making | ns | | | |
| | Innovation | ns | | | |

Table 14.

Explained variance in RNs' satisfaction with interaction with physicians

| Dependent | Independent | β | β Sig. | R^2 | R^2 Sig. |
|---|---|---------|-----------------|-------|---------------|
| Work Satisfaction: Interaction: Physicians | DGPP Model Durability: | | | | |
| | Group Governance | ns | | | |
| | Differentiated Care Delivery | ns | | | |
| | Shared Values | ns | | | |
| | Nursing Unit Culture: | | | | |
| | Innovation Related Behaviors | .35 | < .05 | .13 | < .05 |
| | Perceived Uncertainty/ Internal Environment: | | | | |
| | Decision-Making | ns | | | |
| | Innovation | ns | | | |

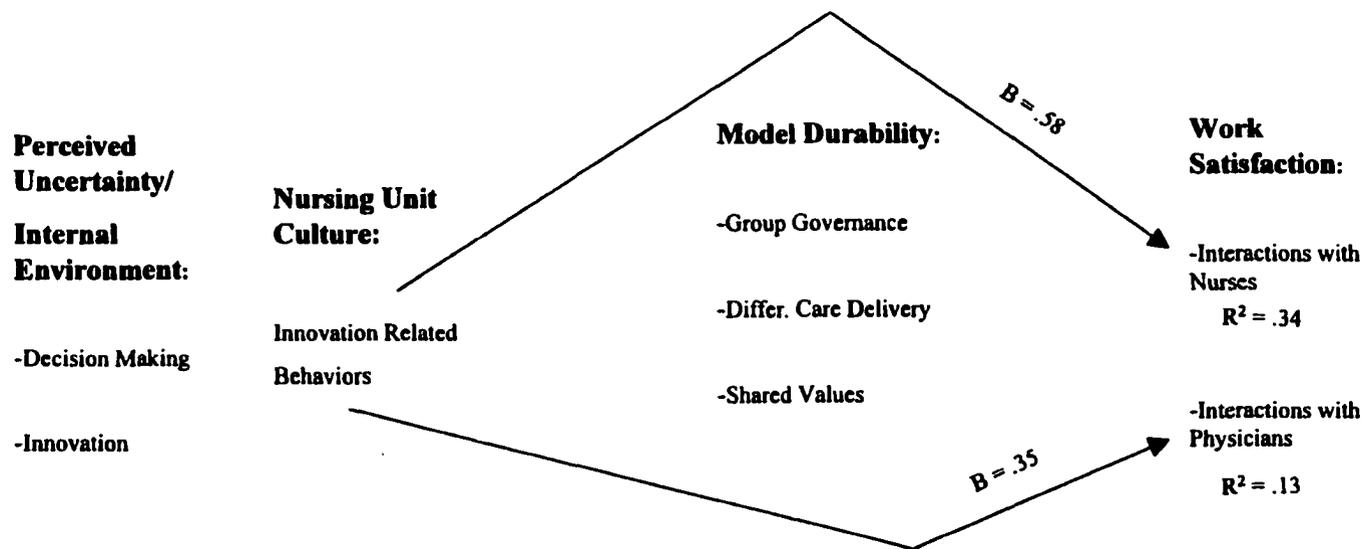


Figure 10. Empirical model for equations 3D and 3E

performed. Total mean scores and subscale mean scores were computed (Table 15). For the Perceived Uncertainty: Internal Environment scale scores ranged from 6.40 (maximum) to 2.50 (minimum), yielding a grand mean of 4.36 and a standard deviation of .80. On the Perceived Uncertainty: Internal Environment subscale level, decision making scores ranged from 6.00 (maximum) to 2.17 (minimum), yielding a grand mean of 4.31 and a standard deviation of .88. Innovation relative to perceived uncertainty in the internal environment scores ranged from 7.00 (maximum) to 2.00 (minimum), yielding a grand mean of 4.46 and a standard deviation of .98. For the Innovation Related Behaviors Scale, the scores ranged from 7.00 (maximum) to 1.38 (minimum), with a grand mean score of 4.10 and a standard deviation of 1.25.

For the DGPP model Durability Scale, the scores ranged from 5.54 (maximum) to 2.52 (minimum), yielding a grand mean of 4.40 and a standard deviation of .74 for the DGPP model as an integrated unit. On the DGPP model durability subscale level, the three different mean scores varied. Differentiated care delivery scores ranged from 7.00 to 1.60, yielding a mean of 5.10 and a standard deviation of 1.18. Shared values scores ranged from 6.14 to 2.29 with a mean of 4.39 and standard deviation of .89. Group governance scores ranged from 5.17 to 1.62 with a mean of 4.14 and a standard deviation of .77 (Table 15). RNs' perceptions of control over nursing practice and work satisfaction will be described and compared with 1992 data in the following section.

Differences in Model Outcomes over Time

To answer the fourth research question related to RNs' perceptions of control over nursing practice and work satisfaction over a period of 5 years, a manual calculation of

Table 15.
Mean scores and standard deviations for empirical measures (October, 1997)

| Scale/Subscales | Number of Items | N ^a | <u>M</u> ^b | SD | Mini. Score | Max. Score |
|--|-----------------|----------------|-----------------------|------|-------------|------------|
| Perceived Internal Environment Uncertainty: (Total) | 10 | 46 | 4.36 | .80 | 2.50 | 6.40 |
| Decision Making | 6 | 46 | 4.31 | .88 | 2.17 | 6.00 |
| Innovation | 4 | 46 | 4.46 | .98 | 2.00 | 7.00 |
| Nursing Unit Culture: Innovation Related Behavior | 8 | 40 | 4.10 | 1.25 | 1.38 | 7.00 |
| DGPP Model Durability: (Total) | 25 ^c | 48 | 4.40 | .74 | 2.52 | 5.54 |
| DGPP Durability (Subscales) | | | | | | |
| Group Governance | 13 | 48 | 4.14 | .77 | 1.62 | 5.17 |
| Differentiated Care Delivery | 5 | 48 | 5.10 | 1.18 | 1.60 | 7.00 |
| Shared Values | 7 | 48 | 4.39 | .89 | 2.29 | 6.14 |

^a Number of valid cases.

^b Response range 1 (low) to 7 (high).

^c Four Items dropped.

the basic pooled t test was performed to find out if there were significant differences between RNs' perception of control over nursing practice and work satisfaction over time (Table 16). There was no significant difference between RNs' perception of control over nursing practice between 1992 ($\underline{M} = 5.30$; $SD = .81$) and 1997 ($\underline{M} = 5.41$; $SD = .98$). However, the opposite finding was evident in the case of RNs' work satisfaction. Results showed a significant decrease between RNs' overall work satisfaction in 1992 ($\underline{M} = 4.48$; $SD = .65$) and 1997 ($\underline{M} = 4.09$; $SD = .63$) ($t = 2.83$, $p < .01$). On the work satisfaction subscale level, the results revealed one significant decrease in RNs' satisfaction with organizational policies ($t = 3.10$, $p < .01$) over time.

Summary

The results of the correlation analysis demonstrated significant relationships among the durability of the durability of the DGPP model, innovation related behaviors, uncertainty in the internal environment (decision making and innovation), control over nursing practice, and work satisfaction.

The regression analysis suggested that innovation related behaviors variable was the best predictor of the durability of the DGPP model as an integrated whole and its sub-components of group governance and shared values. Group governance and innovation related behaviors showed significant individual and combined effects on RNs' perceptions of control over nursing practice. With regard to work satisfaction, findings indicated that innovation related behaviors, decision making, and group governance accounted for the variance in RNs' overall work satisfaction. On the work satisfaction sub-scale level, innovation related behaviors accounted for the variance in RNs'

Table 16.

Means, standard deviations, F ratio, and t value for control over nursing practice and work satisfaction all units combined (1992 and 1997)

| Variable | Year | N | <u>M</u> | SD | <i>t</i> |
|---|------|----|----------|------|-------------------|
| Control over Nursing Practice | 1992 | 39 | 5.30 | .81 | -.54 |
| | 1997 | 40 | 5.41 | .98 | |
| Work Satisfaction (Total) | 1992 | 39 | 4.48 | .65 | 2.83 ^a |
| | 1997 | 48 | 4.09 | .63 | |
| <u>Work Satisfaction (Subscales)</u> | | | | | |
| Time for Tasks | 1992 | 41 | 3.88 | 1.20 | .73 |
| | 1997 | 48 | 3.69 | 1.22 | |
| Organizational Policies | 1992 | 40 | 3.82 | 1.05 | 3.10 ^a |
| | 1997 | 48 | 3.12 | 1.06 | |
| Pay | 1992 | 40 | 3.34 | 1.29 | 1.28 |
| | 1997 | 48 | 2.99 | 1.27 | |
| Interaction: Nurses | 1992 | 40 | 5.53 | .76 | 1.14 |
| | 1997 | 48 | 5.32 | .94 | |
| Interaction: Physicians | 1992 | 41 | 4.68 | 1.27 | -.84 |
| | 1997 | 48 | 4.89 | 1.10 | |

^a Significant at .01 alpha level (Two-tailed).

^b Significant at .001 alpha level (Two-tailed).

satisfaction with time for tasks, organizational policies, and interactions with nurses and physicians. Group governance and shared values accounted for the variance in RNs' satisfaction with organizational policies. Differentiated care delivery positively affected RNs' satisfaction with pay and negatively affect RNs' satisfaction with time for tasks.

Descriptive analysis of staff nurse perception of uncertainty in the internal environment indicated that management at Hospital A was considering changes in the environment. Additionally, RNs perceived their managers as seeking unusual and novel solutions to improve services. Patient care unit culture was perceived as an innovation supporting culture. RNs' perception of the current nursing practices indicated that the DGPP model was in existence on the three patient care units.

Although perceived control over nursing practice remained unchanged over time, a significant decrease was found in RNs' perceptions of overall work satisfaction over a period of 5 years. A significant decrease was also found in satisfaction with organization policies between 1992 and 1997.

CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to discuss and provide interpretations to the research findings. In addition, limitations of the study, recommendations for further research and implications for nursing practice are addressed.

The focus of this study was to describe the relationships among perceived uncertainty in the internal and external environments, innovation related behaviors, DGPP model durability, control over nursing practice, and work satisfaction. The questions addressed by this study concerned the relationship between environmental turbulence and innovation durability as perceived by RNs in selected patient care units. Specifically, what were the relationships among perceived uncertainty in the external and internal environments, patient care unit culture, and the durability of the innovation? What were the relationships among control over nursing practice, work satisfaction, and the durability of the DGPP model? What were RNs' perceptions of uncertainty in the external and internal environments, innovation related behaviors, the current existence of the DGPP model components as well as their control over nursing practice and work satisfaction? Finally, was there a significant difference in RNs' perceptions of control over nursing practice and work satisfaction over a period of 5 years (between 1992 and 1997)? These questions were approached using the contingency and learning organization perspectives, and a methodology relying on a descriptive correlation research design. The results were based on data obtained from 48 RNs employed in three patient care units in one small rural hospital in northern Arizona.

In the following sections four principal sets of findings will be discussed: 1) DGPP durability relative to perceived environmental uncertainty and innovation related behavior; 2) the DGPP model outcomes of control over nursing practice and work satisfaction relative to DGPP durability, innovation related behaviors, and perceived environmental uncertainty; 3) self-reported DGPP model durability; and 4) differences in DGPP model outcomes over a period of 5 years.

DGPP Durability Relative to Perceived Environmental Uncertainty and Innovation Related Behavior

The first research question related to the relationships among perceived uncertainty in the external and internal environments, patient care units culture, and the durability of the innovation. Research hypotheses one through five address this question.

Research Hypothesis # 1:

Research hypothesis # 1 stated that the durability of the DGPP model would be positively related to perceived innovation related behaviors. Results of the Pearson product-moment correlations revealed a significantly positive association between the durability of the DGPP as an integrated model and perceived innovation related behaviors. These findings supported the current study's conceptual model.

When DGPP durability was regressed onto all independent variables, results indicated that the variance in the DGPP durability (as an integrated model) and its sub-components (group governance and shared values) may be accounted for by RNs perceived innovation related behaviors in the three patient care units. While the explained variances were not overwhelmingly high, they provided further support for the

current study's conceptual model in that innovation related behaviors in the three patient care units contributed to the durability of the DGPP model. In the current sample, innovation related behaviors showed a clear superiority as indicated by its partial correlation to shared values. These results were consistent with previous findings relating innovation related behaviors to successful innovation strategies (Russell & Russell, 1992). Since the implementation of group governance included shared decision making, participative unit management, and peer review, the significantly positive correlation between group governance and innovation related behaviors was consistent with prior findings by Russell & Russell (1992) relating decentralization to innovation norms. Pierce and Delbecq (1977) argued that increased rates of innovation are associated with a decentralized structure. Hage and Aiken (1970) argued that increased participation in innovation decisions in a decentralized structure leads to increased commitment to innovation. It would appear that innovation related behaviors may not solve any technical problems associated with an innovation, but the consistency between RNs' and hospital norms and values is believed to be effective for the implementation of any innovation. The results suggest that innovation related behaviors might guide RNs into appropriate unit-based behaviors that are necessary for the durability of the DGPP model. To provide a degree of innovation continuity, unit managers need to develop and commit to a set of shared norms and values that support innovation. By integrating unit and staff norms, RNs may view their needs as compatible with those of the units. Therefore, RNs would be more oriented toward creativity and adaptability to change. However, further study may identify other variables that contribute to the DGPP model

durability, and provide a clearer understanding of the unexplained variance.

Although the present study did not hypothesize the correlations between the DGPP sub-components and the independent variables, the results demonstrated clearly that none of the independent variables in the current study made a substantial contribution or have any simple relationship to the durability of differentiated care delivery in the three patient care units. The results showed no links at all between differentiated care delivery and perceived uncertainty in the internal environment or innovation related behaviors. The potential explanation for this is that variables other than those relevant to the current study may have contributed to the durability of differentiated care delivery, and suggests a need for more research.

Research Hypothesis # 2:

The current research was the first descriptive study of a previously unexamined issue, that is, the durability of an innovative nursing practice model in a turbulent environment. There was no rigorous theory available that described the relationship between innovation durability and environmental turbulence in patient care units. The innovation literature focuses on maintaining competitiveness by continuous adoption of new ideas in response to ever-changing environments. Past research into organizational innovation has been primarily concerned with the relationship between environmental uncertainty and innovation. One of the consistent findings in the literature is that organizational innovation is positively correlated with perceived environmental uncertainty (conceptualized in terms of complexity and dynamism) (McGinnis & Ackelsberg 1983; Tornatzky, et al, 1983). The notion of innovation “durability” has not

been studied yet. Therefore, the current study hypothesized that the durability of the DGPP model will be negatively related to perceived uncertainty in the internal environment. This was based on at least two possible explanations. First, a turbulent environment forces organizations to generate more innovation to adapt to new demands created by a changing environment to survive and remain viable (Deevy, 1995; Miller & Friesen, 1983). Second, as articulated by Martin & Freeman (1998), due to the pace of environmental turbulence, there is no guarantee that any skills will be required indefinitely. On the basis of the above explanations, innovative projects would not last indefinitely in a turbulent environment which creates the demands for more new ideas.

As mentioned earlier, the subscale of perceived uncertainty in the external environment was dropped due to its low reliability. Researchers agree, however, that the concept of environmental uncertainty is a complex phenomenon. Adopting this scale for RNs, whose perceptions were the focus of the current study, confirmed the need to develop a new scale that accurately identifies and considers all variables relevant to the internal and external environments of hospitals and patient care units. This result may have been different if such a scale were available and used.

Research Hypothesis # 3:

Hypothesis # 3 stated that the durability of the DGPP model would be negatively related to perceived uncertainty in the internal environment. The results of the correlation analysis revealed a significant relationship between innovation “durability” and perceived uncertainty in the internal environment but in the opposite direction to that predicted. This result tends to be consistent with previous findings relating

environmental uncertainty to innovation (McGinnis & Ackelsberg, 1983; Tornatzky, et al., 1983). It is interesting that these previous studies focused on environmental uncertainty and the adoption of innovations, not on innovation durability. The current literature relating these variables was inadequate, further complicating interpretation. Although additional investigation is needed to clarify the reasons underlying these results, there are three potential explanations. First, some kinds of skills may be sustained for a long period of time, if not indefinitely, as these skills are necessary to keep high quality services and practices. This notion contradicts Martin & Freeman's (1998) statement in that there is no guarantee that any skills will be required indefinitely due to environmental uncertainty. The second possible explanation is that DGPP durability may have been maintained by Hospital A's commitment to the current innovation and an observed organizational cultural tendency to react analytically to uncertainties in the environment. The third possible explanation may be related to the characteristics of the DGPP model and its sub-components. That is, the nursing practices created by the implementation of the DGPP model may have tended to be consistent with Hospital A's demands to be viable in a changing environment. The implementation of shared decision making, peer review, participative unit management, differentiated RN practice, primary case management, the use of nurse extenders, support for intrapreneurship, and formal and informal recognition may have helped the hospital to respond innovatively when there was a high level of innovation among hospitals, and provided the understanding necessary to adapt to a changing health care market. Its implementation may have encouraged the three patient care units to learn how to foster

dynamic learning contingent on the challenge of environmental uncertainty while keeping RNs' focused on the bottom line: group governance, utilization of differentiated care delivery, and shared values of excellence. However, it remains a potential area for further research.

Research hypothesis # 4:

Research hypothesis # 4 proposed a positive relationship between RNs' perceptions of innovation related behaviors and perceived uncertainty in the external environment. Since the perceived uncertainty in the external environment scale was dropped due to its low reliability, the relationship between these variables was not tested.

Research Hypothesis # 5:

The association between RNs' perceptions of innovation related behaviors and perceived uncertainty in the internal environment addressed the final hypothesis for question # 1. The correlation analysis showed a significant association between these two variables in the predicted direction. Results supported the current study's conceptual model. According to these findings, the increased uncertainty in the internal environment seemed to increase the need for more innovation supporting norms and values since these values provide motivation and direction to remain viable in a changing environment.

Russell & Russell (1992) found a significant and positive correlation between innovation related behaviors and perceived environmental uncertainty, including both internal and external environments. However, there was little other empirical data in the literature with which to compare these results.

Model Durability and Outcomes

The second research question was to determine whether control over nursing practice and work satisfaction were related to the durability of the DGPP model.

Specifically, what were the relationships among control over nursing practice, work satisfaction and the durability of the DGPP model?

Research Hypotheses # 6 and # 7:

Hypotheses # 6 and # 7 predicted significant and positive correlations among control over nursing practice, work satisfaction and the durability of the DGPP model. The correlation analysis provided answers to research question # 2, and supported hypotheses six and seven, in that, control over nursing practice and work satisfaction were significantly correlated to the DGPP durability in the predicted direction. These results supported the conceptual model for the current study. These results are consistent with previous findings reported by Verran and colleagues (1995) in that RNs' control over nursing practice showed a significant change between Time 1 and Time 5. That is, before the implementation of the DGPP model and five years after the implementation. Verran and colleagues found that RNs control over nursing practice and overall work satisfaction were significantly increased with the implementation of all the DGPP model components. The current findings, when combined with that of Verran and colleagues, support the notion that control over nursing practice and work satisfaction increase when an innovative nursing practice model is appropriately selected and implemented in patient care units.

Interestingly, the correlation results of the current study indicated that RNs'

perception of control over nursing practice and work satisfaction appeared to be significantly associated. Both control over nursing practice and work satisfaction showed a significant positive correlation to innovation related behaviors and perceived uncertainty in the internal environment; the significant relationships for these variables were not predicated. The correlation between control over nursing practice and work satisfaction was consistent with Lancero's (1994) thesis results that nurse case managers', "total work satisfaction had a significant positive relationship with control over nursing practice" (p. 109). Similar results were reported among Active Duty United States Air Force nurses by Solano (1993). Also, Verran and colleagues' (1995) findings linked control over nursing practice to satisfaction with time for tasks and organizational policies. These results supported the importance of control over nursing practice, and suggest that RNs' overall satisfaction was the outcome of their working in patient care units that encourage and support new ideas, and having more control over the tasks they perform.

When control over nursing practice was regressed onto DGPP durability sub-components, innovation related behaviors and perceived uncertainty in the internal environment revealed that innovation related behaviors and group governance accounted for RNs' control over nursing practice in the three patient care units. Together, these two predictors showed a significant effect, and it seemed obvious that the practices created by the implementation of group governance such as shared decision making through staff bylaws, peer review, and participative unit management, worked hand in hand with innovation supporting behaviors to maintain RNs' control over nursing practice in the

patient care units. It appeared that the potential for RNs to keep control over their nursing practice was associated with the existence of a set of norms and values that support innovations when they participate in unit management and decision making. It seemed that group governance created a sense of closure and achievement among unit staff and made RNs more ready to implement since they were involved in selecting the alternatives. An emphasis on group governance and innovation related behaviors by unit managers might provide a work environment in which RNs have some level of control over the tasks they perform.

With regard to overall work satisfaction, when overall work satisfaction was regressed onto DGPP durability sub-components, innovation related behaviors, and perceived uncertainty in the internal environment, regression results indicated that innovation related behaviors, uncertainty in the internal environment conceptualized in term of decision making, and group governance combined significantly affected RNs overall work satisfaction. These findings linked RNs' overall work satisfaction to their participation in decision making, unit management, and peer review. In other words, RNs' overall satisfaction was the outcome of group governance, as well as working in a hospital where top management supports innovative ideas and considers many alternatives in decision making.

Regression analysis on work satisfaction sub-scales provided some insight regarding the effects of the independent variables on RNs' satisfaction with time for tasks, organizational policies, pay, interaction with nurses and interaction with physicians. Apparently, nurses on patient care units where there was room for risk

taking, an open-minded consideration of new ideas, recognition, encouragement, and support for initial and sustained innovation tended to be satisfied.

Current findings yielded some indications that the existence of innovation related behaviors and the use of differentiated care delivery together were predictors of RNs' satisfaction with the time for tasks. It seemed that RNs tended to be satisfied with the time for tasks in patient care units that utilized some form of primary case management and nurse extenders. These results provided some support to the notion that the implementation of the differentiated care delivery may help RNs focus on and perform the tasks that are consistent with their professional capabilities.

Regression analysis indicated that RNs' satisfaction with organizational policies was the outcome of innovation related behaviors, group governance, and shared values. It is interesting to note that although innovation related behaviors had the potential to satisfy RNs with organizational policies, this potential increased with the inclusion of group governance. When other predictors were examined in the multiple regression analysis, the inclusion of shared values to innovation related behaviors and group governance yielded similar results to that when innovation related behaviors variable was excluded. The possible explanation is that RNs satisfaction with organizational policies was not the outcome of innovation related behaviors but shared values and group governance. In the current sample, RNs linked satisfaction to work in patient care units that allowed staff to participate in decision making, unit management, peer review, and where RNs share values of quality care, get formal and informal recognition, and support for intrapreneurship.

The variance in RNs' satisfaction with pay was attributed to differentiated care delivery. This relationship between pay and differentiated care delivery suggested that RNs tended to be satisfied with pay in units that used differentiated RN practice, primary case management, and nurse extenders, and where RNs performed high quality care that fit with their professional qualifications. However, the explanatory power of that predictor was very low. Eighty-five percent of the variance in satisfaction with pay remained unexplained. It is, therefore inappropriate to attribute RNs satisfaction with pay, in the current sample, to differentiated care delivery alone. There must be some other variables within the patient care units and the hospital that contribute to RNs' satisfaction with pay.

Innovation related behaviors accounted for the significant variance in interaction with nurses and with physicians. These results suggested that satisfaction with the two kinds of interactions may be attributed to the existence of a set of shared norms and values that support innovation in patient care units. It seemed that the presence of compatible norms and values have the potential to create a positive work group and satisfy needs for friendly interpersonal relationships. However, findings revealed that sixty-six, and eighty-seven percent of the variance remained unexplained for satisfaction with interaction with nurses and with physicians respectively. It is possible that the variance did not account for what might be due to other variables within the unit/hospital structure, demographic characteristics or related to orientation toward work ethics.

Descriptive Analysis of Staff Nurse Data

The results of the descriptive analysis provided an answer to the third research question. Staff nurse perception of uncertainty in the internal environment suggested that management at Hospital A may have considered changes in the environment through a systematic way of making decisions, taking into account more factors and alternatives, integrating different decisions, and planning for future contingencies. Additionally, RNs perceived their unit managers as seeking unusual and novel solutions, introducing new ideas, and taking risks to improve services.

The nursing unit culture at Hospital A was perceived as an innovation supporting culture. RNs' reported that unit managers valued, supported, and provided time and resources for new ideas.

The findings related to RNs' perceptions of the existence of the DGPP model components in this study were encouraging and can generally be considered positive. As suggested by the present data, RNs perceived that much of the DGPP model was in practice at the time data were collected. Mean scores suggested that differentiated care delivery, shared values and group governance had maintained a relative presence. The varying degrees of existence were not surprising. Gerber (1993) attributed similar findings as reflective of the varying developmental needs of the staff in patient care units. According to Gerber, at Hospital A, group governance was the most fully implemented component of the DGPP model followed by shared values and differentiated care delivery particularly as related to the use of nurse extenders. Group governance was the key to building effective patient care units (Geller, et al., 1993), but the contingent

relationship of Hospital A to environmental demands may provide an explanation of group governance implementation at the time Gerber (1993) reported these findings. It might be attributed to the environmental conditions that created the need for a different unit structure at Hospital A. The varying degrees of existence of the DGPP model was consistent with contingency theory in that organizations or units within organizations must vary if they are to cope with different environmental circumstances (Lawrence & Lorsch, 1986). In patient care units, there can be no one best way to remain effective and adapt to environmental uncertainty. Outside contingencies can be both constraints and opportunities that influence the internal processes. These contingencies might have provided opportunities for elements of differentiated care delivery to be fully implemented at the time data were collected for the current study at Hospital A.

However, it is necessary to note that two different measures were used to measure the extent of DGPP “implementation” (actual) in 1992 and “durability” (perceived) in 1997. Therefore, mean comparisons for significant differences over time were impossible. Milton, Verran, Gerber and Fleury (1995) developed two scaling methods for evaluating practice model changes, the Degree of Implementation Scale and the Degree of Synthesis Scale. The Degree of Implementation Scale is a six stage scale developed to measure or monitor steps in the implementation process of a professional practice innovation. The scale based on Rogers’ five-stage process of innovation-decision: knowledge, persuasion, decision, implementation, and confirmation. Milton and colleagues added the integration stage to these five stages to describe a stage that follows Rogers’ confirmation stage. In this scale, the implementation process occurs in

ten steps in which “no activity or planned action” scores zero and “total integration with unit functioning” scores 9. The Degree of Synthesis Scale was developed to measure and monitor the extent to which several changes that are implemented separately are viewed as interrelated and unified. In this scale, a “commitment to a model” scores zero and the “totally synthesized model” scores 5. At the time Verran and colleagues conducted their project, the ratings were determined by the project coordinator, co-principal investigator, and unit managers (Verran, et al., 1995). Both scales are general and can be used in a variety of settings. The current study used the “DGPP Durability Scale,” a 25-item Likert type scale developed to measure staff nurse agreement or disagreement with statements about current nursing practice which reflected the DGPP model on their assigned patient care units. The questionnaire made no reference to the DGPP project per se. The differences between the two measures of extent of model implementation made comparisons impossible.

Differences in DGPP Model Outcomes over Time

The results of the current study provided answers to the fourth research question regarding differences in RNs’ perceptions of control over nursing practice and work satisfaction over a period of 5 years. Examining the mean scores and standard deviations for RNs’ responses in 1992 and 1997 involved seven comparisons (one related to control over nursing practice and six to work satisfaction: overall and sub-scales). Of these seven mean comparisons, only two indicated significant changes over time. The significant decrease in RNs’ overall work satisfaction and satisfaction with organizational policies were unexpected based on Verran’s and colleagues’ (1995) previous findings of

significant increases in RNs overall work satisfaction and organizational policies over the duration of the project. A possible explanation is that the decrease in satisfaction with organizational policies may be due to unknown changes in Hospital A's organizational policies which might have been put in action over time.

Results showed a slightly higher but not significant mean score for control over nursing practice and interaction with physicians over time. The mean for the 1997 RNs' responses seemed to indicate that DGPP model durability may have maintained the same level of RNs' perceptions of control over their nursing practice, and satisfaction with nurse-physician interaction in the three patient care units over a period of 5 years.

Conclusions

The results of the current study provided partial support for the conceptual framework that was developed for the purpose of this study based on previously established relationships in the literature. Four principal sets of findings were discussed: 1) the DGPP model durability relative to perceived environmental uncertainty and innovation related behaviors; 2) the DGPP model outcomes of control over nursing practice and work satisfaction relative to perceived DGPP durability, innovation related behaviors, and environmental uncertainty; 3) self-reported DGPP model durability relative to perceived uncertainty in the internal environment, and nursing unit culture; and 4) differences in control over nursing practice and work satisfaction over a period of 5 years.

In general, correlation results revealed ten out of ten significant and positive relationships among the variables in the conceptual model. In terms of findings related to

research question # 1, hypotheses # 1 and # 5 were supported. The durability of the DGPP model was positively related to innovation related behavior. Innovation related behaviors variable was found to be positively related to perceived uncertainty in the internal environment. On the contrary, results did not support hypothesis # 3 as proposed in the conceptual model. The DGPP model durability was found to be positively related to the perceived uncertainty in the internal environment, which contradicts the current study hypothesis. Due to the possibility of a perceptual mismatch and low reliability of the external environment uncertainty subscale, hypotheses # 2 and # 4 were not tested. Concerning research question # 2, findings supported the relationships between DGPP model durability and control over nursing practice and work satisfaction. At the time data were collected, results suggest that the DGPP model continued as an integrated model in practice (question # 3). In terms of question # 4, two significant decreases were found in RNs' overall work satisfaction and satisfaction with organizational policies. Clear explanations of all the unanticipated results were difficult due to the limitation of this study and to the small amount of empirical literature related to innovation durability.

The regression analysis results suggested that the innovation related behaviors variable was a better predictor of DGPP durability as an integrated model and its sub-components shared values and group governance. Innovation related behaviors and group governance were the best predictors of control over nursing. In addition, innovation related behaviors, decision-making and group governance were more important for explaining variance in overall work satisfaction. On the work satisfaction sub-scale level, the innovation related behaviors variable was the predictor of satisfaction

with time for tasks, organizational policies, and both kinds of interaction. However, the exploration into innovation durability in a turbulent environment yielded new insight into the concept of innovation related behaviors.

Limitations of the Study

There were theoretical and methodological limitations in this study. First, there were limitations concerning variables in the theoretical model. According to the proposed theoretical model (Chapter 2), the DGPP durability was expected to correlate negatively with perceived uncertainty in the external environment. Perceived uncertainty in the external environment was evaluated using a measure adapted from Miller and Friesen (1983). The scale was used because it was the only measure of this kind available at the time the study was conducted. Unfortunately, the scale was necessarily dropped from the analysis due to low reliability. The low reliability raised questions concerning the adequacy of the conceptual and operational definitions of the perceived external environment. The problem highlighted the issue of a possible perceptual mismatch in that the phenomena addressed by Miller and Friesen may not represent RNs' concerns. These concepts were very likely to reflect top management concerns and not staff nurse concerns. The overall concerns of staff nurses, whose perceptions were the focus of this study, were patient care and the tasks they perform to maintain quality care. Thus, perceived uncertainty in the external environment must be re-conceptualized and re-defined operationally. Matching environmental variables with patient care units and RNs concerns might provide better data. Therefore, great care is necessary in selecting particular concepts and scales in the study of external environment, especially when

studying staff nurses and delivery of patient care.

Second, there were methodological limitations related to sample size and the scales utilized. The current study was a descriptive study based only 48 RNs employed in three patient care units. This relatively small sample size may not be representative of all RNs, and generalizability of results is necessarily limited. With regard to the scales, one scale had to be developed for this study and three scales were adapted in order to obtain the required data. The alpha reliability of two subscales (The Perceived Uncertainty: External environment, and the Professional Status subscale of the Index of Work Satisfaction) were very low and were omitted from the analysis. The other scales showed satisfactory reliability ($\alpha \geq .70$). Although the content validity of all scales was determined prior to data collection, construct validity of the new and adapted scales remains unknown. The methodological adequacy of scales could undoubtedly be enhanced through further instrumentation research.

Recommendations for Future Research and Implications for Nursing Practice

This study examined a previously unexamined issue, that is, the durability of innovation in a changing environment. Implications for future research might well be drawn not only from the findings of this study, but from a consideration of the limitations noted earlier.

The observation of significant correlations among perceived uncertainty in the internal environment, innovation related behaviors, and DGPP durability should be taken into consideration in studies of patient care units. The variables of perceived uncertainty in the hospitals' and patient care units' external and internal environments should be

explored more thoroughly by nursing researchers and included in the research design where appropriate. Problems related to the measurement of these variables need to be addressed.

The researcher recommended to: a) Conduct item analysis to better describe psychometric properties of the current adapted PEU scale, or, b) Develop a new scale that includes environmental variables beyond those presented by Miller & Friesen (1978, 1983) and Salzer (1995). What is needed is a better conceptualization of internal and external environments relative to the practice of nursing by staff RNs. Constructs such as external and internal environments ought to be reconsidered with respect to their relevance for patient care and tasks performed by RNs. Specific and comprehensive environmental variables need to be identified and linked to patient care units, RNs' concerns, and the hospital environment.

Ziegenfuss (1993) called for a holistic approach to quality improvement in health organizations, and emphasized the concept of interrelatedness of the external and internal environments. Ziegenfuss presented five key strategies and actions to improve health care quality based on systems thinking. These strategies and actions were derived from the five subsystems in health care organization: cultural, technical, structural, psychosocial, and managerial. To this researcher, these subsystem variables are also important in the study of innovation. For a better understanding of the concept of innovation durability, it may be necessary to include the following hospital internal subsystem variables in future research: 1) The cultural variable and its three level indicators: artifacts and creation, values and beliefs, and basic assumptions and shared

understanding. 2) The technical variable and its micro and macro levels: the micro level includes work groups, internal regulation, quality measurement, roles, and improvement variety; the macro level includes customers needs, service group, and support services. 3) The structural variable which includes formality, specialization of care providers, standardization of training, hierarchy of authority, centralization, complexity, professionalism of volunteer services, and personnel set of teams and support staff. 4) The psychosocial variable at both the individual and group levels such as motivation, attitudes and expectations, behavior, status, actions, control, autonomy, customer orientation, group dynamics, and leadership. 5) The managerial variable which includes planning, organizing, developing people and systems, directing and leading, evaluating and controlling.

The inclusion of these subsystem variables may provide useful explanation of the unexplained variance. An important task for future research lies in developing better measures for these variables. The current study focused on the relationships among innovation durability, innovation related behaviors, perceived uncertainty in the internal environment, and innovation outcomes. Future research in nursing should be concerned with refining the conceptual framework for evaluating the effect of these variables on the durability of innovations in patient care units.

Other major variables that were not addressed in this study were hospitals' growth and merger relative to innovation durability. Hospitals, like many organizations, are always under pressure from other hospitals or health service organizations to increase efficiency by merging services. These pressures create the need to make strategic choices.

Many of these choices can affect the durability of innovation. Future research could shed light on this issue.

It appears that the innovation related behaviors variable was an important variable that ought not to be ignored in the study of innovation. The innovation related behaviors variable seems to have a motivational aspect that encourages RNs to interact effectively with their work environment. The variable should be evaluated in light of its potential to explain learning dynamics to maintain quality care, as well as accepting change at the patient care unit level. The scale may not constitute the best measure of RNs perceptions, and there may be a need to develop and test a new measure consistent with the nature of patient care units and the tasks performed by RNs. It is probably more important for future studies to take into account the amount of unexplained variance which it may suggest that there are other variables not included in this study that need to be identified.

In addition to the theoretical implications, there is at least one practical implication for patient care unit managers. Given the apparently positive effects of innovation related behaviors on the durability of group governance, shared values, control over nursing practice, satisfaction with professional status, time for tasks, organizational policies, and interactions with nurses and with physicians, one might suggest that patient care unit managers need to develop a plan for shared understanding and innovation supporting behaviors. A set of norms and values that support innovative ideas in their units should be developed with RNs since this would enhance the ability of the units to remain viable through continuous adoption of new ideas. Unit managers may establish an innovation supporting team in each unit and all units connected to a hospital

wide “innovation supporting network” that allows RNs to present and share their innovative ideas and show off their talents. Making that initial move may be difficult at first. It may take time before RNs feel comfortable with sharing their ideas. Unit managers would need to foster a shared understanding among their staff to ensure that everyone’s input is considered seriously and their ideas supported, and their rights preserved. Without incentives to reward sharing innovative ideas, the network will not succeed. Unit managers need to draw attention to “idea champions” whose energy and commitment to a particular idea can provide a vital force in securing its implementation. Providing some kind of incentives may further staff nurse participation in unit-level innovations.

Replication of this study with another innovative nursing practice model and using a larger sample size, with the use of perceived uncertainty scale relative to the hospital and patient care units, would help to refine the conceptual model which guided the current study. Such a study would have great potential for contributing to nursing knowledge.

Summary

In the preceding sections the findings of this study were discussed in relation to the research questions and hypotheses, study limitations, recommendations for future research and implications for nursing practice. The findings supported the conceptual model as expected with one exception; the positive correlation between DGPP model durability and perceived uncertainty in the internal environment was not supported. The results indicated that significant differences existed between RNs’ perceptions of overall

work satisfaction and satisfaction with organizational policies over a period of 5 years. RNs' self-report of the current nursing practice on their assigned patient care units indicated that much of the DGPP model was perceived as being in practice at the time the current study was conducted.

The findings suggested that future research should be concerned with refining the conceptual framework for evaluating environmental uncertainty according to its effects on innovation durability under a variety of conditions and combinations of conditions. The internal and external environments as conceptual entities ought to be reconsidered with respect to their relevance to patient care units and tasks performed by the staff nurse. In addition, hospital's cultural, technical, structural, psychosocial, and managerial variables should be included in future studies.

Given the apparently positive contribution of innovation related behaviors to model durability, unit managers might develop a team that supports innovations. Providing some kind of incentives may further staff nurse participation in unit-level innovations. Hopefully, in future studies using improved measures will decrease the unexplained variance.

APPENDIX A
PROTECTION OF HUMAN SUBJECTS

Human Subjects Committee

1622 E. Mabel St.
P.O. Box 245137
Tucson, Arizona 85724-9137
(520) 626-6721

7 October 1997

Nahida A. Jabur, Ph.D. Candidate
c/o Rose Gerber, Ph.D.
College of Nursing
PO BOX 210203

**RE: ENVIRONMENTAL TURBULENCE AND INNOVATION DURABILITY IN SELECTED
PATIENT CARE UNITS**

Dear Ms. Jabur:

We have received documents concerning your above referenced project. Regulations published by the U.S. Department of Health and Human Services (45 CFR Part 46.101 (b) (2)) exempt this type of research from review by our Committee.

Please be advised that clearance from academic and/or other official authorities for site(s) where proposed research is to be conducted must be obtained prior to performance of this study. Evidence of this must be submitted to the Human Subjects Committee.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,



William F Denny, M.D.
Chairman
Human Subjects Committee

WFD:js
cc: Department/College Review Committee

APPENDIX B
DISCLAIMER STATEMENT

ID# _____

**Environmental Turbulence
and Innovation Durability in Selected Patient Care Units**

The purpose of this study is to examine the relationships among a changing health care environment, innovation durability, and innovation outcomes as perceived by RNs in patient care units. The innovation selected for this follow-up study is the Differentiated Group Professional Practice (DGPP) in Nursing project which was implemented at Marcus J. Lawrence Memorial Hospital about five years ago. Even though you may not have participated in the earlier study, your participation at this time is welcomed.

The questionnaire should take about thirty minutes of your time to complete. You are being asked to voluntarily give your opinion on the statements in this questionnaire. By responding to the questionnaire, you will be giving your consent to participate in the study.

Your name is not on the questionnaire, you may choose not to answer some or all of the questions, if you so desire. Whatever you decide, your job will not be affected in any way. It should be emphasized that your answers to this questionnaire will be at all times strictly confidential.

You may ask questions at any time during the study. The telephone number is 520-621-4406.

Nahida A. Jabur
Doctoral Candidate
College of Nursing
The University of Arizona
Tucson, AZ. 85721

APPENDIX C
PARTICIPANT PROFILE INFORMATION

ID# _____

Participant Profile Information:**1. Patient Care Unit:**

_____ Unit 1 _____ Unit 2
 Unit 3: _____ Transcare _____ Critical Care Unit

2. Current employment status:

_____ employed in this hospital part-time
 _____ employed in this hospital full-time

3. Length of time since becoming licensed as an R.N. _____ years

4. Length of time employed in this hospital: _____ years

5. Length of time employed on this unit: _____ years

6. Shift most frequently worked (check one): _____ day _____ evening _____ night _____ rotate

7. Length of shift normally worked: _____ 8 hours _____ 10 hours _____ 12 hours _____ other

8. Basic educational preparation in nursing (check one):

_____ Diploma _____ Associate Degree _____ Baccalaureate

9. Year in which you completed your basic education in nursing: 19 _____

10. Highest degree you completed (check one):

_____ Associate Degree (Nursing) _____ Associate Degree (Not in Nursing)
 _____ Baccalaureate Degree (Nursing) _____ Baccalaureate Degree (Not in Nursing)
 _____ Master's Degree (Nursing) _____ Master's Degree (Not in Nursing)
 _____ Other (please specify): _____

11. Year in which you completed highest education in nursing: 19 _____

12. Number of years you have lived in this community: _____ years

13. Age: _____ years

14. Gender: _____ Male _____ Female

15. Marital status (check one):

_____ single _____ married _____ separated _____ divorced _____ widowed

APPENDIX D

PERCEIVED ENVIRONMENTAL UNCERTAINTY SCALE

Perceived Uncertainty: External Environment

Perceived Uncertainty: Internal Environment

ID# _____

Directions:

Below are a number of statements related to your perception of the health care environment and your hospital. Please indicate whether you agree or disagree with each statement by drawing a CIRCLE around the number most appropriate for you. The lower numbers indicate degree of disagreement. The higher numbers indicate degree of agreement. There is no right or wrong answer.

Disagree Agree

- 1. Health service activities of other hospitals in your area have become far more predictable. 1 2 3 4 5 6 7
- 2. Patient needs and preferences have become much more stable and predictable. 1 2 3 4 5 6 7
- 3. The rate of new services and innovation in care delivery has decreased significantly. 1 2 3 4 5 6 7
- 4. Variability and change in hospitals have become far less predictable. 1 2 3 4 5 6 7
- 5. Other hospitals in your area have become far more cooperative in recent years. 1 2 3 4 5 6 7
- 6. Competition among hospitals in your area now affects your hospital in many ways. 1 2 3 4 5 6 7
- 7. Diversity in services delivered by this hospital has increased significantly 1 2 3 4 5 6 7
- 8. Administrators in this hospital have adopted a much shorter time perspective to anticipate needed change in care delivery. 1 2 3 4 5 6 7
- 9. In this hospital, concern by top managers about providing new services with the use of existing facilities has increased greatly. 1 2 3 4 5 6 7

(Continued on next page)

ID# _____

Disagree Agree

- 10. The time spent by top managers in searching for alternative ways to improve care delivery has increased substantially. 1 2 3 4 5 6 7

- 11. The understanding of patient needs and preferences by hospital management in decision making has changed a great deal 1 2 3 4 5 6 7

- 12. The range of factors which managers in this hospital consider when making decisions has not changed much. 1 2 3 4 5 6 7

- 13. In decision making, this hospital's administrators find it necessary to consider many more alternatives than before. 1 2 3 4 5 6 7

- 14. The rate of new services introduced by this hospital has increased very much. 1 2 3 4 5 6 7

- 15. The rate of change in nursing care delivery has increased very much. 1 2 3 4 5 6 7

- 16. Risk-taking by this hospital's managers to improve care delivery has increased very much. 1 2 3 4 5 6 7

- 17. Seeking of unusual, novel solutions by this hospital's managers to improve care delivery has become much more common. 1 2 3 4 5 6 7

APPENDIX E
INNOVATION RELATED BEHAVIORS SCALE

ID# _____

Directions:

Below are a number of statements to assess staff nurse behavior in your patient care unit. Please read each statement and **CIRCLE** the number that most closely indicates how you honestly feel about the statement. The lower numbers indicate degrees of disagreement. The higher numbers indicate degree of agreement. There is no right or wrong answer.

| | <u>Disagree</u> | | | | | | <u>Agree</u> |
|---|-----------------|---|---|---|---|---|--------------|
| 1. Creative techniques of the nursing staff on this patient care unit are recognized. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. There is a search for innovative techniques outside this patient care unit that may be applied inside the unit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. There is free and open exchange of innovative ideas within this patient care unit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Use of innovative techniques is recognized as an important activity in this patient care unit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. In this patient care unit, there is open-minded consideration of new ideas regardless of their source. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. There is support for moderate risk-taking in new ventures in this patient care unit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. Emotional support and resources are provided when promising new ideas are initially presented. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. There is support for sustained implementation of innovative techniques in this patient care unit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX F
THE DGPP DURABILITY SCALE

ID# _____

Directions:

Below are a number of statements designed to obtain your views of nursing practice on your patient care unit. Please **CIRCLE** the number that most honestly indicates how you feel about each statement. The **lower** numbers indicate degrees of disagreement ; the **higher** numbers indicate degrees of agreement.

- | | <u>Disagree</u> | <u>Agree</u> |
|---|-----------------|--------------|
| 1. On this unit, RNs who demonstrate nursing excellence are given <u>formal</u> recognition frequently. | 1 | 7 |
| 2. If a patient complained about poor care on this unit, the staff nurses would not do anything about it. | 1 | 7 |
| 3. Staff nurses appreciate and value the work of Nursing Assistants. | 1 | 7 |
| 4. Staff nurses see case management as an integral part of this unit's functioning. | 1 | 7 |
| 5. Staff nurses participate in making decisions related to daily problems, procedures, and patient care on this patient care unit. | 1 | 7 |
| 6. The manager's decisions for this patient care unit frequently interfere with patient care. | 1 | 7 |
| 7. Professional salary structures for RNs are preferred by most nurses on this unit. | 1 | 7 |
| 8. Staff nurses see RN peer review as an integral part of this unit's functioning. | 1 | 7 |
| 9. Staff members on this unit seldom support an individual nurse's suggestion for improving the quality of care delivered. | 1 | 7 |
| 10. Staff nurses frequently delegate non-professional tasks to Nursing Assistants. | 1 | 7 |
| 11. Nursing staff use the Professional Nursing Alliance for shared decision making. | 1 | 7 |
| 12. There are ample opportunities for staff to participate in the management of this unit. | 1 | 7 |
| 13. Nursing staff on this unit share the value of high quality care. | 1 | 7 |
| 14. The Professional Nursing Alliance is a waste of time. | 1 | 7 |

(Continued on next page)

ID# _____

Disagree Agree

15. Staff nurses value the RN peer review process. 1 2 3 4 5 6 7
16. There are two different RN job descriptions on this unit Case Manager and Care Coordinator. 1 2 3 4 5 6 7
17. There is a formal Professional Nursing Alliance for shared decision making regarding clinical nursing practice. 1 2 3 4 5 6 7
18. Nursing Assistants would not be missed if they were not employed on this unit. 1 2 3 4 5 6 7
19. Most RNs on this unit are paid with a professional salaries (rather than hourly wages). 1 2 3 4 5 6 7
20. Nursing staff in this unit transmit the value of quality care to new staff. 1 2 3 4 5 6 7
21. Staff nurses would regret not having the peer review process if it were eliminated. 1 2 3 4 5 6 7
22. RNs who demonstrate nursing excellence are frequently rewarded informally on this unit. 1 2 3 4 5 6 7
23. All RNs on this unit practice as either a Case Manager or Care Coordinator. 1 2 3 4 5 6 7
24. Staff nurses on this unit know there is support for creativity and innovative techniques to improve care. 1 2 3 4 5 6 7
25. The Professional Nursing Alliance meets the needs of the nursing staff. 1 2 3 4 5 6 7
26. If current reward mechanisms for excellence were eliminated, staff nurses on this unit would miss them. 1 2 3 4 5 6 7
27. The manager on this unit consults with the nursing staff when dealing with problems, procedures, and patient care. 1 2 3 4 5 6 7
28. The RNs on this unit prefer being paid an hourly wage rather than a salary. 1 2 3 4 5 6 7
29. On this unit most staff nurses see a Case Manager and a Care Coordinator as meaningless terms. 1 2 3 4 5 6 7

APPENDIX G
CONTROL OVER NURSING PRACTICE SCALE

ID# _____

Directions:

The following statements represent opinions about nursing practice. Please draw a **CIRCLE** around the one number that most closely and most honestly indicates how you feel about each statement.

The lower numbers indicate degrees of disagreement; the higher numbers indicate degrees of agreement. The more strongly you feel about the statement, the further from center you should draw your circle.

| | <u>Disagree</u> | <u>Agree</u> |
|---|-----------------|--------------|
| As a nurse, I am free to: | | |
| 1. Evaluate current nursing policies and procedures. | 1 2 3 4 5 6 7 | |
| 2. Evaluate the outcomes of nursing care. | 1 2 3 4 5 6 7 | |
| 3. Consult with others when solving complex care problems. | 1 2 3 4 5 6 7 | |
| 4. | 1 2 3 4 5 6 7 | |
| 5. | 1 2 3 4 5 6 7 | |
| 6. | 1 2 3 4 5 6 7 | |
| 7. | 1 2 3 4 5 6 7 | |
| 8. | 1 2 3 4 5 6 7 | |
| 9. | 1 2 3 4 5 6 7 | |
| 10. | 1 2 3 4 5 6 7 | |
| 11. | 1 2 3 4 5 6 7 | |
| 12. | 1 2 3 4 5 6 7 | |
| 13. | 1 2 3 4 5 6 7 | |
| 14. | 1 2 3 4 5 6 7 | |
| 15. | 1 2 3 4 5 6 7 | |

(Continued on next page)

ID# _____

Disagree

Agree

As a nurse, I am free to:

16.

1 2 3 4 5 6 7

17.

1 2 3 4 5 6 7

18.

1 2 3 4 5 6 7

19.

1 2 3 4 5 6 7

20.

1 2 3 4 5 6 7

21.

1 2 3 4 5 6 7

APPENDIX H
INDEX OF WORK SATISFACTION

ID# _____

Directions:

The following items represent opinions about nursing practice. Please respond to each item. It is very important that you give your honest opinion. Please **CIRCLE** the number most closely indicates how you feel about each statement.

The lower numbers indicate degree of disagreement; the higher numbers indicate degrees of agreement. The more strongly you feel about the statement, the further from center you should draw your circle.

- | | <u>Disagree</u> | <u>Agree</u> |
|--|-----------------|--------------|
| 1. I have sufficient time for direct patient care. | 1 | 2 3 4 5 6 7 |
| 2. There is a great gap between the administration of this hospital and the daily problems of the nursing service. | 1 | 2 3 4 5 6 7 |
| 3. There is no doubt whatever in my mind that what I do on my job is really important. | 1 | 2 3 4 5 6 7 |
| 4. I feel that I am supervised more closely than is necessary. | 1 | 2 3 4 5 6 7 |
| 5. Physicians in general cooperate with nursing staff on my unit. | 1 | 2 3 4 5 6 7 |
| 6. My particular job really doesn't require much skill or "know-how"..... | 1 | 2 3 4 5 6 7 |
| 7. On my service, my supervisors make all the decisions. I have little direct control over my own work. | 1 | 2 3 4 5 6 7 |
| 8. There are not enough opportunities for advancement of nursing personnel at this hospital. | 1 | 2 3 4 5 6 7 |
| 9. From what I hear from and about nursing service personnel at other hospitals, we at this hospital are being fairly paid. | 1 | 2 3 4 5 6 7 |
| 10. There is a lot of teamwork between nurses and doctors on my own unit. | 1 | 2 3 4 5 6 7 |
| 11. I am satisfied with the type of activities that I do on my job. | 1 | 2 3 4 5 6 7 |

(Continued on next page)

ID# _____

Disagree Agree

12. What I do on my job doesn't add up to anything really significant. 1 2 3 4 5 6 7
13. My present salary is satisfactory. 1 2 3 4 5 6 7
14. Administrative decisions at this hospital interfere too much with patient care. 1 2 3 4 5 6 7
15. I am sometimes required to do things on my job that are against my better professional nursing judgement. 1 2 3 4 5 6 7
16. I could deliver much better care if I had more time with each patient. 1 2 3 4 5 6 7
17. If I had the decision to make all over again, I would still go into nursing. 1 2 3 4 5 6 7
18. Considering what is expected of nursing service personnel at this hospital, the pay we get is reasonable. 1 2 3 4 5 6 7
19. There is too much clerical and a paper work required of nursing personnel in this hospital. 1 2 3 4 5 6 7
20. There is a good deal of teamwork and cooperation between various levels of nursing personnel on my service. 1 2 3 4 5 6 7
21. An upgrading of pay schedules for nursing personnel is needed at this hospital. 1 2 3 4 5 6 7
22. A great deal of independence is permitted, if not required, of me. 1 2 3 4 5 6 7
23. The nursing personnel on my service do not hesitate to pitch in and help one another out when things get in a rush. 1 2 3 4 5 6 7
24. It makes me proud to talk to other people about what I do on my job. 1 2 3 4 5 6 7

(Continued on next page)

ID# _____

DisagreeAgree

25. The nursing staff has sufficient control over scheduling their own work shifts in my hospital. 1 2 3 4 5 6 7
26. Excluding myself, it is my impression that a lot of nursing service personnel at this hospital are dissatisfied with their pay. 1 2 3 4 5 6 7
27. The nursing personnel on my service are not as friendly and outgoing as I would like. 1 2 3 4 5 6 7
28. I think I could do better job if I didn't have so much to do all the time. 1 2 3 4 5 6 7
29. Nursing is a long way from being recognized as a profession. 1 2 3 4 5 6 7
30. I wish the physicians here would show more respect for the skill and knowledge of the nursing staff. 1 2 3 4 5 6 7
31. New employees are not quickly made to "feel at home" on my unit. 1 2 3 4 5 6 7
32. The physicians at this hospital look down too much on the nursing staff. 1 2 3 4 5 6 7
33. I have plenty of time and opportunity to discuss patient care problems with other nursing service personnel. 1 2 3 4 5 6 7
34. I have the freedom in my work to make important decisions as I see fit, and can count on my supervisors to back me up. 1 2 3 4 5 6 7
35. I have all the voice in planning policies and procedures for this hospital in my unit that I want. 1 2 3 4 5 6 7
36. There is a lot of "rank consciousness" on my unit, nursing personnel seldom mingle with others of lower ranks. 1 2 3 4 5 6 7
37. Most people do not sufficiently appreciate the importance of nursing care to hospital patients. 1 2 3 4 5 6 7

(Continued on next page)

ID# _____

Disagree Agree

- 38. I feel I have sufficient input into the program of care for each of my patient. 1 2 3 4 5 6 7
- 39. There is ample opportunity for nursing staff to participate in the administrative decision making process. 1 2 3 4 5 6 7
- 40. I have too much responsibility and not enough authority. 1 2 3 4 5 6 7
- 41. The nursing administrators generally consult with the staff on daily problems and procedures. 1 2 3 4 5 6 7
- 42. The present rate of increase in pay for nursing service personnel at this hospital is not satisfactory. 1 2 3 4 5 6 7
- 43. Physicians at this hospital generally understand and appreciate what the nursing staff does. 1 2 3 4 5 6 7
- 44. I am sometimes frustrated because all of my activities seem programmed for me. 1 2 3 4 5 6 7

REFERENCES

- Adams, R., Baker, M., Briones, E., Gray, L., Hinojosa-Alarcon, C. & Warner, .C. (1995). The Energized Nursing Department: Design for Change. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.
- Aiken, M. & Alford, R. (1970). Community structure and innovation: The case of urban renewal. American Sociological Review, 35, 650-665..
- Allred, C.A., et al. (1994a). Environmental uncertainty: Implications for practice model redesign. Nursing Economics, 12 (6): 318-325.
- Allred, C.A., Hoffman, S.E., Fox, D.H., & Michel (1994b). A measure of perceived environmental uncertainty in hospitals. Western Journal of Nursing Research, 16 (2): 169-182.
- American Hospital Association & American Nurses Association (1990). The Nursing Shortage: Opportunities & solutions. Chicago, IL: ANA Publication.
- Anderson, R. & Stetler, C.B. (1995). Collaborative Management: Nursing administration Component in an Integrated Delivery System. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.
- Applegate, L., Cash, J. & Mills, D. (1988). Information technology and tomorrow's manager. Harvard Business Review, 66 (Nov.-Dec.): 128-136.
- Argyris, C., & Schon, D. (1978). Organizational Learning: A Theory of Action Perspective. Reading, Mass.: Addison-Wesley.
- Argyris, C., & Schon, D. (1996). Organizational Learning II: Theory, Method and Practice. Reading, Mass.: Addison-Wesley.

Baets, W. J. (1998). Organizational Learning and Knowledge Technologies in a Dynamic Environment. Boston ; Kluwer Academic Publishers.

Baldrige, J. & Burnham, R. (1975). Organizational innovation, individual, organizational and environmental impacts. Administrative Science Quarterly, 20: 165-176.

Beck, S.L. & Kinnear, C.L. (1995). STARS: Interdisciplinary Care Across the Continuum. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Becker, S.W. & Stafford, F. (1967). Some determinants of organizational success. Journal of Business, 40 (4): 511-518.

Becker, S.W. & Whisler, T.L. (1967). The innovative organization: A selective view of current theory and research. Journal of Business, 40 (4): 462-534.

Bennis, W.G., Benne, K.D., & Chin, R. (1976). The Planning of Change. 2nd. ed., New York: Holt, Rinehart & Winston.

Brink, P.J. & Woods, M.J. (1989). Advanced Design in Nursing Research. Newbury Park: Sage Publications.

Bryman, A. & Cramer, D. (1990). Quantitative Data Analysis for Social Scientists. New York: Routledge.

Brugler, C.J., Titus, M., & Nypaver, J.M. (1993). Relocation stress syndrome: A patient and staff approach. Journal of Nursing Administration, 23 (1): 45-50.

Burgelman, R.A. & Sayles, L.R. (1986). Inside Corporate Innovation: Strategy, Structure, and Managerial Skills. New York: Free Press.

Charns, M. P. & Schaefer, M.J. (1993). Health Care Organizations: A Model for Management. Englewood Cliffs, NJ: Prentice-Hall.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16: 297-334.

Damanpour, F. (1995). Is Your Creative Organization Innovative? In Cameron M. Ford, & Dennis A. Gioia (Eds.), Creative Action in Organization: Ivory Tower Vision & Real World Voices. London: Sage.

Dann, D., Gentsch, P., Pierson, C., Hobbs, M., Miller, B., & Mahony, A. (1995). Integrated Patient Care Delivery System: A Patient-Centered Model. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Deevy, E. (1995). Creating the Resilient Organization: A Rapid Response Management Program. New Jersey: Prentice Hall.

Deremo, D.E. (1989). Integrating professional values, quality practice, productivity, and reimbursement for nursing. *Nursing Administration Quarterly*, 14 (1): 9-23.

Dimola, M.A., Donoghue, E., Kacmarynski, T., Kuwik, K. & Hazen, S. (1995). The Vincentian Redesign Experience. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Doerge, J.B. & Hagenow, N.R. (1996). Integrating care delivery. *Nursing Administration Quarterly*, 20 (2): 42-48.

Drucker, P. (1985). Innovation and Entrepreneurship. London: Heinemann.

Duncan, R. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science quarterly*, 17, 313-327.

Duprat, L.J., McCausland, M.P., Ajl, L.J., Keefe, E.M., Lydon, P.M. & Reiley, P.J. (1995). The Support Assistant: Key to Work Redesign in a Professional Practice Model. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Eastaugh, S.R. (1990). Hospital nursing technical efficiency: Nurse extenders and enhanced productivity. Hospitals & Health Services Administration, 35 (4): 561.

Evan, W.M. & Black, G. (1967). Innovation in business organizations: Some factors associated with success or failure of staff proposal. Journal of Business, 40 (4): 519-535.

Ferketich, S. (1990). Focus on psychometrics: Internal consistency estimates of reliability. Research in Nursing and Health, 13, 437-440.

Fernandez, R.D., Hebert, G.J., & Riggs, J. (1995). Transformational Leadership: The Partnership of Theory-Based Practice & Work Redesign in a Nursing Care Delivery System. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery Transforming Our Future. Philadelphia: JB Lippincott.

Flarey, D.K. (1995). Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Fralic, M.F. & Flarey, D.L. (1995). Integrating Quality into Care Delivery System Redesign. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Freedman, G. (1988). The Pursuit of Innovation: Managing the People and Processes that Turn New Ideas into Profits. New York: Amacom.

Galbraith, Jay R. (1973). Designing Complex Organizations. Reading, Mass.: Addison-Wesley.

Gamache, R.D. (1988). Planned Growth: An Experience-Based Methodology for Helping organizations Identify and Exploit New Opportunities. In Yuji Ijiri & Robert L. Kuhn (Eds), New Directions in Creative and Innovative Management: Bridging Theory and Practice. Cambridge, Mass.: Balinger.

Gapenski, L.C. (1996). Understanding Health Care Financial Management: Text,

Cases, and Models. 2nd. Ed. Chicago, Illinois: AUPHA Press/Health Administration Press.

Garvin, D. A. (1993). Building a learning organization. Harvard Business Review, 71(Jul.-Aug.): 78-91.

Geller, S., Huonker, J., & Sundali, J. (1993). Differentiated Group Professional Practice : Hospital Case Study Summaries. Unpublished Report, Department of Management and Policy, College of Business & Public Administration, The University of Arizona, Tucson, AZ.

Georgopoulos, B.S. (1986). Organizational Structure, Problem Solving, & Effectiveness: A comparative Study of Hospitals Emergency Services. San Francisco: Jossey-Bass.

Gerber, R.M. (1993). Differentiated Group Professional Practice in Nursing : Final Report Hospital A. Unpublished Report. The University of Arizona, College of Nursing, Tucson, AZ.

Gerber, R. M., Murdaugh, C. L., Verran, J. A. & Milton, D. A. (1990). Control over Nursing Practice Scale : Psychometric analysis. Poster Presentation. National Conference on Instrumentation in Nursing. September 13-15, Tucson, AZ.

Ginsberg, A. & Grant, J.H. (1985). Research on Strategic Change: Theoretical & Methodological Issues. Proceedings of the Academy of Management, Aug.

Goertzen, I. E. (Ed.) (1990). Differentiated Nursing Practice: Into the Twenty-First Century. American Academy of Nursing.

Golembiewski, R.T. (1979). Approaches to Planned Change. Part 2, New York: M.Dekker.

Hage, J. & Aiken, M. (1970). Social Change in Complex Organizations. New York: Random House.

Handy, C. (1993). Understanding Organizations. New York: Oxford University Press.

Hill, M. (1995). CarMap & Case Management Systems: Evolving Models Designed to Enhance Direct Patient Care. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Hodge, B.J. & Anthony, W.P. (1988). Organization Theory. 3rd. ed. Boston: Allyn & Bacon.

Hodge, B. J. & Anthony, W. P. (1988). Organization Theory. 3rd Ed., Boston: Allyn & Bacon.

Hosking, D.M. & Anderson, N. (1992). Organizing Change and Innovation: Challenges for European Work Organization Psychology. London, New York: Routledge, pp.1-15.

Ingersoll, G.L., Ryan, S.A., & Schultz, A.W. (1990). Evaluating the Impact of Enhanced Professional Practice on Patient Outcome. In Irma E. Goertzen (Ed.), Differentiating Nursing Practice: Into the Twenty-First Century. American Academy of Nursing.

Joel, L.A. (1994). Restructuring: Under What Conditions? AJN, Mar. p.7.

Jonhson, E.A., Brown, M., & Jonhson, R.L. (1996). The Economic Era of Health Care: A Revolution in Organizaed Delivery Systems. San Francisco: Jossey-Bass.

Jonhson, R.A., Kast, F.E., & Rosenzweig, J.E. (1973). The Theory and Management of Systems. 3rd. ed. New York: McGraw-Hill.

Kanter, R. (1983). The Change Masters. New York: Simon & Schuster.

Kay, J. (1993). Foundations of Corporate Success: How Business Strategies Add Value. New York: Oxford University Press.

Kazemek, E.A. (1991). Beating the Odds Against Merger Failure. Modern Health Care. 21 (30): 74.

Khandwalla, P.N. (1972). Environment and its impact on the organization. International Studies of Management & Organization, 2, 297-313.

Kimberly, J.R. (1981). Managerial Innovation. In Paul C. Nystrom & William H. Starbuck (Eds.), Handbook of Organizational Design: Adapting Organizations to their Environment. Oxford: Oxford University Press.

Kimberly, J.R. & de Pouvourville, G. (1993). Managerial Innovation, Migration, and DRGs. In John R. Kimberly, Gerard de Pouvourville, & Associates (Eds.), Migration of Managerial Innovation. San Francisco: Jossey Bass.

King, N. (1995). Individual Creativity and Organizational Innovation. In Cameron M. Ford & Dennis A. Gioia (Eds.), Creative Action in Organization: Ivory Tower Vision & Real World Voices. London: Sage.

Koerner, J.G., Bunkers, L., Gibson, S.J., Jones, R., Nelson, B. & Santema, K. (1995). Differentiated Practice : The Evolution of a Professional Practice Model for Integrated Client Care Services. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Koerner, J.G. & Karpiuk, K.L. (1994). Implementing Differentiated Nursing Practice: Transformation By Design. Gaithersberg, Maryland: Aspen.

Kohles, M.K. (1995). The Strengthening Hospital Nursing Program: Restructuring for a Patient-Centered Health Care Delivery System. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Kuczmarski, T.D. (1996). Innovation: Leadership Strategies for the Competitive Edge. Chicago: NTC Business Books.

Lancero, A.W. (1994). Work Satisfaction among Nurse Case Managers: A Comparison of Two Practice Models. Unpublished Master's Thesis, The University of Arizona, Tucson.

Lawrence, P.R. & Lorsch, J.W. (1967). Organization and Environment: Managing Differentiation and integration. Boston: Division of research, Harvard Business School.

Lawrence, P.R. & Lorsch, J.W. (1986). Organization and Environment: Managing Differentiation and integration. Rev. Ed., Boston: Division of research, Harvard Business School Press.

Lawrence, P.R. & Lorsch, J.W. (1969). Developing Organizations: Diagnosis and Action. Reading, Mass.:Addison-Wesley.

Lawrence, P.R. & Dyer, P. (1983). Renewing American Industry. New York: Free Press.

Lutz, S. (1994). Industry follows, fears the leader. Modern Health Care. 24 (7): 23-24, 28, 30.

Madden, M.J., Wilde, K. & Jesks, S. (1995). Investing in Our Future. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Magaziner, I.C. & Reich, R.B. (1982). Minding America's Business: The Decline and Rise of the American Economy. New York: Harcourt, Brace, Jovanovich.

Mariotti, J. L. (1997). The Shape Shifter: Continuous Change for Competitive Advantage. New York: Van Nostrad Reinhold.

Martin, R. E. & Freeman, S. J. (1998). The Economic Context of the New Organizational Reality. In Marilyn K. Gowing, John D. Kraft & James C. Quick (Eds.), The New Organizational Reality: Downsizing, Restructuring and Revitalization.

Washington, DC.: American Psychological Association.

McClure, M.L. (1990). Introduction. In: Irma E. Goertzen (Ed.), Differentiated Nursing Practice: Into The Twenty-First Century. American Academy of Nursing.

McComb, J.P. (1992). Governing Community Hospitals: A Primer for Trustees and Care Executives. San Francisco: Jossey-Bass.

McDonagh, K. J. (Ed.) (1993). Patient-Centered Hospital Care: Reform from Within. Ann Arbor, MI.: Health Administration Press.

McGinnis, M. & Ackelsberg, M. (1983). Effective innovation management: missing link in strategic planning. Journal of Business Strategy, 4, 59-66.

McKibbin, R.C. (1990). The Nursing Shortage and the 1990s: Realities and Remedies. Kansas City, Mo. ANA Publication.

Meister, S.B., Feethman, S.L., Girouard, S., & Durand, B.A. (1990). Creating and Extending Successful Innovations: Practice and Policy Implications. In Irma E. Goertzen (Ed.), Differentiating Nursing Practice: Into the Twenty-First Century. American Academy of Nursing.

Merron, K. (1995). Riding the Wave: Redesigning your Organization's Architecture for Enduring Success. New York: Van Nostrand Reinhold.

Miller, D. & Friesen, P.H. (1978). Archetypes of strategy formulation. Management Science, 24, 921-933.

Miller, D. & Friesen, P. H. (1983). Strategy Making and Environment: The Third Link. Strategic Management Journal, 4, 221-236.

Miller, N. (1987). The Nursing Shortage: Facts, Figures, & Feelings: Research Report. Chicago, Ill.: American Hospital Association.

Milton, D., Verran, J., Murdaugh, C., & Gerber, R. (1990). Implementing Differentiated Practice as Part of a Professional Practice Model. In Irma E. Goertzen (Ed.), Differentiating Nursing Practice: Into Twenty-First Century. American Academy of Nursing.

Milton, D., Verran, J., Murdaugh, C., & Gerber, R. (1992). Differentiated Group Professional Practice in Nursing: A demonstration model. Nursing Clinics of North America, 27 (1):23-29.

Milton, D., Verran, J., Gerber, R., & Fleury, J. (1995). Tools to Evaluate Reengineering Progress. In Suzanne S. Blancett & Dominick L. Falrey (Eds.), Reengineering Nursing & Health Care: The Handbook for Organizational Transformation. Gaithersburg, Maryland: Aspen.

Mink, O., Esterhuysen, P., Mink, B., & Owen, K. (1993). Change at Work : A Comprehensive Management Process for Transforming Organizations. San Francisco: Jossey-Bass Publishers.

Mintzberg, H. (1979). The Nature of Managerial Work. New York: Harper & Row.

Moritz, P. (1990). Affecting Patient Outcomes Through Innovative Nursing Practice Models. In Irma E. Goertzen (Ed.), Differentiated Nursing Practice: Into The Twenty-First Century. American Academy of Nursing.

Moritz, P. (1991). Innovative nursing practice models and patient outcomes. Nursing Outlook, 39 (3): 111.

Munro, B. & Page, E. (1993). Statistical Methods for Healthcare researcher. Philadelphia: Lippincott.

National Center for Nursing Research (1992). Patient Outcomes Research: Examining the Effectiveness of Nursing Practice. NIH Publication.

Nelson, R. (1997). Collaborative Technologies and Organizational Learning. Hershey, PA.: IDEA Group Publishing.

Nelson, R.J. & Koerner, J.G. (1994). Context. In JoEllen G. Koerner & Kathryn L. Larpiuk (Eds.), Implementing differentiated Nursing Practice: Transformation by Design. Gaithersburg, Maryland: Aspen.

Nunnally, J. C. (1978). Psychometric Theory. 2nd. Ed., New York: McGraw-Hill Book Company.

O'Day, M.L. & Fisher, M.L. (1995). Third Generation Redesign: Lessons From the Field. In Dominick L. Falrey (Ed.), Redesigning Nursing care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

O'hare, M. (1988). Innovation: How to Gain and Sustain Competitive Advantage. Oxford: Basil Blackwell.

Ouchi, W.G. (1981). Theory Z. Reading. Mass.: Addison-Wesley.

Parsons, M. & Murdaugh, C. (1994). Patient-Centered Care > A Model for Restructuring. Maryland : Aspen Publication.

Peters, M.S. & Waterman, R.H. (1982). In Search of Excellence: Lessons from America's Best Run Companies. New York: Harper & Row.

Pettigrew, A.M. (1987). The Management of Strategic Change. Oxford, England: Basil Blackwell.

Pierce, R. & Delbecq, A. (1977). Organizational structure, individual attitude and innovation. Academy of Management Review. 22-33.

Porter, M.E. (1979). Competitive Strategy. New York: Free Press.

Roger, E. M. (1983). Diffusion of innovations, 3 ed. Ed., New York: Free Press.

Russell, R.D. & Russell, C.J. (1992). An examination of the effect of organizational norms, organizational structure, and environmental uncertainty on entrepreneurial. Journal of Management, 19 (4): 639-656.

Salyer, J. (1995). Environmental turbulence: Impact on nurse performance. JONA, 25(4): 12-20.

Salyer, J. (1996). Development and psychometric evaluation of an instrument to measure staff nurses' perception of uncertainty in the hospital environment. Journal of Nursing Measurement, 4 (1):33-47.

Scharf, L. (1995). Project T.E.N.: Innovation toward Excellence. In Dominick L. Falrey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Schroeder, R., Van de Ven, A. Scudder, G., & Polley, D. (1987). Observations leading to a process model of innovation. Agribusiness Management Journal, 2, 47-56.

Schulz, R. & Johnson, A.C. (1990). Management of Hospitals and Health Services: Strategic Issues and Performance. 3rd. ed. St. Louis: Mosby.

Senge, P. (1990). The Fifth Discipline. New York: Random House.

Shelley, S. I. (1984). Research Methods in Nursing and health. Boston; Little, Brown & Company.

Shendell-Falik, N. (1995). ProACT for pediatrics: Work Redesign and Nursing Case Management. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Shortell, S.M., Morrison, E.M., & Friedman, B. (1990). Strategic Choices for America's Hospitals: Managing Change in Turbulent Time. San Francisco: Jossey-Bass.

Solano, M. (1993). Influence of Professional Nursing Practice on Nurse

Satisfaction and Retention among Active Duty United States Air Force Nurses.
Unpublished Master's Thesis, The University of Arizona, Tucson.

Solovy, A. (1995). Predicting the unpredictable. Hospital & Health Network, 69 (1): 26-30.

Stamps, P. L. & Piedmonte, E. B. (1986). Nurses and Work Satisfaction: An Index for Measurement. Ann Arbor, MI.: Health Administration Press Perspectives.

Stata, R. (1989). Organizational learning: The key to management innovation. Sloan Management Review, 30 (3): 63-74.

Staw, B. (1984). Organizational behavior: A review and reformulation of the Field's outcome variables. Annual Review of Psychology, 35, 627-666.

Thach, L. & Woodman, r. (1994). Managing at the age of cyberspace. Organizational Dynamics, 23 (10): 30-46.

Tonges, M.C. (1993). Work Redesign: Theory, Approaches, & Lessons. In Kathryn J. McDonagh (Ed.), Patient-Centered Hospital Care: Reform From Within. Ann Arbor, Michigan: Health Administration Press.

Tornabeni, J. & Debaca, V. (1995). Workplace Redesign at Mercy Medical Center, San Diego: Care 2000. In Dominick L. Flarey (Ed.), Redesigning Nursing Care Delivery: Transforming Our Future. Philadelphia: JB Lippincott.

Tushman, M. L., & O'Reilly, C. A. (1997). Winning Through Innovation. Boston: Harvard Business School Press.

United State Congress/House/Committee on Energy and Commerce (1988). Nursing Shortage Reduction & Education Extension Act of 1988. Washington, DC.

Urabe, K. (1988). Innovation and the Japanese Management System. In Kuniyoshi Urabe, John Child, & Tadao Kagono (Eds.), Innovation and Management:

International Comparisons. New York: Walter de Gruyter

Utterback, J.M. (1971). The process of technology innovation within the firm. Academy of Management Journal. Mar., 75-88.

Van de Ven, A.H., Angle, H.L., & Poole, M.S. (1989). An Introduction to the Minnesota Innovation Research Program. In Andrew H. Van de Ven, Harold L. Angle & Marshall S. Poole (Eds.), Research on the Management of Innovation, New York: Harper & Row, pp.3-30.

Verran, J. A., Murdaugh, C. L., Milton, D. & Gerber, R. M. (1988). Differentiated Group Practice in Nursing (Proposal). Tucson, The University of Arizona, College of Nursing. Cooperative Agreement Award (#U01-NR02153) Jointly Funded by the National Center for Nursing Research, National Institute of Health, and the Division of Nursing, Department of Health and Human Services, Washington, DC.

Verran, J., Milton, D., Murdaugh, C., & Gerber, R. (1995). Differentiated Group Professional Practice in Nursing: The Final Report, (Unpublished manuscript) The University of Arizona, Tucson.

West, M.A. & Farr, J.L. (1990). Innovation at Work. In Michael A. West & James L. Farr, (Eds.), Innovation and Creativity at Work: Psychological and Organizational Strategies. New York: Wiley.

Woods, R. & Dvorak, E.M. (1990). Measurement of Practice Outcomes: The Impact of Certification in Neonatal Nursing on the Outcomes of Neonatal Intensive Care. In Erma E. Goertzen (Ed.), Differentiating Nursing Practice: Into the Twenty-First Century. American Academy of Nursing.

Zaltman, J., Duncan, R., & Holbeck, J. (1973). Innovation and Organizations. New York: John Wiley.

Ziegenfuss, J. (1993). The Organizational Path to Health Care Quality. Ann

Arbor, Michigan: Health Administration Press.