CONSTRUCTION AND INITIAL EVALUATION OF A SYSTEMS MODEL OF
NURSING BEST PRACTICE FROM A COMPLEXITY SCIENCE PERSPECTIVE

by

Marjory Dana Williams

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DEDICATION

To the dance…
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ABSTRACT

Despite the seemingly universal acceptance of best practice as a desirable standard for quality health care delivery, the exact nature of what constitutes best practice does not share universal definition or application. The purpose of this dissertation is to present a summary of existing conceptual representations and to propose an integrative conceptual representation of nursing best practice from a philosophical perspective grounded in complexity science.

A five-step concept clarification approach was used to address the objectives. Step one, identification of the concept, involved a comprehensive review of the literature employee key word search strategies. Step two, systematization of observations and descriptions, was accomplished by modified content analysis. Step three, development of an operational definition, and step four, construction of a model, involved deductive and recursive reasoning. Description and critical reflection was used for evaluation and recursive refinement of the proposed definition and constructed model. Step five, formulation of hypotheses, used an expert panel to explore preliminary validity of the definition and model.

Purposive recruitment of nursing clinicians and scholars familiar with complexity science and theory was conducted to obtain an expert panel. The expert panel was asked to rate the strength of model dimensions using a four-point Likert scale. The dimensions evaluated were adequacy, representativeness, consistency, clarity, simplicity, generalness, accessibility, importance, and relevance, as well as interest in development.
and application. Narrative data was collected from responses to open-ended questions and incorporated into the process of model refinement.

Although nursing best practice is represented across a diverse range of conceptualizations in the nursing literature, clinician properties and context properties emerged as two principle domains of interdependent influence. Key dynamic processes included critical thinking by which clinicians operationalize properties into practice choices, and informative reflection by which the organization monitors and improves performance through information flow and learning. All aspects of the conceptual model, with the exception of consistency of relationships, were ultimately rated as strengths by the expert panel. Relationships among constructs were identified as complex, diverse, and difficult to isolate.

Expert panel evaluation was employed to explore congruency of hypotheses suggested by the model with the perception of subject matter experts. Three general hypotheses were presented regarding the nature of the interdependency of clinician and context spheres of influence. Expert perception was that clinician and context properties most likely equally influence nursing best practice, but that context properties may have greater influence than clinician properties over time.

The unique aspect of this model is the incorporation of the full range of interdependence across both clinician and context domains of influence. The model is highly abstract and requires additional operationalization of constructs prior to formal validity testing. Additionally, the application of complexity science introduces profound challenges to research and measurement in the study of complex adaptive systems. The
model presented in this dissertation provides a perspective from which a better understanding of health care system interdependencies may arise.
CHAPTER 1: DESCRIPTION OF THE WORK

Subject, Purpose, and Objectives

The subject of this dissertation is the concept of best practice as it pertains to nursing, nursing practice, and systems of nursing care delivery. The purpose of this dissertation is to present a summary exploration of existing conceptual representations and to propose an integrative conceptual representation of nursing best practice from a philosophical perspective grounded in complexity science and theory. The specific objectives of this work include: (1) clarification of an operational definition of “nursing best practice,” (2) construction of a conceptual model of nursing best practice within a health care delivery organization, (3) initial evaluation of the conceptual model, and (4) preliminary exploration of indicators of nursing best practice suggested by the constructs and relationships of the conceptual model, consistent with the philosophy and underlying assumptions embedded in the conceptual framework.

Research Questions

The research questions posed in this dissertation are directed toward the construction, refinement, evaluation, and initial exploration of validity of a conceptual model of nursing best practice derived from the proposed preliminary operational definition. The research questions addressed in this effort are as follows:

1a) What organizational and individual variables are supported in the literature as critical to nursing best practice and;

1b) How does the interaction of those variables theoretically and/or empirically impact nursing best practice?
2a) Do an operational definition and conceptual model of nursing best practice that are consistent with the underlying assumptions of complexity science and theory represent the variables and interactions between variables in a manner consistent with the perception of subject matter experts and;

2b) Is such a conceptual model useful to the further study of nursing best practice?

3) Do the proposed variables and relationships among the variables presented in a conceptual model of nursing best practice that is consistent with complexity science and theory provide valid representations of nursing best practice?

Organization of Dissertation

The organization of this dissertation deviates from the traditional five-chapter presentation format in order to better illustrate the stages of development of this unique conceptual model. Of importance to a full appreciation of this work is the realization that this manuscript represents the portion completed to date of an ongoing scholarly work in progress. The ultimate objective of this scholarly pursuit, which is beyond the scope of a doctoral dissertation, is the formulation of a unifying perspective on nursing practice embedded within a health care delivery system that can be used as a foundation for nursing systems research, as well as strategic approaches to nursing system and health care organizational design and management. The methodology and findings included here are initial efforts toward determining the research and practice implications of this unique perspective, and to form the basis for further development of a theoretical and practical model of nursing best practice. As the model itself evolves, the methodological
strategy toward further development and refinement of the model also evolves. This

evolution is reflected in the efforts summarized in this dissertation, as the methodology
employed in chapter six to explore construct validity was modified from the original
proposal due to information gained from the first round of expert panel review.

Chapter 2 presents an overview of the current status of the concept of best
practice in the nursing and health care professions literature and illustrates the lack of
clarity in conceptualization of best practice across the nursing profession. The literature
review summarized in Chapter 2 provides the data for the concept clarification process
describe and initiated in Chapter 3.

Chapter 3 describes the concept clarification analyses of literature methodology.
Concept clarification provides the methodological approach to research question #1
through identification of organizational and individual variables suggested and/or
supported in the literature as critical to nursing best practice. Chapter 3 refers to the
summary in Chapter 2 of the theoretical and empiric evidence found in the nursing
literature regarding the interaction and impact on nursing best practice of the suggested
variables. Chapter 3 presents a preliminary operational definition of nursing best practice,
as prelude to the construction of a conceptual model presented in Chapter 5.

Chapter 4 provides an overview of complexity theory, with argument supporting
the particular suitability of complexity theory as a theoretical framework for the
conceptualization of nursing best practice. One point of importance to note, prior to
reading this dissertation, is that complexity science also provides the guiding framework
for the portion of this work summarized in Chapters 1 through 3. Readers who are
unfamiliar with complexity science may find it useful and/or necessary to refer to the
discussion in Chapter 4 while reading Chapters 1 through 3 to fully appreciate the
approach and summaries of the earlier chapters. Chapter 4 concludes with a summary
overview of how complexity theory guides the remainder of the inquiry and methodology
of this dissertation.

Chapter 5 describes and illustrates the deductive and recursive process of
construction of a conceptual model of nursing best practice, and the resultant preliminary
conceptualization of nursing best practice constructs and relationships suggested in
relevant literature.

Chapter 6 summarizes the methodology and results of evaluation of the
conceptual validity and explanatory usefulness of the initial model by expert panel
review. The methodologies of description and critical reflection employed to address
research question #2, and described in this chapter, focus on evaluation of the face
validity, explanatory usefulness, and knowledge-generating applicability of the proposed
conceptual model. Included in Chapter 6 is presentation of model refinement, re-
conceptualization, and reconfiguration suggested and supported by expert panel input and
feedback.

Chapter 7 presents a theoretical exploration of preliminary indicators of constructs
and relationships proposed by the refined model. This chapter addresses research
question #3, with attention to exploration of construct validity through consideration of
congruence of indicators and relationships proposed by the model with observed
phenomena. Expert panel methodology is again employed in this phase of the evaluation
in order to address unanticipated limitations of the conceptual model that were identified in the first round of expert panel review. The need to pursue further clarification of the nature of interdependencies implied within the structure of the model itself indicated that more formal construct validity efforts were premature at this stage of model development. Expert panel strategies to explore model structure are presented in Chapter 7 along with the results of those efforts.

Chapter 8 provides an overview of the scholarly process to date and presents discussion of the significance of the findings. The potential application and limitations of this model to theory building and explanatory investigations of nursing practice within the context of a care delivery organization or system are discussed. Chapter 8, the final chapter of this dissertation, proposes future pursuit and further refinement of the preliminary conceptualization. Potential methodological and measurement challenges associated with complexity science derived organizational models are identified.

A brief discussion of the impetus for and philosophical origin of this work is included at this point in order to reveal and explicate potential researcher bias. The work summarized in this dissertation arose from: (1) a desire to better understand the nature of the inter-relatedness of clinician and system variables observed from a management perspective in a clinical role, (2) a motivation to provide basis for design of organizational interventions to promote research application to practice, and (3) to address the common exclusion of clinician characteristics from existing nursing system models. The work originated as a philosophical reflection on the basis for claims of being a best practice organization. Personal experience included observation of a disconnect
between organizational process/structure and the actual practice by nurses, as well as a
disconnect between practice based on evidence and practice driven by organizational
priorities. Appreciation of the intuitive “fit” of complexity science developed from
experiences prior to the initiation of this scholarly effort. The concept clarification
process is, therefore, entered into from an *a priori* perspective consistent with the
underlying assumptions of complexity science as discussed in Chapter 4 of this
dissertation.
CHAPTER 2: SURVEY OF BEST PRACTICE LITERATURE

Best practice has been represented as a standard for quality health care service delivery. Despite the seemingly universal acceptance of best practice as a desirable standard, the exact nature of what constitutes best practice does not share universal definition or application. Consistent understanding of the concept of best practice in the nursing literature is further compounded by operational representation across a range of structure and process components of nursing care delivery systems.

Definitions of Nursing Best Practice

Specific and consistent definitions of best practice are lacking in the nursing literature (Mathews & Lankshear, 2003). Pinkerton (1999) represents nursing best practice as a pattern of nursing care delivery derived from research findings and quality benchmark data that is characterized by consistency of standards and practice. Achievement of a benchmark standard is considered by Kingston (2001) to be indicative of best service, function, or process within a system context. Specific characteristics of the nature, basis and monitoring of care are used by Brown (2001) to define quality nursing practice. Driever (2002) points out that best practice and evidence-based practice are often conceptually interchanged in usage, but contends that the concept of best practice is broader, incorporating strategies to embed evidence based knowledge into nursing practice toward achievement of desired outcomes and promotion of continuous improvement of care quality. The relevance of modernist conceptual representations of best practice to nursing is questioned from a post-structuralist perspective by Smith & Sutton (1999), who define prevailing conceptualization of best practice as the
achievement of externally accepted standards of performance efficiency indicative of ultimate internal standardization and order, rendering best practice more a descriptor of management than of nursing care.

Various implications regarding best practice exist in the nursing literature. One implication is that nursing best practice is nursing practice that results in desired or optimum outcomes. The lack of specification of outcomes, or even differentiation between organizational, professional, and patient outcomes, contributes to the lack of clarity in this representation of nursing best practice. Among non-specific outcomes implicitly linked in nursing literature to nursing best practice are “improved practice” and “desired patient outcomes” (Driever, 2002), selection of “most appropriate interventions” (Green, 2001), “improving health” and provision of “effective and cost-effective care” (Perleth, et al., 2001), and “performance” that “results in achieving a benchmark” standard (Kingston, 2001; Delise & Leasure, 2001). Brown (2001) identifies specific characteristics of quality care that include care that is outcome-based and refined through outcome comparison. An additional weakness with this conceptual representation of best practice is the lack of empiric data directly linking indicators of nursing practice to specific patient outcomes (Aiken, e al., 2000; Mark, et al., 2003; Regan, 1998; Scott, et al., 1999).

Nursing best practice is also implied to be synonymous with evidence-based practice. Best practice is represented as practice that derives from the best available evidence (Cronenwett, 2002; Youngblut & Brooten, 2001), often in the form of standardized practice protocols or clinical guidelines (Cronenwatt, 2002; Jennings &
Loan, 2001; Mead, 2000; Melnyk & Fineout-Overholt, 2000; Titler & Everett, 2001; Youngblut & Brooten, 2001). Problems inherent in this implied equivalence include inconsistent acceptance and use of evidence (Melnyk & Fineout-Overholt, 2000; Pravikoff, et al., 2003), disagreement about what constitutes evidence (Goding & Edwards, 2002; Jennings & Loan, 2001), impact variables external to nursing on manifestation of nursing practice (Mead, 2003; Melnyk & Fineout-Overholt, 2000; Titler, et al., 2003), and practitioner and context driven variations in interpretation and application of evidence (Cronenwett, 2002; Mead, 2000). Pinkerton (1999) notes that a 10 year lag occurs, on average, between publication of research findings and implementation into practice, raising an additional concern with considering best practice and evidence based practice synonymous. Also contributing to the problematic nature of this implication is the paucity of empiric indicators of evidence-based practice within the institutional setting, and the inability to demonstrate linkages between patterns of nursing practice and patient outcomes.

Nursing best practice is implied to exist in hospitals demonstrating characteristics consistent with magnet status criteria that are often represented as exemplars of best practice institutions (Aiken, et al., 2000; Kramer & Schmalenberg, 2003; Matthews & Lankshear, 2003; Monarch, 2003; Pinkerton, 1999; and Scott, et al., 1999). Research on magnet hospitals has, to date, failed to demonstrate that specific nursing practice patterns are consistent across facilities or that those practice patterns directly contribute to better patient outcomes (Aiken, et al., 2000). Outcomes of interest in magnet hospital research are primarily organizational in nature and provide support for claims that magnet
facilities are the best places to practice nursing (Aiken, et al., 2000; Matthews & Lankshear, 2003; Monarch, 2003; Pinkerton, 1999; Scott, et al., 1999), rather than facilities characterized by best practice nursing.

Extensions from the original magnet research have focused on characteristics of the practice environment that promote excellence in professional practice (Mark, et al., 2003; Matthews & Lankshear, 2003; Tranmer, et al., 1998) without operational definition of what constitutes excellence or differentiates professional practice, but with implications that such practice most likely represents nursing best practice. Characteristics offered as correlates to professional nursing practice, primarily decentralized and evidence-based clinical and administrative decision-making, are considered components of organizational structure (Mark, et al., 2003; Matthews & Lankshear, 2003) or organizational culture (Tranmer, et al., 1998) in best practice environments.

Definitions of Best Practice Outside of Nursing

The medical profession has demonstrated attention to best practice through both traditional and more current perspectives (Kramer & Glazer, 2001). The idea that best practice was whatever the subject-matter expert, or physician, decided and deemed most appropriate in any individual case has evolved into the development of consensus driven practice guidelines (Chalfin, 1998; Kramer & Glazer, 2001). Best practice in the medical arena is represented by various measures of performance that are combinations of process and outcome indicators. Process indicators include rates of consensus recommended interventions (Kramer & Glazer, 2001), standardization of clinical processes (Kramer &
Glazer, 2001), and reduction of variations in models of care delivery (Alspach, 1999; Beatty, et al., 2002; Sibbald, 1998). Outcome indicators associated with best medical practice include treatment effectiveness, consumer measures, and organizational benchmark comparisons (Kramer & Glazer, 2001; Lindsay, et al., 2002).

The conceptualization of best practice in the medical literature varies from processes of care (Kramer & Glazer, 2001), to style of service provision (Beattie, et al.), to philosophical approach to care delivery (Gaudet & Snyderman, 2002; Sibbald, 1998). From a process perspective, best practice is defined as a systematic and scientifically sound approach to process implementation that results in desired outcomes (Kramer & Glazer, 2001). While the style of service provision may vary across settings, problems and populations, best practice is also defined as that style of service provision empirically determined to be the most effective (Beattie, et al., 2002).

Evidence based medicine (EBM), as a distinct practice entity, was introduced in the 1980’s (Sibbald, 1998), and is primarily represented in the medical literature as an approach to the practice of medicine (Sehon & Stanley, 2003). Despite the rigorous standard of randomized controlled trials as the primary basis of EBM, debate actually continues in the medical literature regarding whether EBM represents the best approach to the practice of medicine (Sehon & Stanley, 2003; Gaudet & Snyderman, 2002). A complex combination of variables, acknowledged in the medical literature to potentially influence the application of rigorous evidence to the practice of medicine, include patient characteristics (Alspach, 1999; Sibbald, 1998), clinician characteristics (Cook & Levy, 1998; Sibbald, 1998), and the organizational and societal context within which the
evidence is to be applied (Buetow & Kenealy, 2000; Chaflin, 1998; Cook & Levy, 1998; Sibbald, 1998). Buetow & Kenealy (2000) present argument that clinical decisions must be based on more than simply the best scientific evidence if the practice of medicine resulting from clinician decisions is represented as best practice.

The concept of best practice is relevant to the non-health care industry as a measure of successful performance in the competitive marketplace (Kramer & Glazer, 2001). Peregrine (2003) applies the term best practices to the arena of corporate governance. Elements of standardization, ethically based attitudes and behaviors, and responsiveness to societal expectations are represented as components underlying best practices in the corporate world (Peregrine, 2003). The crucial role of benchmarking, or comparison of outcomes across organizations, in validating best practice claims is highlighted in corporate (Peregrine, 2003), mental health (Beattie, et al., 2002; Kramer & Glazer, 2001), and medical care delivery (Chalfin, 1998; Sibbald, 1998) systems.

Conceptual Representations of Nursing Best Practice

Previous sections of this dissertation illustrate the variety of ways that definitions of best practice are described or implied in both nursing and non-nursing literature. From the variety of descriptions and implications in the nursing literature, arise a variety of conceptual representations of nursing best practice. These conceptual representations include organizational structure, organizational process, practice setting or organizational environment, and integration of organizational structure and process.

Magnet hospital criteria describe characteristics considered to be elements of organizational structure (Mark, et al., 2003; Matthew & Lankshear, 2003) that promote
excellence in professional nursing practice. A critical element of professional nursing practice is autonomy (Aiken, et al., 2000; Kramer & Schmalenberg, 2001 & 2003; Mark, et al., 2003; Mathews & Lankshear, 2003; Monarch, 2003; Monojlovick & Ketefian, 2002; Porter-O’Grady, 1998; Scott, et al., 1999) and organizational structures that place responsibility and accountability for nursing practice with nurses are key elements in environments implied as best practice environments (Mark, et al., 2003; Matthews & Lankshear, 2003). Examples of structural concepts considered to reflect the degree of nursing autonomy within the organization are (1) nursing leadership characteristics and placement (Aikens, et al., 2000; Mathews & Lankshear, 2003; Scott, et al., 1999), (2) management and decision frameworks (Aikens, et al., 2000; Kramer & Schmalenberg, 2003; Mark, et al., 2003; Scott, et al., 1999), (3) models of care delivery (Monarch, 2003; Scott, et al., 1999), (4) communication pathways (Kramer & Schmalenberg, 2003; Monarch, 2003), (5) professional linkages (Mark, et al., 2003; Monarch, 2003), and (6) professional development supports (Mark, et al., 2003; Matthews & Lankshear, 2003; Monarch, 2003; Scott, et al., 1999). Shared governance, research utilization and evidence-based practice frameworks (Kramer & Schmalenberg, 2003; Matthews & Lankshear, 2003), as well as formal interdisciplinary collaboration (Matthews & Lankshear, 2003) are identified representations of structure associated with best practice and best practice environments.

Nursing best practice has also been conceptually represented as organizational process. Care planning and care decision-making based on research findings and data are organizational process concepts associated with best practice and best practice
environments. Process correlates include: (1) problem solving models that include consideration of evidence and data (Tranmer, et al., 1998), (2) collaborative care planning (Matthews & Lankshear, 2003), (3) policy and protocol development strategies (Kramer & Schmalenberg, 2003), (4) clinical surveillance and evaluation (Pinkerton, 1999; Tranmer, et al., 1998), (5) professional monitoring and recognition (Kramer & Schmalenberg, 2003; Matthews & Lankshear, 2003; Scott, et al., 1999), and (6) innovation diffusion and change management (Royal, et al., 2000). Examples of process correlates include benchmarking and quality improvement (Driever, 2002; Pinkerton, 1999), professional forums and continuing education planning (Matthews & Lankshear, 2003; Monarch, 2003), and research dissemination and utilization mechanisms (Royle, et al., 2000).

Nursing best practice has been conceptualized as a type of practice setting or organizational environment (Matthews & Lankshear, 2003), a conceptualization promoted by emphasis on magnet hospital criteria and the assumption that magnet hospitals are best practice organizations. While magnet hospital research has identified specific environmental components that promote professional nursing practice (Aiken, et al., 2000; Kramer & Schmalenberg, 2003; Monarch, 2003; Scott, et al., 2000), the variables of professional nursing identified in magnet hospital research do not permit or support conclusion about nursing practice patterns, the basis of nursing practice decisions among nurses, or the impact of nursing practice on patient outcomes within a professional nursing environment.
The relationship of organizational culture to the nature of nursing practice has been investigated. Tranmer, et al., (1998) described elements of an evidence based clinical decision-making culture, and explored potential interactions between organizational values and the attitudes and values of nurses. Although nurses were found to value evidence based practice, and were in possession of the clinical expertise and knowledge to incorporate evidence into practice decisions, without organizational support and value of evidence based nursing practice most nursing interventions were not derived from evidence driven strategies (Tranmer, et al., 1998). Manojlovich & Ketefian (2002) report that organizational culture is a significant predictor of nursing professionalism, and propose a theory-based relationship between the underlying values and beliefs perceived within an organization and the manifestation of the professional nursing role.

Smith and Sutton (1999) introduce recognition of the impact of organizational climate on manifestations of nursing best practice. In a post-structuralist critique of the concept of best practice, these authors caution that consideration should be given to the political and social context within which best practice is defined and conceptualized, and propose that power relationships may serve to determine the value system within which best practice is operationalized. Tranmer, et al., (1998) also contend that stability within the practice environment may influence the nature of nursing practice, influences priorities of focus and relative importance of professional values.

Assumptions Surrounding Nursing Best Practice

Nursing best practice is implied to occur in organizations that demonstrate magnet status characteristics, with magnet criteria represented as organizational descriptors of
best professional practice environments (Aiken, et al., 2000). Assumptions embedded in this implication include that professional nursing practice constitutes nursing best practice and that nurses will and do implement best practice when provided an environment that supports professional nursing. Without clear definition of nursing best practice, or specific descriptions of nursing practice in magnet hospitals, it seems premature to accept the assumptions as reasonable foundations for nursing theory and knowledge building.

Best practice environments have implied association with best practice outcomes. This implication is also predicated on the assumption that actual nursing practice is consistent with the nature of practice that organizational characteristics theoretically support. If organizational structures are in place to promote professional nursing practice, the assumption is that the practice of nurses within that organization will be consistent with criteria of professional practice, and that better outcomes will likely result (Aiken, et al., 2000). From a slightly different perspective, this assumption can also manifest that patient outcomes are not optimal without best practice. Underlying this assumption is the even more foundational assumption that nursing practice is the primary determinant of, or influence over, patient outcomes. As noted previously in the text, empiric evidence is lacking to support assumptions of linkages between nursing practice and outcomes.

Deriving from the assumptions explicated in the previous paragraph is the strategic assumption that nursing best practice can be achieved through system intervention by implementing organizational components associated with best practice. The overwhelming national response of applications for magnet status recognition
(Monarch, 2003) may, in part, be driven by market place competition for patients as well as nurses (Smith & Sutton, 1999), through arguments that magnet status hospitals are also the best places to be patients. Again, the lack of clear associations between nursing practice environments, patterns of nursing practice, and patient outcomes raises meaningful concerns regarding the validity of basing organizational and system level interventions and claims on this set of assumptions.

The lack of definitional and conceptual clarity illustrated in the preceding sections, and the degree of unfounded assumption implied in the nursing best practice literature suggested in this section, together lend credence to efforts toward a clear and integrative conceptual representation of nursing best practice. Subsequent sections of this overview provide a summary of conceptual and theoretical orientations that have been applied to research related to nursing best practice, as well as the limitations inherent in the current conceptualization and representation of nursing best practice.

Conceptual Orientations Framing Nursing Best Practice Research

The association between evidence based nursing practice and conceptualization of nursing best practice supports the application of frameworks to the study of nursing best practice that are focused on aspects of nursing research. These frameworks, which primarily explore practitioner and organizational factors as barriers or facilitators to the application of evidence to practice, include research utilization (Jones, 2000; Rycroft, et al., 2004), research dissemination and diffusion (Royle, et al., 2000), and integrated models of research utilization and knowledge generation (Titler, et al., 1994). Tranmer, et al., (1998) included a framework of nursing research culture in the development of a
nursing research program and subsequent exploration of the influence of organizational culture on research application to practice behaviors and attitudes among nurses in the hospital setting. Interpretation of data obtained as part of program evaluation was confounded by changes in organizational and environmental variables not included in the nursing research culture framework or accounted for in the program evaluation framework (Tranmer, et al., 1998). Innovation diffusion frameworks have been applied to investigations of applications of research to nursing practice (Brett, 1989; VanDerWeide & Smits, 2001). Research into the development of best nursing practice using evidenced based nursing strategies has also been based on frameworks of benchmarking outcomes and quality improvement data (Cole, et al., 2000; Cooper, et al., 2000a & 2000b).

The magnet criteria framework emerged from attempts to determine reasons why hospitals were successful in recruiting and retaining nurses (Monarch, 2003), and has served as the basis of studies focused on professional practice environments and best practice hospitals. Variables and relationships of interest in research based on the magnet criteria framework are primarily organizational structure and associated organizational and patient outcomes (Aiken, et al., 2000; Scott, et al., 1999).

Professional practice frameworks have extended magnet criteria research and incorporated organizational environment variables as consideration of context (Mathews & Lankshear, 2003), in addition to structure, process and outcome variables. Frameworks focusing on specific components of professional nursing practice, such as control over nursing practice (Kramer & Schmalenberg, 2003), empowerment (Kuokkanen & Katajisto, 2003), and clinical decision making-critical thinking strategies (Anthony, 1999;
Hicks, et al., 2003), have been applied to explorations of relationships among organizational and professional practice variables. Manojlovich & Ketefian (2002) explored the influence of interactions between practitioner characteristics and indicators of organizational culture on nursing professionalism using a framework based on personal investment theory.

System theory driven frameworks have been employed to provide critical information for strengthening theoretical and empirical relationships between nursing practice and system and patient outcomes. Mark, et al., (2003) incorporated consideration of patient outcomes into the magnet criteria research arena using a structural contingency theory framework (Mark, et al., 1996) that conceptualized nursing practice as a latent structural variable and organizational characteristics as context.

The quality of nursing care and its relationship to system variables and patient outcomes is the focus of research efforts based on the Quality Health Outcomes Model (Jones, et al., 1997; Mitchell, et al., 1998), which introduces dynamic feedback relationships into Donebedian’s structure-process-outcome quality framework (Mitchell, et al., 1998).

Chapter Summary

The preceding overview of conceptualizations related to nursing best practice in the literature illustrates the breadth and diversity of proposed definitions, conceptual representations, assumptions, and conceptual orientations. The information presented in this chapter serves as data for the concept clarification process described in Chapter 3.
The methodological approach to the literature review summarized in Chapter 2 is also outlined in Chapter 3.
CHAPTER 3: CLARIFICATION OF THE CONCEPT

Overview of Concept Clarification Methodology

Meleis (1997, p. 206) describes concept clarification as a process used to “refine concepts that have been used in nursing without a clear, shared, and conscious agreement on the properties or the meanings attributed to the concept.” Concept clarification is done to “refine existing definitions, refine theoretical definitions, consider interrelationships between the different elements of the concept, and discover new relationships and discuss these relationships to resolve existing conflicts about meaning and definitions.” (Meleis, 1997, p. 206). The lack of conceptual clarity discussed in Chapter One of this dissertation, and the multiple conceptual representations of nursing best practice in the nursing literature, provide justification for concept clarification as an appropriate method upon which to base deductive construction of an integrative conceptual model of nursing best practice. The systematic process of concept clarification outlined in this section provides the methodological approach to research question # 1: what organizational and individual variables are supported in the literature as critical to nursing best practice and how does the interaction of those variables theoretically and/or empirically impact nursing best practice?

The methodological approach to conceptual clarification employed in this dissertation inquiry is consistent with the three phases described by Kramer (1993): formulating the purpose, choosing and examining data sources, and developing the final conceptual representation. The second and third phases of this approach are further delineated into a five step process proposed by Norris (1985) and further described by
Meleis (1997, pp 206-207) as follows: (1) identification of the concept within the discipline of nursing, consideration “through the lens of other disciplines,” and description of the inherent phenomenon; (2) systematization of the observations and descriptions to include establishing categories and hierarchies, describing patterns, determining triggers, prequels, and results; (3) development of operational definitions and determining criteria by which the concept can be recognized; (4) construction of a model and/or refining the preliminary model; and (5) development of hypotheses suggested by the model.

Formulation of the purpose of this concept clarification effort is the impetus for this inquiry and is summarized in the introduction. Restated here, the purpose is to propose an integrative conceptual representation of nursing best practice from a philosophical perspective grounded in complexity science and theory. The first three steps of the systematic approach are completed as foundational to preliminary construction of a conceptual model and address research question 1a and 1b:

1a) What organizational and individual variables are supported in the literature as critical to nursing best practice? and, 1b) How does the interaction of those variables theoretically and/or empirically impact nursing best practice?

The specific methodological activities completed during steps one through three of the concept clarification process are described and illustrated in the following sections of this chapter.
Step One: Identification of the Concept

The literary approach (Colling, 2000) employed in this step constitutes examination of the conceptual phenomenon as represented in the two literature databases CINAHL 1982 to 2005, and Medline 1996 to 2005. The key word “best practice” was used to initiate the search and identify related concepts and phenomena. “Best practice” and “nursing best practice” are terms not found in the controlled vocabulary of CINAHL, but yielded 1041 references when entered as a search keyword. “Best practice” entered as a search keyword in Medline, yielded 1251 references. In the Medline vocabulary, “best practice” was not identified as a subject heading but instead mapped to the subject heading “benchmarking”; and an exploded key word search using “best practice” yielded 4171 Medline references.

A common occurrence during key word searches in both CINAHL and Medline was the generation of lists of subject headings with narrow and specific focus on singular subjects of interest to medicine and/or nursing. Medline searches yielded subject heading lists largely populated by aspects of medical care such as disease manifestations, areas of medical specialization or clinical/practice guidelines. CINAHL searches largely identified foci related to management of the nursing workforce, with fewer representations of nursing care.

Additional key words in the search of both databases included quality practice, effective practice, practice outcomes, evidence-based practice, and benchmarking outcomes. The search strategy was a deliberate selection of general topics in an attempt to capture the breadth of conceptualizations and to avoid limiting this inquiry to one
specific conceptualization of best practice. Articles with broad-based consideration of best practice and related concepts were selected for inclusion in the preliminary review. Some citations were identified via the ancestry method (Colling, 2000) from reference lists or authors with broad interest in best practice. Table 1 provides a summary of the conceptual representations of nursing best practice identified in the review of literature.

**TABLE 1 Conceptual Representation of Nursing Best Practice**

<table>
<thead>
<tr>
<th>REPRESENTATION &amp; DEFINING QUALITIES</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pattern of nursing care deliver</td>
<td>Pinkerton, 1999</td>
</tr>
<tr>
<td>Derived from research findings</td>
<td></td>
</tr>
<tr>
<td>Derived from benchmark data</td>
<td></td>
</tr>
<tr>
<td>Characterized by consistency of standards and practice</td>
<td></td>
</tr>
<tr>
<td>Achievement of benchmark standards</td>
<td>Kingston, 2001</td>
</tr>
<tr>
<td>Quality nursing practice</td>
<td>Brown, 2001</td>
</tr>
<tr>
<td>Nature of care</td>
<td></td>
</tr>
<tr>
<td>Basis of care</td>
<td></td>
</tr>
<tr>
<td>Monitoring of care</td>
<td></td>
</tr>
<tr>
<td>Incorporates strategies to embed evidence based knowledge into practice</td>
<td>Driever, 2002</td>
</tr>
<tr>
<td>Achievement of desired outcomes</td>
<td></td>
</tr>
<tr>
<td>Promotion of continuous improvement of care quality</td>
<td></td>
</tr>
<tr>
<td>Achieve externally accepted standard of performance efficiency</td>
<td>Smith &amp; Sutton, 1999</td>
</tr>
<tr>
<td>Through internal standardization</td>
<td></td>
</tr>
<tr>
<td>Characterized by internal order</td>
<td></td>
</tr>
<tr>
<td>Practice that results in desired outcomes</td>
<td>Driever, 2002</td>
</tr>
<tr>
<td>Improved practice</td>
<td></td>
</tr>
<tr>
<td>Most appropriate interventions</td>
<td>Green, 2001</td>
</tr>
<tr>
<td>Improving health</td>
<td>Perleth, et al., 2001</td>
</tr>
<tr>
<td>Effective and cost-effective care</td>
<td></td>
</tr>
<tr>
<td>Practice that results in optimum outcomes</td>
<td></td>
</tr>
<tr>
<td>Performance that results in achieving a benchmark standard</td>
<td>Kington, 2001; Delise &amp; Leisure, 2001</td>
</tr>
<tr>
<td>Care that is outcome based</td>
<td>Brown, 2001</td>
</tr>
<tr>
<td>Care that is refined through outcome comparison</td>
<td></td>
</tr>
</tbody>
</table>
Step Two: Systematization of Observations and Descriptions

The narrative summary of the literary examination of conceptual representations of best practice was subjected to qualitative analysis using a modified content analysis approach (Colling, K.B., 2000; Patton, 1987, p. 149). Key words, phrases, and descriptive or defining terms were highlighted and extracted from the narrative summaries. Extracted elements were then divided and classified into major categories and themes, which were further subdivided and subsequently organized in tabular format. Table 2 presents the results of this modified content analysis. The four major categories into which the concepts grouped are practice description, organizational structure, organizational process, and organizational environment. Subcategories of related concepts are listed in Table 2 under the major category headings in the left hand column, while specific manifestations of the conceptual subheadings are organized in the right hand column of Table 2.

TABLE 2 Concepts Related to Nursing Best Practice

<table>
<thead>
<tr>
<th>RELATED CONCEPT</th>
<th>MANIFESTATIONS OF CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRACTICE DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>Evidence-based practice</td>
<td>Practice that derives from the best available evidence</td>
</tr>
<tr>
<td></td>
<td>Standardized practice protocols or clinical guidelines</td>
</tr>
<tr>
<td>Magnet hospital practice</td>
<td>Practice that occurs in best practice institutions</td>
</tr>
<tr>
<td></td>
<td>Best place to practice nursing</td>
</tr>
<tr>
<td>Excellence in professional practice</td>
<td>Decentralized decision making</td>
</tr>
<tr>
<td></td>
<td>Evidence based decision making</td>
</tr>
</tbody>
</table>
Table 2 continued from previous page

<table>
<thead>
<tr>
<th>ORGANIZATIONAL STRUCTURE</th>
<th>MANIFESTATIONS OF CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational structure that promotes excellence in professional nursing practice</td>
<td>Responsibility for nursing with nurses</td>
</tr>
<tr>
<td></td>
<td>Accountability for nursing with nurses</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>RELATED CONCEPT</td>
<td>MANIFESTATIONS OF CONCEPT</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Nursing leadership characteristics</td>
</tr>
<tr>
<td></td>
<td>Nursing leadership placement in organization</td>
</tr>
<tr>
<td></td>
<td>Management frameworks</td>
</tr>
<tr>
<td></td>
<td>Decision frameworks</td>
</tr>
<tr>
<td></td>
<td>Models of care delivery</td>
</tr>
<tr>
<td></td>
<td>Communication pathways</td>
</tr>
<tr>
<td></td>
<td>Professional linkages</td>
</tr>
<tr>
<td></td>
<td>Professional development support</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared governance</td>
<td></td>
</tr>
<tr>
<td>Research utilization framework</td>
<td></td>
</tr>
<tr>
<td>Evidence based practice framework</td>
<td></td>
</tr>
<tr>
<td>Formalized interdisciplinary collaboration</td>
<td></td>
</tr>
<tr>
<td>ORGANIZATIONAL PROCESS</td>
<td></td>
</tr>
<tr>
<td>Care planning and care decision making based on research findings and data</td>
<td>Problem solving models</td>
</tr>
<tr>
<td></td>
<td>Collaborative care planning</td>
</tr>
<tr>
<td></td>
<td>Policy/protocol development strategies</td>
</tr>
<tr>
<td></td>
<td>Clinical surveillance and evaluation</td>
</tr>
<tr>
<td></td>
<td>Professional monitoring and recognition</td>
</tr>
<tr>
<td></td>
<td>Innovation diffusion and change management</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchmarking</td>
<td></td>
</tr>
<tr>
<td>Quality improvement</td>
<td></td>
</tr>
<tr>
<td>Professional forums</td>
<td></td>
</tr>
<tr>
<td>Continuing education planning</td>
<td></td>
</tr>
<tr>
<td>Research dissemination</td>
<td></td>
</tr>
<tr>
<td>Research utilization mechanisms</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 continued from previous page

<table>
<thead>
<tr>
<th>ORGANIZATIONAL ENVIRONMENT</th>
<th>MANIFESTATIONS OF CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational culture</td>
<td>Evidence based clinical decision making culture</td>
</tr>
<tr>
<td></td>
<td>Organizational values</td>
</tr>
<tr>
<td></td>
<td>Attitudes and values of nurses</td>
</tr>
<tr>
<td></td>
<td>[Predictor of nursing professionalism]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATED CONCEPT</th>
<th>MANIFESTATIONS OF CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational climate</td>
<td>Political and social context</td>
</tr>
<tr>
<td></td>
<td>Power relationships</td>
</tr>
<tr>
<td></td>
<td>Value system</td>
</tr>
<tr>
<td></td>
<td>Stability</td>
</tr>
<tr>
<td></td>
<td>Focus priorities</td>
</tr>
<tr>
<td></td>
<td>Relative importance of professional values</td>
</tr>
</tbody>
</table>

In order to remain true to the underlying assumptions of the guiding framework of complexity science and to avoid the introduction of causative and/or linear bias into the conceptualization, the extracted constructs were then organized around the following questions:

What is in place when this phenomenon happens?

What is involved when this phenomenon is happening?

What seems to be necessary for this phenomenon to happen?

What precludes this phenomenon from happening?

What is happening when this phenomenon is not? [opposing constructs]

What might look like this phenomenon is happening? [related constructs]

How we would know that this phenomenon has/is happened/happening?
The results of the use of these guiding questions for the organization of concepts with relation to the core concept of nursing best practice are presented in Table 3.

### TABLE 3 Categorization of Constructs Descriptive of Nursing Best Practice

<table>
<thead>
<tr>
<th>What is in place for this to happen:</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Utilization</td>
</tr>
<tr>
<td></td>
<td>Dissemination</td>
</tr>
<tr>
<td></td>
<td>Benchmark data</td>
</tr>
<tr>
<td></td>
<td>Nursing autonomy</td>
</tr>
<tr>
<td></td>
<td>Professional nursing</td>
</tr>
</tbody>
</table>

| What it involves when it is happening: |
| --- | --- |
|   | Care delivery characterized by consistency of standards/practice |
|   | Attention to quality practice |
|   | Nature of nursing care: selection of most appropriate interventions |
|   | Basis of nursing care: outcome based |
|   | Monitoring of nursing care: refined through outcome comparison |
|   | Directed toward achieving desired outcomes |
|   | Improving health |
|   | Effective and cost-effective care |
|   | Benchmark standard |
|   | Promotion of continuous improvement |

| What seems to be necessary for it to happen: |
| --- | --- |
|   | Strategies for embedding evidence into practice (process) |
|   | Organizational value (culture) |
|   | Professional nursing values & attitudes (clinician) |
|   | Appropriate power balance (climate) |
|   | Organizational structure that promotes excellence in professional nursing practice |

| What precludes it from happening: [inference from where it seems to happen] |
| --- | --- |
|   | Not valued [by nursing – by organization] |
|   | Not positioned [lack of autonomy – lack of decision making participation] |
|   | No evidence [lack of data – lack of dissemination – lack of monitoring – etc] |
|   | Deficient of process |
|   | Power imbalance |
|   | Instability??? |

| What is happening when this is not: [opposing constructs] |
| --- | --- |
|   | Imposed standardization and order |
|   | Non-nursing control over nursing |
|   | Priority focus on cost of care |
|   | Priority focus on process performance |
Table 3 continued from previous page

<table>
<thead>
<tr>
<th>What might look like this is happening: [related constructs]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence based practice</td>
</tr>
<tr>
<td>Clinical guidelines and clinical protocols</td>
</tr>
<tr>
<td>Magnet hospital nursing</td>
</tr>
<tr>
<td>Shared governance</td>
</tr>
<tr>
<td>Continuous quality improvement</td>
</tr>
<tr>
<td>Benchmarking</td>
</tr>
<tr>
<td>Outcomes management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How we would know that this has/is happened/happening:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieve desired outcomes</td>
</tr>
<tr>
<td>Achieve benchmark standard</td>
</tr>
<tr>
<td>Improve practice</td>
</tr>
<tr>
<td>Nursing accountable</td>
</tr>
</tbody>
</table>

Summary of Observations and Descriptions of Nursing Best Practice

The preceding sections of this chapter present a preliminary summary overview in tabular format of observations and descriptions of best practice and related concepts extracted from the literature review. Observations and descriptions are organized as conceptual representations (Table 1), related concepts (Table 2), and categories of defining constructs (Table 3).

Limitations of Conceptualization of Nursing Best Practice

A foundational limitation of current conceptualization and representation of nursing best practice is the lack of consensus definition among nurses. The origin of the concept best practice in the quality movement (Smith & Sutton, 1999) with adoption into the healthcare delivery arena may contribute to the multiplicity of implied representations and operationalizations. Healthcare delivery systems constitute blended entities of professional and business models, priorities and objectives across which representations of what constitutes best practice are diverse and highly variable. Nursing does not exist as
an independent entity within the health care organization and, consistent with reality, may
develop professional definitions and representations that are contextually derived. The
conceptual frameworks employed in nursing best practice research, cited in this
discussion, presume a common and uniform representation and conceptual definition of
nursing best practice.

Further compounding the usefulness and applicability of nursing best practice
research is the range and diversity of variables included in conceptual representations.
Nursing best practice is implicated across studies and theoretical treatises as structure,
process, context or outcome depending on the perspective of the author. Nursing best
practice is operationalized in variables that represent individual, group, and system level
constructs. Frameworks that isolate practice variables from the influence of practice
context fail to acknowledge the reality of nursing within the health care delivery arena.
Conversely, frameworks that focus on contextual correlates ignore the potential diversity
of practice variables across settings.

Representations of nursing best practice in relation to outcomes are limited by the
lack of empiric support for causative links between practice and outcome within linear
frameworks. Frameworks that permit consideration of linear associations between
isolated components do not factor in the degree of potential impact and integration of
multiple factors both internal and external to nursing and health care delivery systems.
The ability to conceptually incorporate the integration of multiple factors is further
compounded by the lack of empirical data to support relationships between variables in
current conceptualizations of best practice, and/or conflicting empirical information regarding relationships between system interventions and best practice expectations.

A final limitation regarding studies and claims of indicators of nursing best practice is the absence of practitioner characteristics in many conceptualizations of nursing best practice and from many of the conceptual frameworks employed in nursing best practice research. Individual attitudes and values, as well as knowledge, skill, and experience, influence behavior (Wilson & Holt, 2001). Nursing best practice, while potentially a broad conceptual entity incorporating administrative and management functions, is ultimately operationalized at the interface between nurse and patient. The actual intervention occurring at that interface constitutes the foundational link between nursing practice and patient outcomes. Failure to consider characteristics that influence the potential practice patterns of nurses within the context of the patient-nurse interface interjects a possible source of significant error in interpretation of empiric findings.

Table 4 provides a summary overview of the diversity of conceptual frameworks related to nursing best practice references as identified in the review of literature and described in the preceding paragraphs.
TABLE 4 Conceptual Frameworks Related to Nursing Best Practice

<table>
<thead>
<tr>
<th>Conceptual Framework</th>
<th>Dimension-related Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research utilization</td>
<td>Control over nursing practice</td>
</tr>
<tr>
<td>Research dissemination and diffusion</td>
<td>Clinical decision making and critical thinking</td>
</tr>
<tr>
<td>Nursing research culture</td>
<td>Personal investment</td>
</tr>
<tr>
<td>Innovation diffusion</td>
<td></td>
</tr>
<tr>
<td>Benchmarking and quality improvement</td>
<td></td>
</tr>
<tr>
<td>Magnet hospital criteria</td>
<td></td>
</tr>
<tr>
<td>Professional Practice</td>
<td>Nursing practice as latent structural variable</td>
</tr>
<tr>
<td>Structural Contingency</td>
<td>Organizational characteristics as practice context</td>
</tr>
<tr>
<td>Quality Health Outcomes</td>
<td></td>
</tr>
</tbody>
</table>

Strategies to Address Limitations of Conceptualizations of Nursing Best Practice

While further clarification and standardization within the framework of current conceptualizations of nursing best practice may indeed be warranted, this approach alone does not address the possibility that current conceptualizations fail to adequately represent, or even obscure key elements of, best practice. An alternative approach, initiated in this dissertation effort, is to explore the further clarification of best practice and the development of nursing best practice theory within a different conceptual and theoretical framework. Complexity theory provides an opportunity to examine the concept of best practice within a reality-based framework of highly integrated and interacting dynamics not limited to linear cause-effect relationships. Chapter 4, the next chapter, provides an overview of complexity theory and presents argument in support of the suitability of complexity theory as a theoretical framework for further exploration and examination of nursing best practice within a health care system context.
Chapter Summary

Chapter Three provides an overview of the concept clarification process and describes the results of steps one and two of the five step process. Identification of the concept, step one, and systematization of the observations and descriptions, step two, are accomplished through review and modified content analysis of the pertinent literature. These methods address research questions 1a, what organizational and individual variables are supported in the literature as critical to nursing best practice, and 1b, how does the interaction of those variables theoretically and/or empirically impact nursing best practice? Constructs extracted from the literature descriptive of nursing best practice are organized around a series of questions consistent with the underlying complexity theory framework, in that those questions to not attempt to place constructs in linear cause and effect relationship patterns.

Limitations with current conceptualizations of nursing best practice are identified and strategies to address those limitations are suggested. Argument is made that complexity science and theory provide opportunity to explore nursing best practice from a reality based perspective that embraces the integrated and interacting dynamics among individual and organizational constructs implicated in the literature.
CHAPTER 4: PRESENTATION OF THE CONCEPTUAL FRAMEWORK

Chapter 4 provides an overview of systems theory grounded in complexity science including discussion of basic theoretical tenets and underlying assumptions. Previous applications of complexity science and theory to nursing systems research are described. The advantages, significance and research implications of a complexity science conceptualization of nursing best practice are discussed. A summary is included that discusses the manner in which complexity science and theory inform and guide the inquiry of this dissertation research.

Description of Complexity Theory Framework

The origin of complexity theory derives from the study and mathematical representations of systems in nature that exhibit non-linear dynamics, and dates back to the 19th century (Lanza, 2000). Complexity science, which is the study of the behavior of complex adaptive systems (Kirsch, et al., 2002; Zimmerman, 1999), has grown as an interdisciplinary field of study over the past fifty years through recognition and understanding of the self-organizing behaviors of physical systems, and the growing conceptualization that social and human systems exhibit many of the same properties and behaviors (White, et al., 1997).

Systems theory based on complexity science views systems in constant change that is evolutionary or developmental in nature due to the accumulative non-linear character of change, rather than as systems that tend toward equilibrium and static stability (Warren, et al., 1998). Characteristics of complex adaptive systems include dependence on initial conditions (Mark, 1994; Warren, et al., 1998); rapid and massive
change in response to small differences in initial conditions (Walls & McDaniel, 1999),
and self-organization of patterns of behavior around forces termed strange attractors
(Mark, 1994; Walls & McDaniel, 1999; Warren, et al., 1998). Properties, or behaviors, of
complex adaptive systems are considered to be emergent, deriving from the
interconnections and interdependencies among system components and between system
and environmental components (Kirsh, et al., 2002; Walls & McDaniel, 1999).

Several key assumptions are embedded in complexity science based
conceptualizations of complex adaptive systems. One assumption that must be embraced
when adopting a complexity theory perspective is that evolution is inevitable in complex
adaptive systems as a result of internal non-linear dynamics (Mark, 1994; Walls &
McDaniel, 1999; Warren, et al., 1998). If change and growth are viewed as desirable,
then a secondary, but necessary, assumption is that system movement away from
equilibrium is also desirable (Mark, 1994). Although unsettling from a system research
perspective, an inherent assumption foundational to the complexity science view of
complex adaptive systems is the “un-know-able” and unpredictable nature of the self-
organizing response to small changes in initial conditions (Walls & McDaniel, 1999;
Maliski & Holditch-Davis, 1995).

Applications of Complexity Theory to Health Care Delivery

Complexity theory frameworks have been applied as explanatory frameworks in
health care system and nursing care delivery system research and administration.
Anderson (et al., 1992, 1999, 2003) explored the dynamics of nursing home
environments grounded in a complexity theory framework. Kirsh (et al., 2002)
considered the suitability of a complexity science theoretical framework for nursing management of critical care units. A series of applications of complexity science to varying general aspects of health care delivery appears in the British medical literature (Fraser & Greenhalgh, 2001; Plsek & Greenhalgh, 2001; Plesk & Wilson, 2001; Wilson & Holt, 2001). Application to specific care delivery models includes hospital (Kernick, 2003) and public health systems (Simmons, 2003; Brocklehurst, 2004). Salyer (1995) adapted a complexity theory based framework to an investigation of the relationship between perceptions of nursing performance and measures of environmental turbulence. Complexity theory frameworks have also appeared in the quality management literature as methodological foundations for examining system change (Seigfried, 1998).

Complexity science has provided the theoretical framework for explaining and exploring patient response to nursing and health care interventions. In this application, the patient is conceptualized as a complex dynamic system interacting within a complex dynamic system of care delivery. Applications include understanding responses to homeopathic interventions (Hyland & Lewith, 2002), exploring unexpected responses to palliative care interventions (Munday, et al., 2003), and validating the role of non-traditional approaches in health care practice (Pritzker, 2002).

Brocklehurst (2004) suggests that complexity science provides a useful framework for understanding professional challenges created by rapidly changing environments and climates. Anderson (et al., 2003) offer complexity theory as a useful perspective within which to evaluate, understand, and manage the adaptations
organizations undergoing radical changes in administrative, management, and marketplace stressors.

Advantages of Complexity Theory Conceptualization of Nursing Best Practice

Complexity theory and science provide a foundation for representing nursing best practice as a dynamic property of a complex adaptive health care delivery system involving interactions among multiple variables and system components. Within a complexity theory based framework, emergent properties are not static variables resulting from linear cause and effect relationships, but rather dynamic properties with contextually derived and influenced manifestations (Maliski & Holditch-Davis, 1995). Although challenging to consider within traditional measurement methodologies, complexity science based conceptualization provides a framework for consideration of all potentially impacting variables, as well as the potential influence of multiple interactions between variables. Variables, such as values (Maliski & Holditch-Davis, 1995), ethics (Anderson, et al., 2003; Kernick, 2005; Maliski & Holditch-Davis, 1995), ways of knowing, and qualitative constructs, which are not currently included in more linear cause and effect conceptual representations, can be operationalized and included in the dynamic interrelationships permitted within a complexity theory based model.

Conceptualization of nursing best practice to represent an emergent property of a complex adaptive system of health care delivery does not require identical operationalization across considerations, as emergence is the property of any given system to self-organize as adaptation to external challenges (Kernick, 2003). This obviates the impact of a lack of consensus definition of best practice on the ability to
build a cohesive knowledge base. As an emergent property, the concept of nursing best practice retains conceptual integrity despite instability of multiple contextual realities. This conceptualization of nursing best practice has application across a broad range of realities, supporting a more objective and value-free approach to exploring the determinants and manifestations of nursing practice.

As an emergent property of a complex adaptive system, nursing best practice does not necessarily reside in a linear relationship with care delivery system outcomes (Maliski & Holditch-Davis, 1995). This conceptual perspective supports exploratory and empirical contributions to a better understanding of the significance of nursing practice within an organizational context despite the lack of empiric evidence directly linking nursing interventions to desired patient outcomes. As knowledge is added, this type of model can undergo significant modification without a disruption of the conceptualization or the ability to continue to build the knowledge base through multiple research approaches.

Significance of Complexity Theory Conceptualization of Nursing Best Practice

Conceptualization of best practice as an emergent property of a complex adaptive health care delivery system permits evolution of the concept of best practice. A critical implication of existing conceptualizations of best practice is that best practice is a static entity that represents an ultimate state of practice delivery. From the perspective of current nursing knowledge, it is premature to operationalize this concept of nursing best practice considering that the link between nursing interventions and outcomes is not clearly established, and the role of practitioner, organizational, and contextual variables is
not clear-cut or linearly explained. Even with consensus of definition, nursing best practice must be considered within the context of all factors that can and do impact nursing and nursing practice. Best practice as an emergent property influenced by the complex integrated interaction of multiple variables, has embedded in the conceptualization that linkages between interventions and outcomes is of concern to practitioners, to the practice organization, and to the recipients of service delivery. This allows best practice to be a dynamic entity with capability of evolving in real time as changes occur in the patterns of dynamic interactions among the variables.

Implications of Complexity Theory Conceptualization of Nursing Best Practice

While complexity science and theory provide advantages for conceptualization and study of multi-dimensional concepts such as nursing best practice, this theoretical perspective also poses distinct challenges to the health care system researcher and administrator. Of primary significance is the underlying assumption that system change, or self-organization, is not necessarily predictable (Anderson, et al., 2003; Kernick, 2003; Maliski & Holditch-Davis, 1995), nor can that change necessarily be controlled (Kernick, 2003; Kirsch, et al., 2002; Maliski & Holditch-Davis, 1995). Classic system theory and research efforts are largely designed for the specific purpose of controlling or managing system function in a manner that permits prediction of, and presumably guarantees with high probability, desired system outcomes. Accepting complexity science as a reality based framework for explanation of phenomenon may seem straightforward, yet attempts to employ this framework as a basis for system research are limited by methodology and
interpretation that risk violation of the assumptions of the guiding theoretical framework (Maliski & Holditch-Davis, 1995).

Administrative interventions consistent with complexity science and theory require a degree of detachment as self-organizing processes approach apparent chaos that most health care system managers would find unacceptable, or at the least, disconcerting (Anderson, et al., 2003; Kernick, 2003; Kirsch, et al., 2002). In a business system model the possibility that unexpected manifestations represent opportunity for creative innovation may far outweigh the concern for undesirable outcomes. When, however, the system in question is a health care system, and outcomes are measured in patient mortality, morbidity, functional status, and quality of life, the concern for preventing undesirable outcomes is mandated. The implications suggested in this section are further discussed in the final chapter of this dissertation.

Complexity Science as the Guiding Framework for This Inquiry

The challenge in conducting inquiry guided by complexity science as a theoretical framework is to remain true to the underlying assumptions that reality can not be predicted or controlled (Kernick, 2003; Maliski & Holditch-Davis, 1995), nor can the whole be understood by measuring the parts and reconstructing the whole (Anderson, et al., 2003; Kirsch, et al., 2002; Kernick, 2003; Maliski & Holditch-Davis, 2003). The basic premise of this dissertation inquiry is that the phenomenon of nursing best practice can be understood, and therefore represented, only through simultaneous consideration of all of influencing variables and all interrelationships among those variables. Complexity theory is appropriate and suitable to inform inquiry that arises from this basic premise.
The purpose of this inquiry is to propose an integrative conceptual representation of the phenomenon best practice that incorporates the multiplicity of variables and interactions among variables. Through a reiterative and recursive process of construction, refinement, evaluation, and initial exploration of validity of a conceptual model, knowledge evolves through constantly changing and adapting patterns of cognitive understanding. The purpose of this inquiry is, thereby, informed from the theoretical perspective of complexity science. The purpose of this inquiry is further informed from complexity science in that the purpose does not include intention to predict or control, nor to delineate cause-effect relationships, but rather to provide explanation and understanding through an interpretative process (Anderson, et al., 2003; Kernick, 2003; Maliski & Holditch-Davis, 1995).

The greatest difficulty in remaining true to the complexity science framework guiding this inquiry is selection of methodology for evaluation of validity. Often validity is substantiated by convergence between theoretical and measured linear cause-effect relationships between constructs extracted from the context of the conceptual model. The methods chosen, and outlined in Chapter Three, while less rigorous than standard quantitative alternatives for construct validity, are proposed as: (1) more suitable for this early stage of conceptualization, and (2) more consistent with the guiding framework that requires consideration of the whole and non-linear dynamical patterns of behavior within the context of the whole (Kernick, 2003; Maliski & Holditch-Davis, 1995). While even more suitable techniques for analysis within complexity theory frameworks have been proposed, these methods seem outside the scope of inquiry at this immature stage of
conceptualization. Possible methodologies for future model validation studies include random regression modeling (Holditch-Davis, et al., 1994), cycle detection and spectral analyses (Kelly & McGrath, 1988), autocorrelation (Woods & Catanzaro, 1988), and simulation & virtual environment modeling (Repenning, 2002; Zyda & Darken, 2005).

Chapter Summary

Chapter Four provides an overview of complexity theory and examples of applications of complexity science and theory in the health care area. Nursing best practice is conceptualized as an emergent property, or pattern of behavior, of a complex adaptive health care delivery system. The advantages and significance of this conceptualization are discussed, and potential implications are explicated. Chapter Four also provides discussion of how complexity theory guides the inquiry reported in this dissertation.
CHAPTER 5: DEVELOPMENT OF THE OPERATIONAL DEFINITION &
CONSTRUCTION OF THE CONCEPTUAL MODEL

Review of Concept Clarification Process

Chapter Five includes discussion of steps three and four in the concept
clarification process described in Chapter Two of this dissertation. Step three is
development of an operational definition and determining criteria of nursing best
practice. Step four is construction of a conceptual model of nursing best practice. Steps
three and four of the concept clarification process are guided by the basic principles of
complexity theory summarized in Chapter Three. The processes described in this chapter
complete the methodology addressing research question 1a and 1b:

1a) What organizational and individual variables are supported in the literature as
critical to nursing best practice? and, 1b) How does the interaction of those
variables theoretically and/or empirically impact nursing best practice?

The operational definition and conceptual model proposed in this chapter provide
the basis for addressing research questions 2a and 2b in Chapter Five:

2a) Do an operational definition and conceptual model of nursing best practice
that are consistent with the underlying assumptions of complexity science and
theory represent the variables and interactions between variables in a manner
consistent with the perception of subject matter experts? and, 2b), Is such a
conceptual model useful to the further study of nursing best practice?
Step Three: Development of Operational Definition and Distinguishing Criteria

The proposed preliminary operational definition presented in this section is derived from the observations and descriptions summarized in Tables 1, 2, and 3 presented in Chapter Three. At this preliminary stage of concept clarification any proposed definition of nursing best practice needs to be general enough to embrace the multiplicity of conceptual representations and the reality of multiple contributing and/or influencing variables and interactions among variables. A definition of nursing best practice should also be intuitively consistent with nursing professional values and philosophy. The following proposed definition forms a foundational and general starting point, consistent with implications from the preliminary review of the nursing literature summarized in the preceding sections of this chapter, as well as the implications and underlying assumptions of complexity science and theory:

*Nursing best practice is a pattern of nursing practice exhibited by a system in which nursing care is delivered in a manner and context that maximizes the potential for optimization of desired outcomes.*

This definition, pending modification toward greater specificity through further concept clarification, embeds nursing practice in a care delivery system context, delineates a specified manner of nursing care delivery, recognizes the interaction between nursing and context variables, and includes a relationship between nursing practice and outcomes.

Distinguishing characteristics of nursing best practice gleaned from the multidimensional representations in the literature may include, but may not be limited to,
practice guided by evidence, practice by professional nurses, practice in an environment that supports nursing autonomy over practice, practice for which nursing is accountable, and practice monitored through consideration of outcomes. Inherent in these preliminary general definitions and conceptual representations is the underlying assumption that best practice, as an exhibited pattern of practice, is not necessarily a single entity with a prescribed form or format.

Step Four: Construction of Conceptual Model

The fourth step in the concept clarification approach used in this inquiry involves construction of a model or refinement of a preliminary model. The deductive and recursive process of construction of a preliminary conceptual model of nursing best practice, reflective of the guiding influence of complexity science, is outlined and presented in Chapter Four. Additional refinement of the initial model involves return to this deductive and recursive process. Refinement based on findings from evaluative methodologies are described and summarized in Chapter Five of this dissertation.

The physical format of the constructed model was selected for consistency with a guiding framework of complexity science and is, therefore, void of linear cause and effect representations. Constructs are visualized as overlapping and layered domains of influence, with best practice illustrated as an emergent property of a system of overlapping and layered domains of influence.

Key concepts identified during the literary evaluation and analysis are included in the preliminary conceptual model of nursing best practice. Proposed definitions of key concepts are provided with support from the literature and delineated as variables.
representing initial conditions, emergent or intermediary behaviors, dynamic forces, or strange attractors. Preliminary descriptions of the nature of proposed relationships is considered from a complexity science framework with attention to non-linear dynamics and the self-organizing behaviors of complex adaptive systems.

Descriptive Overview of Conceptual Model of Nursing Best Practice

Figure 1, on the next page, is the preliminary conceptual model grounded in complexity theory proposed to represent the nature of nursing practice, in this case nursing best practice, as an emergent property of professional nursing care delivery embedded within a hospital system. This model proposes key elements considered to be determinant of the nature of nursing practice. The next section of this chapter illustrates the deductive and recursive process employed in model construction that was based on proposed definitions for key concepts and preliminary description of the nature of the proposed relationships consistent with the principles of complexity science and theory. The final section of Chapter Four is discussion of the theoretical and empirical basis for the interdependencies between clinician and context properties represented in the model in Figure 1.
Proposed Definition of Key Concepts

Best practice is represented in the conceptual model as an emergent property of a complex adaptive health care delivery system. An emergent property is defined as “a property of the whole not shared by constituent parts” (DeLanda, 1995), the exact nature of which is a manifestation of the self-organizing behavior of the components comprising the complex adaptive system (Warren, et al., 1998; Plsek & Greenhalgh, 2001). Emergent properties evidenced by patterns of system behavior defy measurement by traditional methods of decomposing the whole into component parts, as the emergent property does not express without the integrity of the whole (Kernick, 2003; Weber, 2002). Figure 2 highlights the position of the concept best practice in the overall structure of the model.
This figure, which superimposes best practice over underlying and overlapping concept domains, is intended to illustrate that best practice arises as a pattern of practice from the interdependencies of the other domains represented in the model.

The other key concepts/constructs included in Figure 1 represent components of a multi-dimensional health care delivery system, each existing/occurring in dynamic interaction with the other components and with interactions between the various components. These additional system components are proposed representations of initial conditions, dynamic forces, and stable and strange attractors within the complex adaptive health care delivery system. Initial conditions are defined as the status of the system at the beginning of the trajectory of interest (Lanza, 2000; Mark, 1994; Warren, et al., 1998). The emergent behavior of complex adaptive systems is dependent on initial conditions with a high degree of sensitivity to small differences in those conditions.
Dynamic forces are those factors that represent the nature of the complexity and diversity of interrelationships within the system (Mark, 1998). These forces can move the system, or portions of the system into patterns ranging from equilibrium to chaos (Lanza, 2000; Mark, 1998). Attractors are forces around which complex adaptive systems self-organize, with stable attractors leading to simple equilibrium or repetitive behavior, and strange attractors promoting non-repetitive, unpredictable, even seemingly chaotic behavior pattern organization (Mark, 1998). Theoretically, any of the key concepts in Figure 1 can represent initial conditions, dynamic forces, or stable/strange attractors.

Clinician Properties represent characteristics of the nurses whose individual and collective behavior constitutes nursing practice within the health care delivery system. Characteristics that are theoretically and empirically linked to nursing practice patterns and the nature of nursing practice include knowledge and skills (Mark, et al., 2003), values (Manojlovich & Ketefian, 2002; Webb, et al., 1996), attitude (Bostrom, et al., 1989), and experience and training (Mark, et al., 2003). Included in the clinician property domain of the conceptual model is a component representing dynamic processes by which nurses operationalize characteristics into practice behaviors and patterns, specified in Figure 1 as decision-making strategies and critical thinking (Dawn & Thompson, 2003; Facione, 2004; Mark, et al., 2003). The position within the structure of the conceptual model of the portion representing clinician properties and dynamic processes is highlighted in Figure 3.
FIGURE 3 Position of Clinician Properties in Overall Structure of Model

Context Properties represent characteristics of the organizational environment within which nursing practice occurs. Characteristics theoretically and empirically linked to nursing practice patterns include organizational structure (Matthews & Lankshear, 2003), organizational process (Matthews & Lankshear, 2003), organizational culture (Lake & Friese, 2006; Manojlovich & Ketefian, 2002; Webb, 1996), and organizational climate (Lake & Friese, 2006). Other characteristics of the practice environment that may be critical factors influencing the nature of emergent practice patterns are represented as organizational responsiveness (Lake, 1999) and organizational flexibility (Manojlovich & Ketefian, 2002; Matthews & Lankshear, 2003).

Benchmarking is included as a representation of a dynamic force within the context domain that attenuates the influence of the variety of manifestations of outcomes on emergent patterns of practice and practice behavior. Benchmarking is conceptually
defined as a process by which comparisons are made between actual outcomes and desired outcomes (Healthcare Benchmarks, 2001). This process provides a dynamic force with potential to interact with other context elements in influencing emergent practice patterns and practice behavior. The actual influence, as represented in the conceptual model of Figure 1, is attenuated through interaction with the expected outcomes component, which is discussed in a subsequent paragraph. Figure 4 highlights the position of the context property domain in the overall model structure.

FIGURE 4 Position of Context Property Domain in Overall Model Structure

The final component of the conceptual model in Figure 1 is the portion of the model representing elements considered to have the potential to attenuate the relationships between clinician properties, context properties, and emergent practice patterns. This domain in the preliminary conceptual model contains the concepts of
practice choices and expected outcomes, and is highlighted in Figure 5. Practice choices conceptually represent the delivery of nursing care that actually occurs, which may or may not be what might be predicted from organizational and nursing processes. Expected outcomes represents the actual expectations placed on nursing care delivery, which may or may not be equivalent to the desired outcomes used as the benchmark standard in related organizational and nursing processes. Practice choices and expected outcomes are conceptualized in dynamic interaction within this domain of the conceptual model. Of importance in this representation is the realization that outcomes are represented as internal to the complex adaptive system, and do not necessarily reside in linear relationships or as the endpoints of linear processes. In the conceptualization of outcomes in Figure 1, and the description of benchmarking in the discussions, outcomes provide recursive feedback into the adaptive system and may function as initial conditions, dynamic forces, or stable/strange attractors.

FIGURE 5 Position of Practice Choices and Expected Outcomes in Overall Model Structure
Chapter Summary

This chapter summarizes steps three and four of the concept clarification methodology. These steps involve the deductive and recursive process for formulating the operational definition and constructing a conceptual model of nursing best practice consistent with the principles and assumptions of complexity science and theory. The concepts included in the model are drawn from the preceding concept clarification steps of identifying the concept and systematizing observations and descriptions of the concept. Evaluation and refinement of the operational definition and conceptual model of nursing best practice are presented in Chapter Six.
CHAPTER 6: EVALUATION AND REFINEMENT OF OPERATIONAL DEFINITION AND CONCEPTUAL MODEL OF NURSING BEST PRACTICE

Overview of Evaluation Methodology

The methodologies of description and critical reflection, as well as expert panel review are employed to further address research questions 2a and 2b:

2a) Do an operational definition and conceptual model of nursing best practice that are consistent with the underlying assumptions of complexity science and theory represent the variables and interactions between variables in a manner consistent with the perception of subject matter experts? and, 2b) Is such a conceptual model useful to the further study of nursing best practice?

The methods described in this section focus on evaluation of the structural validity, explanatory usefulness, and knowledge-generating applicability of the proposed conceptual model.

This chapter summarizes an evaluation of the operational definition and constructed conceptual model presented in Chapter Five using the framework described and outlined by Chinn & Kramer (1999, pp 83-111) through a process of description and critical reflection. The first phase of this evaluation is description of the model with respect to the following dimensions: purpose, concepts, definitions, relationships, structure, and assumptions. The second phase of evaluation is critical reflection, which considers the following characteristics: semantic clarity, semantic consistency, structural clarity, structural consistency, simplicity, generalness, accessibility, and importance.
In addition to the evaluation described in this chapter as outlined in the previous paragraph, additional qualities of the constructed conceptual model are considered and discussed in Chapter Eight of this dissertation. Operating assumptions and contextually derived meanings (Kramer, 1993) are explicated through systematic evaluation of the derivation, empiric and/or theoretic support, maturity, completeness, utility, potential as basis for research, potential as basis for practice, parsimony, and limitations of the constructed and refined conceptual model. Evaluation of utility and determination of potential application to knowledge generation and practice include further explication of indicators and implications for measurement strategies. The final component of evaluation, also presented in Chapter Eight, is consideration of the relevance of the constructed model through evaluation of the congruence of the model with the metaparadigms, philosophical perspectives, and clinical phenomena of concern to nursing.
Description

Purpose

The purpose of the constructed conceptual model presented in this dissertation, as stated in the introduction, is to serve as an integrative conceptual representation of nursing best practice. This stated purpose implies that this model is intended to reconcile and/or encompass a variety of existing conceptualizations. The research questions posed in this dissertation further describe the purpose of the model as being an adequate and valid representation of variables and interactions among variables that impact nursing best practice. A final stated purpose of this model is to represent nursing best practice in a manner consistent with the philosophy and underlying assumptions of complexity science and theory. Although not explicitly stated at the onset, the inclusion of both context and clinician constructs in the model, indicate that an additional purpose of this model is to provide a system perspective of nursing best practice.

Chinn & Kramer (1999, pp 84-85) emphasize the importance of considering the impetus for theory development when describing purpose. The author of this dissertation, and developer of the conceptual model presented herein, became interested in this scholarly pursuit while attempting to understand and identify the relative importance of nursing attitudes toward research and organizational nursing research related structures in determining the degree of nursing research application to practice in the clinical setting. The conceptual model presented in this dissertation arose from a desire to: (1) better understand the nature of the inter-relatedness of clinician and system variables, (2) provide basis for arguments in support of specific organizational components, and (3)
address the common exclusion of clinician characteristics from nursing system models. Although admittedly premature at this stage of development, the model is intended to ultimately serve as a basis for research as well as organizational design and management decisions.

**Concepts**

Chinn & Kramer, (1999, p 89) argue that concepts should be examined for “quantity, character, emerging relationships, and structure.” There are eighteen separate terms in the initial illustrated version of the constructed model that represent conceptual components. Two of these terms, clinician properties and context properties, are broad concepts within which other terms are listed as sub-concepts. The identified conceptual terms are a mix of component variables, characteristic variables, and process variables. Concepts are illustrated as domains of influence that are layered and overlapping. Several concept domains are represented as processes that link domains of influence across layers of domains.

Embedded in the description of the model, but not included as explicit terms in the model, are explanations of additional concepts relevant to a complexity science perspective. Concepts of initial conditions, dynamic forces, strange attractors, interdependency, emergent property, and complex adaptive system are critical to the construction and understanding of the proposed model.

**Definitions**

Definitions provide clarification of abstractions and facilitate comprehension of how concepts are related to empiric reality (Chinn & Kramer, 1999, p 89). For the most
part, concepts illustrated in the model as well as concepts relevant to complexity science are defined in the narrative description of the model. As the definitions are not necessarily common knowledge, nor are the terms listed in the illustration singularly defined in common usage, the narrative description is thus a critical requirement to understanding the conceptual model.

**Relationships**

The nature of the relationships between concepts in the proposed model illustrated in Figure 1 in Chapter Four is best described as vague and ill-defined. Essentially, the most specific statement that can be made regarding relationships is that the conceptual components are related in an interdependent fashion. Domains of influence overlap other domains of influence to create the concept of interdependency. Additional conceptual domains emerge as properties of the domains of interdependency. Cause-effect, or linear relationships, are absent from the model. The specific nature of the relationships between concepts and conceptual domains is represented as sensitive to initial conditions or the exact nature of the interdependency itself.

**Structure**

The conceptual variables represented in this conceptual model of nursing best practice are components of overlapping and layered domains of interdependent influence. Although illustrated with discrete boundaries, the domains of influence are theoretically equivalent to all-inclusive spheres of mutually exclusive universal sets. The clinical properties domain includes all properties specific to the clinician universal set of properties, while the context properties domain includes all properties specific to the non-
clinician universal set. Layered domains of influence are sets of conceptual variables that arise from the interdependency of the clinician and context domains. Best practice is a property, or pattern, that emerges from this interdependency.

While Figure 1 in Chapter Four attempts to illustrate the interdependency of the conceptual domains, the attempt falls short of adequate representation of the narrative description of the model. Chinn & Kramer (1999, p 94) suggest outlining the order of the concepts, or determining which concepts are more central, for theories that defy structure determinations. From a complexity theory perspective, the centrality and ordered relationships of concepts are themselves dependent structural characteristics and, therefore, cannot be adequately represented in a static, two-dimensional illustration. More sophisticated modeling programs that illustrate dynamic interdependencies in multiple dimensions, including time, might be useful in visually illustrating the conceptual model describe in this dissertation.

Assumptions

Explication of assumptions is critical to differentiating fact based assertions from value laden positions (Chinn & Kramer, 1999, p 95), and is thus one means of identifying bias introduced during the development of the model. One assumption related to complexity science is that the behavior of complex adaptive systems can neither be predicted nor controlled. The very fact that the model has been constructed consistent with complexity science and theory indicates several related assumptions, one of which is that organizations within which nurses function are complex adaptive systems. A second is that the specific nature of the relationships among the concepts represented in the
model is not predictable. This assumption indicates that the model is not intended to be
used for applications that intend to predict or determine causation.

Representing nursing best practice as an emergent property of a complex adaptive
system implies several hidden assumptions that may reflect value judgments rather than
factual assertions. The first assumption is that nursing best practice is a property of the
system, and that the nature of this property is not determined through linear causation
among the components of the model. The model cannot, therefore, be intended for
applications that seek to control the nature of nursing best practice. Since emergent
properties arise from the interdependencies among system components, are sensitive to
initial conditions, and reflect self-organization around unlimited strange attractors, this
model implies that the nature of nursing best practice differs from situation to situation.
The model is not, therefore, consistent with approaches and applications that embrace a
pre-determined nature of nursing best practice as a standard for comparison.

Critical Reflection

Critical reflection is a means for evaluating the functional value of theory and for
understanding how well theory actually applies to nursing applications and activities
(Chin & Kramer, 1999, p. 100). Critical reflection considers that following qualities:
semantic clarity, semantic consistency, structural clarity, structural consistency,
simplicity, generalness, accessibility, and importance. These qualities are evaluated using
expert panel methodology and discussed in the subsequent section.
Expert Panel Review

Overall face validity and adequacy of the constructed model, as well as semantic clarity, semantic consistency, structural clarity, structural consistency, simplicity, generalness, accessibility, importance, and relevance were evaluated through review by a panel of experts. The approach is a modification of expert panel methodology employed for initial exploration of content validity in instrument development (Grocott, et al., 2001; Hyrkas, et al., 2003; Lynn, 1986; Rubio, et al., 2003; Schim, et al., 2003).

Selection and Composition of Panel of Experts

As explanatory relevance to the nursing practice environment is a key component of the purpose of this inquiry, the panel of reviewers was selected to include both academic and clinical nursing perspectives. For the initial phase of model evaluation, some familiarity with complexity science and theory was considered to be necessary and recruitment was therefore targeted to individuals with publications or active involvement in research or clinical applications within a complexity theory framework. Purposive recruitment of nursing clinicians and nurse scholars who met the above criteria was conducted via electronic mail. Recruitment was conducted to obtain a target panel of at least five (Lynn, 1986), with a maximum of 15 to limit the volume of qualitative input at this initial stage of model evaluation and refinement. The panel size for the first round of model evaluation in this study was 9 experts. Acceptable standards for expert panel review in the social science arena range from six to twenty members (Rubio, et al., 2003). Panels comprised of 10 members are considered sufficient for reliable determination of content validity in instrument development (Hyrkas, et al., 2003).
Recruitment of Expert Panelists

Agreement for participation in expert panel evaluation of the preliminary conceptual model of nursing best practice was solicited prior to delivery of evaluation packets and response forms to promote interest in, and positive anticipation of, the opportunity to contribute to the research effort (Rubio, et al., 2003). Potential participants were informed that only a general demographic profile of the review panel would be disclosed and that further human subjects protection information would be provided with the review packet (Hyrkas, et al., 2003).

Content and Format of Expert Panel Review

Review packets were distributed by regular mail to potential participants who expressed interest to participate in response to the initial electronic mail solicitation consistent with standard expert panel review practice (Froman, 2002; Rubio, et al., 2003; Schim, et al., 2003). Packets included a cover letter with the purpose and brief description of the project, explication of human subjects protection, and explanation of the response expectations (Rubio, et al., 2003). The cover letter is included in Appendix A.

A standardized response form and self-addressed stamped envelope were provided to promote standardization of response data and ease of participation (Froman, 2002; Grocott, et al., 2001; Rubio, et al., 2003). Review packets also included representations of the preliminary model and sufficient supportive explanatory information to permit reasonable evaluation. The response form was designed to generate data from expert review to be used in the exploration of research questions 1a, 1b, and 2a, 2b. The form was also designed to generate both qualitative and quantitative information
regarding face validity and explanatory relevance. A copy of the response form is included in Appendix B.

Summary of Expert Panel Demographic Data

Demographic data provided by the reviewers was compiled for a general description of the participants. The panel consisted of nine (9) members, eight of whom are nurses. The eight nurses on the panel have a combined 206 years of experience in nursing, with 25.75 average years of experience among the eight. Years of experience in nursing among the eight nurses ranged from 10 to 33 years. Four of the eight nurses listed between 20 and 30 years experience, while three panel members have between 30 and 35 years experience. Professional specialization was identified in administrative and academic areas of nursing administration, research, quality, leadership, informatics, and information management. Professional specialization also included clinical practice foci of cardiac, nephrology, pediatrics, neonatal, community health, and mental health.

Five members of the panel are educationally prepared at the doctoral level and four at the master’s level, with three members having Nurse Practitioner credentials. Non-nursing degrees were identified as MBA, journalism, engineering, and management. Four panel members are currently employed in academic institutions, four in hospitals or health care delivery systems, and one in a consulting business enterprise.

Five of the panel members claim expertise in nursing systems research, five claim expertise in application of complexity science as an explanatory framework, and four
claim expertise in delivery of clinical nursing care. Two-thirds of the members of the panel are from locations in the southwestern United States.

Analysis of Expert Panel Model Evaluation Likert Scale Data

For each of the items in the model evaluation response that generate numerical 4 point Likert scale data, an “index of strength” was calculated similar to the content validity index used in instrument construction (Rubio, et al., 2003). The “index of strength” in this study was calculated as the average of all responses to each item. All items on the model review form are framed such that higher scores indicate positive evaluation. Areas of consensus agreement are organized according to supportive versus non-supportive evaluation. Items on the response form were ranked according to strength indices and supportive nature to illustrate strengths and weaknesses in the model.

Indices of strength for Likert Scale items are presented in Tables 5, 6, 7, and 8. The potential range of values for indices of strength is from one (1) for no agreement, or negative evaluation, to four (4) for complete agreement, or positive evaluation. All items are constructed such that the higher the index the more favorable the evaluation. Indices of three (3) or greater are considered to represent strengths of the conceptual model, while indices less than three (3) are considered to represent weaknesses in the model.
<table>
<thead>
<tr>
<th>Aspect of definition</th>
<th>Index of strength</th>
<th>Strength or weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate representation of critical components of nursing best practice</td>
<td>3.33</td>
<td>Strength</td>
</tr>
<tr>
<td>Adequate level of specificity</td>
<td>3.25</td>
<td>Strength</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aspect of model</th>
<th>Index of strength</th>
<th>Strength or weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representation of key variables of nursing best practice</td>
<td>3.33</td>
<td>Strength</td>
</tr>
<tr>
<td>Representation of interactions influencing nursing best practice</td>
<td>2.56</td>
<td>Weakness</td>
</tr>
<tr>
<td>Consistency of interaction of variables with perception of nursing best practice within healthcare delivery organization</td>
<td>2.56</td>
<td>Weakness</td>
</tr>
</tbody>
</table>
### TABLE 7 Applicability of Model to Further Study Indices of Strength

<table>
<thead>
<tr>
<th>Aspect of model</th>
<th>Index of strength</th>
<th>Strength or weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of concepts and constructs</td>
<td>3.00</td>
<td>Strength</td>
</tr>
<tr>
<td>Consistency of concepts and constructs</td>
<td>3.33</td>
<td>Strength</td>
</tr>
<tr>
<td>Clarity of relationships</td>
<td>2.44</td>
<td>Weakness</td>
</tr>
<tr>
<td>Consistency of relationships</td>
<td>2.56</td>
<td>Weakness</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
<td>Weakness</td>
</tr>
<tr>
<td>General</td>
<td>2.44</td>
<td>Weakness</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
<td>Weakness</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
<td>Strength</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
<td>Strength</td>
</tr>
</tbody>
</table>

### TABLE 8 Interest in Development and Application Indices of Strength

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>Strength or weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in further development of model</td>
<td>3.56</td>
<td>Strength</td>
</tr>
<tr>
<td>How apt to apply model in professional practice</td>
<td>3.00</td>
<td>Strength</td>
</tr>
</tbody>
</table>
Supportive evaluations that are considered to represent strengths in the proposed conceptual model and non-supportive evaluations that are considered to represent weaknesses in the initial model are grouped and ranked according to strength indices in Table 9.

**TABLE 9 Rank of Indices of Strengths/Weaknesses**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td></td>
</tr>
<tr>
<td>Interest in further development of the model</td>
<td>3.56</td>
</tr>
<tr>
<td>Adequate representation of critical components of nursing best practice</td>
<td>3.33</td>
</tr>
<tr>
<td>Representation of key variables of nursing best practice</td>
<td>3.33</td>
</tr>
<tr>
<td>Consistency of concepts and constructs</td>
<td>3.33</td>
</tr>
<tr>
<td>Adequate level of specificity</td>
<td>3.25</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
</tr>
<tr>
<td>Clarity of concepts and constructs</td>
<td>3.00</td>
</tr>
<tr>
<td>How apt to apply model in professional practice</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>WEAKNESSES</strong></td>
<td></td>
</tr>
<tr>
<td>Clarity of relationships</td>
<td>2.44</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
</tr>
<tr>
<td>General</td>
<td>2.44</td>
</tr>
<tr>
<td>Representation of interactions influencing nursing best practice</td>
<td>2.56</td>
</tr>
<tr>
<td>Consistency of interaction of variables with perception of nursing best practice within healthcare delivery organization</td>
<td>2.56</td>
</tr>
<tr>
<td>Consistency of relationships</td>
<td>2.56</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
</tr>
</tbody>
</table>
Content validity indices (CVI) were calculated for each of the aspects evaluated and represent the proportion of expert panel members agreeing in the rating of the aspect as either a strength or weakness. For items with indices of strength 3.00 or greater, the CVI represents the proportion of experts who gave a rating of strength of 3.00 or greater. For items with indices of strength less than 3.00, the CVI is the proportion of experts who gave the item a score of less than 3.00, therefore, items identified by consensus to be weaknesses have low indices of strength scores with high content validity indices.

TABLE 10. Content Validity Indices of Agreement Regarding Indices of Strength

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>#</th>
<th>CVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Represents critical components</td>
<td>3.33</td>
<td>8/9</td>
<td>.89</td>
</tr>
<tr>
<td>Level of specificity</td>
<td>3.25</td>
<td>7/8</td>
<td>.88</td>
</tr>
<tr>
<td>Represent key variables</td>
<td>3.33</td>
<td>7/8</td>
<td>.89</td>
</tr>
<tr>
<td>Represent interactions</td>
<td>2.56</td>
<td>4/9</td>
<td>.44</td>
</tr>
<tr>
<td>Consistent with perceptions</td>
<td>2.78</td>
<td>4/9</td>
<td>.44</td>
</tr>
<tr>
<td>Constructs clear</td>
<td>3.00</td>
<td>7/9</td>
<td>.78</td>
</tr>
<tr>
<td>Constructs consistent</td>
<td>3.33</td>
<td>9/9</td>
<td>1.00</td>
</tr>
<tr>
<td>Relationships clear</td>
<td>2.44</td>
<td>6/9</td>
<td>.67</td>
</tr>
<tr>
<td>Relationships consistent</td>
<td>2.56</td>
<td>5/9</td>
<td>.56</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
<td>5/9</td>
<td>.56</td>
</tr>
<tr>
<td>General</td>
<td>3.22</td>
<td>7/9</td>
<td>.78</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
<td>4/8</td>
<td>.50</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
<td>6/9</td>
<td>.67</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
<td>6/9</td>
<td>.67</td>
</tr>
<tr>
<td>Interest in further development</td>
<td>3.56</td>
<td>8/9</td>
<td>.89</td>
</tr>
<tr>
<td>Apt to apply</td>
<td>3.00</td>
<td>6/9</td>
<td>.67</td>
</tr>
</tbody>
</table>
TABLE 11 Ranking of Content Validity Indices of Model Strengths

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>Rank</th>
<th>CVI</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constructs consistent</td>
<td>3.33</td>
<td>2</td>
<td>1.00</td>
<td>1</td>
</tr>
<tr>
<td>Represents critical components</td>
<td>3.33</td>
<td>2</td>
<td>.89</td>
<td>2</td>
</tr>
<tr>
<td>Represent key variables</td>
<td>3.33</td>
<td>2</td>
<td>.89</td>
<td>2</td>
</tr>
<tr>
<td>Interest in further development</td>
<td>3.56</td>
<td>1</td>
<td>.89</td>
<td>2</td>
</tr>
<tr>
<td>Level of specificity</td>
<td>3.25</td>
<td>3</td>
<td>.88</td>
<td>3</td>
</tr>
<tr>
<td>General</td>
<td>3.22</td>
<td>4</td>
<td>.78</td>
<td>4</td>
</tr>
<tr>
<td>Constructs clear</td>
<td>3.00</td>
<td>6</td>
<td>.78</td>
<td>4</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
<td>5</td>
<td>.67</td>
<td>5</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
<td>5</td>
<td>.67</td>
<td>5</td>
</tr>
<tr>
<td>Apt to apply</td>
<td>3.00</td>
<td>6</td>
<td>.67</td>
<td>5</td>
</tr>
</tbody>
</table>

TABLE 12 Ranking of Content Validity Indices of Model Weaknesses

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>Rank</th>
<th>CVI</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships clear</td>
<td>2.44</td>
<td>1</td>
<td>.67</td>
<td>1</td>
</tr>
<tr>
<td>Relationships consistent</td>
<td>2.56</td>
<td>2</td>
<td>.56</td>
<td>2</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
<td>1</td>
<td>.56</td>
<td>2</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
<td>3</td>
<td>.50</td>
<td>3</td>
</tr>
<tr>
<td>Represent interactions</td>
<td>2.56</td>
<td>2</td>
<td>.44</td>
<td>4</td>
</tr>
<tr>
<td>Consistent with perceptions</td>
<td>2.78</td>
<td>4</td>
<td>.44</td>
<td>4</td>
</tr>
</tbody>
</table>

General areas of weakness appear to be all aspects related to the representation of relationships between variables and constructs, as well as simplicity, generalness, and accessibility of the model. The strengths of the initial conceptual model appear to be the adequacy of representation of the key variables influencing nursing best practice, as well as importance, relevance, and interest in further development. These findings are consistent with the description of the model, which also identified the primary weakness as difficulty in illustrating the structure of the model, and the lack of specification of the nature of the relationships among the concepts represented in the model. Of interest is the
finding that the content validity indices were general lower for the weaknesses than for the strengths identified by the expert panel, indicating less agreement that the aspect was actually a weakness.

*Analysis of Expert Panel Narrative Data – Operational Definition*

Items in the model evaluation response form that produced narrative responses were subjected to a modified content analysis for identification of suggested modifications in the content and structure of the preliminary model. For each suggested modification, the degree of reviewer consensus was explored, both in the number of reviewers suggesting changes and the number of changes suggested. Summary of the results of the content analysis of narrative response data regarding the proposed operational definition of nursing best practice is included in this section.

None of the nine expert panel members identified items to be deleted from the operational definition of nursing best practice. Two of the experts did suggest clarification of terms by suggesting substitution of similar terms. These two reviewers did not, however, suggest clarification of the same component of the definition. One clarification illustrated that the terms for nursing practice and nursing care were used to define one another without clear definition of either as an independent term.

Four members of the expert panel suggested items to be added to the operational definition of nursing best practice, but none of the four suggested similar or related items. One expert noted that key variables in the description of the model were not incorporated into the definition; one suggested delineation of categories of outcomes, one suggested
including the recipient of nursing care, and one questioned the validity of nursing practice as a property of a system.

Four members of the panel made suggestions for rephrasing the operational definition. The rephrasing suggestions incorporated the variables that were suggested as additions in the previous paragraph, as well as one suggestion for strengthening the complexity science perspective of the definition. One suggested rephrasing illustrated that the definition, as originally stated, did not delineate a system perspective consistent with the conceptualization in the associated model.

*Analysis of Expert Panel Narrative Data – Conceptual Model*

Expert panel members did not identify variables to be deleted from the conceptual model, but several raised questions regarding the variable of “benchmarking,” and one questioned the inclusion of both culture and climate in the context property domain without associated differential definition. Variables suggested to be added include “relationships,” “learning,” “individualization,” and “resources.”

Seven of the nine experts stated primarily positive general impressions of the model. Impressions did include divergent opinions, with three experts describing the illustration as “confusing,” while one expert described the model as a “very clear visual representation.” Five experts identified difficulties in understanding the relationships in the model as a weakness, while two experts designated the nature of the relationships among concepts and lack of linearity in relationships as strengths of the model.

Aspects that expert panel members liked best about the model were identified as “variables right on target,” “comprehensive set of variables,” “contains key variables,”
and “inclusive of important variables.” The “use of” and “basis on” complexity theory were also identified as aspects liked by the reviewers. Despite less positive feedback regarding the depiction of relationships, several experts liked representation of “intertwined process,” “does not over-simplify,” and “directs away from traditional frameworks.”

The items most consistently identified as least liked by the panel members pertained to the illustration and structure of the model. Those comments included “way it was drawn,” “need to use written text to understand,” “associate boxes with being contained,” “way variables are laid out,” and “the figure is weakness, not content.” Additional dislikes included “one way nature of benchmarking,” “does not tie to complexity science as well as it should,” and “no inclusion of patient, family, community.”

Operational Definition and Model Refinement and Revision

Table 13 describes the modifications made to the operational definition based on expert panel feedback from the initial evaluation. The positive indices of strength (3.33 and 3.25) combined with the relatively high content validity indices (.89 and .88) for the two items of evaluation pertaining to the operational definition, indicated that major changes in the definition were not indicated. Attention was paid to incorporating narrative feedback data without significantly changing the conceptual definition.
TABLE 13 Comparison of Initial and Revised Operational Definition of Nursing Best Practice

<table>
<thead>
<tr>
<th>Original Definition</th>
<th>Modified Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing best practice is a pattern of nursing practice exhibited by a system in which nursing care is delivered in a manner and within a context that maximizes the potential for optimization of desired outcomes</td>
<td>Nursing best practice is a pattern of individual and collective behaviors exhibited throughout a system in which patient care is delivered in a manner and context that maximizes the potential for optimization of desired outcomes.</td>
</tr>
</tbody>
</table>

The expert reviewer comment that terms in the definition were used to “define themselves” indicated definitional ambiguity in the initial proposed definition. The modified definition includes operationalization of nursing practice into observable behaviors, and designates patient care delivery as the defining element of the system of interest. The designation of individual and collective behaviors was added to reinforce the system perspective of this conceptualization. Evaluation of these changes is reflected in the discussion in Chapter Six of the second round of expert panel review.

Figure 6 illustrates the refinements to the model illustration, as compared to Figure 1, that derived from the initial expert panel narrative feedback. These refinements are limited to visual aspects of the structural representation of the model, and replacement of the term “benchmarking” with the dynamic process of “informative reflection.” The visual modifications include removal of the boundaries defining “boxes,” and addition of color shading to denote conceptual spheres. The overlapping areas of color denote interdependency among the conceptual spheres of influence. These changes were
implemented to better represent the interdependent nature of the concept domains and to remove the perception of boundaries or containment of conceptual domains.

The term “informative reflection” was adapted from literature on critical thinking and is analogous to the core critical thinking skill of self-regulation as defined by Facione (2004). Self-regulation is represented as a recursive process by which critical thinkers “self-consciously” monitor and improve their own thinking (Facione, 2004; Kramer, 1993). Embedded in this dynamic process is the concept of reflective decision making as applied to the mechanisms by which the organization monitors and improves performance (Matthews & Lankshear, 2003). This term replaces the “one-way” process of benchmarking with a dynamic process that conceptually represents elements of information flow and organizational learning noted in the literature, and as feedback from expert panel narrative data, to have potential importance to professional nursing practice (Anderson, et al., 2003; Manojlovich & Ketefian, 2002; Matthews & Lankshear, 2003).
FIGURE 6: Conceptual Model of Nursing Best Practice – Refined Version

The results of the first round of expert panel feedback indicate that further refinement of the structure of the model may be warranted to facilitate understanding, and that pursuit of formal construct validation are premature at this stage of model development. Prior to the ability to validate constructs through traditional methods, more information about the nature of relationships implied in the model is needed. Chapter Six summarizes the second round of expert panel review designed to further explore face validity of the model with respect to the nature of relationships. Preliminary exploration of construct validity is also reported. Additional modifications to the content and narrative explanation of the model are included in Chapter Six.
Chapter Summary

Chapter Five describes the expert panel methodology employed to evaluate the initial operational definition and conceptual model of nursing best practice, summarizes the results from that evaluation, and presents the modifications made to the definition and model as a result of the expert panel evaluation. The refined definition and conceptual model were returned to the expert panel for a second round of evaluation, and for additional exploration of the nature of the relationships in a complexity theory based conceptualization of nursing best practice. Chapter Seven presents the results from the second round of expert panel evaluation.
CHAPTER 7: EXPLORATION OF CONSTRUCT VALIDITY

Overview of Methodology

This section outlines the methodological approach to research question 3:

3) Do the proposed variables and relationships among the variables presented in a conceptual model of nursing best practice that is consistent with complexity science and theory provide valid representations of nursing best practice?

This methodology involves preliminary exploration of construct validity through consideration of congruence of indicators and relationships proposed by the model with observed phenomena. This chapter summarizes the approach to step five in the concept clarification process, which is formulation of hypotheses suggested by the conceptual model. Feedback received during the initial expert panel review indicated that further exploration of the nature of relationships among the concepts in the proposed model was warranted prior to more formal construct validation methods. Chapter Six presents the methodology and results of the second round of expert panel evaluation and the further exploration of relationships in the conceptualization of nursing best practice proposed in this dissertation.

Expert Panel Approach

Model evaluation packets were mailed to the members of the expert panel who had agreed to participate in this study prior to the first round of evaluation. Packets again included a cover letter with the purpose and brief description of the project, explication of human subjects protection, and explanation of the response expectations (Rubio, et al., 2003). Appendix C presents the cover letter for the second round of model review.
packets sent to members of the expert panel following refinement of the initial
operational definition and conceptual model.

A standardized response form and self-addressed stamped envelope were again
provided to promote standardization of response data and ease of participation (Froman,
2002; Grocott, et al., 2001; Rubio, et al., 2003). Review packets included representations
of the revised model and sufficient supportive explanatory information to permit
reasonable re-evaluation. The response form for round 2 was designed to generate data
from expert review to be used in further exploration of research questions #2, as well as
initial exploration of research question #3. The form was again designed to generate both
qualitative and quantitative information regarding face validity and explanatory
relevance.

Section I and Section II of the model evaluation form focus on re-evaluation of
the concepts included in the definition and conceptual model. Section III is designed to
explore relationships between concepts and to provide further clarification of the nature
of those relationships. A reality-based scenario proposing different situational
arrangements of variables representing abstract concepts in the model is presented.
Experts are then asked to answer questions designed to ascertain opinions regarding
anticipated scenario outcomes. Sections IV and V repeat the same evaluation as that in
round one and are intended to determine if refinements to the definition and model
impacted the expert panel evaluation results. A copy of the response form for round two
is included in Appendix D.
Delineation of specific direct indicators of nursing best practice is considered to be outside the scope of this initial study and beyond the level of information that is supported by a conceptual model in such an early stage of development. The conceptual model constructed from this exercise does, however, permit formulation of preliminary hypotheses regarding the interpretation and interactions of variables in the clinical setting that might be expected if the model is a valid conceptual representation of nursing reality. The scenario developed to elicit expert panel opinion of anticipated scenario outcomes represents preliminary hypothesis formulation. The basis of hypothesis formulation is summarized in this section. A discussion of the expert panel results and indications follows in the subsequent section.

One general hypothesis suggested by the conceptual model presented in this dissertation is that patient outcomes linked to nursing practice patterns are differentially influenced by the interdependency of clinician characteristics and practice context characteristics. Three basic versions of this general hypothesis were presented to the expert panel for determination of which set of inter-relationships most closely matched expert perception or experience. The three hypotheses were stated as follows:

1. Nursing practice adjustments toward best practice patterns are more strongly influenced by nursing clinician properties than by context properties.
2. Nursing practice adjustments toward best practice patterns are more strongly influenced by context properties than by clinician properties.
3. Nursing practice adjustments toward best practice patterns are equally influenced by clinician and context properties.

Expert panel members were given the opportunity to suggest factors that might qualify their selection of the three hypothesis statements.

Three scenarios representing manifestations of the three hypotheses were developed by operationalizing concepts of interest into reality-based variables. Prevention of skin breakdown was selected for these scenarios because it is identified in the literature as a nurse sensitive patient outcome (Braden, 1997; Kaletski, 2000) implying that differences in patterns of nursing practice potentially result in differences in this patient outcome. As skin breakdown can result in increased cost of care and lengths of stay (Allman, et al., 1999), this outcome has significance to the organization in a variety of ways. Problems with skin breakdown may also reflect badly in evaluations of the overall performance of the organization as this is considered to be preventable with implementation of identified standards of care and practice (Bergstrom, et al., 1994; Maklebust, et al., 2000).

Drawing from a pilot exploration of the attitudes of clinical nurses toward research, and the finding that differences in nursing organizational structures are associated with differences in attitudes toward the clinical setting as a research environment (Williams, 2003, unpublished), the scenario incorporates the potential interplay between attitudes/beliefs/values of clinical nurses and organizational structures for embedding evidence into practice. Clinician properties are represented by variability in values and attitudes related to basis for practice choices and accountability for
outcomes of practice. Context properties are represented by organizational control over practice, organizational processes/structures for incorporating evidence into practice choices, and organizational priorities.

Scenario 1 includes clinician properties supportive of evidence based modifications in practice responsive to nurse sensitive outcome feedback within a context not supportive of responsive practice modifications based on patient outcome information. Scenario 2 describes clinician properties not supportive of evidence based modifications in practice responsive to outcome feedback within a context supportive of evidenced based practice driven by outcome data. Scenario 3 represents clinician properties supportive of nursing control over evidence based modifications in practice responsive to nurse sensitive patient outcomes within a context supportive of administratively determined control over evidence based practice modifications driven by outcome data. Common elements of all three scenarios were skin breakdown as the clinical concern and the premise that practice adjustments were indicated to address the clinical issue of concern. Members of the expert panel were asked to rate how likely adjustments to nursing practice would approximate best practice in the three scenarios.

The remainder of this chapter presents the results of the second round of expert panel evaluation of the refined operational definition and revised conceptual model and compares the evaluation, where possible and appropriate, with the initial expert panel evaluation results. The results of hypothesis exploration are summarized in the final section of this chapter. The potential significance and implications of these findings are discussed in the final chapter of this dissertation.
Results of Second Round Expert Panel Evaluation

Composition of Second Round Expert Panel

Although model evaluation packets were mailed to the same group of individuals who had expressed agreement to participate prior to the first evaluation round, the composition of the expert panel for round two differed from that for round one. A total of eight experts responded for round two compared to nine responding for round one. One of the experts who did not participate in round one participated in round two, while two of the experts in round one did not return the evaluation packets for round two. Changes to the demographic profile between the two rounds were not investigated beyond the realization that: (1) the eight participants in round two were all nurses, and (2) the range of experience and expertise were similar between the two panels.

Revised Operational Definition of Nursing Best Practice

Members of the expert panel were asked to evaluate the refined operational definition of nursing best practice using the same two four-point Likert scale questions and the same two narrative questions as the first round evaluation. Table 14 presents the results of the second round evaluation and compares round one with round two evaluation findings. The two aspects of the definition evaluated by the expert panel are adequacy of representation of critical components and adequacy of level of specificity. While both aspects met the criteria for strengths, with scores of 3 or greater, in the initial round, the scores increased in the second round. The increase in score, although not appropriate for statistical significance considerations, is designated as “strengthened” in the comparative analysis following revision based on expert panel feedback in round one.
TABLE 14 Comparison of Initial and Revised Operational Definition Indices of Strength

<table>
<thead>
<tr>
<th>Aspect of definition</th>
<th>Index of strength initial</th>
<th>Index of strength revised</th>
<th>Strengthened or weakened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate representation of critical components of nursing best practice</td>
<td>3.33</td>
<td>3.63</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Adequate level of specificity</td>
<td>3.25</td>
<td>3.5</td>
<td>Strengthened</td>
</tr>
</tbody>
</table>

**Refined Conceptual Model of Nursing Best Practice**

Section II of the model review response form asks the expert panel members to evaluate the constructs included in the revised conceptual model. The questions are identical to those asked in the first round evaluation and pertain to the clarity and consistency of constructs and concepts. Table 15 below includes the results of the second round evaluation and illustrates the comparison with round one findings. While clarity of concepts was scored higher in the second round, consistency was scored lower. Both of these aspects of the model received scores of greater than 3 in both rounds and, thus, meet the criteria for being strengths of the model.

**Application of Refined Model to Further Study of Nursing Best Practice**

Sections IV and V of the model review response form pose questions pertinent to the potential application of this conceptual model to further study of nursing best practice, and the level of interest of the members of the expert panel in that application. The questions are identical to those posed in the first round. Table 15 lists the aspects of the model evaluated, presents the results from round two, and illustrates a comparison of round one with round two results.
TABLE 15 Comparison of Applicability of Initial and Refined Model to Further Study
Indices of Strength.

<table>
<thead>
<tr>
<th>Aspect of model</th>
<th>Index of strength initial</th>
<th>Index of strength refined</th>
<th>Strengthened or weakened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of concepts and constructs</td>
<td>3.00</td>
<td>3.38</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Consistency of concepts and constructs</td>
<td>3.33</td>
<td>3.25</td>
<td>Weakened</td>
</tr>
<tr>
<td>Clarity of relationships</td>
<td>2.44</td>
<td>3.0</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Consistency of relationships</td>
<td>2.56</td>
<td>2.88</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
<td>3.13</td>
<td>Strengthened</td>
</tr>
<tr>
<td>General</td>
<td>2.44</td>
<td>3.5</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
<td>3.0</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
<td>3.5</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
<td>3.63</td>
<td>Strengthened</td>
</tr>
<tr>
<td>Interest in further development of model</td>
<td>3.56</td>
<td>3.25</td>
<td>Weakened</td>
</tr>
<tr>
<td>How apt to apply model in professional practice</td>
<td>3.00</td>
<td>2.75 (3.00*)</td>
<td>Weakened (Neither*)</td>
</tr>
</tbody>
</table>

*Eliminating one expert respondent who stated reason for not applying is related to their professional role – would apply if role was clinical and/or administrative

Five aspects of the model were scored below 3 in the first round of expert panel evaluation meeting the criteria as weaknesses in the model. Table 15 illustrates that only one of those items, consistency of relationships, continued to meet criteria as a weakness following model refinement in round two. The scores for three aspects did decrease between round one and round two, but those scores did not drop below 3. Of note, the aspect of how apt the expert is to apply the model to practice score did drop below 3 for the second round. One expert respondent did qualify a low score on that item with a statement indicating they would not be apt to apply the model due to their current role, but would apply if their role was clinical and/or administrative. When that score is removed, the average item score is 3, meeting the criteria for a strength of the model.
Content validity indices were calculated, ranked, and compared between round one and round two for proportion of expert panel members in agreement with whether each aspect is a strength or weakness. The results of those calculations, rankings, and comparisons are illustrated in Table 16. Several items are worthy of note in these results. One is that the direction of change in score, increase or decrease, corresponds across all items with the direction of change in the CVI. Items with scores indicating tendency toward strength also exhibited a higher degree of agreement among experts, while items with scores indicating tendency toward weakness, exhibited decreased degree of agreement among experts.

A second phenomenon of note illustrated in Table 16 is the change in ranking of strengths among the items. Of particular interest is the item pertaining to the relevance of the model, which went from a ranking of 5 in both score and CVI, to a number 1 ranking in the second round following refinement.
TABLE 16 Comparison of Content Validity Indices for Initial (I) and Refined (R) Model Strengths and Weaknesses.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>Rank</th>
<th>CVI</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constructs consistent</td>
<td>3.33</td>
<td>2t</td>
<td>1.00</td>
<td>1</td>
</tr>
<tr>
<td>Represents critical components</td>
<td>3.33</td>
<td>2t</td>
<td>.89</td>
<td>2t</td>
</tr>
<tr>
<td>Represent key variables</td>
<td>3.33</td>
<td>2t</td>
<td>.89</td>
<td>2t</td>
</tr>
<tr>
<td>Interest in further development</td>
<td>3.56</td>
<td>1</td>
<td>.89</td>
<td>2t</td>
</tr>
<tr>
<td>Level of specificity</td>
<td>3.25</td>
<td>3</td>
<td>.88</td>
<td>3</td>
</tr>
<tr>
<td>General</td>
<td>3.22</td>
<td>4</td>
<td>.78</td>
<td>4t</td>
</tr>
<tr>
<td>Constructs clear</td>
<td>3.00</td>
<td>6t</td>
<td>.78</td>
<td>4t</td>
</tr>
<tr>
<td>Important</td>
<td>3.11</td>
<td>5t</td>
<td>.67</td>
<td>5t</td>
</tr>
<tr>
<td>Relevant</td>
<td>3.11</td>
<td>5t</td>
<td>.67</td>
<td>5t</td>
</tr>
<tr>
<td>Apt to apply</td>
<td>3.00</td>
<td>6t</td>
<td>.67</td>
<td>5t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Index of strength</th>
<th>Rank</th>
<th>CVI</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships clear</td>
<td>2.44</td>
<td>1</td>
<td>.67</td>
<td>1</td>
</tr>
<tr>
<td>Simple</td>
<td>2.44</td>
<td>5</td>
<td>.56</td>
<td>3</td>
</tr>
<tr>
<td>Accessible</td>
<td>2.63</td>
<td>3</td>
<td>.50</td>
<td>3</td>
</tr>
<tr>
<td>Represent interactions</td>
<td>2.56</td>
<td>2</td>
<td>.44</td>
<td>4</td>
</tr>
<tr>
<td>Consistent with perceptions</td>
<td>2.78</td>
<td>4</td>
<td>.44</td>
<td>4</td>
</tr>
</tbody>
</table>

Narrative comments provided by the expert panel members correspond with improved Likert Scale scores. General comments include “nicely integrates complexity theory,” “changes are appropriate and help clarify,” “I like it,” “good overview,” “includes important components related to best practice,” and “clear and understandable.”

Strengths were identified as “accounts for different characteristics including context,” “inclusiveness,” “idea of emergence – like non-linear approach to
understanding outcome,” and “demonstrating complexity and variables impacting best practice.”

Persistent weaknesses were stated as “without clear delineation of level of abstraction,” “hard to determine relationships - + or – and effect on best practice,” “squares and colors still delineate boundaries, especially for dynamic processes,” “lacks specificity to guide research.”

**Nature of Relationships Between Constructs in the Model**

The evaluation of relationships in the constructed model was modified between round one and round two due to the issues identified by the expert panel and the feedback that the representation of relationships was a principle weakness in the initial model. Table 16 results do seem to indicate improvements as the expert panel scored the model higher on simplicity, accessibility, and clarity of relationships. Each of these aspects went from scores meeting criteria as weakness in round one to scores meeting criteria as strength in round two.

In order to explore the nature of the relationships implied by the model further, members of the expert panel were asked to respond to questions about three scenarios representing possible manifestations of selected concepts in the model. The scenarios were designed to illustrate one of three possible hypotheses regarding interdependency of clinician and context property domains of the model. The expert panel members were instructed that the common elements of all three scenarios are the clinical issue of concern is skin breakdown in patients admitted to the hospital, and the premise that practice adjustments are indicated to address the clinical issue of concern. The three
scenarios are included here as they appeared on the model evaluation response form, which can be reviewed in its entirety in Appendix D.

### Scenario 1

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
</table>
| 1. Collectively value professional nursing with responsibility and accountability for nursing practice and nurse-sensitive patient outcomes  
2. Aggregate positive attitudes toward research/evidence as basis for practice | 1. All practice protocol changes require full review and approval by sluggish bureaucratic policy & procedure committee process  
2. Organizational priority of cost control |

Practice choices derived from professional critical thinking and evidence based decision making processes toward objective of patient outcomes interface with organizational expectations of adherence to established policy & procedure for purpose of controlling operating costs

### Scenario 2

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
</table>
| 1. Negative attitudes toward research or evidence as basis for practice  
2. Predominant value system based on historical/established way of doing things | 1. Ongoing administrative review of protocols with frequent evidence based changes through formal policy & procedure committee process  
2. Organizational priority of ranking in top 1% of performance measure scores |

Practice choices derived from limited critical thinking and decision making processes based on established way of doing things interface with organizational expectations of timely implementation of evidence based protocols toward purpose of achieving high rankings on performance measure scores

### Scenario 3

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
</table>
| 1. Positive attitudes toward research or evidence as basis for practice  
2. Predominant professional nursing value system based on optimization of patient outcomes  
3. Value nursing control over nursing practice and nursing accountability for outcomes of nursing practice | 1. Ongoing administrative review of protocols with frequent evidence based changes through formal policy & procedure committee process  
2. Organizational priority of ranking in top 1% of performance measure scores |
Practice choices derived from critical thinking and decision making processes based on best available evidence and objective of maximizing patient outcomes interface with organizational expectations of implementation of administratively decided protocols toward purpose of achieving high rankings on performance measure scores.

For each of the three scenarios, the following questions were posed to the expert panel members. The response categories for each of these questions was a four-point Likert type scale ranging from very likely to not likely at all.

1. How likely will actual nursing practice patterns be consistent with best nursing practice patterns?
2. How likely will improvements be noted in prevention of skin breakdown?
3. What other variables would you expect to have critical influence on practice patterns in this situation?

Table 17 presents the results of expert panel responses to the questions regarding the three scenarios. For these questions, higher scores indicate opinion of greater likelihood. The content validity index for scenario #1 was 0.63 for both questions, while the CVI for both questions in scenario #2 was 0.88, and for scenario #3 the CVI was 1.00 for both questions.

| TABLE 17 Result of Expert Panel Evaluation of Reality Based Scenarios |
|---|---|---|---|
| Scenario # | Likelihood of best practice pattern | Likelihood of improved outcome | Other factors with critical influence |
| 1 | 1.88 | 2.00 | 8 factors identified |
| 2 | 1.88 | 2.13 | 5 factors identified |
| 3 | 3.75 | 3.63 | 1 factor identified |

Scenario 1 includes clinician properties associated with best practice and context properties that might serve as hindrance to best practice. The experts scored the likelihood of best practice nursing patterns and improvement in patient outcomes in the
low range, identified 8 potential variables that might have critical influence in this situation, and exhibited a moderate level of agreement. The other factors, or potential influencing variables represented a diverse range of largely organizational variables and included regulatory requirements, unit culture, manager characteristics, existing policy, responsiveness of patient, control over practice, value of professional nursing, and leadership support.

Scenario 2 presents the opposite combination to the first scenario with clinician properties considered to be counter to best practice but context properties that might promote best practice patterns. The expert panel members again considered the likelihood low of best practice patterns and improvements in patient outcomes, but exhibited higher degree of agreement with higher CVI for both questions. Fewer other variables were identified. Variables noted by the panel members represented a blend of clinician and context elements, including clinical competence, interpersonal skills of clinical leadership, malleability of clinicians, patient properties, system responsiveness, and organizational philosophy and goals.

The final scenario, scenario 3, combined clinician and context characteristics linked with best practice. Opinions of likelihood were higher with complete agreement among the experts. Only one additional variable, patient properties, was identified. One member of the expert panel commented, “I want to work at this organization!”

The expert panel members were also presented with direct statements of three possible hypotheses regarding the interdependency of clinician and context property
domains, and asked to select the one that best represented their perception of reality. The three hypotheses were stated as follows:

Nursing practice adjustments toward best practice patterns are more strongly influenced by nursing clinician properties than by context properties

Nursing practice adjustments toward best practice patterns are more strongly influenced by context properties than by clinician properties

Nursing practice adjustments toward best practice patterns are equally influenced by clinician and context properties

Table 18 presents the result of hypothesis selection by the members of the expert panel.

**TABLE 18 Proportion of Expert Panel Members Selecting Hypothesis that Most Closely Represents Their Perception of Reality**

<table>
<thead>
<tr>
<th></th>
<th>Clinician &gt; Context</th>
<th>Clinician &lt; Context</th>
<th>Clinician = Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.38 (3/8)</td>
<td>0.63 (5/8)</td>
<td></td>
</tr>
</tbody>
</table>

The selection by most of the expert panel members of hypothesis number three, clinician and context properties equally influence nursing practice adjustments toward best practice patterns, appears to correspond with the implications in the results obtained from the scenario questions. Opinions of high likelihood of best practice in scenario 1 would most support hypothesis one that clinician properties have greater influence than context properties. Opinions of high likelihood of best practice in scenario 2 would most support that context properties have greater influence than clinician properties. Higher perceptions of likelihood with favorable clinician and context properties than either of the other two scenarios is consistent with hypothesis three that clinician and context properties equally influence practice patterns.
The narrative data provided by the members of the expert panel does imply opinion that context properties may be more influential over time. Comments supporting this implication include “over time nurses not fitting or adapting to culture will be replaced,” and “clinicians may be easier to force than when organization stifles change.” Additionally, the expert panel results indicate opinion of greater likelihood of best practice patterns when context properties are supportive and clinician properties are not, than when the opposite exists. More context properties than clinician properties were specifically identified as critical variables in the narrative responses of the expert panel members. The most frequently noted context property, or variable, was culture, which was identified by five of the eight members as the one context property having the greater interdependence with clinician properties.

Narrative data provided by the members of the expert panel in round two indicate that depiction of the nature of relationships among concepts in the model remains somewhat problematic, although opinion of this aspect of the model did improve following refinement. It is interesting to note that several of the narrative comments implying weakness in the model indicate difficulty related to the complexity science basis of this conceptualization. Those comments include, “context properties encompass a cadre of embedded variables that have significant impact on best practice,” “very abstract and holistic, difficult to operationalize to guide quantitative research,” and “lacks specificity of relationships to guide research.” Conversely, several expert panel members expressed positive opinions regarding the complexity theory basis. Those comments include “like non-linear approach to understanding outcomes,” strength identified as
“inclusiveness,” “complexity and number of variables impacting best practice,” and “idea of emergence.”

Chapter Summary

Chapter seven reviews the expert panel methodology, which was again employed for evaluation of the revised operational definition and refined conceptual model of nursing best practice. In addition to comparison of expert opinion evaluation of the initial and refined models, this chapter presents the results of initial exploration of construct validity. In general, the opinion of members of the expert panel was consistent with the hypothesis that clinician and context properties equally influence nursing practice adjustments toward best practice patterns. Expert panel feedback indicated that the constructs included in the model adequately represent variables impacting nursing best practice, but that the nature of the relationships between constructs remains unclear. Narrative data from expert panel responses demonstrates acknowledgement that complex interdependencies between clinician and context properties exist, and that over time context properties may have greater influence than clinician properties.
CHAPTER 8: SIGNIFICANCE AND IMPLICATIONS

The Research Questions

Three research questions were asked and addressed in this scholarly effort. The first of these questions pertained to the identification of variables critical to nursing best practice and delineation of how the interactions of those variables impact nursing best practice. The question was addressed with a literary approach through the first two steps of a concept clarification methodology. Review of pertinent literature, modified content analysis and organization of constructs linked to and/or descriptive of nursing best practice resulted in identification of two major spheres of influence, which were termed clinician properties and context properties. Interactions among the variables in these two spheres of influence were identified as complex, diverse, and difficult to isolate.

The second research question pertained to the application of complexity science and theory to a unifying conceptualization of nursing best practice, and the consistency of such a conceptualization with the perception of subject matter experts. The variables and relationships extracted from the review of literature were used to formulate an operational definition and to construct a conceptual model of nursing best practice from a complexity science perspective. The definition and model were subjected to evaluation by a panel of experts who identified that, while the constructs adequately represented variables critical to nursing best practice, the nature of the relationships between variables was not clear from the complexity theory based conceptual model. The second research question also asks if a conceptual model developed from a complexity science perspective is useful to further study of nursing best practice. Overall, expert opinion indicated interest in further
development of the model, but several experts noted that the relationships between constructs were not sufficiently delineated to guide research activities.

The operational definition was revised and the conceptual model refined to address some of the suggestions and concerns expressed by the members of the expert panel. A second round of evaluation indicated that some improvement may have been accomplished by the revisions and refinement, but that the nature of the relationships remained problematic for applications to research.

The third research question posed in this effort pertained to the validity of the representation of nursing best practice by the constructed and refined conceptual model. Expert panel evaluation was again employed to further explore the congruency of hypotheses suggested by the model with the perception of subject matter experts. Three general hypotheses were presented regarding the nature of the interdependency of the clinician and context spheres of influence, both as direct hypothesis statements as well as reality based scenarios. Expert perception was that clinician and context properties most likely equally influence nursing best practice, but that context properties may have greater impact than clinician properties over time.

The tendency of the expert panel members to identify the importance of context variables over clinician variables in the narrative data is consistent with the findings of Mark (et al., 2003) that patient outcomes were more affected by context than nurse variables in a structural equation modeling approach to assessing the construct validity of indicators of professional nursing practice. Although the experts in the study presented in this dissertation exhibited consistence in the selection of the hypothesis that clinician and
context properties equally influence nursing best practice, the focus in the literature
demonstrates a preference for context properties having greater influence than clinician
properties (Aiken, et al., 2002; Lake & Friese, 2006; Mathews & Lankshear, 2003).
Several experts did acknowledge the complexity of the interdependencies among
variables embedded in the clinician and context domains.

Critique of Methodology

Concept clarification was selected as the primary methodology as this approach is
considered appropriate when concepts are commonly used but poorly defined (Meleis,
1997). Concept clarification also permits theoretical exploration of variables and
relationships among variables in a manner that promotes explication of new variables
and/or new relationships (Beard, 2000). Concept clarification also provides a vehicle for
simultaneous exploration of multiple theoretical and conceptual representations (Beard,
2000). Inclusion of expert panel input in the concept clarification process is useful for
initial identification and organization of conceptual themes when more specific concept
definition would be premature (Leidy & Haase, 1999; Roden, 2004). Additionally,
concept clarification represents aspects of critical thinking most suitable to exploration of
meaning, including recursive, critical, and self-reflective examination of theoretical and
practical realms of meaning (Kramer, 1993).

One important limitation of the concept clarification methodology employed in
this effort is the potential researcher bias introduced by using a literary approach to
development of an operational definition and construction of a conceptual model.
Attempts to control this bias included comprehensive literature search methodology with
diverse range of search words and strategies to insure representation of the existing variety of conceptualizations of nursing best practice. As the intent of this effort is to ultimately develop a unifying model, deliberate attempts to extract all existing variables, conceptualizations, and frameworks contributed to reduced tendency for introduction of researcher bias. The potential for researcher bias is also minimized by the generic nature of the constructs in the model and the initial starting point of two inclusive concept domains. Specifications in the model are, therefore, introduced and delineated by input other than the researcher through the expert panel approach, or by another external expert methodology.

Another source of potential bias, as well as potential error, in this particular study is related to the multiple expert panel evaluations of the face and construct validity of the conceptualization. While recursive feedback evaluation processes can strengthen validity through consensus building (Powell, 2003), two-round evaluation processes can also threaten validity (Campbell, et al., 1999). Threats to the validity of findings in this particular effort include panel attrition between the first and second rounds, which may account more for differences in the indices of strength and content validity indices than the revisions done to the conceptualization. The composition of the expert panel for the second round may have appeared to express more favorable opinions because individuals with less favorable opinions of the conceptualization may have elected to not respond for the second round.
Maturity of Conceptual Model

The findings presented in this dissertation are preliminary and exploratory, as the maturity and development of this conceptualization of nursing best practice is still highly abstract. Use of this model for drawing conclusions is premature. The unique aspect of this model is the attempt to incorporate the full range of construct interaction and interdependence across both clinician and context domains of influence. To avoid inadvertent exclusion of, as yet undetermined, critical variables the constructs are deliberately abstract. This level of abstraction contributes to difficulties in clarifying the nature of the relationships among constructs in the conceptualization. One weakness of this study was failure to clearly delineate the level of abstraction of the components of the model, which may have contributed to the lower indices of strength for consistency in the second evaluation round.

Relationship to Complexity Theory

While complexity science and theory provide a framework for exploring interdependencies among diverse influences and the behaviors of complex adaptive systems, the framework also introduces problematic issues into the conceptualization of nursing best practice. The difficulty related to lack of clarity of the nature of relationships and interactions in the model has been discussed previously. Several complexity theory concepts may actually contribute to this difficulty. Sensitive dependence on initial conditions and the lack of predictability or inherent uncertainty in the system (Fraser & Greenhalgh, 2001), preclude designation of specificity of the nature of interdependence among the constructs in the conceptual model. Characterization of the relationships as
“interdependent,” “unpredictable,” and “sensitive to initial conditions” may be the extent of specification possible from a complexity science perspective.

Another potential implication of a complexity science perspective of a complex adaptive health care delivery system, with respect to clarifying the nature of interdependencies, is the integration of linear and non-linear process components. Complexity theory maintains that complex adaptive systems exhibit greater tendency toward new patterns of self-organization when there is greater uncertainty and less stability in the system or associated with the process (Kernick, 2003). The other side to this phenomenon is that complex adaptive systems also exhibit regular, repetitive, and linear patterns of interdependency in arenas of certainty and stability (Kernick, 2003). The implication for the conceptualization presented in this dissertation is that the nature of the interdependencies is itself interdependent, and may not apply across situations, points in time, or even components of a singular process.

A complexity theory concept of interest in efforts to explore construct validity is the concept that behaviors, or patterns, can function as strange attractors around which the system self-organizes, and that change may occur more readily when the nature of the change is consistent with the attractor pattern (Fraser & Greenhaugh, 2001). This would support the alternative hypothesis that clinician properties may more strongly influence system behavior patterns than context properties, especially if the context properties are more steady or controlled.
Methodological Challenges

Complexity science conceptualizations introduce unique and profound challenges to research and measurement in the study of complex adaptive systems, as the interdependencies among constructs and relationships exhibit non-linear dynamics. To date, application of the complexity perspective in nursing has been largely limited to abstract theoretical exercises and/or as an explanatory framework for phenomena and data (Lanza, 2000). Complexity perspectives have been employed as rationale for holistic approaches (Newell, 2003) and non-traditional management strategies (Simmons, 2003). At this stage in the development of the conceptualization of nursing best practice presented in this dissertation, consideration of specific applications and uses is premature. The model does provide a perspective from which a better understanding of health care system interdependencies may arise.

A more immediate challenge to further development of the conceptual model presented in this dissertation is the operationalization of constructs from the current level of abstraction to the level of concepts and, ultimately, measurable variables. This challenge necessarily precedes any attempts to further delineate the significance and/or identification of initial conditions, strange attractors, dynamic processes, and emergent properties. Ultimately, the challenge to application of the conceptual model of nursing best practice presented in this dissertation, is the identification and development of suitable integrative and non-linear measurement strategies that will permit exploration of the nature of interdependencies.
Philosophical Challenges

Historically, science has approached a better understanding of the universe by reducing phenomena into manageable component parts (Kernick, 2003), and the hallmark of research rigor has been the degree to which confounding influences are isolated or controlled. Management strategies have been focused on finding the best way to achieve desirable performance and then exerting control over process and structure in order to maintain the desired organizational or system performance level. The conceptualization of nursing best practice as an emergent property of a complex adaptive health care system challenges these traditional research paradigms and management intervention strategies.

Of particular note in this regard is the expert panel narrative data obtained in this study and reported in Chapters Six and Seven indicating that the conceptual model of nursing best practice presented in this dissertation represents a “good overview,” but is too “holistic” and the “nature of the interdependencies is not clear enough” to guide research efforts. Several expert panel members included notations on the model evaluation forms that indicated assignment of directionality to relationships between constructs. Several expert panel members sat at opposite poles of the continuum of opinion, indicating that the particular worldview of the expert may influence the acceptability and limit the perception of usefulness in the research arena. The ultimate goal of constructing a unifying conceptualization of nursing best practice may be difficult to accomplish.
Chapter Summary

In summary, the conceptual model of nursing best practice presented in this dissertation is worthy of further development and exploration of validity. Operationalization of constructs into less abstract concepts and variables is prerequisite to further construct validity methodologies. The potential “cadre” of variables necessary to truly represent a comprehensive conceptualization of influences of nursing best practice may indicate that a moderate level of abstraction is necessary for the model to retain qualities of simplicity, accessibility, and parsimony. Although conceptually embedded in the context domain of influence in the conceptual model, the nursing meta-paradigm of patient may need to be more centrally represented for the model to be acceptable across diverse segments of the profession. Multi-dimensional dynamic illustrations of the model may prove beneficial, as the current illustration does not appropriately represent the nature of the interdependencies presented in the narrative description.
APPENDIX A

EXPERT PANEL REVIEW PACKET COVER LETTER
Dear _________________,

Thank you for agreeing to participate in an expert panel evaluation of a preliminary conceptual model of nursing best practice. Your response to this evaluation request will be used to guide refinement of a model deductively constructed from a systematic review of nursing literature. The purpose of this effort is to propose an integrative conceptual representation of nursing best practice within a health care delivery organization that recognizes and embraces the reality of multiple influencing variables and interactions among variables in the clinical setting. A philosophical perspective derived from complexity science and theory guides this inquiry and, therefore, provides the basis for design of the proposed model.

You have been selected for participation in this expert panel review because of your expertise [in nursing systems research] [in application of complexity science as an explanatory framework] [in managing nursing care delivery in an organizational setting] [in delivering clinical nursing care]. Your anonymity as a panel reviewer will be protected through assignment of a respondent number to your response form. Information regarding panel composition will be restricted to a general demographic profile. By returning the enclosed review form and demographic survey you are consenting to the use of your responses in this inquiry. The expert panel review process represented in this packet forms a portion of the research methodology employed to complete the requirements for a PhD in nursing at the University of Arizona. The results of this effort may be included in manuscripts submitted for publication in professional and clinical journals.

The contents of this packet include this cover letter as well as (1) a background description and rationale for the constructed conceptual model, (2) an operational definition of nursing best practice, (3) a pictorial representation of the preliminary model of nursing best practice, (4) demographic survey instrument, (5) conceptual model review response form with instructions, and (6) stamped self-addressed envelope for your convenience in returning the demographic survey and response form.

You are being asked to thoughtfully review the enclosed background description, rationale, operational definition, and pictorial representation of nursing best practice prior to completion of the model review response form. You are invited and encouraged to take time to consider the implications of the enclosed material within your current professional and/or practice arena. The model review response form is designed to solicit input toward evaluation of the face validity of the operational definition and constructed model, as well as semantic clarity, semantic consistency, structural clarity, structural consistency, simplicity, generalness, accessibility, importance, and relevance. You are asked to evaluate if the operational definition represents the critical components of nursing best practice. You are also asked to evaluate if the preliminary conceptual model adequately represents the influencing variables and interactions among those variables in a manner that is consistent with your perception. Finally you are asked to evaluate if a
conceptual model of this type and format is useful to the further study of nursing best practice.

Realizing that your time is valuable, and acknowledging that this evaluation is potentially a time-intensive effort, a token of appreciation is included for your enjoyment. I would sincerely appreciate receiving your completed response form and demographic survey in the enclosed self-addressed stamped envelope within the next four weeks.

Thank you again for agreeing to participate in this expert panel review. If you have any questions or concerns regarding the information in this packet, please feel free to telephone me at 520-792-1450, extension 5605 (voicemail), or e-mail me at marjoryw@nursing.arizona.edu.

Marjory D. Williams, RN, MSN
Doctoral Candidate, Systems Division, College of Nursing, University of Arizona
Staff RN and Patient Care Coordinator, Southern Arizona VA Health Care System
Tucson, Arizona
Enclosures (6)
APPENDIX B

EXPERT PANEL REVIEW MODEL EXPLANATION AND RESPONSE FORMS

ROUND ONE
Figure 1 is a conceptual model proposed to represent the nature of nursing practice, in this case nursing best practice, as an emergent property of professional nursing care delivery embedded within a hospital system. This model proposes key elements critical to the nature of nursing practice.

**Best practice** is represented as an emergent property of a complex adaptive health care delivery system. Emergent properties are evidenced by patterns of system behavior and defy measurement by traditional methods of decomposing the whole into component parts with linear cause and effect relationships. The other key concepts/constructs included in Figure 1 represent components of a multi-dimensional health care delivery system, each existing/occurring in dynamic interaction with the other components and with interactions between the various components.

**Clinician Properties** represent characteristics of the nurses whose individual and collective behavior constitutes nursing practice within the health care delivery system. Characteristics that are theoretically and empirically linked to nursing practice patterns and the nature of nursing practice include knowledge and skills, values, attitude, and experience and training. Included in the clinician property domain of the conceptual model is a component representing dynamic processes by which nurses operationalize characteristics into practice behaviors and patterns, specified in Figure 1 as decision-making strategies and critical thinking dispositions.

**Context Properties** represent characteristics of the organizational environment within which nursing practice occurs. Characteristics theoretically and empirically linked to nursing practice patterns include organizational structure, organizational process, organizational culture, and organizational climate. Other characteristics of the practice environment that may be critical factors influencing the nature of emergent practice patterns are represented as organizational responsiveness and organizational flexibility.

**Benchmarking** is included as a representation of a dynamic force within the context domain that attenuates the influence of the variety of manifestations of outcomes on emergent patterns of practice and practice behavior.

The final component of the conceptual model in Figure 1 is the portion of the model representing elements considered to have the potential to attenuate the relationships between clinician properties, context properties, and emergent practice patterns. **Practice choices** conceptually represent the delivery of nursing care that actually occurs, which may or may not be what might be predicted from organizational and nursing processes. **Expected outcomes** represents the actual expectations placed on nursing care delivery, which may or may not be equivalent to the desired outcomes used as the benchmark standard in related organizational and nursing processes. Practice choices and expected outcomes are conceptualized in dynamic interaction within this domain of the conceptual model. Outcomes are represented as internal to the complex adaptive system, and do not
necessarily reside in linear relationships or as the endpoints of linear processes. In the conceptualization of outcomes in Figure 1 outcomes provide recursive feedback into the adaptive system and may function as initial conditions, dynamic forces, or stable/strange attractors.

<table>
<thead>
<tr>
<th>Demographic Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational preparation</strong></td>
</tr>
<tr>
<td>Undergraduate degree(s) other than nursing: ____________________________</td>
</tr>
<tr>
<td>Basic nursing preparation: Diploma A.D.N B.A. B.S.N.</td>
</tr>
<tr>
<td>Other: __________________________</td>
</tr>
<tr>
<td>Graduate degree(s) other than nursing: ____________________________</td>
</tr>
<tr>
<td>Advanced nursing preparation: NP MS MSN PhD</td>
</tr>
<tr>
<td>Professional credentials: ___________________________________</td>
</tr>
<tr>
<td>Area of professional specialization: ___________________</td>
</tr>
<tr>
<td>Total years in nursing: _____________</td>
</tr>
<tr>
<td>Current professional role: ___________________________________</td>
</tr>
<tr>
<td>Years in current role: _____________</td>
</tr>
<tr>
<td>Prior nursing experience:</td>
</tr>
</tbody>
</table>

Which of the following best describes your current professional setting:

- Academic institution
- Hospital
- Health care delivery system
- Business enterprise

Which of the following best matches your area of expertise for this review panel:

- _____ expertise in nursing systems research
- _____ expertise in application of complexity science as an explanatory framework
- _____ expertise in managing nursing care delivery in an organizational setting
- _____ expertise in the delivery of clinical nursing care
Which of the following best describes your geographic location (circle all that apply):

<table>
<thead>
<tr>
<th>Northeast</th>
<th>North central</th>
<th>Northwest</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southeast</td>
<td>South central</td>
<td>Southwest</td>
<td>Rural</td>
</tr>
</tbody>
</table>

MODEL REVIEW RESPONSE FORM

Please complete this response form after you have reviewed the enclosed background description and rationale for the constructed conceptual model, operational definition of nursing best practice, and pictorial representation of the preliminary model of nursing best practice.

Please read and follow the specific directions for each section of this response form.

Section I: Evaluation of the proposed operational definition of nursing best practice

The questions in this section ask you to evaluate various aspects of the following definition of nursing best practice:

Nursing best practice is a pattern of nursing practice exhibited by a system in which nursing care is delivered in a manner and context that maximizes the potential for optimization of desired outcomes.

1. How adequately does this definition represent the critical components of nursing best practice?

   ___ not at all representative  
   ___ somewhat representative  
   ___ mostly representative  
   ___ very representative

2. How adequately does the level of specificity of this definition represent nursing best practice?

   ___ not at all adequate  
   ___ somewhat adequate  
   ___ mostly adequate  
   ___ very adequate

3. List those items in the above definition that should be deleted:
4. List items not currently in the definition that should be included:

5. How would you rephrase the above definition to better represent nursing best practice?

Section II: Variables and interactions represented in the conceptual model of nursing best practice

The questions in this section ask you to evaluate various aspects of the variables and interactions between variables represented in the pictorial and narrative description of the preliminary model of nursing best practice included in the review packet.

Please have the information provided in this packet about the model available for review while completing this section of the response form.

1. How adequately do the constructs included in the conceptual model represent key variables of nursing best practice?
   
   _____ not adequately at all
   _____ somewhat adequately
   _____ mostly adequately
   _____ very adequately

2. How adequately do the relationships illustrated in the conceptual model between variables represent the interactions influencing nursing best practice?
   
   _____ not adequately at all
   _____ somewhat adequately
   _____ mostly adequately
   _____ very adequately

3. How consistent is this representation of the interaction of variables with your perception of nursing best practice within a health care delivery organization?
   
   _____ not consistent at all
   _____ somewhat consistent
   _____ mostly consistent
   _____ very consistent

4. Which of the variables included in the conceptual model would you delete?
5. What variables that are not represented in the model would you include?

Section III: Application of model to further study of nursing best practice

The questions in this final section ask you to evaluate the conceptual model against standard evaluation criteria through critical reflection of selected model characteristics.

Please rate the following characteristics on the rating scale provided for each:

1. How clear are the concepts and constructs represented in the model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

2. How consistent are the concepts and constructs represented in the model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

3. How clear are the relationships between concepts and constructs in the model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

4. How consistent are the relationships between concepts and constructs in the model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

5. How simple is the model to understand?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

6. How general is the model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

7. How accessible is this model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

8. How important is this model?
   _____ not at all          _____ somewhat           _____ mostly           _____ very

9. How relevant is this model?
Section IV: Comments

Please provide narrative comments in response to the following questions:

1. What is your general impression of the proposed preliminary model?

2. Describe or list three strengths of this conceptual model?

3. Describe or list three weaknesses of this conceptual model?

4. What do you like best about this conceptual model?

5. What do you like least about this conceptual model?

6. How interested would you be in following further development of this conceptual model?

7. How apt would you be to use or apply this model in your professional practice?
APPENDIX C

EXPERT PANEL REVIEW COVER LETTER ROUND TWO
Dear Expert Panel Participant,

Thank you again for agreeing to participate in an expert panel evaluation of a preliminary conceptual model of nursing best practice. Your initial response to the evaluation request was used to guide refinement of the preliminary model deductively constructed from a systematic review of nursing literature. As a reminder, the purpose of this effort is to propose an integrative conceptual representation of nursing best practice within a health care delivery organization that recognizes and embraces the reality of multiple influencing variables and interactions among variables in the clinical setting. A philosophical perspective derived from complexity science and theory guides this inquiry and, therefore, provides the basis for design of the proposed model.

You have been selected for continued participation in this expert panel review because of your expertise in clinical nursing care delivery, conceptual model development, and/or complexity theory. The confidentiality of your responses as a panel reviewer will again be protected through assignment of a respondent number to your response form. Information regarding panel composition will continue to be restricted to a general demographic profile. The expert panel review process represented in this packet forms a portion of the research methodology employed to complete the requirements for a PhD in nursing at the University of Arizona. The results of this effort may be included in manuscripts submitted for publication in professional and clinical journals. **By returning the enclosed review form and demographic survey you are consenting to the use of your second round responses in this inquiry.**

The contents of this packet include this cover letter as well as: (1) description and rationale for the refined conceptual model, (2) conceptual model review response form with instructions, and (3) a stamped self-addressed envelope for your convenience in returning the response form.

You are once again being asked to thoughtfully review the enclosed information. The model review response form for this second round is designed to solicit input toward
continued evaluation of the face validity of the constructed model, as well initial
exploration of construct validity. You are once again asked to evaluate if the preliminary
conceptual model adequately represents the influencing variables and interactions among
those variables in a manner that is consistent with your perception.

I would sincerely appreciate receiving your completed response form in the
enclosed self-addressed stamped envelope within the next two to three weeks in order
to be able to include your responses in the model revision.

Thank you again for agreeing to participate in this expert panel review. If you
have any questions or concerns regarding the information in this packet, please feel free
to e-mail me at marjoryw@nursing.arizona.edu. I am currently in transition to a new job
assignment. You should be able to reach me by telephone at 254-743-2609 by the time
you receive this packet.

Marjory D. Williams, RN, MSN
Doctoral Candidate, Systems Division, College of Nursing, University of Arizona
Associate Chief Nurse, Education/Research, Central Texas VA Health Care System
Temple, Texas
Refinements to the preliminary model presented for evaluation are based on the results of the initial round of expert panel review. Indices of agreement and content validity indices were calculated and ranked for all items on the model review response form to determine major strengths and weaknesses, as well as degree of consensus among expert panel participants.

Figure 1 was initially presented as an illustration of the conceptual model proposed to represent the nature of nursing practice, in this case nursing best practice, as an emergent property of professional nursing care delivery embedded within a hospital system. The illustration attempted to portray key elements critical to the nature of nursing practice as overlapping spheres of influence, interaction, and interdependency. A key finding from the initial evaluation by the expert panel is that the illustration as presented was problematic and an inadequate representation of the constructs and relationships described in the narrative material. Based on additional feedback provided by the expert panel, the focus of this second round of evaluation is on characterization of the general nature of relationships rather than on the visual representation of those relationships among the various concepts and constructs.

As clarification for using the illustration, the following “guided imagery” is offered to address the limitations encountered in a two-dimensional illustration of the conceptualization described in the narrative:

*Visualize the Clinician Properties and Context Properties as dynamic multi-dimensional spheres of interdependency, morphing through space and time, experiencing combinations of random Brownian-style motion and repetitive, recurring patterns of interaction among the conceptual components, with nursing practice as an emergent pattern of system behavior. Layered, or infused, through the multiple dimensional spheres of interdependency are the additional dynamic spheres of practice choices and expected outcomes. Threaded throughout the system of interdependent and interactive spheres are dynamic processes such as decision making, critical thinking, and informative reflection* (to replace benchmarking – see statement below).

Two major spheres of interdependency are conceptualized in this model. One sphere includes properties attributable to clinicians. The second sphere includes properties attributable to the organizational context within which the clinicians function. The model further conceptualizes that the nature, or pattern, of nursing practice emerges as a system level property from the dynamic interaction of these two spheres of interdependency.

**Clinician Properties** represent characteristics of nurses whose individual and collective behavior constitutes nursing practice within the health care delivery system.

Characteristics that are theoretically and empirically linked to nursing practice patterns and the nature of nursing practice include knowledge and skills, values, attitude, and
experience and training. Further, the interaction among these characteristics also influences the pattern and nature of individual and collective nursing practice. Included in the clinician property domain of the conceptual model is a component representing dynamic processes by which nurses operationalize their characteristics and interaction among characteristics into practice behaviors and patterns. The dynamic processes are specified in this model as decision-making strategies and critical thinking dispositions.

**Context Properties** represent characteristics of the organizational environment within which nurses function. Context characteristics theoretically and empirically linked to nursing practice patterns include organizational structure, organizational process, organizational culture, and organizational climate. Other characteristics of the practice environment that may be critical factors influencing the nature of emergent practice patterns are represented as organizational responsiveness and organizational flexibility. Responsiveness and flexibility are conceptualized as organizational characteristics related to the functional adaptability of the organization as a whole.

**Nursing Best Practice** is the pattern of nursing care delivery that arises from the dynamic interactions within and between the interdependent spheres of clinician properties and context properties. As such, this emergent property of a complex adaptive health care delivery system is evidenced by patterns of system behavior that defy measurement by traditional methods of decomposing the whole into component parts with linear cause and effect relationships.

The final component of the conceptual model is the portion of the model representing elements considered to have the potential to attenuate the relationships between clinician properties, context properties, and emergent practice patterns. **Practice choices** conceptually represent the options for delivery of nursing care that actually exist, which may or may not be what might be predicted from organizational and nursing processes. **Expected outcomes** represent the actual expectations placed on nursing care delivery, which may or may not be equivalent to the desired outcomes used as the standard in related organizational and nursing processes. Practice choices and expected outcomes are conceptualized in dynamic interaction within the domain of interdependency between clinician and context spheres in the conceptual model. Outcomes are represented as internal to the complex adaptive system, and do not necessarily reside in linear relationships or as the endpoints of linear processes. In this conceptualization outcomes provide recursive feedback into the adaptive system and may function as initial conditions, dynamic forces, or stable/strange attractors.

**Benchmarking** has been removed from the conceptualization and replaced with “informative reflection” as a representation of a dynamic process threaded within the context domain that attenuates the influence of the variety of manifestations of outcomes on emergent patterns of practice and practice behavior. This concept might be operationalized into variables representing recursive feedback or information flow.
MODEL REVIEW RESPONSE FORM

Please complete this response form after you have reviewed the enclosed background description and rationale for the refined operational definition and conceptual model.

Please read and follow the specific directions for each section of this response form.

Section I: Evaluation of the refined operational definition of nursing best practice

The questions in this section ask you to re-evaluate various aspects of the following definition of nursing best practice:

Nursing best practice is a pattern of individual and collective behaviors exhibited throughout a system in which patient care is delivered in a manner and context that maximizes the potential for optimization of desired outcomes.

1. How adequately does this revised definition represent the critical components of nursing best practice?

   ____ not at all representative
   ____ somewhat representative
   ____ mostly representative
   ____ very representative

2. How adequately does the level of specificity of this revised definition represent nursing best practice?

   ____ not at all adequate
   ____ somewhat adequate
   ____ mostly adequate
   ____ very adequate

3. List those items in the revised definition that should be deleted:

4. List items not currently in the revised definition that should be included:
Section II: Variables represented in the revised conceptual model of nursing best practice

The questions in this section ask you to evaluate various aspects of the concepts and constructs represented in the narrative description of the revised preliminary model of nursing best practice included in the review packet.

Please have the information provided in this packet about the model available for review while completing this section of the response form.

1. How adequately do the constructs included in the revised conceptual model represent key variables of nursing best practice?
   
   ____ not adequately at all
   ____ somewhat adequately
   ____ mostly adequately
   ____ very adequately

2. Which of the variables included in the revised conceptual model would you delete?

3. What variables that are not represented in the revised model would you include?

Section III: Relationships between variables represented in the revised conceptual model of nursing best practice

Section III is designed to provide expert panel input upon which to base more adequate illustration of the general nature of the proposed and implied relationships among the constructs in the revised preliminary conceptual model. This section asks you to evaluate and/or suggest the relative influence and interdependence among a selected group of variables.

Selected aspects of three scenarios are presented for your consideration. You are asked the same set of questions for each of the scenarios, followed by one question that requires you to consider your overall opinion about the relative influence and interdependence among the selected set of variables.

It is important to keep in mind for this section that the development of this conceptual model is still in a very preliminary stage and that the simplistic variables selected merely represent potential examples of interest toward further development, refinement, and maturation of this conceptual perspective.
For the purposes of basing the scenarios in reality, the common elements of all three scenarios are as follows:

- **The clinical issue of concern is skin breakdown in patients admitted to the hospital**
- **The premise is that practice adjustments are indicated to address the clinical issue of concern**

**SCENARIO #1**

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
</table>
| 1. Collectively value professional nursing with responsibility and accountability for nursing practice and nurse-sensitive patient outcomes  
2. Aggregate positive attitudes toward research/evidence as basis for practice | 1. All practice protocol changes require full review and approval by sluggish bureaucratic policy & procedure committee process  
2. Organizational priority of cost control |

Practice choices derived from professional critical thinking and evidence based decision making processes toward objective of patient outcomes interface with organizational expectations of adherence to established policy & procedure for purpose of controlling operating costs

1. How likely will actual nursing practice patterns be consistent with best nursing practice patterns?

   - _____ not likely at all  
   - _____ somewhat likely  
   - _____ mostly likely  
   - _____ very likely

2. How likely will improvements be noted in the clinical concern related to skin breakdown?

   - _____ not likely at all  
   - _____ somewhat likely  
   - _____ mostly likely  
   - _____ very likely

3. What other variables would you expect to have critical influence on practice patterns in this situation?
**SCENARIO #2**

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
</table>
| 1. Negative attitudes toward research or evidence as basis for practice  
2. Predominant value system based on historical/established way of doing things | 1. Ongoing administrative review of protocols with frequent evidence based changes through formal policy & procedure committee process  
2. Organizational priority of ranking in top 1% of performance measure scores |

Practice choices derived from limited critical thinking and decision making processes based on established way of doing things interface with organizational expectations of timely implementation of evidence based protocols toward purpose of achieving high rankings on performance measure scores

1. How likely will actual nursing practice patterns be consistent with best nursing practice patterns?

   ____ not likely at all  
   ____ somewhat likely  
   ____ mostly likely  
   ____ very likely

2. How likely will improvements be noted in prevention of skin breakdown?

   ____ not likely at all  
   ____ somewhat likely  
   ____ mostly likely  
   ____ very likely

3. What other variables would you expect to have critical influence on practice patterns in this situation?
SCENARIO #3

<table>
<thead>
<tr>
<th>Nursing Clinician Properties</th>
<th>Organizational Context Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive attitudes toward research or evidence as basis for practice</td>
<td>1. Ongoing administrative review of protocols with frequent evidence based changes through formal policy &amp; procedure committee process</td>
</tr>
<tr>
<td>2. Predominant professional nursing value system based on optimization of patient outcomes</td>
<td>2. Organizational priority of ranking in top 1% of performance measure scores</td>
</tr>
<tr>
<td>3. Value nursing control over nursing practice and nursing accountability for outcomes of nursing practice</td>
<td></td>
</tr>
</tbody>
</table>

Practice choices derived from critical thinking and decision making processes based on best available evidence and objective of maximizing patient outcomes interface with organizational expectations of implementation of administratively decided protocols toward purpose of achieving high rankings on performance measure scores.

1. How likely will actual nursing practice patterns be consistent with best nursing practice patterns?
   - not likely at all
   - somewhat likely
   - mostly likely
   - very likely

2. How likely will improvements be noted in prevention of skin breakdown?
   - not likely at all
   - somewhat likely
   - mostly likely
   - very likely

3. What other variables would you expect to have critical influence on practice patterns in this situation?

SUMMARY OVERVIEW QUESTIONS

Please consider the following question from a system perspective, with conceptualization of “nursing practice” as an emergent pattern of behavior exhibited by a complex adaptive health care delivery system in which nursing is embedded.
In general, and in your expert opinion, which of the following statements best represents your perception or experience:

_____ Nursing practice adjustments toward best practice patterns are more strongly influenced by nursing clinician properties than by context properties

_____ Nursing practice adjustments toward best practice patterns are more strongly influenced by context properties than by clinician properties

_____ Nursing practice adjustments toward best practice patterns are equally influenced by clinician and context properties

If selection among the three choices above is easier with qualifications, please briefly state the most significant qualifications in the space below.

Assuming that nursing clinician properties in an organization support practice choices associated with nursing best practice patterns, what ONE context property would you identify as having the most significant dynamic interdependency? Please be as general or specific as you deem appropriate.

Section IV: Application of model to further study of nursing best practice
The questions in this final section ask you to re-evaluate the revised conceptual model against standard evaluation criteria through critical reflection of selected model characteristics.

Please rate the following characteristics on the rating scale provided for each:

1. How clear are the concepts and constructs represented in the model?
   _____ not at all       _____ somewhat       _____ mostly       _____ very

2. How consistent are the concepts and constructs represented in the model?
   _____ not at all       _____ somewhat       _____ mostly       _____ very

3. How clear are the relationships between concepts and constructs in the model?
   _____ not at all       _____ somewhat       _____ mostly       _____ very
4. How consistent are the relationships between concepts and constructs in the model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

5. How simple is the model to understand?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

6. How general is the model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

7. How accessible is this model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

8. How important is this model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

9. How relevant is this model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

Section V: Comments

Please provide narrative comments in response to the following questions:

1. What is your general impression of the revised preliminary model?

2. Comment on the strength of this conceptual model?

3. Comment on the weakness of this conceptual model?

4. How interested would you be in following further development of this conceptual model?
   _____ not at all   _____ somewhat   _____ mostly   _____ very

5. How apt would you be to use or apply this model in your professional practice, administrative role, or research efforts?
   _____ not at all   _____ somewhat   _____ mostly   _____ very
REFERENCES


