Instructional Design Thought Processes of Expert Nurse Educators

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Abstract

This study explores how expert nurse educators design instruction. Six female expert nurse educators volunteered to participate. Each participant had over ten years experience teaching, and all were recognized for their teaching excellence. They also had master's or doctoral degrees. Participants worked in small private schools, community colleges, or large public universities. The methodology was based in developmental research. Qualitative data sources included interviews, think-aloud protocols, and artifacts. Interviews and think-aloud protocols were audio-taped, transcribed, and member-checked. Artifacts, such as course packets and participant-authored books or interactive CDs, were collected. Data was coded and triangulated. Event-state diagrams and narratives were developed and member-checked. A between-subjects approach also was used to analyze data to develop a composite diagram and narrative that describes how expert nurse educators design instruction. Results indicate that the participants generally followed the steps of analysis, design, develop, implement, and evaluate (ADDIE), as they design instruction. Little was mentioned about actually developing material. However, six key elements were common among the participants. Enthusiasm, meaningful, prior knowledge, engaged, faculty-student relationships, and faculty preparation were common themes that the faculty found important in their process of designing instruction. This study provides information to build a knowledge base on instructional design in nursing education. It may also foster discussion to improve the effectiveness of how nurse educators design instruction.

DEDICATION

This dissertation is dedicated to my mother who gave me the encouragement I needed. She always said, "I know you will do it. You put your heart and soul into it." Although she is far away, I hear her voice within me everyday.

I also dedicate this work to all nurse educators. Your hard work and dedication to educating our future nurses is among the highest of callings. I hope this study helps you along the way.

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Finally, I would like to thank my participants for allowing me to have some of their time to answer my questions and share their experiences to provide the data needed to complete this study. As a nurse educator, I know how precious that resource is to them.

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CHAPTER ONE
INTRODUCTION

In 1999, I accepted a position as a nurse educator after having practiced in several clinical environments over a seven-year period. By that time, I had earned a bachelor's degree in communication, and a bachelor's and master's degree in nursing. I had been an Army officer who had trained many soldiers in a variety of simple and complex tasks. Having always wanted to teach, I now felt prepared to move into the role of a nurse educator.

I was immediately overwhelmed with the complexity and variety of tasks I was responsible for completing. The most important of the tasks was to develop instructional material for the new classes my director assigned me to teach. Somehow, I needed to take a huge body of nursing knowledge and find some way to present it to nursing students so they would be able to safely and competently care for patients and pass a licensing examination. However, how should I accomplish this critical responsibility? What processes should I follow to design and develop effective instructional events? How could I best teach nursing students?

In 2001, I began a doctoral program that had a major emphasis on instructional design. Design is a form of planning that results in an organized plan to achieve particular results (Rowland, 1993). Instructional design is a systematic process that guides the designer through a series of steps with the intention of improving learning and performance, particularly in the educational setting (Reiser, 2001). Smith and Ragan (2005) describe instructional design as "systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (p. 4).

Models guide designers through the instructional design process. Instructional design models are used by instructional designers to help conceptualize reality and represent complex processes (Gustafson & Branch, 2002). I began to wonder what instructional design processes and models expert nurse educators use when they develop instruction. Maybe if I had known these processes when I first started teaching nursing students, I would have not experienced so much frustration and my teaching would have been more effective. With my new knowledge of instructional design and instructional design models, I set out to determine the instructional design processes and models nurse educators use to design instruction.

Nurse Educators

As nurse educators assume their responsibilities, they are often unprepared for the roles of the new position. Their graduate programs often educated them to become expert clinicians rather than fulfilling the multiple roles as a nurse educator. Some accrediting bodies continue to promote this pattern making it difficult for nurses to transition into nurse educators.

Educational Preparation

The curriculum in graduate and post-graduate nursing programs does not usually prepare new nursing faculty for their role in academia, where they experience markedly different rules and expectations than those of their previous practice environment (Finke, 2005). Nursing faculty preparation has traditionally taken place at the graduate level, and the master of science in nursing (MSN) is considered to be the minimum preparation for a nurse educator (Catalano, 2002; D. Davis, Dearman, Schwab, & Kitchens, 1992).

However, the focus of master's degree programs is to prepare nurse clinicians for advanced nursing practice (APN) (Radke & McArt, 1993). The American Nurses Association (ANA, 1996) describes APNs as registered nurses who hold a master's or a doctoral degree with specialization in a clinical area with ongoing clinical experiences and possess in-depth knowledge base and skills, in addition to other criteria. In a national trend, graduate nursing schools have increased the number of programs for nurses in clinical roles (Krisman-Scott, Kershbaumer, & Thompson, 1998). The AACN (American Association of Colleges of Nursing) data shows that in 1998, only 3.3 percent of master's graduates in nursing came from a program that focused on becoming a nurse educator, compared to 6.5 percent in 1995 (American Association of Colleges of Nursing, 1999).

The recommendation by the AACN is to place preparation for teaching in the domain of doctoral education. In "The Essentials of Master's Education for Advanced Practice Nursing," the AACN states:

> A nurse prepared at the master's level is clearly able to serve important functions as an expert clinician as a faculty member in a nursing education program. However, the primary focus of the master's education program should be the clinical role. Such elements as the case management process and

> educational theories and methods are important tools used by advanced practice clinicians, but they must be applied by clinicians who have an expert base of advanced practice skills and knowledge. Further, the doctoral degree should be considered the appropriate and desired credential for a career as a nurse educator (p. 3).

Despite the statement above by the AACN, Tanner (1999) points out the following:

> Doctoral programs in nursing continue to emphasize the development of researchers who can advance nursing science, with limited, if any, preparation for the teaching role. Yet, conventional wisdom holds that in the absence of explicit preparation for teaching, new teachers will teach as they were taught (p. 51).

This focus on clinical research preparation at the doctoral level in nursing, similar to the focus on advanced practice nursing preparation at the master's level, perpetuates the void of preparing the nurse educator. Even with doctoral preparation, "faculty may have been ill-prepared for the faculty role, since the focus of most doctoral programs is scientific development" (D. Davis et al., 1992). Clearly, large majorities of nursing faculty have had little preparation for the roles and competencies expected of a nurse educator.

Multiple Roles and Competencies: Teaching as Conceived in Nursing Literature

Teaching in nursing is a complex activity that integrates the art and science of nursing and clinical practice into the teaching and learning process (Finke, 2005). The nurse faculty role has been conceptualized as multidimensional, requiring the faculty member to bridge the academic community and service sector (Pennington, 1986). This means a nurse educator must be competent in both the academic community as faculty, but also a healthcare provider in the service sector. Because many new faculty are ill-prepared for the academic community, the outcome of this is that many nurses accept faculty positions with limited knowledge of the competencies expected for the nurse faculty role (J. Davis & Williams, 1985; P. Young & Diekelmann, 2002). The traditional faculty role is divided into the areas of teacher, practice, research/scholarship, and service (Choudhry, 1992).

Teacher

Teaching is usually considered the core or major role that includes classroom instruction and the added responsibility of teaching in the clinical setting (Choudhry, 1992; D. Davis et al., 1992; Finke, 2005). The clinical teacher assists students in the application of knowledge gained in the classroom to actual client care situations. The teacher role responsibilities not only includes the delivery of content but also curriculum development and evaluation, development of student evaluation methods, and student advising (Finke, 2005).

Practice

Faculty practice includes all aspects of the delivery of nursing service through the roles of clinician, educator, researcher, consultant, and administrator (Potash & Taylor, 1993). Fiandt et al. (2004) identified several important reasons for the faculty practice. These include maintaining clinical expertise, serving as role models while providing learning opportunities for students, stimulating ideas, developing settings for research, and providing health care services. Faculty practice has evolved from moonlighting to including all practice roles and embodying a commitment to an academic model in which scholarship is central (Evans, Jenkins, & Buhler-Wilderson, 1999).

Scholarship

The American Association of Colleges of Nursing (1999) defines scholarship in nursing as "those activities that systematically advance the teaching, research and practice of nursing through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods" (p.2). The inquiry generated by this scholarship should revolve around both what is needed to foster lasting forms of student learning and the evidence and documentation that will allow educators to foster such learning more effectively (Glanville & Houde, 2004). Nursing faculty are encouraged, if not expected, to participate in research, publication, and presentation of their scholarly pursuits (D. Davis et al., 1992).

Service

In the service role, faculty serves in the institutions department, school, and school community by participation in the governance of the educational institutions through committees. Involvement in professional activities and organizations that help maintain

currency in the field is expected. Through faculty service and community involvement, the faculty's and institution's influence is extended (J. Davis & Williams, 1985; Pennington, 1986).

The Transition from Practice to Teaching

The transition from a nursing practice position to a nursing faculty position is often difficult. New faculty rarely are prepared educationally or experientially for multiple roles and expectations (Siler & Kleiner, 2001). In their study, Siler and Kleiner (2001) report that novice faculty had expectations based primarily on their "view from the other side of the black-board" (p. 399). The novice faculty indicated they were eager to assume the new responsibilities, but their academic preparation and clinical expertise did not provide them with an understanding of the faculty role. Novice faculty with a limited knowledge base in the process of education and with little teaching experience have less of a sense of control over the teaching and learning environment and, consequently, have a weaker sense of teacher self-efficacy than that of more knowledgeable and experienced faculty (Nugent, Bradshaw, & Kito, 1999). As faculty increase their level of educational preparation for the teaching role, they report significantly more often that they were prepared to teach at least in the clinical setting (Herrmann, 1997).

In the nonacademic practice setting, experienced nurses closely guide new clinical nurses. Typically, novice faculty members are assigned a full classroom and clinical teaching loads. They are left alone and often have difficulty finding answers to questions and concerns about instructional methods (Siler & Kleiner, 2001; P. K. Young, 1999). The emphasis on clinical specialization in master's degree programs in nursing reinforces the values of clinical practice that are very different from that in academia, which does not help in the transition process (Megel, 1985). Neese (2003) describes her transition from clinical expert to nurse educator as a "transformational journey" (p. 258) and recommends that nurse educators focus on mentoring novice educators.

Mentorship programs and orientation programs are strategies many schools of nursing use to assist new nursing faculty assimilate into their new role. Nursing faculty not only mentor students but also other faculty members in their development as teachers and scholars

(Finke, 2005). Mentorship programs help in the socialization of novice faculty into the academic community and provide a source of evaluation (Siler & Kleiner, 2001).

Like mentorship programs, orientation programs can have a positive impact on workplace issues (Morin & Ashton, 2004). Faculty must juggle the time spent between learning the politics of the organization or the physical layout of the university with their role of academician. Offering a time-efficient orientation program that forms the basis for a faculty development program is an excellent goal for nurse faculty and administration (Morin & Ashton, 2004).

Being a nurse educator takes preparation. Excellence in teaching is not intuitive, and a career as a nurse educator requires academic preparation in a master's or doctoral program, professional development opportunities, orientation courses, and faculty development programs (Billings, 2003). To be prepared to carry out the roles of nursing faculty, nurse educators need a clear understanding of the process of education (Nugent et al., 1999). This preparation will provide an opportunity for nursing faculty to learn various learning theories, strategies, and frameworks for developing instructional events.

Need for the Study

Nursing leaders call for reform and innovations in nursing education. Despite significant changes in the health care system and increasing complexity of nursing practice, many educators continue to teach as they were taught (Tanner, 1999). New nursing faculty report struggling with what and how to teach, more often relying on familiar strategies (Diekelmann, 2004).

It is common for new nurse educators to feel frustrated, overwhelmed, and unprepared for their new roles as a nurse educator. In nursing education, faculty often come from professional backgrounds where they have honed their knowledge and skills becoming experts in clinical areas. As they become nursing faculty and move into the academic setting, they are expected to teach that knowledge and skill to others. However, the knowledge and skill set to be an educator is significantly different from what they have developed in their professional practice. Nurse educators may not have received formal education on the instructional design process (Kemp & Rodriguez, 1992). Therefore, many new nurse

educators often do not have the requisite skills to provide training that is consistent, systematic, and effective.

The instructional design process offers a pathway for advancing nursing education and a guide for new nurse educators. However, there is a lack of instructional design research, particularly focused on what designers actually do (Cox & Osguthorpe, 2003; Rowland, 1993) . Even less literature was found through a literature search that focused on instructional design used by nurse educators. Cox (2003) points out four values of such studies: They may "(1) lead to changes in professional education programs, (2) help supervisors consider work assignments (3) guide researchers as they develop theory, and (4) raise issues related to the future of the profession." (p. 45). The value of the proposed study on the instructional design processes used by nurse educators presents an opportunities to further discussions on the benefit of instruction design in nurse education.

Overview of Study

The goal of this study is to illuminate the instructional design process used by expert nurse educators. This study began with a pilot study of two nurse educators who teach in the nursing department at Jefferson College of Health Sciences, the researcher's institution of employment. Both the pilot study and the main study were in the form of a qualitative descriptive research study and were composed of interviews of expert nurse educators as they reflected on the instructional design process explicitly or implicitly used by them when developing instructional events. The methodology was based on a constructivist emergent design which affirms the social interaction between the participants and the researcher in a process of constructing reality (Patton, 2002). Expert nurse educators who teach in several different nursing programs of different institutions of higher education were invited to participate. I conducted interviews of each nurse educator to explore the instructional design processes the participants uses to develop instructional events. Interviews were transcribed, and then analyzed and conclusions reported.

Research Questions

The following questions were generated to guide the study and data collection procedures and to provide a detailed description of the participants:

- How do expert nurse educators think they design instruction?

- How do expert nurse educators prioritize their steps in design?
- What instructional design models, if any, are used by nurse educators in preparation of instructional materials and programs?
- Why do nurse educators make the design decisions they make when designing instruction?

CHAPTER TWO
LITERATURE REVIEW

As a new nurse educator, I often asked myself "How can I best educate the nursing students? Where should I start and end? Did the students learn anything?" Instructional design is a process that can guide the nurse educator to answer these questions.

Designing is a form of planning to achieve a practical purpose; it then follows that instructional design is a form of planning to achieve the practical purpose of learning (Rowland, 1993). As a discipline, instructional design is concerned with producing knowledge about methods of instruction and combinations of methods in the form of models and the optimal context for those models (Reigeluth, 1983). The focus of instructional design is "understanding, improving, and applying methods of instructions" (p.7). Reigeluth described instructional design as a "linking science – a body of knowledge that prescribes instructional actions to optimize desired instructional outcomes, such as achievement and affect" (p. 5). Instruction based on research and experience results in favorable changes in student knowledge, skills, and practice. Theoretically, if nurse educators utilized the principles of instructional design in nursing education, the instructional outcomes of nursing students would be optimized.

Instructional systems design (ISD) is based on the systems approach emphasizing the importance of all components interacting effectively to achieve outcomes (Dick, Carey, & Carey, 2001). It is an orderly process to facilitate learning that has measurable outcomes (Seels & Glasgow, 1998). ISD is defined as "an organized procedure that includes the steps of analyzing, designing, developing, implementing, and evaluating instruction" (Seels & Richey, 1994b). Dick, Carey, and Carey indicate that instructional design is an "umbrella term that includes all phases of the ISD process" (p.4). Its procedures and techniques have evolved and been supported by research and theory in various settings such as the military, business, industry, health care, and education (Richey, 1992; Seels & Glasgow, 1998).

General systems theory supports this study because it provides a framework for analysis of components and for identifying the influence those relationships have on one another. Instructional systems design arises from general systems theory and provides a

framework for this study. It emphasizes the importance of organized process to achieve outcomes.

General Systems Theory

General systems theory reflects the idea of order and planning with a sense of purpose using analysis and synthesis (Richey, 1986). A way to view the systems approach is to consider "part-to-whole and whole-to-part thinking about making connections between both system elements and systems and their subsystems, so they fit together into a whole that generates value-added outputs" (Brethower & Dams, 1999). According to Richey, the systems approach can be "used to draw meaning out of existing structures, as well as to create new structures and solve problems" (p. 40). Instructional design should take a logical systematic approach for producing instructional events (Kemp & Rodriguez, 1992).

General systems theory is a foundational theory of instructional design (Richey, 1986). General systems theory helps to organize, show, and understand relationships and their effects among the various elements in the world (Richey, 1986). Because instructional design has a general systems theory foundation, the designer becomes more aware and informed of factors that influence the outcome and can plan accordingly. A system can be described as a set of organized components working toward a common goal (Reiser & Dempsey, 2002). The human body is a system because it is composed of many components that function together to sustain life. A hospital is a system because it is composed of various departments that work together to provide health care. Both of these are systems because they have a set of organized components (heart, lungs, orthopedic unit, radiology), and they have a common goal (sustain life, health care). The components are related because system components function together to achieve a goal.

A major principle in systems theory is that the components are related, and a change in one component in the system may cause a change in other parts of the system (Reiser & Dempsey, 2002). If a change occurs or is made in one component the other components are affected. For example, if a person begins to run and use muscle groups, the heart and lungs begin to work harder to provide the oxygen needed by the muscles to continue to move. In a hospital, if patients are admitted in the emergency room, the admitting physician must be sure another unit in the hospital has sufficient staff and a bed for the patient. As can be seen

from these system illustrations, a change in one component effects the operation of the other components. Feedback controls the operations of these components to keep these systems stable.

The Role of Feedback

Feedback is the communication from one component to other components of the system signaling what is occurring in the other component (Richey, 1986). Feedback can be either negative or positive. Negative feedback allows the system to function in a homeostatic fashion. In the human body, negative feedback is most common to keep the body stabilized. Using a hormone response in the body as an example, the feedback is negative because it negates the initiating change that triggered the release of the hormone. For example, when the blood glucose levels rise (the initiating change), the pancreas secretes more insulin. Insulin causes the glucose to enter cells for energy resulting in lower blood glucose levels. The decrease in glucose levels then serves to decrease insulin secretion or "turn off' the systems. In this manner, serum glucose levels are maintained (McCance & Huether, 1990).

Positive feedback creates a mechanism for change as either growth or destruction in the system (Richey, 1986). Evaluations are often built into systems to provide for planned reflection on the system. Positive feedback examples in the body result in intensification of the stimulus and are rare in a healthy body because the body tries to maintain stability (McCance & Huether, 1990). An example of positive feedback occurs when the uterus contracts in the birth process which stimulates oxytocin secretion, which stimulates increased contractions and increased oxytocin secretion (Thomas, 1997).

Another example of positive feedback is readily seen in our current demographic shift towards an increasing older population. This increase in the numbers of older adults would signify that the community would have an increase demand on geriatric services. A hospital would do well to prepare for such a demand on the healthcare system. Positive feedback provides information, so the system can reorganize itself and develop new responses to the environment (Richey, 1986). Without feedback, systems would become unstable and possibly cease to function properly.

Types of Systems: Opened and Closed

In an educational environment, the instructional designer must realize that the instructional event is only one component of a suprasystem. For the instructional event to be successful, it must interact with other component's suprasystem to function and flourish. Systems are considered opened systems or closed systems. A closed system is one that is isolated or does not interact with its environment. In contrast, an open systems is one which interacts with its environment or suprasystem (Richey, 1986). Open systems provide input into a system and receive output from it. The suprasystem establishes the boundaries in which the system will function. In anatomy, the neurological system is made up of the brain and spinal cord; each of which may be viewed as a subsystem. The complete physical body has to function within the day-to-day environment. The environment is a suprasystem that provides input into the body, and the body acts on its environment. The body could not survive as a closed system because it depends on the oxygen, nutrition, and other factors necessary for life.

Instructional Design Models

The steps of the ISD process included in the definition above form a generic model which consists of analysis, design, development, implementation, and evaluation. This model is referred to as the ADDIE model (Gustafson & Branch, 2002; Seels & Glasgow, 1998). Although many models have been developed, all of them contain the core elements of the ADDIE model (Seels & Glasgow, 1994). Gustafson and Branch (p. xiv) and Seels and Glasgow (p. 7) provide definitions for these elements, synthesized as follows: (1) Analysis is the process of defining what is to be learned or learning needs and analysis of the setting. (2) Design is the process of presenting information so learning will occur in an effective, efficient, and meaningful environment. (3) Development is a process of authoring and producing the learner and management materials. (4) Implementation is the process of installing the instruction in the real world. (5) Evaluation in both formative and summative fashion is the process of determining the impact of instruction.

Instructional design models first appeared in the sixties, and "there has been an ever-increasing number published in instructional technology literature and other educational curricular literature"(Gustafson & Branch, 2002, p. xi). So many models have appeared, it

prompted some authors to ask, “Is another instructional design model really needed (Roberts, Conn, Lohr, Hunt, & Duffy, 2003, p. 15)? The following section will describe various instructional design models and contend that other instructional design models are needed.

Andrews and Goodson compared 40 systems-theory based instructional design models (as cited in Dick, 1981). Their analysis illustrates that there is considerable similarity in instructional design models. Although their work was valuable, since that time a proliferation of variations in instructional design applications, the introduction of instructional design into new contexts, and the emergence of alternative approaches to instructional design has occurred. Therefore, new frameworks are needed to provide a conceptual tool for determining the appropriate applications of the models (Edmonds, Branch, & Mukherjee, 1994).

Consideration: Does One Instructional Design Model Fit All Contexts?

Edmonds, Branch, and Mukerjee (1994) presented a framework for determining appropriate instructional design applications for a variety of instructional design models. Their purpose was to offer a comparison framework as a paradigm to promote and guide research. The framework has four classifications: (1) type of orientation, (2) type of knowledge, (3) required expertise, and (4) theoretical origins.

- The type of model orientation can be either descriptive or prescriptive (Edmonds et al., 1994). Descriptive models describe the learning environment and consider how the environment will affect the variables of interest. Prescriptive models outline how designers may manipulate the learning environment to produce the desired outcome.
- The type of knowledge refers to procedural or declarative knowledge (Edmonds et al., 1994). Procedural knowledge focuses on how to reach an outcome or goal. Knowing how to take a person’s blood pressure is an example of procedural knowledge. Declarative knowledge focuses on factual knowledge, concepts, and why an outcome or goal should be reached (Bruning, Schraw, & Ronning, 1999). Knowing the normal range of expected blood pressures is an example of declarative knowledge.

- Required expertise refers to the level of expertise required by the individual to apply the model (Edmonds et al., 1994). Some models are very simple, using step-by-step procedures that are appropriate for novice designers, while other models provide heuristic reference points and are more appropriate for expert instructional designers (Edmonds et al., 1994). The complexity of the use of a model is an important consideration for those with little instructional design education such as a clinical nurse entering a faculty role.
- The theoretical origin of most instructional design models is based on systems theory (Edmonds et al., 1994). However, as the instructional design field grows, developers have produced other models that are not based on systems theories. For example, Tripp and Bichelmeyer's model (as cited in Edmonds et al., 1994) focuses on Rapid Prototyping.

The authors arrange four basic classifications of instructional design processes into four layered circles (Figure 2.1). They use their classification system to develop a matrix to illustrate the appropriate context and level of a variety of instructional design models.

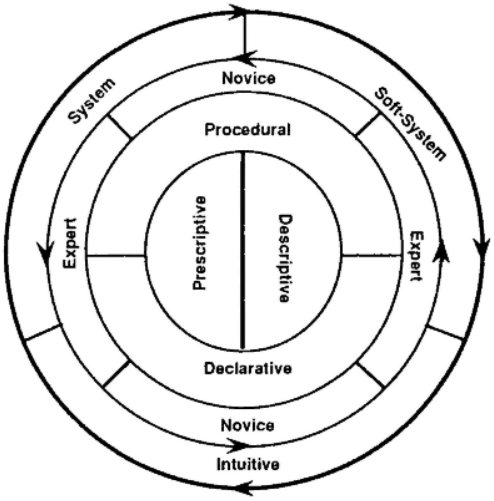

Figure 2.1. Categorization of instructional design models

The value of the work by Edmonds, Branch, and Mukerjee (1994) is that it clarifies that instructional design models are intended for different context applications. "Just as instruction designed for one context is not necessarily appropriate for another, a model developed for a particular context may not be suitable for another" (Edmonds et al., 1994).

Their matrix can be used to select an appropriate ID model based on the content and context. For example, the Interservice Procedures for Instructional Systems Development (IPISD) model (1975) is an expert system-based model that is appropriate for use by expert instructional designers in a business or government context to develop procedural knowledge structures. Both the Kemp model (1985) and the Seels and Glasgow model (1990) are suitable for novice instructional designers in a variety of settings including higher education. The Seels and Glasgow model has a knowledge structure suitable for procedural knowledge development. The Kemp model contains elements that make it appropriate for both declarative knowledge and procedural knowledge structures.

ID Model Taxonomy

Gustafson and Branch (2002) present a variety of instructional design models and proposed taxonomy of instructional design models based on three categories: (1) classroom focused, (2) product focused, and (3) systems focused. Classroom focused models are oriented to teachers in elementary to higher education levels. With these models, the teacher's role is to teach, and their primary focus is on deciding on the appropriate content, strategies, and media, then delivering the instruction and conducting evaluation. There is little expectation of development of instructional materials. The teacher often views "any ID model as a road map to follow" (p. 19). A product-focused model is based on an emphasis on front-end analysis and the assumption that a product will be developed. The product is expected to be useable by the learners with only a facilitator, not a teacher. The systems-oriented models are based on the assumption that highly skilled developers and subject experts will produce a curriculum or an entire course needing significant resources.

Gustafson and Branch mention numerous ID models for each of the three categories in the taxonomy. For the classroom-oriented models, for example, they select four models to represent ID models applicable in the classroom environment: (1) Gerlach and Ely (2) Kemp, Morrison, and Ross (3) Heinich, Molenda, Russell, and Smaldine and (4) Reiser and Dick. For the product-oriented models, they select and discuss (1) Van Patten (2) Leshin, Pollock, and Reigeluth, and (3) Bergman and Moore. For the systems oriented ID models, Gustafson and Branch select six models to represent the class: (1) Interservice Procedures for Instructional Systems Development (IPISD), (2) The Gentry Model or Instructional Project

Development and Management (IPDM) model, (3) The Dorsey, Goodrum and Schwen Model, (4) The Diamond Model, (5) The Smith and Ragan Model, and (6) The Dick, Carey, and Carey Model.

What is clear from reviewing the literature above is that one model is inappropriate for all contexts, and instructional design models should be chosen based on the context of intention, the knowledge structure to be developed (declarative or procedural), and the level skill of the designer. The importance of choosing the correct model is stated in the following:

> The more compatible the theory and philosophy are to the context in which a model is to be applied the greater the potential that the original intent of the model will be achieved ….While no single model is useful for all settings and all purposes, it is important to identify the intended focus of an ID model and the context for which it is intended" (Gustafson & Branch, 2002).

Instructional Design Models Used in Nursing Education

Gustafson and Branch (2002) indicate that instructional design models "serve as conceptual, management, and communication tools for analyzing, designing, creating, and evaluating guided learning, ranging from broad educational environments to narrow training applications" (p. XV). Lacking in nursing education literature is evidence of the application of instructional design models in a nursing education context. Instructional design themes found in nursing literature can be characterized as either a general discussion of design considerations void of illustrative prototypes or a specific but singular feature of the design process such as evaluation (Hymel & Deere, 1985).

One ID model that has been recommended as being suitable for nursing is the Kemp model of instructional design (Kemp & Rodriguez, 1992). As is common with systematic instructional design models, the core elements of analysis, design, development, implementation, and evaluation (ADDIE) are found in this model (Reiser & Dempsey, 2002). Although the authors do not state why the model "is particularly suitable for nursing" (p. 282), they indicate it addresses four key questions in the instructional design process: (1) Who are the students? (2) What objectives are to be accomplished? (3) What training methods and resources should be used? (4) How is the accomplishment of objectives evaluated? The Kemp model has evolved over the years from its original form in 1971 to the

Morrison, Ross, and Kemp model (2001). This most recent model is illustrated in Figure 2. This version includes components for project management and support services in the ID process (Gustafson & Branch, 2002).

Gustafson and Branch (2002) categorize the Morrison, Ross and Kemp model as a classroom oriented model. This model is very flexible because the steps can be modified to fit the situation. There are nine key elements that can be approached from a variety of paths to develop a comprehensive instructional design plan (Seels & Glasgow, 1998).

The first three of the nine elements in the Morrison, Ross, and Kemp model relate to the Analysis stage of the ADDIE model. The first three elements are (1) identify instructional problems; (2) examine learner characteristics, and (3) identify subject content and analyze task components related to stated goals and purposes. The next four elements relate to the Design stage of the ADDIE model. The next four elements are (4) specify the instructional objectives, (5) sequence content within each instructional unit to provide logical learning; (6) design instructional strategies so that each learner can master the objectives, and (7) design the instructional message. The Development stage in the ADDIE model matches elements (8) development of instruction, and (9) development of evaluation instruments. In addition to the nine design elements there are two outer ovals. These two ovals are modifications from the 1994 version and include components for project management and support services (Gustafson & Branch, 2002). Within these ovals, the Implementation and Evaluation of the ADDIE process are indicated in the Morrison, Ross, and Kemp model.

Instructional Design in Nursing Staff Development

In another report, Hymel and Deere (1985) present the application of instructional design procedures using three generic models for systematically designing the staff development of in-hospital nursing personnel. They view instructional design as a deductive process encompassing three major activities or phases: preparing instruction, implementing instruction, and evaluating instruction. They also identify three levels of specificity and apply a generic model to each level along with a checklist of things to do. The three levels of specificity include the program syllabus or macro level, the course syllabus or intermediate level, and the instructional unit or micro level. The relationship between the phases and levels of instructional design is such that the tasks of preparing, implementing, and

evaluating instruction represent the means to generate instructional products and the activities the teacher engages in at each level (Hymel & Deere, 1985).

An example of the model and the checklist for the program (macro) level is illustrated in Appendix A. The model or flowchart and the checklist are like a road map of items to be developed in the preparatory, implementation, and evaluation phases for a particular instructional program being developed. In Phase I, Preparing instruction, the program syllabus is designed. The course syllabus is designed followed by the individual units of instruction. During Phase II, Implementing instruction, the teacher implements the instructional methods and student activities assigned. Hymel and Deere (1985) emphasize that it is important for the instructional methods and student activities to reflect the performance objectives addressed in the unit. Phase III, Evaluating instruction, contains formative evaluation, learning correctives, and summative evaluation. Formative evaluation, in the form of testing, "provides ongoing, intermittent feedback to the teacher and student concerning the latter's progress at various stages in a given unit of instruction" (pg. 17). When a learning deficiency is detected on the part of a student, learning correctives, such as sequencing the material or utilizing different material, are employed. Summative evaluation includes a criterion-referenced assessment of the student, resulting in the student's letter grade and a unit evaluation seeking the student's feedback on the quality of instruction.

The Seels and Glasgow (1998) model of instructional design was used for the development of a faculty-designed software program to provide nurses prior knowledge of site selection for intramuscular injection (Wedge, 1994). Of note is that Wedge had a Master's degree in Education and, at the time of the publication of the article, was a doctoral candidate in instructional technology. This is important because it illustrates the influence her education in the field of education had on her knowledge and ability to use ID models.

Like the Morrison, Ross and Kemp model, the Seels and Glasgow ISD Model II For Practitioners views the instructional design process with a project management perspective and recommends developing a "project management plan" (p. 177) that establishes roles, tasks, timelines, budget, checkpoints, and supervisory procedures (Seels & Glasgow, 1998). The project management plan is divided into three phases: (1) needs analysis management, (2) instructional design management (including development), and (3) implementation and evaluation which consists of ten steps, several of which are performed in order but may be

performed concurrently. Diffusion is an added stage in the Seels and Glasgow model. Diffusion is the ongoing "process of persuading others to adopt and maintain the innovation" (p.178). Here again the ADDIE process can be seen in this model. Appendix B compares the steps in the Generic ADDIE Model with the steps in Seels and Glasgow Model. Although based on the generic ADDIE model, Seels and Glasgow specify ten steps that may be performed in order or concurrently. For example, in the design phase of the model, the four steps of task/instructional analysis, objective/tests, instructional strategy, and media decisions can be performed concurrently or revised as needed (Wedge, 1994).

Instructional Design and the Nursing Process as a Model

Of particular interest is the application of the nursing process as a model for instructional design. The basic components of the nursing process are assessment, planning, implementation, and evaluation. Stewart (1983) reasoned that because the nursing process is used to identify and resolve patient needs or problems, the same process can be utilized to effectively teach nursing. She compared the two problem solving processes. There are strong similarities between the nursing process and the generic ADDIE model. Appendix C compares these two processes. Assessment of learning needs occur in both. Based on the data, needs are diagnosed, and a plan is formulated. This includes prioritizing the needs, setting goals and objectives, and then outlining methods to accomplish them. The implementation phase begins before the actual teaching experience with the teacher organizing resources that are needed and concludes with the actual conducting of the learning experience. Finally, evaluation of the learning experience is completed.

The Importance of Instructional Design to Nursing Education

Nursing education has been criticized as being ineffective and inadequate in preparing nurses to practice in a complex healthcare environment (Bevis & Murray, 1990). It has been suggested that nursing education has failed to address the issue of how to educate nurses to a high level of critical thinking (Watson, 1988). Nursing leaders call for reform and innovations in nursing education. Despite significant changes in the health care system and increasing complexity of nursing practice, many educators continue to teach as they were taught (Tanner, 1999). New nursing faculty report struggling with what and how to teach, more often relying on familiar strategies (Diekelmann, 2004).

The application by nurse educators of the principles and processes of instructional design may facilitate the improvement of nursing education. “Instructional design is a technology which incorporates known and verified learning strategies into instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing” (Merrill, Drake, Lacy, Pratt, & Group, 1966). The military and many corporations, such as IBM and Ford Motor Company, have incorporated instructional design procedures and models (Richey, 1992). Instructional design procedures and their application have evolved through practice as well as research, theory expansion, and model development (Seels & Glasgow, 1998). It is my belief that nurse educators should incorporate ID procedures as they design instruction for nursing education. An instructional design model designed for nursing educators may be a useful tool to help the nurse educators incorporate ID procedures. Developmental research methodology has been used to study instructional design and can be used to study the instructional design processes of nurse educators.

Developmental Research and Research Objectives

The purpose of this section is to summarize how developmental research can be used to study the instructional design process. The clarification of developmental research is important because “the notion of developmental research is often unclear, not only to the broader community of educational researchers but to many instructional technology researchers as well” (Richey, Klein, & Nelson, 2004, p. 1099). The term developmental research is frequently confused with research in this field which focuses on specific age groups through a human’s developmental life-span. However, in instructional technology it refers to "improving the processes of instructional design, development, and evaluation" (Richey, Klein, & Nelson, 2004, p. 1099).

Developmental Research Defined

Developmental research is defined as “the systematic study of designing, developing, and evaluating instructional programs, processes, and products that must meet the criteria of internal consistency and effectiveness” (Seels & Richey, 1994, p.127). Developmental research attempts to produce the models and principles that guide the design, development, and evaluation process. In the field of instructional technology, research studies that can be

classified developmental research have the goal of “improving the processes of instructional design, development, and evaluation” (Richey et al., 2004, p. 1099).

Two Types of Developmental Research

Richey, Klein, and Nelson (2004) describe two types of developmental research. Table 1 summarizes the characteristics of the two types and illustrates the aspects of this research that characterizes it as primarily a developmental research Type 2 study. Type 1 developmental research is generally context or product specific and involves the evaluation of that product or program. The evaluation is of a formative evaluation because the activities performed during the entire development process are of a specific intervention, from exploratory studies through (formative and summative) evaluation studies. The case study technique is most common in Type 1 research to describe complex situations. Evaluation methods such as achievement tests, learner surveys, and performance measures are also used.

Type 2 developmental research studies address in part, or as a whole, the design, development or evaluation processes, tools, or models (Richey et al., 2004). This research type tends to emphasize “a general examination of design and development as it is commonly practiced in the workplace” (p. 1109), which offers implications for any design or development project. Although these studies are product or context specific, conclusions from Type 2 research are generalized. Although not as common as in Type 1 development research, case studies are found in Type 2 developmental research to describe the design and development processes followed for a particular product or in the demonstration of a particular process.

Conclusions drawn from developmental research vary depending on type. Conclusions from Type 1 studies focus on the product or program. Conclusions from Type 2 studies relate to the technique or model observed in the study.

Table 1.1

Summary of two types of developmental research and alignment of current study

	Type 1	Type 2
Emphasis	Study of specific product or program design, development and/or evaluation projects	Study of design, development, or evaluation processes, tools, or models
This study…	Not applicable	Study of design process
Product	Lessons learned from developing specific products and analyzing the conditions that facilitate their use	New design, development and evaluation procedures, and/or models and conditions that facilitate their use
This study…	Not applicable	Provides foundational knowledge for new design for nurse educators
Conclusions	Context-specific	Generalized
This study…	Not applicable	Generalized to processes used by nurse educators

(modified from Richey, Klein, & Nelson, 2004)

Research on Instructional Design

Numerous articles can be found on instructional design models and strategies, but relatively few studies have focused on models and on the process instructional designers actually use when designing instruction (Wedman & Tessmer, 1993). Rowland (1992) suggests that the ID literature generally discusses what designers should do rather than reflecting what designers actually do. The following section will provide a synopsis of ten research studies reflecting what instructional designers do and the instructional design process used to design instruction. These studies are grouped by research design methodology. Of the ten studies, five studies used either interviews or surveys alone; three

studies used interviews and think-aloud protocols; one study used a qualitative empirical approach, and one study followed a case-study design. A summary matrix is presented in Appendix D.

Interviews and Surveys

Five studies using surveys or interviews alone are reviewed first. Cox and Osguthorpe (2003) conducted one of the more recent studies by asking designers how they actually spend their professional time. The researchers emailed an online survey to 307 instructional designers at corporate settings and universities and received 142 responses. Respondents reported spending most of their time in original design work (23%), followed by project management or administrative responsibilities (22%) (Cox & Osguthorpe, 2003). With such a high percentage of time designers have to allocate to project management, the question that arises from this study for faculty of instructional design programs is, is project management development included in the curriculum? This study did not address the actual processes the designers followed as they did the design work.

Kerr (1983) viewed design as a problem solving activity. He investigated 26 students in a graduate-level introductory course on instructional design. Kerr sought to investigate 1) the prevalence of initial generation of more than one possible design solution, 2) the basis on which candidate solutions were accepted or rejected, 3) the constraints encountered in proceeding with the design, and 4) the way in which designers knew that they were finished with the design. At the beginning of the class, the instructor asked the instructional design students to choose a design project that they would work on through the class. The students submitted the preliminary design, and the instructor interviewed the students during the sixth class meeting (Kerr, 1983).

The novice designers did consider more than one approach as a solution to their topic. The researcher noted that only a few students followed a systematic fashion as encouraged by the instructor. The students indicated that the basis on which solutions were accepted or rejected was primarily their own experience and student needs. Some of the constraints the students considered were feasibility and financial, administrative, and social support for the approach. Most students identified a finish point as when they had addressed all outcomes in

the design. Finally, Kerr recommends in future research not to rely on the recall approach in his study. Rather, he suggests a simulated design situation.

Visscher-Voerman and Gustafson (2004) used a developmental research framework. The researchers used a reconstructive method case study approach of 24 expert instructional designers in six different settings to compare the design process used by the designers with four different paradigms. Although the authors indicated they collected "case study data" (p.69), neither the case nor a unit of analysis was defined. The six design settings were as follows: design of textbooks, curriculum development, multimedia design, design of training, and Human Resource Development (HRD) Programs, Design of training and HRD programs in external bureaus, and design of distance education.

Their goal was to reconstruct the design processes used by the designers in their various contexts. The question that guided the study was "What design strategies do professional high-reputation designers use in practice in various training and education contexts?" (p. 70). A purposeful sample was used to select the designers. For each setting, three to four experts were asked to nominate "high-reputation professional designers" (p.71). The criteria for selection were based on the quality of the designed products, client satisfaction, creativity or thoroughness of the design approach, or years of experience, that ranged from 3 to 20 years. Each participant was interviewed in each setting, and documents, such as letters to clients and records of meetings, were examined to "check" (p. 72) the interview data. This examination and checking helped reconstruct the design process.

After the interviews, a preliminary analysis was conducted. Participants had the opportunity to review and remark on the interviews. The researchers wrote summary reports. These reports summarized the interviews providing a first reduction of data. They also included remarks made by the designers after the interview, and the designers added topics after the initial interview. The researcher used these summarized reports for the basis of analysis.

The ADDIE terminology was used to analyze and code the data. This classification provided insight into the course of actions the designers used in their design process. Cross-case analysis was also used. A metamatrix was constructed listing designers in rows, and the columns contained the aspects of the ADDIE terminology. For each ADDIE activity, additional aspects were included. For example, nature and methods of activities, persons

involved, when activity occurred in the process, and tips for conducting the activity were included in the matrix.

Visscher-Voerman and Gustafson (2004) concluded that the data justified four design paradigms that categorized the designers with respect to the way ADDIE activities are conducted. The four paradigms are a) instrumental, b) communicative, c) pragmatic, and d) artistic. The characteristics found in the instrumental paradigm include a design process that starts with specific goals and outcomes. In the instrumental design, there is a consistent relationship between goals, learning situations and processes, and outcomes design. The communicative paradigm characteristics include an emphasis on an agreed upon design based on standards discussed by a design team or stakeholders. Frequent communication among these stakeholders is essential. The pragmatic paradigm has characteristics similar to what is found in rapid prototyping. The characteristics of the pragmatic paradigm are the quick creation and revision of products. Finally, the artistic paradigm is subjective and is characterized by designers making decisions in response to a specific situation. The product's quality is based on the designer's subjective criteria.

Wedman (1993) conducted a survey of practicing course developers to answer two primary questions. First, do instructional designers follow the prescriptions of established ID models, or do they selectively complete various ID activities? Second, if design practice is characterized by selective activity, what are the factors that influence the decision to complete some ID activities but not others? The survey was constructed with two parts. The first part asked subjects to indicate the frequency with which they completed 11 ID activities on projects. In the second part of the survey, participants were asked to explain why each design activity might be excluded from some projects. Prepared lists were provided for each part with space for respondents to add additional information. Researchers mailed the survey to the participants. An item-by-item Mann-Whitney analysis was performed on the data.

The results of the study indicate that practicing instructional designers do not complete all ID activities from prescriptions of classic ID models. The study also found that decisions to omit one or more activities are influenced by a variety of factors.

> According to Wedman (1993), "most ID models appear to be incompatible with ID practice in that these models do not allow for selective completion of ID activities and are not sensitive to the factors that influence designers'

decisions to omit (or perhaps modify) some activities in a given design project" (p. 54).

Wedman (1993) also suggests some future research should explore criteria to determine the success of ID projects. Future research should also use interviews and observations rather than surveys. They should seek to understand when, why, and to what level of sophistication ID activities are included in projects. Future research should also investigate how designers derive learning objectives. Although there are numerous ID models, Wedman suggests that a new model in needed that is grounded in the observation of design practice.

A study conducted in Montreal examined what designers actually do versus what they should do on the Layers of Necessity model (Winer & Vazquez-Abad, 1995). It replicated the Layers of Necessity study conducted by Wedman and Tessmer (1993). This study surveyed members of the Montreal Chapter of the National Society for Performance and Instruction (NSPI). The survey instrument asked participants to report how often they conducted 11 instructional design activities. The list of 11 activities can be found in Appendix E. The researcher mailed questionnaires to all chapter members. Findings of the survey reveal that the majority of designers perform more frequently tasks they judge to be more important for a given design project. This idea is consistent with the principle behind the Layers of Necessity model which is that designers' activities vary depending on the design situations.

Interviews and Think-Alouds

Three research designs using both interviews and think-aloud strategies are reviewed next. One study examined instructional designers' priorities. Two of the studies compared novice and expert designers.

Study 1

Le Maistre and Weston (1996) conducted a study to investigate the priorities instructional designers establish among data sources when they revise written materials and the relationship of their practice to standard models of formative evaluation. A counterbalanced design was used. According to Gall, Gall, and Borg (2003), in a counterbalance design the researcher varies the administration of treatments among

participants to eliminate the possible confounding of order effects with treatment effects. Counterbalance designs are “used to avoid problems of interpretation due to order effect” (p.415), which is the “influence the placement in the administration of several treatments has on the dependent variable” (p. 415).

In Le Maistre and Weston’s study, the treatments were two instructional modules on the topic of introductory chemistry that included learner feedback and expert feedback from subject matter experts. A think-aloud procedure was used to collect data as instructional designers revised the modules. During the think-aloud procedure, the researcher wrote notes on a tracking sheet which helped develop an agenda for a debriefing interview after the participants completed the revision. The debriefing served to clarify comments made during the think-aloud.

The think-aloud was audio taped and transcribed and segmented into meaningful units. The researchers used a modified problem-solving mode as a coding scheme. LeMaistre and Weston (1996) found that only 20% of revisions could be linked to feedback. They also found that instructional designers tended to give priority to their own knowledge as input into revision over that of subject matter experts. Although this study focused only on evaluation and not on the entire instruction design process, it illustrates that interviews and the think-aloud protocol is an effective strategy to reveal insight into the thought processes of instructional designers.

Study 2

Research by Perez and Emery (1995) has sought to identify differences in thinking of expert and novice instructional designers. This study was conducted in two phases. Phase 1 consisted of structured interviews of four experts in the field of training development. The criteria for selections were 1) nominated by peers, 2) ten years of experience in the field, and 3) ten years of hands-on experience. Two pairs of coders transcribed the interviews. The researchers developed a coding scheme that considered three aspects of the problem-solving process: sub problems, types of knowledge used, and problem-solving operators. The coding scheme also had two levels: knowledge source and design phase (Perez & Emery, 1995).

In the second phase of the study, nine instructional designers (five experts and four novices) participated in a think-aloud task. The task was to design instruction on how to

troubleshoot a diesel engine. This subject area was chosen to reduce the likelihood that one subject would have more subject matter expertise than anyone else would (Perez & Emery, 1995). Instructional designers were instructed to think aloud, as they designed instruction for the simulated diesel engine task. The participants were videotaped and audio taped. Design trees were drawn for each subject based on the transcripts. A design tree is a graphical representation of the decision points and concepts and their linkages in the design process. Perez and Emery (1995) used design trees to illustrate and compare decision-making processes.

The researchers' examination of the data showed vastly different design processes for novice and expert designers. The findings showed that differences were observed not only between experts and novices but also among experts and novices. In general, the experts thinking process is much more complex than that of novices. Experts tended to be more reflective in their selection and use of a design strategy, and the experts spent more time exploring the problem than novices (Perez & Emery, 1995).

According to Perez and Emery (1995), this study suggests that tools that provide flexibility for use by each skill level of instructional designer should be developed. They also recommend a shift in training for instructional designers. The training should shift from either a "reliance on experience or theory-based approaches to one that not only emphasizes both and also focuses on the process of design as a problem-solving task" (p. 94).

Study 3

Rowland (1992) conducted a study comparing four novice instructional designer to four expert instructional designers using a think-aloud strategy to solve a design problem. The novice designers were students in different sections of an introductory instructional design course. The expert designers were identified by peers as being experts and were actively practicing instructional design. Subjects participated in a single audio-taped session in which they were given a standard design task developed by the researcher. After completing the task, the researcher interviewed the subject using a standard set of questions that probed areas such as the process, the solution, beliefs, and so forth. Researchers asked additional questions based on decisions made by the subject during the session. Analysis broke the data into basic units and related those units to general categories of information and

process. The units were categorized according to a scheme developed during pilot testing and refined during the study, then patterns were identified (Rowland, 1992).

Rowland (1992) found that both the novice and the experts worked in two phases: Problem Understanding and Solution Generation. What was different was the time spent in each phase. Expert designers spend extended time performing problem analysis and "constructed a rich representation of the problem" (p. 72). They linked the information provided to experiences with similar problems, then retrieving a mental template of information they would need to solve the problem. In contrast, novice designers spend little time in the problem understanding phase and moved quickly into generating solutions, but they returned frequently to the given information to improve their understanding. Although Rowland analyzed the process of novice and expert designers, he did not discuss the quality of the product produced by the two groups. There is no evidence that the process followed by the expert designers produce a better product.

Qualitative Empirical

Kirschner, Carr, and van Merrienboer (2002) used a qualitative empirical approach in their research studies. Two strategies were used in studies conducted to discover the actual design practices and especially the strategies and heuristics of expert instructional designers as they design competency-based learning environments (Kirschner, Carr, & van Merrienboer, 2002). The first method was a qualitative empirical approach to determine the priorities of expert designers and their actual approach to design. Fifteen participants came from the academic setting of The Open University of the Netherlands (OUNL) and the corporate setting of Arthur Anderson. Video-conferencing was used, as the participants were asked to rank their top three design principles from the Visscher-Voerman list of 16 design principles. The 16 design principles used in the study can be found in Appendix F. They were then asked to rank their top three design principles "that are most important to the success of a design project" (Kirschner et al., 2002). The OUNL group considered starting from learner needs and consideration of alternative possible solutions to be the most important. The Arthur Andersen group selected the following principles as their most important: 1) designers should start with the needs of the learners; 2) a prototype should be made in the early stages of the design process; 3) ownership should be created with the clients and stakeholders; 4)

products from former projects should be shown to clients, partners, and (5) stakeholders should help to choose a solution and to formulate product specifications.

For the second strategy, the researchers used the same participants as the first experiment, except the researchers divided the participants into teams (OUNL, 3 teams; Anderson, 2 teams). The researchers gave the design task of making a preliminary design for a postgraduate program in environmental consulting for a consulting firm to the designers to complete in 90 minutes. Although the designers at the two institutions were consistent about the selection of priorities of design principles, their approach to the design task showed definite differences between the institutions. The academic teams chose a more detailed task analysis, and the corporate teams of Andersons "took a more client-oriented approach" (Kirschner et al., 2002). A major limitation of this study concerns the generalizability of the study. Not only did the groups work in two distinct environments, academic and corporate, they lived in two different countries, the United States and the Netherlands. This produces the potential for cultural differences to influence results.

Case Study

Finally, Hardre and Chen (2005) looked at the development of instructional design knowledge in teaching expertise for university teaching assistants (TA). The researchers sought to identify links between expertise development and instructional design. A case study approach was used to understand the internal processes and external behaviors of the TAs in response to increased knowledge of instructional design. The TAs were taught the ADDIE model to develop their knowledge of instructional design and had professional development opportunities during the semester. The case studies were 12 teaching assistants. The TAs were followed for a semester, in which the researchers collected data from design artifacts, written responses to knowledge-directed prompts, and videos of teaching performances and teacher-student interactions. A questionnaire was utilized that asked for essay-type responses that focused on theory, knowledge, classroom strategies, and design factors. Criteria were based on expert summaries of best practices.

Hardre and Chen (2005) reported their research indicated that TAs found the opportunities to learn ID very positive and useful. They found that the development of teaching expertise can be supported by professional development in instructional design.

Lastly, TA's have expressed more desire to adopt instructional design processes if they perceived a greater need for improvement.

Synthesis of Instructional Design Research

Synthesis of the research studies summarized above provides evidence for some generalizations about instructional design and provides guidance for future research. One of the key threads found in many of the studies was that even though instructional designers may be influenced by ID models, their practice is more dynamic and not a systematic approach as illustrated in traditional ID models (Kirschner et al., 2002; Rowland, 1992; Winer & Vazquez-Abad, 1995). It is also clear in the research that instructional designers often omit steps in the ID process (Wedman & Tessmer, 1993).

Some studies compared the thought processes of novice instructional designers to expert instructional designers (Perez & Emery, 1995; Rowland, 1992). The results showed that novice and expert designers have different emphasis (Perez & Emery, 1995). Expert instructional designers are able to view the design task with more complex thought processes and recall mental templates developed from previous experience. The expert designers focused more on the problem, whereas novices moved quickly to a solution generation phase (Rowland, 1992).

Surveys and interviews were the primary main methods of data-gathering in several studies. Five studies used surveys or interviews solely as a data collection method, and another three studies utilized interviews along with the think-aloud protocol. In person, mail, and email delivery methods were used in delivering the surveys. A drawback to the survey is the difficulty in clarifying questions or responses, if needed, as opposed to face-to-face interviews. The interviews described in the above studies allowed the researcher to ask probing questions to elicit more information.

A list of design principles seems useful in quantifying the designers' priority of design principles (Kirschner et al., 2002; Wedman & Tessmer, 1993; Winer & Vazquez-Abad, 1995). The 16 design principles from Visscher-Voerman were used in the study by Kirscherner et al (2002). Wedman and Tessmer (1993); Perez and Emery (1995); and Winer and Vazquez-Abad 1995) used a list of 11 activities of instructional design.

Finally, the think-aloud task strategy was used by Rowland (1992) and Perez and Emery (1995). The think-aloud procedure allows the researcher to capture the thought processes from the subjects as they work on the task (Patton, 2002). In these studies, the participants were given a design task to complete while the research recorded the verbalized thought processes of the participants. Kerr (1983) recommended using such simulations of design rather than a stimulated recall method because participants are not aware of their own methods of decision making, thereby rendering recall methods ineffective. In his research, he used a design task and interview questions to answer, "What … goes on inside the 'black box' of the designer's consciousness when solving an instructional design problem?" (Kerr, 1983).

Think-Aloud and Cognitive Theory

Think-aloud strategies are a strategy researchers used to identify the cognitive processes someone is using to solve problems. Ericsson and Simon (1993) believe the think-aloud procedure captures the thought process (problem-solving process) from the short-term memory of the subjects. This enables the researcher to access an unedited version of the thinking process of the participants as the subjects work through a task. They have shown the think-aloud techniques to be useful in tracking cognitive activity.

Cognitive theory can be connected to the work of Gestalt, who believed that knowledge comes from the learner imposing organization on incoming sensory information (Driscoll, 2000). Some cognitive learning theory has adopted the metaphor of a computer to conceptualize what occurs in the cognitive or mental process resulting in the name cognitive information processing (CIP). In this model, stimuli become input, and behaviors are output. What occur within the mind are the processes of short-term and long-term memory (Driscoll, 2000).

Knowledge can be represented in the memory in the form of schemas (Pressley & McCormick, 1997). Schemata serve as an organizing mechanism for new information and are complex representations of knowledge (Bruning et al., 1999). Slots in schemata hold the contents of memory. Bruning indicates that "knowledge is perceived, encoded, stored, and retrieved according to the slots in which it is placed" (p. 56). Following this line of thought, the schemata or knowledge of an expert instructional designer is different from the schemata

or knowledge of a novice instructional designer. Think-aloud protocols should reveal the schemata or knowledge processes used by expert nurse educators.

However, verbal reports on mental processes similar to think-aloud protocols have been criticized. In their classic article, Nisbett and Wilson (1977) report that “people may have little ability to report accurately about their cognitive processes” (p. 241). They contend that subjects “may have been making simple representative judgments when asked to introspect about their cognitive processes” (p.249).

In more recent work, Ericsson and Simon (1993) conclude that "For brief solutions processes the recalled sequence of thoughts can be reported retrospectively with high accuracy" (p. xxxii). Although the subjects slow down moderately because of the verbalization during situations such as think-aloud protocols, they can verbalize without changing the sequence. However, when the subjects are asked to give rationale behind their actions, it is assumed that "they generally have to engage in additional thinking to produce the requested reason prior to its verbalization" (p. xxxii).

The Expert

Of the ten studies described above, five studied instructional design with expert instructional designers as participants in the study. Three other studies used practicing designers as participants. Although the research reviewed above demonstrated differences between novices and expert participants, the researchers provided only very general criteria to define a novice or an expert. For example, Visscher-Voerman and Gustafson’s (2004) criteria for an expert included nomination by two to five designers, production of quality products, satisfaction of clients, creativity or thoroughness, or years of experience that ranged from 3 to 20 years. Perez and Emery (1995) selected experts based on three criteria: 1) nominated by peers, 2) ten years of experience, and 3) ten years of hands-on experience.

The Dreyfus model helps describe the levels of skill acquisition a person goes through to become an expert (Benner, 2004). The five levels of proficiency are novice, advanced beginner, competent, proficient, and expert. The novice has no experience in the situation. The person adds more skills and abilities as they move toward the expert level (Benner, 1984).

Benner (2004) identifies two major assumptions of the Dreyfus model. The first assumption of the Dreyfus model is "that with experience and mastery the skill is transformed" (p. 163). The second assumption is the "model assumes that all practical situations are far more complex than can be described by formal models, theories, and textbook descriptions" (p. 163).

An expert is someone who has acquired extensive knowledge that affects what they notice and how they organize, represent, and interpret information in their environment (Council, 2000). Because of this, their ability to remember, reason, and problem-solve is affected. In general, experts are better problem solvers than novices for a variety of reasons, including experience, background knowledge, and information processing advantages that are the result of expert knowledge (Glaser & Chi, 1988).

Expertise is developed when an individual tests and refines propositions, hypotheses, and principle-based expectations in actual practice situations making experience a requisite of an expert (Benner, 1984). It typically takes about ten years to develop expertise in a domain (Bruning et al., 1999; Ericsson, Krampe, & Tesch-Romer, 1993). Bruning defines domain knowledge as a "realm of knowledge that individuals have about a particular field of study" (p. 191). However, being an expert does not always equate to being a good teacher. Many experts do not recall what is easy and what is difficult for students (Council, 2000).

Importance of ID Research to Nursing Education

Research studies in nursing education are important for at least four reasons: They can (1) lead to changes in professional education programs, (2) help supervisors reconsider work assignments, (3) guide researchers as they develop theory, and (4) raise issues related to the future of the profession (Cox & Osguthorpe, 2003). The study of actual design practice of expert nurse educators can be instrumental in providing us with an understanding of what successful nurse educators actually do when they design instruction. Rowland (1992) indicated that because his study had few precedents in the field, he "sought to generate a large range of questions and profitable directions for further research" (p. 67). Likewise, researching the instructional design processes used by nurse educators has few if any precedents, and my hope is to generate questions and identify profitable directions for further research. By determining the critical information used by expert nurse educators, and the

processes by which decisions are made based on this information, a better understanding of the instructional design process can be achieved. Once we know how expert nurse educators approach the design process, it may be possible to better track the development of this expertise. However, before this process can be achieved, the process of instructional design must be more clearly defined and explained. It is hoped that this research can provide at least a step in that direction.

Purpose of the Study

The purpose of this study is to research the instructional design processes used by expert nurse educators. I hope to explain the design processes expert nurse educators use when formulating instruction intended for nursing students. The focus of the study is the design process. The actual development or delivery and evaluation of the instruction will not be studied. Making explicit the implicit processes used by nurse educators will provide a better understanding of how nurse educators view the design process. At least by documenting and revealing these processes, newer nurse educators may be able to see some of the steps expert nurse educators use to help them design instruction. This knowledge will help build a foundation for tailoring the instructional design process for nursing education. Opportunities to improve the process used to design instruction for nursing education may be discovered. This data will be used to create an instructional design model to be used in a nursing education context. This line of research will have important implications for assisting and training nurse educators in developing more effective and efficient instruction.

The following research questions were used in this study:

- How do expert nurse educators think they design instruction?
- How do expert nurse educators prioritize their steps in design?
- What instructional design models, if any, are used by nurse educators in preparation of instructional materials and programs?
- Why do nurse educators make the design decisions they make when designing instruction?

CHAPTER THREE
METHODOLOGY

Overview of Research Design and Methodology

This chapter describes the research design, participants, data collection procedures, settings, sources of data, procedures for data collection and data analysis, the pilot study, the researcher, and research limitations of the current study. The methodology for this study has been adapted from studies described in the review of literature. First, an attempt is made to explain the link between the developmental research framework and the qualitative methods used in this research.

Studies that involve the production of knowledge with the ultimate goal of guiding and improving the processes of instructional design, development, and evaluation can be classified as developmental research (Richey et al., 2004). The purpose of this study is to identify and describe the instructional design processes used by expert nurse educators with the goal of making this process explicit to better guide new nurse educators and improving their design processes. To accomplish this, a developmental research Type II framework, using qualitative methods with a between-subjects approach, was used to explore the instructional design process used by expert nurse educators.

Qualitative research is based on the view that reality is constructed by individuals interacting in their social worlds (Merriam, 1998). Qualitative investigations are discovery-oriented, and upon entering a research project, the examiner should have no preconceived assumptions about the research findings that will be encountered (Steckler, McLeroy, Goodman, Bird, & McCormick, 1992). In this study qualitative data was generated that illuminated how nurse educators design instruction and their perceptions of why they make certain design decisions. Each participant's instructional design process is diagramed and explained. A between-subject approach is then used to study the relationships between subjects at a single point in time (Cone & Foster, 1993). A composite between-subject diagram is also presented in order to provide a consolidated perspective of the participants' processes.

Participants

A purposeful sample of experienced expert nurse educators was solicited as participants because they are information-rich, which allowed for in-depth understanding (Patton, 2002). These information-rich individuals helped illuminate the process they go through as they design instruction. Six participants were solicited from NLNAC or CCNE accredited nursing programs in community colleges and four-year universities in Virginia. An example of an invitation used to request their participation in the study is in Appendix G. The informed consent was obtained for the study and is included in Appendix H

Participant Criteria

Participants met the following criteria: 1) Each participant had earned at least a master's degree in nursing or a doctoral degree in nursing or other discipline. To teach classes in accredited nursing programs, the minimum education required is a master's degree (American Association of Colleges of Nursing, 1998). 2) A minimum of ten years experience in a faculty position was required for the study. Literature on experts indicated that the expert level of performance is generally not achieved before ten years of practice is experienced (Benner, 1984). 3) Additionally, their institution or an independent organization had recognized the participant for outstanding teaching abilities. Benner (1984) indicates that peer review provides an objective means for providing evaluation feedback and recognizing those with advanced skills and knowledge. 4) Expert nursing faculties have demonstrated scholarly behaviors, such as publishing, research, mentoring of colleagues, or serving on committees to improve teaching. This last criteria is an expected competency for faculty to develop in the teaching role (Billings & Halstead, 2005).

Although not mutually exclusive, additional participant criteria include the following: Three participants taught at a four-year public university in a bachelor's program, and two participants taught in a community college in an associate's degree program. One participant taught at a private college. Table 3.1 provides an individual look at some of the characteristics of each faculty participant.

Table 3.1

Expert Faculty Participants

Name & degree*	Number of Years of Experience		Teaching Experiences **	Type of School/Programs	Honors/Awards	Scholarly Behaviors/Miscellaneous**
	RN	Faculty				
Sara, PhD	25	20	Community health; epidemiology; Health assessment	4 year public university and private college	National Professor of the year	Interactive CD/Written chapters in textbooks, articles,
Helen, EdD	36	33	Med-surg; Pharmacology	4 year public university	Distinguished Professor Award	Major author/editor for nursing textbook, CCNE evaluation team member
Beth, PhD	43	31	Adv. Clinical nursing; qualitative research,	4 year public university	University Teaching Award; Outstanding Faculty in Virginia	Multiple journal publications; co-authored a study and publication on teaching nursing
Julie, EdD	23	19	Psychiatric nursing; OB; Pharmacology; Med-surg	Community College; Adjunct at 4 year Public University	Chancellor's Commonwealth Professorship	Developed multiple nursing programs; program coordinator
Mary, PhD	36	34	OR Tech Program, OB, Women's Health Issues	4 year Public University	Fellow of the American Academy of Nursing	National Academy of Practice Nurses
Anita, MS	45	36	Maternity, pediatric and psychiatric nursing	Community College/Associate Degree; Also has prior teaching experience in baccalaureate	Diabetic Educator of the Year	Published book on teaching in nursing; contributor to textbooks Clinical Nurse Specialist

*Names are pseudonyms to protect confidentiality. **Items are only examples and not meant to be inclusive.

Participant Descriptions

The six female participants are described to help provide a sense of their educational background, clinical and teaching experience, and career accomplishments. The events that led to their inclusion into the study is described. Additionally, a few words describing the setting and the length of time of the data collection is provided.

The length of the interviews for Sara and Helen lasted approximately two and a half hours. The length of the interviews for Anita, Mary, Beth, and Julie lasted about 1 hour. This difference may be explained by my familiarity with the participants. Sara and Helen had been my faculty while I earned my undergraduate and graduate degrees. The other participants were individuals I had not been familiar with prior to the interviews.

Sara

My first faculty participant, Sara (a pseudonym), has a PhD and is a family nurse practitioner. At the time of the interview, she had been a registered nurse for 25 years and has been a nurse educator for 20. A national foundation that supports the advancement of teaching selected her as the professor of the year. She was selected out of hundreds of nominees rated on their contributions to undergraduate education, a scholarly approach to teaching and learning, their impact on and involvement with undergraduates, and recommendations from colleagues and students. Aside from being published in both journals and textbooks, she has designed an interactive compact disc that was recognized by a major publisher as a book of the year.

Encouraged by faculty members at the end of her master's program, Sara accepted a faculty position. Sara did not have classes on how to design instruction in her formal education. Although she did not have a formal mentor, she did receive valuable support from other faculty members. She started her teaching role as a clinical instructor, but later taught in the classroom. Sara would contact an experience faculty member for guidance on how to set up the clinical learning and what she should expect of the students. Over all, she said that her education on how to design instruction was very informal.

I had the good fortunate for Sara to be my faculty member. She taught my epidemiology class and was my preceptor while I was working on my master of science degree in nursing in 1996 at a large state university. During this time, she guided me, as I

was responsible to teach a diabetes education and a smoking cessation programs in a rural community. Therefore, I had first-hand knowledge of her excellent teaching style.

Sara most recently taught in a private college with a small undergraduate baccalaureate program in Virginia. She teaches throughout the program, which averages 25 students per year, on subjects such as health assessment, community health, and mental health. Several organizations, such as the Commission of Colleges on the Southern Association of Colleges and Schools, the Virginia State Board of Nursing and the National League of Nursing, have accredited the school.

I contacted Sara by telephone and explained the study. She volunteered and expressed a strong willingness to participate in the research. We scheduled the meeting for the interview and think-aloud for October. We met in the morning in a small conference room in the library at the college for the interview. The interview took two hours and 23 minutes. After a break for lunch, the think-aloud protocol was conducted. The think-aloud lasted a half-hour.

Helen

My second participant, Helen (a pseudonym), has an EdD. She has been a registered nurse for 36 years and a faculty member for 33 years. She received the Alumni Association Distinguished Professor Award at the university in which she teaches. She has published extensively including being a lead author of a major nursing textbook. She also serves on a CCNE evaluation team.

As part of Helen’s undergraduate education, she had to design and implement a class as a group project. This experience along with encouragement from faculty helped her realize becoming a nurse educator is what she “really wanted to do.” This inspired her to enroll in a graduate nursing program.

Helen’s graduate degrees help provide the formal education on how to design instruction. Her master's degree predated the current emphasis on education for the advanced practice clinical role. The functional role preparation for teaching was included in her master's degree. Sixteen credits of classroom instruction were allotted for curriculum design, test design, and instruction.

Like Sara, Helen was one of my professors. While I attended nursing school, she taught the adult health medical surgical classes and clinical experiences. She was also instrumental in developing several programs in the nursing school.

When I contacted Helen by telephone and explained the study, she enthusiastically agreed to participate. Our meeting occurred in early November. The interview lasted approximately two and a half hours, and the think-aloud lasted 45 minutes.

Anita

My third participant, Anita (a pseudonym), has been a registered nurse for 40 years and a nursing faculty for 36 years. She holds a master's degree in nursing. A prominent national organization named her the educator of the year for the state. She is currently in the process of publishing her second book on nursing education.

During her graduate education, Anita had the opportunity to design and implement instruction for undergraduate nursing students. In her curriculum during the sixties, she was taught “learning styles simplified.” She acknowledged that most of education research has come out since her graduate education. However, she said it helped her to look for those kinds of researched information as more of the education related research was published.

I met Anita the year prior to the beginning of the research study while she was presenting an in-service to the nursing faculty at the college where I teach. I contacted her via email, then by phone to solicit her participation, which she graciously accepted. Her interview and think-aloud were conducted in November at her home. The interview lasted one and a half hours. The think-aloud session lasted a half hour.

Mary

Mary (a pseudonym), my fourth participant, has a PhD. She has been a registered nurse for 36 years and a nursing faculty member for approximately 34 years. In addition to teaching nursing topics, she holds a position of director of instructional technologies at an urban public university. The dean of her nursing program recommended Mary as a participant in the study because of Mary’s demonstrated knowledge and excellence in teaching. In addition to numerous awards and other prestigious recognitions, she was elected to the National Academy of Practice Nurses and is a Fellow of the American Academy of Nursing (FAAN).

When Mary realized she had a passion for teaching she enrolled in graduate school. During her master's degree she attended courses on curriculum design, and teaching and learning. She also completed an online postmasters program for teaching online.

Mary has taught numerous women's issues classes at both the baccalaureate and master's level. In addition to a teaching load, she currently holds the position of Director of Information Technology at her university. She also is responsible for mentoring new nursing faculty members.

I contacted Mary by telephone. We met in her office in November. The interview lasted one hour and the think-aloud lasted twenty minutes.

Beth

My fifth participant is Beth (a pseudonym) who holds a PhD. She has been a registered nurse for 43 years and a nurse educator for 31 of those years. She has received the university's teaching excellence award and a state agency's outstanding faculty award. Aside from multiple publications in journals, she has co-authored a study and publication on teaching nursing incorporating video.

Beth was teaching in a diploma program prior to obtaining a graduate degree. Her master's degree was for clinical nurse specialist. She did not have any formal education on how to teach prior to becoming an educator. She did learn, however, a lot from reading and from her colleagues. And, she did take some education courses shortly after becoming an educator.

Although Beth has taught in a private school, she currently teaches at a large public university in Northern Virginia. Her primary nursing background is in adult health. In her doctoral program, she focused on curriculum design, ethics, and writing. Topics she teaches include advanced clinical nursing, qualitative research, and other courses. She has also been a program coordinator and Associate Dean.

A colleague recommended Beth for this study. Upon contacting her initially by email, she agreed to participate in the study following further description and discussion on the telephone. Because she commutes a long distance to the campus, it was more convenient to meet at her home. The interview occurred in January. It lasted one hour, and the think-aloud lasted twenty minutes.

Julie

My sixth participant was Julie who has a doctorate in education and an Advance Practice Nursing master's degree. She has been a registered nurse for 23 years and a nursing faculty member for 19 years. She received the Chancellor's Commonwealth Professorship award. She has developed nursing programs and is a program coordinator.

Julie was working for a psychiatric hospital when she realized the desire to teach. During her first position as a nurse educator, a mentor helped her learn what she needed to learn to design and implement instruction. As part of the position, she was required to obtain an advanced degree. To meet this requirement she earned a graduate degree in adult psychiatric nursing with a minor in teaching. She said that she attended the last year the university offered a major-minor option. After that year, the minor in teaching was not available.

I initially identified Julie as a possible participant from a news article found in a nursing publication. In the article, her contact information was listed. After speaking with her on the phone and confirming her qualifications and willingness to participate, we arranged a meeting in January. The interview lasted an hour and 30 minutes in her office. The think-aloud lasted twenty-five minutes.

The participants, in summary, had a combined total of 178 years as registered nurses and 153 years of experience as nurse educators. Although the average nurse educator experience is 25.5 years, 4 out of the six nurse educators had at least thirty years of experience as nurse educators. Only one participant had formal education on instructional design. Three of the remaining 5 had received training in their undergraduate nursing program on how to teach. Two pursued educational opportunities upon becoming nurse educators.

Data Collection Procedure, Settings, and Sources

Qualitative findings grow out of three kinds of data collection that produce the qualitative data: (1) in-depth, open-ended interviews using questions and probes yield in-depth responses about people's experiences, perceptions, opinions, feelings, and knowledge; (2) direct observations enable the research to describe activities, behaviors, actions, conversations, interpersonal interactions, and organizational processes; (3) written documents

and other documents from organizational or program records, photographs or other artifacts help capture in a way that records and preserves context (Patton, 2002). According to Patton, using a variety of data sources and methods helps illuminate the inquiry and strengthens the credibility of a study by reducing the vulnerability of only one method. This cross-data checking helps identify consistency of data. This process of cross-data checking is called triangulation and will be explained in the data analysis section.

An interview and a think-aloud protocol were used to collect data from the participants. Perez et al. (1995) also used a similar process to collect data in their qualitative study of problem solving by instructional designers. The first session with each participant consisted of an open-ended interview. The second session with each participant provided the opportunity to use the think-aloud protocol approach.

Interviews

Interviews are a common method of data collection in instruction design research. Kerr (1983), LeMaistre (1998) Perez et al. (1995), Visscher-Voermann and Gustafson (2004) all used interviews as at least one data collection strategy. Open-ended interviewing was the first method of data collection. Interviews are directly interactive and represent a classic qualitative research method (Savenye & Robinson, 2004). Interviewing is a means to see another's perspective or find out what the participant thinks or to gather stories. The open-ended interview allows respondents to tell what is meaningful without being influenced by the researcher. Interviews will offer the interviewee "the opportunity to respond in their own words and express their own perspectives" (Patton, 2002). The text in the transcripts produced from the interviews offer "a window into experience" (Ryan & Bernard, 2003, p. 290).

In this study, I conducted face-to-face open-ended interviews with participants in their offices or a quiet conference room near the participants' office to provide visual clues to the participants and minimize interruptions. One meeting with a participant occurred in her home for her convenience. Using a familiar environment may help stimulate recall and provide easier access to artifacts that may be useful in the study. Interviewing participants at their teaching institutions is also more convenient for participants and increases their ability and willingness to participate in the study.

Interview questions are included in Appendix I. In the interview, data were gathered about the personal background of the individuals (e.g., years of nursing and teaching experience, education and professional background) to provide a better description the participants. Although this interview provided some retrospective data, the purpose of the responses was to help illuminate the instructional design process they used to develop instruction. The data were also used for triangulation of data with the think-aloud protocol and other documents.

I audio taped and transcribed interviews conducted during this study. An administrative assistant transcribed the pilot study's two transcripts. I coded and analyzed the data as described in the data analysis section below. A summary of the interview transcript and diagram was sent via e-mail. This process, known as member checking, "helps triangulate the researcher's observations and interpretations" (Stake, 1995, p. 115). I also posed follow-up interview questions to clarify and seek additional information as the study progressed. I then incorporated feedback in subsequent code analysis.

Think-Aloud

During the second session, I met with participants to conduct a think-aloud protocol which I audiotaped. Researchers have used this strategy in previous research of instructional designs (Perez & Emery, 1995; Rowland, 1992). The purpose of the think-aloud protocol approach, also called protocol analysis, is to elicit the inner thoughts or cognitive processes that illuminate what a person is thinking as they perform a task (Patton, 2002). The think-aloud procedures captures the thought process as they are engaged in a task which enables the researcher to access the thinking process of the participants as they work through the task (Ericsson & Simon, 1993). The advantage of this concurrent approach is that it engages and encourages the participant to produce verbal data and protocols that do not depend on the participant's short-term memory recall processes and strategies as the retrospective approach does (Patton, 2002).

In this study a think-aloud protocol was used that asked the participants to plan an instructional design task. The think-aloud design task for this study is provided in Appendix J, and the instructions to the participant are in Appendix K. While the participant was engaged in the task, I asked the participant questions to encourage verbalization about of

their thoughts as he or she completes the planning of the instructional event. As in the interview I audiotaped and transcribed the protocol.

As Perez et al. (1995) did in their study, prior to the beginning of data collection, the researcher gave the participants practice examples on the think-aloud to demonstrate the think-aloud procedure in relation to designing an instructional event and discussing the task ideas. In addition, a brief "warm-up task" was given to help the participants become familiar with the think-aloud which is a technique employed by Rowland (1992). Using both the examples sheet and the warm-up task helped prepare the participant for the think-aloud.

Data Analysis

To help the reader visualize the plan for data analysis, a schematic diagram is illustrated in Figure 3-4. This diagram illustrates the steps in the process of data analysis. Although modified for this study, the process is similar to the data-analysis process used by Visscher-Voerman and Gustafson (2004) in their study of the instructional design process used by expert instructional designers.

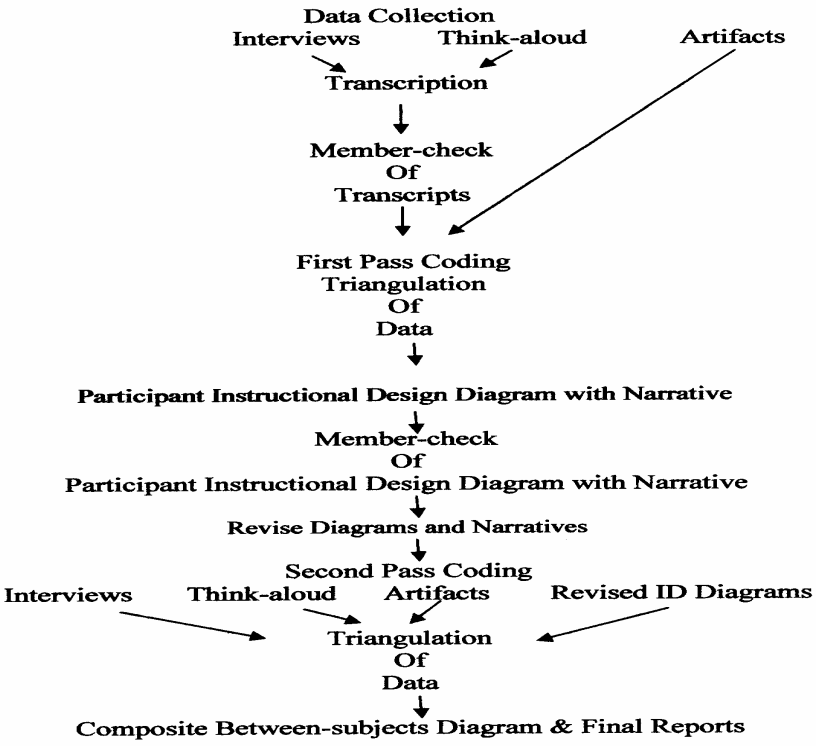

Figure 3-1. Data analysis procedure.

Member-Check

To help increase the accuracy of transcription and interpretation by the researcher, a member-check process was used. Data collected consisted of transcripts from interviews, transcripts of the think-aloud process, and documentation or of artifacts. I sent the participants transcripts via email. Each participant was asked to review the transcript and make corrections that would clarify or correct thought expressed and to add additional comments that they had thought of since the time of the initial interview and think-aloud.

Lincoln and Guba (1985) describe member checks as "the most crucial technique for establishing credibility" (p. 314) for a study. Member checking actively involves the participants in assessing that the interpretations accurately represent them. Member checking helps reveal factual errors that can be corrected, reconcile discrepancies, or stimulate the participant to recall new facts of the interview or think-aloud (Gall, Gall, & Borg, 2003). The participants reviewed the transcripts, made corrections or clarified their ideas, then returned it to me via email. After the transcripts were member-checked, I conducted the first coding pass and used MS Word to develop the preliminary instructional design diagram based on transcripts and artifacts. I also included a short narrative description to explain the diagram. I then emailed them to the participants for a second member check. The participants reviewed the updated transcripts and the instructional design diagrams to ensure my interpretation accurately reflected the participants' thoughts and design processes.

Coding

After the transcripts were member-checked, I coded them. Coding is an analytic process that addresses the issue that facts do not speak for themselves and helps with interpretation (Crabtree & Miller, 1999). Coded data is obtained mainly by dividing a variable into categories (Stake, 1995).

During the initial analysis, five categories based on generic ID model components (e.g. ADDIE) were used to code data into instructional design steps of analysis, design, development, implementation, and evaluation. These categories were selected because they represent the core activities providing a useful set of criteria for determining if the process reflects the "entire ID process or only one or more of its elements" (Gustafson & Branch,

2002, p. xiv). Visscher-Voerman and Gustafson (2004) used the ADDIE to categorize and label data in their study.

Thoughts expressed by the participant regarding issues he or she has taken into account during the design process were considered and categorized. These verbalized considerations help illuminate the activity and reveal thought processes of the participants and the nature of instructional design from the participant's perspective.

I performed a comparison analysis to determine relationships and processes that provide insight into similarities and differences of processes, sequences and considerations. The comparison analysis described the processes, interactions, and relationships that increased the understanding of instructional design in nursing education. During this first analysis, I used the ADDIE model to provide the initial framework for coding. After transcripts were member-checked, additional codes became necessary based on the data. Operational definitions for the codes are provided in Appendix L.

Triangulation

Triangulation refers to the use of both multiple data sources and multiple methods and is essential for the researcher to perform (Crabtree & Miller, 1999). Triangulation was used to identify consistency and strengthen this study (Patton, 2002). I compared participant interview transcripts results from the think-aloud protocol and data from artifacts. Triangulation of data sources occurred by comparing information obtained from each participant. Artifacts, such as course pack, books, and multimedia designed by the participants, were compared to data obtained during the interview. An itemized list of artifacts analyzed in provided in Appendix M.

Peer Reviewer

A colleague was incorporated into the study as a peer reviewer for the purpose of reviewing data and research process and debriefing the researcher. "A peer review or debriefing is the review of data and research process by someone who is familiar with the research or the phenomenon being explored" (Creswell & Miller, 2000, p. 129). As peer debriefer, the person plays the role of "devil's advocate" (Lincoln & Guba, 1985, p. 309). Peer debriefings are a technique useful in establishing credibility.

In this study, the peer reviewer reviewed transcripts, codes, and diagrams produced. She looked for the logical flow of conclusions from the data. She offered feedback and constructive criticism. In addition, she asked questions and challenged me to reflect on methods and conclusions. She also acted as a sounding board for ideas and frequently listened sympathetically as the research worked through the research process.

Event-state Network

For this study I adapted an event-state network, described by Miles and Huberman (1994) to illustrate the participants' instructional design process. Miles and Huberman state "We live in a flow of events. Some of these events occur before other events, some after" (p. 110). They continue to explain that connections exist between the events that influence the events. An event-state network is useful to illustrate chronology and illuminate a process composed of events and states. Miles and Huberman use a box to illustrate an event and a bubble to illustrate a state with the boxes sharp edges conveying specificity and narrow time span. A state is displayed using a bubble. The round edges imply more diffusiveness and less concreteness. The boxes and bubbles are connected with lines to show the relationship of what led to or influences what.

The example in Figure 3-5 will make this clearer. A teacher creating a test and administering a test are examples of events. Content to include in the test, difficulty level, question formats such as multiple choice or essay type questions, and whether the test will be given in class or online are examples of states or considerations. The content, difficulty level, and question format are states that would be linked to the test event. These are important elements a teacher would consider when creating a test. The test event would than be related to the administration of a test event. The event of test administration would have the state of test delivery to consider. Will the test be administered online or in the classroom? The test delivery event is also connected to the test creation event by the arrow because if the test is going to be administered online, the teacher will have to create the test using an online platform compared to printing the test on paper.

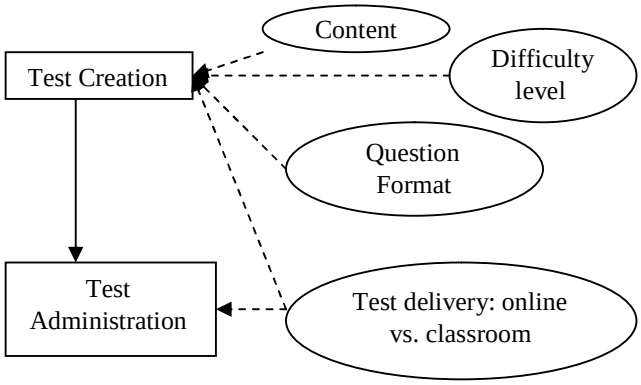

Figure 3-2. Event-state network example.

An event for this study is defined as a step taken or tasks completed in the instructional design process. A state is defined as consideration that influences the event in some manner. States are not as time-limited as events. Events are more time bound or concrete in nature than a state. Events are coherently related to each other resulting in a process. Boxes, bubbles and lines are used as described above.

The event-state diagrams for this study were developed by reviewing the transcript for each participant and identifying factors that the participants thought about and considered that connected to and influenced an instructional design event, such as "Analysis". For example, when the participants asked questions such as "What are the objectives? What do the learners know upon entering the class? Where does the topic fit in the curriculum?" These questions illustrated key considerations that impact the analysis event for the by the participant. Therefore, these items were included in the diagram as states that influenced the Analysis event.

Partially Ordered Metamatrix

Although the Event-state Network diagrams illustrate the components of the participants' thought processes, they do not accurately reflect the actual sequence that the thoughts occurred to the participants. The ID process diagrams produced from the initial look at the participants results in what appears to be a relatively linear process. However, using a

partially ordered meta-matrix provides an additional layer of analysis that further illuminates the participants' design process. Metamatrices, as described by Miles and Huberman (1994), are "master charts assembling descriptive data from several cases in a standard format" (p. 178). Metamatrices help manage the data and make the data comparable by standardizing them into a single metric.

Visscher-Voerm and Gustafson's (2004) used a partially ordered metamatrix during their analysis of 24 expert designers. The purpose the metamatrix used in this study is to analyze and illustrate the sequence of when participants used steps in the design process. This is of interest because the design process has been described in other studies of the instructional design process as "much more heterogeneous and diverse than ADDIE models suggest" (Visscher-Voerm and Gustafson, 2004, p. 69). Analysis of data using a metamatrix illustrated the sequence as the designers thought of the design step in their thought process during the interview.

Trustworthiness

According to Rossman and Rallis (2003), a set of standards must be used to judge a qualitative research project's trustworthiness. The researcher ensures the study conforms to standards of acceptable and competent practice. The appropriateness of standards, however, depends on assumptions and how the researcher consistently holds to them in a project (Patton, 2002).

This study is based on assumptions from a constructivist perspective. The constructivist perspective assumes that meaning is socially constructed and it is what participants perceive it to be (Creswell & Miller, 2000). The researcher's responsibility is to portray the participants' view as accurately and richly as possible (Rossman & Rallis, 2003)

Lincoln and Guba (1986) suggest that research designed with a constructivist perspective utilizes trustworthiness as a standard to distinguish quality in qualitative research. The research establishes trustworthiness of a study by a combination of credibility, transferability, dependability, and confirmability. Credibility is analogous to internal validity in quantitative research. Strategies employed in this research study to improve credibility are member checking, follow-up questions, and triangulation of data.

Transferability is analogous to external validity in quantitative research. Strategies employed to improve transferability include purposive sampling of expert nurse educators, thick rich description, and triangulation of data. Dependability is analogous to reliability in quantitative research. Strategies employed in this research study include reporting the researcher's biases, use of a peer debriefer, triangulation of interviews, think-aloud protocols, and artifacts.

Confirmability is analogous to objectivity in quantitative research. To improve confirmabilty, triangulation of data is illustrated, and biases are discussed. However, when using a constructivist perspective, triangulation is also used to identify and report the multiple perspectives of participants rather than an absolute truth.

For the nurse educator, the integrity and value of this research will be on how it illuminates, through understanding or action, the design processes that expert nurse educators employ. This knowledge may influences their everyday work as educators designing and implementing instruction for nursing students.

The Researcher

In qualitative studies, the research is considered an "instrument," and the credibility is influenced by the person conducting the study (Patton, 2002, p. 14). As I place myself in settings to collect data, I react to the participants' words and behaviors. At the same time, the participants' react to my presence in their environment. The more I can appear to be like the participant, the more I will be viewed as part of their world (Rossman & Rallis, 2003). Therefore, I provide a brief explanation of my beliefs and background that led to this study.

Nurses transitioning from a clinical role to the nurse educator role struggle to learn the instructional design processes they need to be successful. I believe that by identifying effective methods and strategies used to design and develop instruction, a tool may be created that will guide new nurse educators in designing and developing instructional events that result in student learning. New nurse educators may find more confidence and an easier transition into the teaching role if methods and strategies for instructional design used by expert nurse educators are clearly identified. The new educators may then utilize similar processes as they design instruction.

As a nurse educator, I have experienced the frustrations of transition from the clinical environment into the roles of educator. The roles of a nurse educator are very different from previous education and experiences that I obtained while earning a bachelor's degree in communication, bachelor's and master's degree in nursing and over 14 years of clinical practice. The transition to roles of a nurse educator and learning to design and develop instruction were overwhelming. One of the constant challenges was striving to produce better instructional events to improve student outcomes.

The process of earning a doctoral degree in Instructional Technologies was initiated to enable me to meet this challenge. The motivation behind this study is to identify common processes or strategies that expert nurse educators use in the instructional design process with the hope of guiding other nurse educators, as they design and develop instruction. This study is the culmination of several years of many classes focusing on learning theory and instructional design. The knowledge identified through this study will help provide a foundation for the design of an instructional design model and the validation of the model.

Limitations of Research Methodology

Conducting the study through interviews, think-aloud protocols, artifacts and the coding process produces limitations in research data. By being aware of the limitations, appropriate steps can be taken to reduce their effects, thereby improving the overall quality of the research methodology and by being aware of the limitations, results are viewed more cautiously to avoid over-stating their significance.

Interviews

Interviews contribute a source of limitations in a research study. Data limitations can result from "personal bias, anger, anxiety, politics, and simple a lack of awareness" (p. 306) on the part of the interviewer (Patton, 2002). There is always the possibility that participants will behave differently in the presence of the researcher than they would if the researcher were not present. This reactivity by the participant would result in a misrepresentation of their actual thought process.

There are two views of interviews on opposite ends of a continuum. The positivists attempt to create a 'pure' interview to produce, as close as possible, a 'mirror reflection' of the reality that exists in the social world (Silverman, 1997). On the other end of the

continuum, the radical social constructivists believe that knowledge about reality cannot be obtained from an interview because the interviewer and participant create and construct narrative versions that are invented to meet the demands of the interview.

Silverman (1997) argues that information about the social world is achievable. His position recognizes that interviews will not result in the "mirror reflection of the social world" the positivists desire. It provides access to the meanings people attribute to their social worlds. Interviews provide a means for investigating the perspectives of the research participants.

Think-Aloud Limitations

According to Ericsson and Simon (1993) the use of verbal reports, which include think-aloud protocols, has been used by researchers to study mental processes of subjects from the beginnings of psychology as a science. However, with the emergence of behaviorism, behaviorists viewed these methods as unscientific because trustworthiness was not considered testable (Ericsson & Simon, 1993). Three traditional issues regarding the use of verbal reports in research have been a) whether the information in verbal reports is an accurate reflection of the participants thinking resulting in a concern for the validity of the method; b) the act of asking participants to report on their own thoughts alters the courses of the thoughts, which results in a reactive effect and c) whether the verbal data can be analyze as objectively as other behavioral data (Crutcher, 1994).

Artifacts

Artifacts selected in a research study add limitations to the study. One such limitation is the bias in the selection of the artifacts to be included or excluded. Sample artifacts may not accurately reflect the normal product of the creator or the intended purpose for inclusion in the study. Additionally, the researcher's ability to analyze and account for the implications of the artifact will alter the conclusions.

Coding Process

The coding process requires careful attention to context and can be subjective which can reduce the reduce the credibility of the coding (Willemain, 1995). In addition, coder bias during the coding process can be present. The prior knowledge of the coder can

unintentionally alter the coding and categorization of data. Although the coding categories could change as necessary, based on the words used by the participant, these preconceived categories could deflect attention away from other relevant information. Silverman points out that “every way of seeing is also a way of not seeing” (Silverman, 2003, p. 348).

No research design is perfect, and there are limitations as described above. The use of multiple methods strengthens this study (Patton, 2002). Triangulation of data among sources was used to identify consistent information and patterns. Thick descriptions of the data will be provided to allow for interpretation of the data from other evaluators. A table of sample data is available in Appendix N to compare to the diagrams and findings, so the reader can make some determination of the logical flow of conclusions from the data.

A member-check process was followed where participants reviewed transcripts and instructional design diagrams to ensure accuracy in transcription and interpretation was achieved. Finally, peer debriefings occurred throughout the study to establish creditability in the process and findings. Using these multiple methods can compensate for the weakness of a single method approach.

The Pilot Study

A pilot study was conducted to refine the study’s methodology. Pilot studies are conducted to test data-collection methods and other procedures so problems can be identified and solved before the main study is started (Gall et al., 2003). The pilot study served three purposes: 1) to ensure that subjects will respond in accord with instructions, 2) to uncover and decide how to handle unanticipated problems, and 3) to learn how to use and to check the adequacy of equipment (Cone & Foster, 1993).

For the pilot study I utilize two colleagues to test the research design, data collection processes, and interview questions. These two volunteer participants were selected from the nursing department of Jefferson College of Health Sciences where the researcher teaches. These participants have taught in nursing education for a minimum of five years and have demonstrated scholarly behaviors such as research, and publication and have demonstrated significant responsibility in the development of curriculum and instruction.

I interviewed pilot study participants in their offices. Each interview was audio taped. The study’s interview questions were asked to each volunteer participants in her office, as the

interviews were audio recorded. A second session followed the interview to conduct the think-aloud protocol. An administrative assistant was paid to transcribe the interviews and the think-aloud sessions. The pilot study provided an assessment of potential problems with the research questions, researcher's technique, and the set-up of the recording equipment.

The pilot interviews were transcribed, and the researcher analyzed the data, including artifacts to test the initial categories. The transcripts of the interviews and think-aloud were coded, and diagrams were developed to organize data and facilitate identifying conclusions. The researcher summarized the interviews and think-alouds and developed the event-state diagrams with a brief narrative. These were provided to the pilot participants for review and feedback. Follow up discussion of the process with the pilot participants were conducted to identify strengths and weakness of the process. Based on this feedback no changes in methodology were made.

Carilion Health System is an affiliate of Jefferson College of Health Sciences and provides institutional review board (IRB) oversight of the school. Therefore, IRB approval was received from the Carilion Health System and the President of Jefferson College of Health Sciences for this study. The IRB approval from Carilion Health System is available upon request. The letter giving permission to conduct the study on the Jefferson College of Health Sciences campus is included in Appendix O. The expedited application for the Institutional Review Board was approved at Virginia Polytechnic and State University and is available for review in Appendix P.

CHAPTER FOUR
RESULTS

In this chapter, I present the findings of the study. As previously stated, in this study I explored the thought processes of expert nurse educators and the rationale behind their decisions as they design instruction for nursing students. In addition, I sought to identify any specific instructional design model used by the nurse educators to design instructional material. To help illustrate the process described by the participants, I used an Events-States Diagram method for each participant. To explain the process more completely, I provided a descriptive narrative with each diagram. Additionally, using between-subject analysis, I composed a composite diagram to illustrate the aggregate processes of all the participants. I used a partially ordered matrix to illuminate the thought sequence. Participants are presented in the order interviewed. Finally, the results of the meta-matrix results are explained.

ADDIE Results by Individual Participants

Sara

Sara stated that her design process is “iterative” rather than a pure step-by-step process. As she progresses through each step, questions may arise or information desired that requires her to revisit a previous step. The beginning of one step and the ending of another is not as clear as the diagram would indicate. A diagram of Sara’s instructional design thought process is illustrated in Figure 4.1.

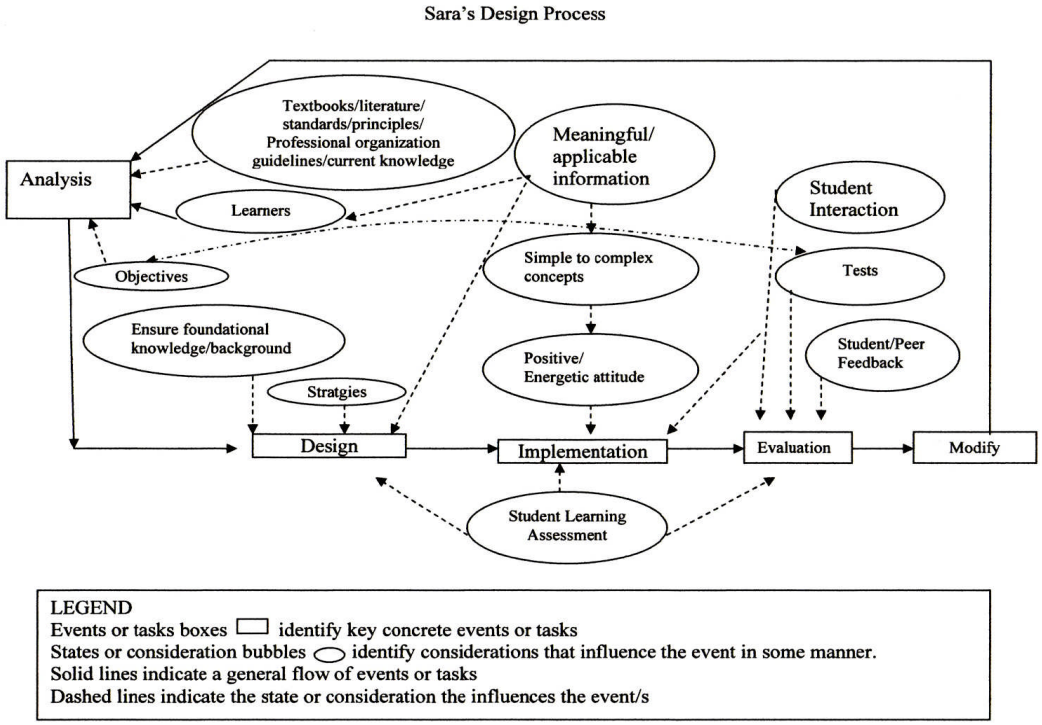

Figure 4.1. Sara's design process.

Analysis

Sara starts the process with an analysis of various elements. She begins to review the relevant material from various sources. Sara said, "You have to know what they are reading…in order to make it fit what your world view is…your knowledge and standards." She uses textbooks, literature, professional organization guidelines, principles, and current knowledge to identify appropriate objectives for the class. Reviewing this material updates her own knowledge as she prepares to teach the material. She also belongs to professional organizations that provide guidelines for the nursing profession.

Sara states that the time she begins analysis of elements through implementation as a time of faculty preparation. Her view is that everything she does prior to delivering the instructional event is an action that helps her prepare in some way to provide better instruction. Sara believes that the faculty preparation is important because "You really have to know the material first of all because the confidence to teach the material will come from knowing the material."

After reviewing current information, she identifies objectives. Sara believes that objectives should always be linked to the tests or evaluation methods from the beginning of

the design process. By linking the objectives with evaluation, she knows what she will teach and on what knowledge she will test the students. This helps her and the students identify "what they need to know."

Although Sara does not describe a formal analysis of the learners, as many ID models indicate, she verbalizes characteristics of the learners she knows. Much of this knowledge is based on experience not on a formal analysis of the learners. For example, she states "a lot of our students happen to be experiential learners" and "these students have never been in a clinical setting before."

Design

Next, Sara designs strategies to deliver the material to get the student to begin learning the material. A key element for her to consider in this event is to provide foundational knowledge to build upon. She believes it is also important to design the instruction in a manner that gets the learner to use and apply the material. Many of the examples she uses have an application component to assist the learners to find meaning in the material.

Sara strives to present concepts from a simple to complex manner. Advanced organizers, such as study questions are prepared for the student to develop the foundational knowledge they need to prepare for the class. These study questions get the learners into reading and responding to the material. She says this supports the learner to develop a basis for more learning and lays a foundation for greater interest in the class. These questions and organizers stem from the textbooks, literature, guidelines, principles and current knowledge. Building new information on the learners' foundational knowledge and background makes it more meaningful and applicable, which is very important for adult learners. Without the background knowledge, they will not understand. She indicates that the "conceptual basis is needed for understanding" and is needed to "apply it in the clinical setting."

Development

Sara's ideas of design are evident in her development of course materials. Early in her interview she stated, "I try to get the students actively engage so I set up processes where students are thinking through questions." In an example of her class material, she provides a sheet entitled, Discussion Questions. These questions are a form of an advanced organizer that students complete prior to class. They are based on assigned readings. Questions she

poses asks student to “describe barriers and facilitating factors” in the reading. The questions also provide opportunity for reflections. For example, a question asks students how they would do things differently.

Case studies are also developed that engage and create meaning for the student. Sara explains that these are a type of “applied learning… and it is a real life situation where students are dealing with community partnerships.” The case studies also tie “concepts from the book” into “real life situations.”

Implementation

When Sara implements the instruction, she tries to convey a positive or energetic attitude because the students are more apt to “like the material.” She believes a positive approach develops interest and student enjoyment in the material and is a step toward the student developing meaning in the material.

Sara works to present information, so the learner perceives it as meaningful and applicable. To accomplish this while implementing a class, she incorporates rich situations and many examples to help the material “come to life.” This helps the students relate and “see how this could happen to a nurse or themselves in the future.”

Evaluation

To evaluate the effectiveness of the instruction, Sara conducts evaluation through student and peer feedback, reviewing tests and student interaction. She points out that the students learning should be assessed from feedback of study questions, during class implementation, and during the evaluated event. This feedback provides her with the information to determine if the students are learning the information to meet the stated objectives, which again should be clearly linked to the tests for evaluation of learning.

Once Sara gathers the information through the evaluation, she can use it to make modifications when she begins to prepare for the next time the class is offered. Sara states, “I have to think about the evaluation piece right up front and how it is going to fit into what we are doing.” This statement again illustrates her view that designing instruction is an iterative process.

Helen

As would be expected of an expert, when Helen was asked to diagram to illustrate her though process as she designed a class, she stated, “Oh my, it is hard to pull these pieces out, when you do something so automatically for so long.” The unique item in Helen’s design diagram is reflected in her statement that evaluation is ongoing throughout the design process. Therefore evaluation is a consideration during each event. Her diagram is illustrated in Figure 4.2.

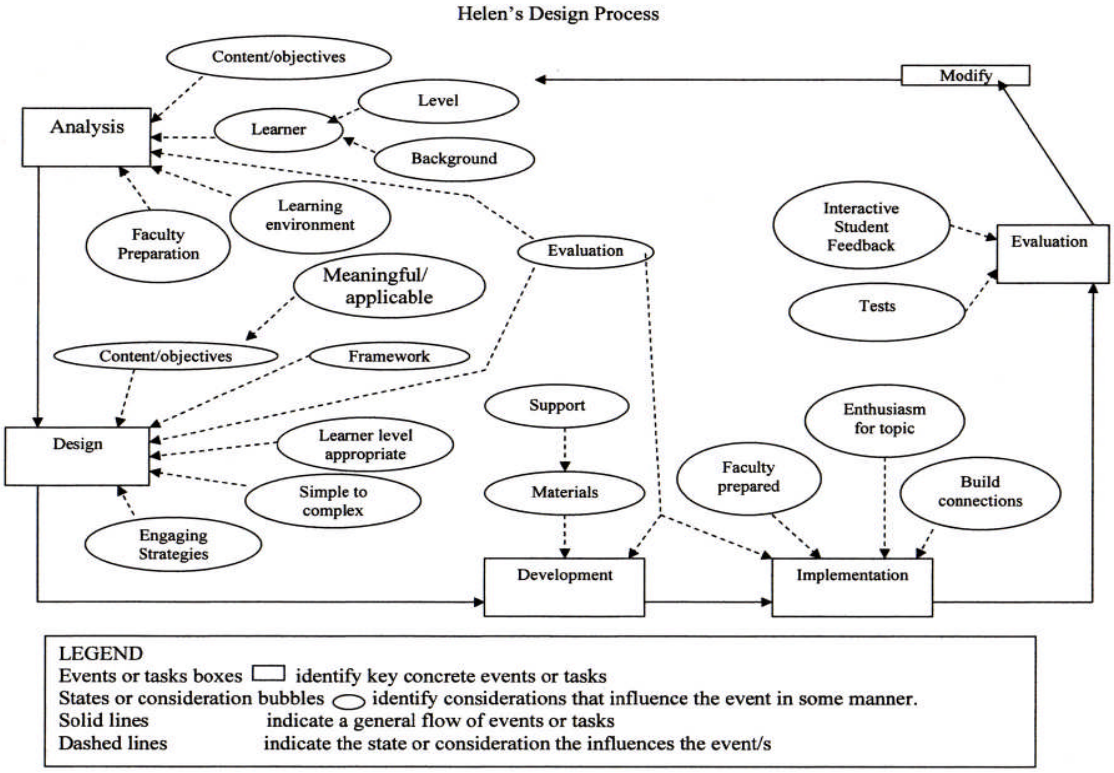

Figure 4.2. Helen's design process.

Analysis

Like Sara, Helen's first step is an analysis of various elements. If the instruction was provided before, she reviews current objectives and content to identify what was, and what was not, working to meeting student needs. She analyzes the learners' characteristics, particularly their knowledge level and backgrounds. By "level," she means how far the student has progressed in the curriculum. As part of the analysis she identifies where the learning will take place: classroom, clinical, online, or some combination of these environments. In order to be prepared to teach, she constantly is reading literature in order to stay current with the literature and textbooks.

Design

After Helen collects this information, she designs the instruction. She builds a "framework to use for all the content that would provide the students with a stable skeleton" that present the material in a consistent manner. This framework is a general conceptual framework for the organization of information. Although the information will change, the framework will stay intact. Helen believes the repetition provided by the framework is "helpful in terms of student understanding the approach taken with the content. Therefore it is not a mystery every week about how it's being organized."

Helen attempts to match content level or difficulty with the learners' background and levels in the curriculum. She states this is important because if the content level is not matched with the student, he or she will not connect with it, nor learn it. The faculty will not connect with the students and the students' needs.

Helen modifies or creates new objectives as needed. She then selects strategies that she feels "engage" the learner. She wants to ensure the content is meaningful and clearly applicable to the learners. The design of the instruction should be interactive and ensure the learners understand why the information is relevant. She strives to make the information personal to the student. By helping the student engage with the material and understand why they should care about the information, they will see it as more relevant and be more likely to learn the material.

In the design of the instruction, Helen tries to have an appropriate complexity of material matched to the level of the learners. She also tries to present the concepts in a simple

to complex manner. She uses worksheets as a form of an advanced organizer for the students. Helen stated, “Most of the worksheets are aimed at the background they have to have for dealing with the topic at hand.” In this way, the student builds a foundation of knowledge, and “the knowledge is laid down more for long-term use, rather than for the short-term.” The students then are less frustrated as they build their knowledge.

Development

After Helen designs the instruction, she begins to develop the material. As part of her development phase, she “builds” her own course packages. Librarians may help load articles onto a web location. Personnel at the copy center may copy and assemble course packets. However, this support is only a small amount of what is actually developed for the instruction. Helen develops the majority of the material that she will implement.

In the course packet Helen develops, she incorporates a simple to complex and a general to specific approach. A broad overview of the topic occurs first followed by more specific topics under the broader topic. Each topic reflects the “framework” that helps the student understand the organization of the information.

The syllabus in the packet also identifies that there will be three exams and worksheets for formative evaluation. Online evaluations are included as a means of formative and summative evaluation. For formative evaluation, exams and worksheets are used to test the students’ knowledge. Online anonymous feedback is encouraged during the semester. An online format is also used for a summative evaluation to seek feedback from the students for course improvements.

Implementation

When Helen implements the instruction, she consistently attempts to convey enthusiasm for the topic as well as help the learners build connections between the topic, their backgrounds, and the application of information. She stated, “Enthusiasm for the topic is not a tangible, but absolutely critical component.” Helen stresses the importance demonstrating a passion for the subject matter and creating a connection with the learners. “Just like the rest of nursing, it is the interpersonal pieces that make the difference.” As Helen implements instruction, she continues to think about evaluation to determine if the learners are reaching the established objectives.

Evaluation

Evaluation occurs in both student exams and other types of interactive feedback. Helen uses the tests as a form of summative evaluation to determine if students are learning. She has also had informal meetings with individuals and groups of students to obtain feedback on ways to improve the courses she teaches. Once evaluation is completed, modifications can be made as the cycle can begin again. Helen states:

> Evaluation is much like the nursing process that is constantly going on through all phases at all times. There is kind of this little evaluation bird sitting there saying, "What do we evaluate? And what do we evaluate?" I try never to think of the evaluation as completely separate or after everything else has been done, but how it is going to be interwoven in the development process …So what you do has to lead logically to the evaluation process. So for me. It has to be part of each step of the planning.

Anita

Anita emphasizes the linking of prior knowledge with new knowledge when she designs instruction. Therefore, in her diagram these elements are overlapped as she relates the subject to the students. Her diagram is illustrated in Figure 4.3.

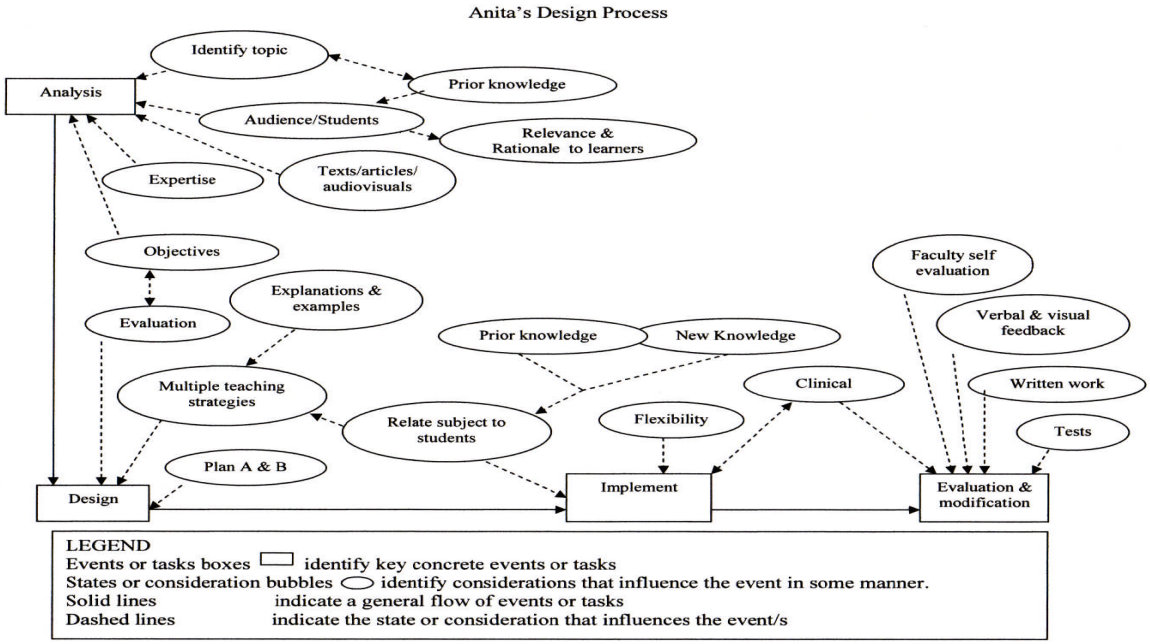

Figure 4.3. Anita's design process.

Analysis

Anita's first thoughts when designing instruction focus on analysis of various elements. She identifies the topic and thinks about how the topic relates to what the learners already know. The audience or students are assessed for prior knowledge and how the topic can be made relevant to the learners. Anita gets to know her audience by asking a lot of questions during the first class. She asks, "Why are you taking the course? What do you want to get out of it?" She also has the students tell her something of their backgrounds. This information helps her know how to prepare for the following classes and clinical experiences. Anita believes it is helpful because she can assist the students to relate to the new information and see why it is important.

Anita analyzes other sources of information to prepare for designing the material. Various texts/articles and audiovisuals are reviewed. She reflects on her own expertise and incorporates it into the material and techniques of presenting the material. She considers all the above information when she develops the objectives for the instruction.

Design

As Anita moves into design, like Sara and Helen, she believes the objectives should be closely linked with evaluation tools. In the design, Anita makes the objectives clear and stated early in the presentation of the material for each topic, so the learners know what is expected. Once she identifies the objectives, she selects strategies.

While designing instruction, Anita selects multiple teaching strategies that will include explanations and examples of the material. She states that strategies should help the students relate to the new information with prior knowledge. According to Anita, another advantage of incorporating multiple teaching approaches is that it provides a means to reach all the students because of the variety of learning styles found in an audience.

Anita also suggests having a backup plan in the event the first approach is not successful in helping the students meet the objectives. She stated the following:

> I do not think this is a concrete science. If this is done then do that. If you are not getting the response you had hoped for, then you have to have alternatives. So, when you are preparing to teach something, this is the way you hope it goes, but if it does not, try this.

After making plans for alternative approaches to delivering the material, Anita is ready to implement the instruction.

Development

Anita did not discuss the development of instructional materials during the think-aloud protocol. However, her transcript and artifacts indicate she uses selected videos from publishers and the Blackboard web site management program to support her instruction. She also uses PowerPoint slides to convey information in class. She describes her classes as follows:

> They have the words of my PowerPoint in online form that I put on Blackboard. I don't feel any compulsion to stick to it; because they already have it…I need to explore what all of it means and how they're going to use it. Sometimes I'll use pictures either from their book or other sources…for the visual learner and the auditory learner has my voice.

Implementation

Anita believes that implementation of multiple teaching strategies helps the students relate to the new information. She wants to help the learners connect prior knowledge to the new knowledge. She believes the faculty member must be flexible during implementation. If the feedback from the students indicates the initial strategy is not successful in helping the students acquire the new knowledge, she needs to adjust to that feedback. This is where it is helpful to have an alternative plan. If her initial plan does not work, she is "ready to move on to Plan B."

Anita emphasizes the importance of linking the knowledge acquired in the classroom to the clinical environment. She wants the students to transfer the information they explore in the classroom to an application in the clinical experience. She believes this really aids the student to understand and remember the information. When she sees the students demonstrate the knowledge in the clinical setting, she knows the students are making the appropriate connections. It is a form of evaluation.

Evaluation

Evaluation includes verbal and visual feedback from students and written work, such as papers and tests. For Anita, observing the students linking the classroom information to the clinical setting is positive feedback. She also conducts a self-evaluation of strategies she

uses to determine "how well I helped this particular group learn and use each experience as an opportunity for self-growth." She states, "I review in my own mind how I could change teaching methods used to be more productive with this group if I were to do it over again. There is always some tweaking that can be done to refine the process."

Mary

Mary has had more formal instructional design experience than the other participants. She includes the considerations of curriculum fit, but she also emphasizes the idea of an egalitarian environment when she implements instruction. For her, this promotes a collegial experience for the students. Mary's instructional design process is illustrated in Figure 4.4.

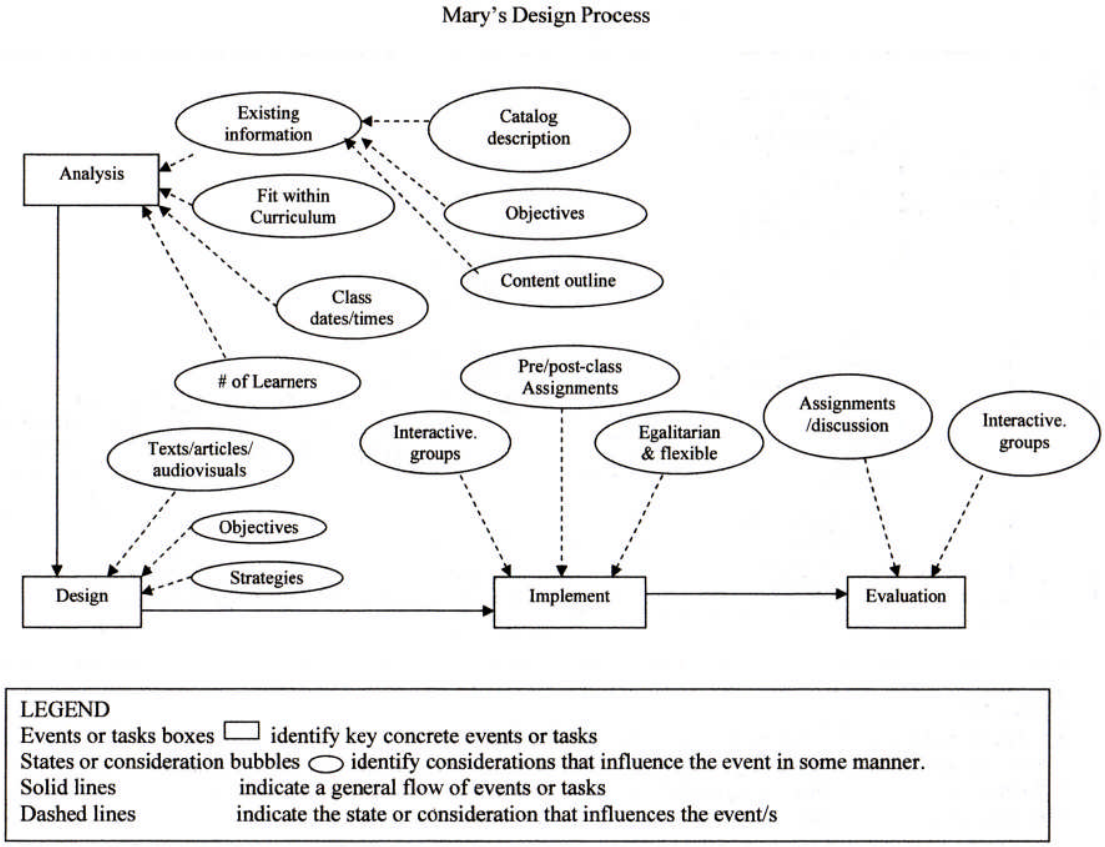

Figure 4.4. Mary's design process.

Analysis

Mary starts her design process with an analysis of existing information that includes items such as catalog descriptions, objectives, and content outline. As a method of analysis,

Mary also has utilized focus groups for feedback to identify how to improve the methods of instruction. She views this as analysis because she states “I have not taught the class before this time." Otherwise, she would consider it more an evaluation.

In one example she relates a time when she was assigned to teach a course that had been taught by another instructor. She assembled a small group of students who had taken the course and asked for their input on what worked and what did not work. This was done over lunch. From their feedback she made changes to the course that significantly improved the effectiveness of the class.

She looks at how the topic fits within the curriculum. If the class has been previously taught, she looks at how the preceding faculty administered the course. If class times and dates are established for the course she considers these as well. She identifies the number of students participating in the class which influences the selection of strategies.

Design

Mary then begins the design event by identifying and organizing a content outline. She uses the objectives identified in the analysis phase as an guide to develop examples, scenarios, or stories that she will use to help gain attention and convey the new knowledge. She selects textbooks, articles, and audiovisuals for resources and appropriate strategies that help the learners meet the objectives for the class. After selecting the items, Mary is ready to implement the instruction.

Development

Like Anita, Mary does not discuss any specifics of the development of her course materials. In a course outline that she developed, she indicates that she uses video clips to compare and contrast ideas and group discussions to explore concepts. The presence of the groups in the design and the way Mary describes them reflect her desire to teach in an egalitarian manner.

Implementation

Implementation of instruction for Mary is interactive in a flexible and egalitarian atmosphere. She says “I like to plan it so I did some talking and they did some talking.” She employs many group discussion and interactive activities. She says, “To me the goal is to improve not obey some artificial rules I’ve set up. The goal for me is that you learn what you need to know…This is an academic exercise.” She continues by saying that ‘I teach in a

totally egalitarian way.' "We all learn together." Her reasoning for emphasizing this concept in her teaching is "I want them to practice in a way that is not hierarchical with their patients, and they don't come in like the doctors did and say, "I prescribe, I decide." Mary believes learning should be fun and engaging for students.

Pre and post-class assignments that she implements in addition to the class meetings could include readings, case studies, or audiovisual materials. These "would get them thinking about the issue." She posts any PowerPoint slides she plans to use online prior to class, so everyone has the information.

Evaluation

Evaluation occurs through assignments and interactive discussions. She believes "It is important that they (the students) get feedback directly from the faculty and not from a graduate student assistant…There's too much of a problem with interrater reliability." Similar to when she used small group sessions to get feedback from the students, Mary also uses small groups to meet with clinical faculty for a debriefing after a clinical rotation. In an informal manner she asks, "What went well? What can be improved?" She also considers students' evaluation forms and makes appropriate modifications.

Beth

In Beth's instructional design process, she introduces the idea of diversity of students, particularly of diverse cultures. This consideration may be more prominent in the university where she teaches because it may have a more culturally diverse population than the schools of the other participants. Her diagram is illustrated in Figure 4.5.

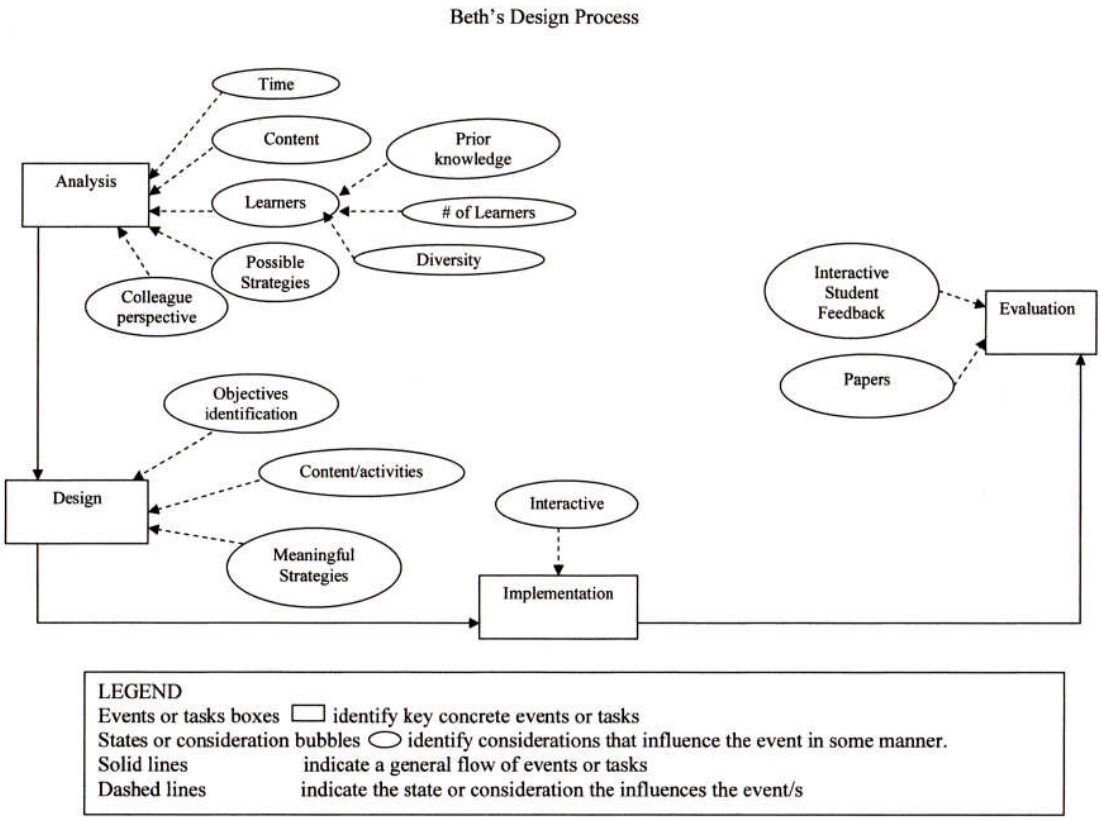

Figure 4.5. Beth's design process.

Analysis

Beth starts with analysis of the time available for the instruction and the content information that needs to be included. She bases the decision of the content area to include an answer to the question, "What is important for them to gain?" She says it is important for her to identify what information is essential. Beth expresses, as an educator, that she "is really a manager of information."

Beth spends time looking at the learners' prior knowledge. She identifies the number of learners and their diversity and begins considering appropriate strategies. Often students come from with diverse cultural experiences and need different strategies to help them learn.

As part of analysis, Beth likes to obtain a colleague's perspective on the topic. This helps to ensure that she is presenting current concepts or clinical practices. She has designed instruction differently based on feedback she obtains from colleagues who heard comments students had made regarding the course. Then, after conducting an analysis, Beth starts to design the instruction.

Design

During the design phase, Beth starts determining objectives and ensuring the content is meaningful to the learners. She identifies specific activities and examples she will use during the instruction. Appropriate examples aid the student and “really grab what it means to them personally” and provide focus, so they can “key in on why this is important.”

Development

Beth does not discuss the development of materials in during her think-aloud task. In a course syllabus though it is evident that she develops exercises such as group discussions and writing assignments. In the group discussions she provides an example of the topic. Beth states, "I think hearing about a situation that happened to someone else at this stage really helps them very quickly clue into the fact that this is really something I need to know and is interesting." She also indicated during the interview that she strongly believes that students should write.

Some assignments "would just be a paragraph that would help me evaluate. For example, "I could ask was the story helpful? That way I would get responses from all 20 of them." She also incorporates this writing assignment on her WebCT course. She states, "I found that some students who will not talk in class about a topic will discuss it in a discussion board."

Implementation

Beth believes implementation of the instruction is interactive. Beth incorporates a number of group activities because of their interactive nature. She states “I think they learn a lot together. So, I would usually have some sort of group project.” The projects should be applicable to their practice so it is more meaningful.

Beth stated that she feels it is important to help students "identify learning outcomes that are appropriate and implementing a learning process that helps them think." She expresses frustration at "people who talk about critical thinking and then having the students memorize. She encourages students "to do some creative thinking and take some risk in their thinking."

Evaluation

For Beth, evaluation occurs by interactive student feedback and papers. For example, during her first class of the semester she asks the students to write a brief letter describing

what they want to get out of the class. Right after midterm the students write a second letter briefly telling how they are meeting outcomes and what they need more in terms of Beth's input. This gives Beth a measure of how the learners are meeting objectives and what she can do to increase their learning. She also reviews the letters for ideas for improving the course the next time she teaches it.

Julie

The last participant interviewed was Julie. She uses the idea of draft and revised outlines in her instructional design thought process. Her instructional design process is illustrated in Figure 4.6.

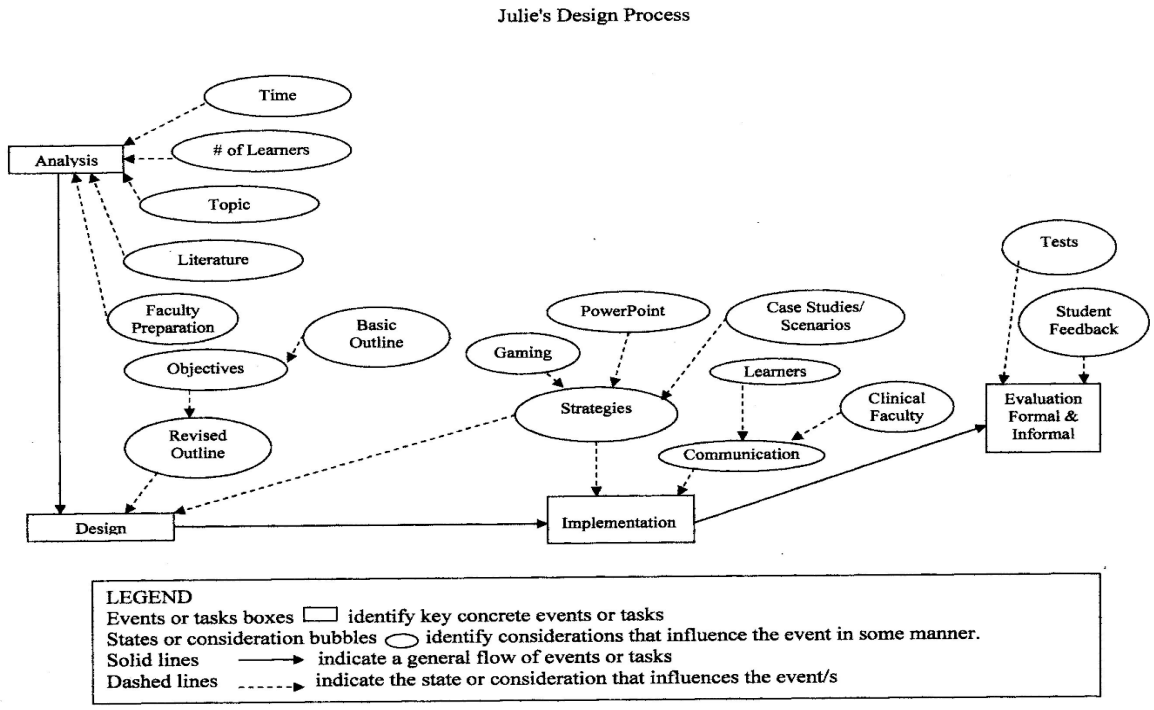

Figure 4.6. Julie's design process.

Analysis

When Julie discusses her thought process on designing instruction, she begins by analyzing the topic. As she considers the topic, she identifies the amount of time she has to present the material and the number of learners who will be participating in the instruction. She then reviews the most recent textbooks and articles or "anything that could help" prepare me for the instruction. However, according to Julie, it is important not to use the student's

textbook as a primary source. She said, “The student textbook is for them. It is not for you as an instructor. The student can read and highlight the textbook...Our job is to make the material come alive in some way.”

When her level of expertise on the subject is not high, Julie will contact an expert and ask them for feedback about what is new on the topic. She also reported going to settings to see specific activities that occur in a particular nursing specialty area to help her prepare for instructing.

Design

Moving to a design phase, Julie then produces a draft outline. At this time she then identifies objectives or modifies previously developed objectives. Once the objectives are refined, she revises the outline to match the objectives.

With clearly defined objectives, Julie selects strategies and material such as case studies, scenarios, PowerPoint, and gaming. Because there are students who have a variety of learning styles, Julie believes it is important to have multiple techniques to reach the students. Over the last few years, she said she has moved away from lectures to more interactive strategies and making the students more responsible for learning. “The expectation is that if they are prepared they should be able to dialogue and do an exchange and some activities versus just getting up in front of the room and repeating what the literature says.” She stated that storytelling, especially with current stories, is a wonderful teaching strategy to use.

Development

A technique that was evident in Julie's course material was the use of case studies. She states, "I would develop case studies before case studies were popular using live patients that I have worked with or had seen." She stated that an advantage on keeping active in patient care was it gave her current experiences she could pull ideas from to write case studies.

Julie also mentions test development. She points out that her tests reflect her objectives for the course. She states, "When I sit down to write my tests, I have my modular objectives. So, I made sure I am covering what I said I would."

Implementation

As part of the implementation event, she communicates objectives and reading materials to both learners and to clinical faculty. This gives the learners an opportunity to come to class prepared to learn. It also informs clinical faculty, so they can help transfer the knowledge to the clinical setting and better evaluate the students. She asks students to "bring the objectives to class and reflect on them as they go over the material, to make sure we have covered the things that are important."

For the clinical instructors, Julie gives them access to the online course materials and holds weekly meetings. She describes her meeting with the clinical faculty by saying "We would sit down and say, 'This is what we did in the classroom this week. These are our clinical objectives. This is what we want to focus on.'" She said that faculty often forgets to communicate with the clinical instructors which topics the students are taught in the classroom, making it difficult for students to transfer the classroom knowledge to the clinical environment.

Evaluation

Julie ensures that both summative and formative evaluation is completed. She feels it is important to get feedback because "If there is something you are weak on, or you are not doing a very good job on, with student feedback, the next time, I can do better." Students would be evaluated with tests to assess student learning. The tests should reflect the objectives for the class. "When I sit down and write my tests, I have my modular objectives there, so I made sure I am covering what I said I would."

According to Julie, testing should reflect the NCLEX format in order to prepare them for the type of questions the students will face on the state board exams. The students divide into groups and take the test again during class. In the group activity, the students must defend, with rationale to other students, why a particular answer is right or wrong. Julie says, "Sometimes students are able to articulate it better than a faculty member saying this is the right answer." She also analyzes the validity of the test so she can modify it for future use.

Julie also conducts evaluation in a less formal manner. For example, Julie says, "Basically, when I start the class, I ask the class, "What are we supposed to cover today? "What are the objectives for the class?" Then at the end, we would do a summary and talk about what we are going to do next."

Follow-up Questions and Participant Responses

When the participants design process diagrams were emailed back to participants for a member-check, two follow-up questions were asked of the participants. The first question was "After having done this interview and think-aloud exercise, is there anything you would like to add, do differently or clarify?"

Participant responses mainly consisted of minor changes to how concepts were connected by arrows in the diagrams. This feedback was incorporated into their diagrams. Some participants stated that they appreciated the opportunity to reflect on their own thinking processes.

The second question asked respondents to reconsider the think-aloud protocol task: "From the perspective of the process you used to design instruction, if the think-aloud task you completed was teaching students to give injections, instead of teaching them about confidentially, would your process be different?

Because the participants' responses were very similar, excerpts from two participants serve as examples of response for the second question.

Anita said "My approach would not be any different than teaching about confidentiality." She went on to describe how the actual instruction would focus more on a psychomotor skill, manual dexterity, and student practice. Beth said although the process would be the same, she would focus more time detailing the actual steps of the process rather than on such a global approach.

Emerging Elements Beyond ADDIE

During the first pass analysis, common themes became evident that resulted in the need for additional codes beyond the initial ADDIE codes.

Elements emerged from the data during analysis that were common among the expert faculty participants. Enthusiasm, meaningful, prior knowledge, engaged, faculty-student relationships, and faculty preparation are the elements that were evident in most, if not all the participant data. These elements were not part of the initial first pass codes, which included analysis, design, development, implementation, and evaluation. However, they were recurrent themes that emerged as the participants describe their instructional design process. These six elements are explained next.

Enthusiasm

Enthusiasm is a strong excitement of feeling for the topic, students, or profession. All the participants expressed that they try to convey their enthusiasm in some manner. Helen stated, "Enthusiasm for the topic is an intangible, but absolutely critical component." The "passion for the subject matter" makes things stand out. Sara stated, "I try to have a pretty energetic but a positive demeanor with them so that they end up liking the material…There's a little bit of attitude shifting that you want to do."

Anita said, "I know I impart to my students how much I love nursing. How it really turns me on, and how excited I am about this topic…that's my goal to get them really excited." Like enthusiasm, the idea of the information being meaningful to the learner was an element demonstrated by all the participants in their instructional design process.

Meaningful

All the participants emphasized the importance of making the information meaningful. Meaningful is operationally defined as the learner finding the information or skill relevant or having a perceived purpose or application for the individual or group. Helen said

> I would be concerned about how I would make this relevant for them…I think the hook is personally. If they can't buy into why this is important to them…as a nurse has a lot more validity to it than just pure altruism…or because you have to…I would truly help them understand why they would care about this as a person.

Anita said, "If students don't have good rationale, what you teach won't have meaning, so students probably wouldn't follow rules for rules' sake." In addition, Mary tries to relate the information to other areas of their lives.

To make the content meaningful, the participants often use real life examples, case studies, and anecdotal information. For example Sara stated

> I bring in examples from the many clinical agencies that are there, so that they (the learners) can think about what I am saying in terms of what it means in the real world…I try to use my experiences to make that content meaningful for them.

During Beth's think-aloud protocol she described a situation that happened to a practicing nurse because it "really helps them very quickly clue into the fact that this is really something I need to know and is interesting." She believes the situation example is a helpful device to help them focus, otherwise "I don't think they grab what it means to them personally."

When Helen designs instruction, she is concerned about how she "would make this relevant for them." She said, "They need to constantly be asking themselves" Why do I need to know this as a nurse? Of what possible application is this for me?" So adding these contextual pieces then to the big framework helps them to stick together."

Prior Knowledge

As the participants reiterated how important it was to help the students find meaning in the material, they explained that much of what students find meaningful is based on their backgrounds or prior knowledge. Prior knowledge is defined for this study as the range of information or understanding a learner possesses at the beginning of an instructional event. It is mainly obtained from one's background or experiences.

As mentioned above, all the participants considered prior knowledge during their discussion of their instruction design process. Helen views prior knowledge as "literally laying a foundation and beginning to build on it." Anita uses learners' prior knowledge to help them know "how topics relate to what they already know." Sara makes similar statements, but points out that "a mistake new faculty make is giving students more credit for knowing more than they (the students) do…and missing a conceptual basis for understanding."

When designing instruction, the participants often used an advance organizer approach. Helen used worksheets "aimed at the background they have to have prior to coming to class." Others used preinstruction online postings of articles or quizzes to help ensure the learners had the necessary prior knowledge before participating in the class.

Engaged

The participants want the students to be engaged. Engaged is the state of giving attention to and interacting with the information to be learned. Sara tries "to get the students actively engaged." Beth said about her philosophy of planning a class, "It is designed to get

them to do some creative thinking and take some risk in their thinking." Helen also indicates that she wants them engaged with the information.

Participants use a variety of strategies to engage the students. For example, Helen uses video clips, worksheets in the form of advance organizers, and even "acting out a little in class to get them engaged in some way shape or form with the content."

Sara is aware that her physical position in class can help engage students. In one example, she roped off a section of a classroom to keep the students in closer proximity to her because she felt it helped her engage them in the class discussion.

Faculty-Student Relationship

Participants, such as Sara, indicate that not only is their physical position a consideration, but it is important for them to connect with the students. It is important to be aware of the faculty-student relationship. This relationship is identified by the characteristics that reflect the connection between or among the faculty, individuals or groups.

Helen states, "The really important pieces of what I do comes out of the relationship that I have with the students…It was a passion for students on a human basis…Create a connection."

Several participants indicated that they view the learners as future colleagues. Julie stated, "I believe I am dealing with my colleagues or my future colleagues…It is a developmental process." Sara said, "What students perceive as an aloof, mysterious, or inaccessible teacher will also be a teacher whom students will not be able to model themselves on or will ever envision becoming."

Julie uses the Golden Rule to relate with students. She says, "I treat them as I would like to be treated." Continuing she explains, "They are not so much your colleague at the beginning, but as they move throughout the curriculum…I begin to foster that relationship that soon they would be colleagues."

Faculty Preparation

Faculty knowledge of the learners is one element of faculty preparation for instructional design. For this study, faculty preparation consists of the actions or reflections taken by a faculty member to become ready or prepared to conduct the instruction. It occurs

from the analysis event until the implementation event thereby overlapping more than one phase of the instructional design process.

The participants read or reviewed a variety of material or sources to prepare to instruct the nursing students. Textbooks, articles, workshops, and other experts were included as a means of preparing to instruct to ensure they knew the material. Julie, while referring to being prepared, stated, "I would never walk into a classroom unprepared." Helen said in a humorous tone of voice, "If I am not prepared, I don't come!"

Composite Between-Subjects Report

Each participant was asked, what instructional design model, if any, they used as they design instruction? All six participants responded that they did not use an instructional design model. However, Helen referenced the nursing process when she was discussing evaluation. Recall that the nursing process is described in Chapter 2 and compared to the ADDIE model in Appendix C. Helen stated,

> For me it is much like the nursing process, which is constantly going on through all phases all the times. From the beginning, I am thinking about resources, scope, what do they know already? What needs to be augmented? What background do they have?

So based on the participants' responses, instructional design models are not used by these expert nurse educators while designing instruction. This finding is not surprising. According to Gustafson and Branch (2002), "although there a number of classroom-oriented ID models, they are not widely known to or adopted by teachers" (p. 19).

The purpose of this section is to describe a composite diagram of key components identified from a between-subjects analysis of the individual participants' instructional design diagrams developed in the study. Events-state diagrams for each participant and the corresponding transcripts were compared to each other to develop the composite events-state diagram illustrated in Figure 4.7. The comprehensive event-state diagram transposes all participants' diagrams into one illustration. This process will provide a more summative view of the instructional design process considerations than presented by one participant's perspective, thereby illustrating a more comprehensive picture of the instructional design

process used by nurse educators as a group. This summative approach will be informative in future research because it identifies various factors that can be validated in future studies.

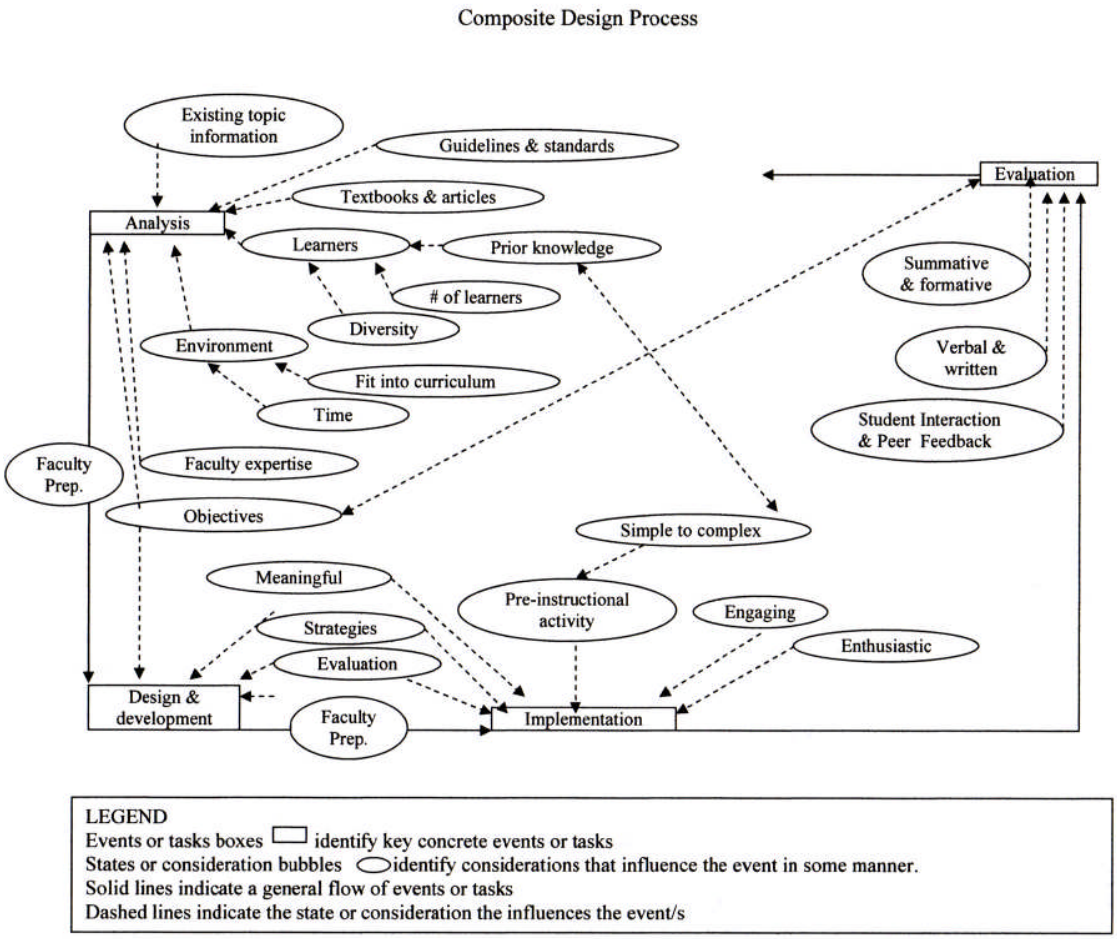

*Figure 4.7.*Composite design process.

Analysis

The composite design process starts with analysis of many states considerations. If topic information or class materials exist from a previous class then that information is reviewed. Professional guidelines and standards from various sources, such as governing agencies, professional organizations, or places of employment, are incorporated that may require certain information for the learners to master.

The participants analyzed the learners. The participants wanted to know the number and the diversity of learners. They also wanted to determine what prior knowledge and background experience the learners will bring to the learning environment. This information

enables the participants to design the instruction so that the learners build knowledge in a simple to complex manner.

Participants also consider the environment in which the information is to be presented. This is important because the participants will have a better sense of how the learner will transfer new material from a classroom environment to a clinical environment. Not only is the environment of where learning takes place important, but where in the curriculum the faculty places the instruction. Fit of the instructional event in the curriculum is important to consider because this will help determine what knowledge the learner brings to the instructional event and what the faculty can expect the learners to possess at that point in the curriculum. Faculty will therefore use this information to build new knowledge.

Participants consider the time allotted to the instructional event. The time available for the event provides boundaries that will help the faculty determine the amount of information and appropriate strategies. Faculty can then determine if they can incorporate some topics more appropriately in a clinical setting compared to a classroom environment.

Participants consider their own expertise or knowledge of the subject of the instructional event. Since current knowledge in the nursing field is expanding quickly, it is difficult to stay current on all material. Reflecting on the faculty's own level of expertise on the subject will help them determine if it would be better for them to obtain a guest lecturer or take appropriate steps to update their own knowledge and experience.

Participants identify objectives of student learning from the analysis of the material and their own expertise. These objectives lead the faculty in designing the instructional event. In general, the participants felt the objectives should always be linked to the tests or evaluation methods from the beginning of the process.

Faculty participants viewed the analysis and design events as a time for faculty preparation. Participants examined textbooks, literature, guidelines, and principles to identify important concepts and current knowledge to aid them in preparing to instruct and identify appropriate objectives for the class.

Design

During the designing of the instructional event, participants consider all relevant information gathered during analysis. Strategies are selected based on the objectives

identified during analysis. Participants made clear that it is extremely important to identify and use strategies to aid the learner find the information meaningful. They also consistently utilized engaging strategies that convey the relevance of the topic to the student. The participants always try to be thinking about how the evaluation of the learning will occur as they design these strategies.

Development

Throughout this chapter the elements of the ADDIE model with the exception of development are clearly identified in the instructional design processes of the participant expert nurse educators. Development is the process of authoring and producing the instructional materials. The participants rarely mentioned the area of development spontaneously.

From the interviews, all the participants authored and produced the instructional materials they used during instruction, yet they did not spontaneously talk about this step. Developing the materials is an assumed task that belongs to them. However, Helen discussed the use of library staff to assemble a course packet for one course she was responsible to teach. Sara briefly mentioned the interactive CD-ROM she authored with the help of several people from the publishing company. She stated that she developed the format, materials, and study questions. She would then submit revisions and recommendations as requested from the publisher.

From the professional instructional designer's perspective, others often complete development of the instructional material. However, from looking at classroom-oriented instructional design models identified by Gustafson and Branch (2002) the Morrison, Ross and Kemp Model is the only one that mentions the development step. Therefore, it seems that the development element is often not emphasized for those who provide instruction in the classroom.

Implementation

Participants utilized instructional strategies in the implementation of the instructional event. They indicated that it is important to evaluate the effectiveness of these strategies early during implementation and adjust strategies as the feedback from evaluation directs. As stated previously, new knowledge is presented based on prior knowledge in a simple to

complex manner. To promote the development of the prior knowledge, participates often used pre-instructional activities to prepare the learners for the new knowledge they are about to encounter. Study questions, worksheets, and prior readings are examples of advanced organizers. The advanced organizers are influenced by the textbook literature, guidelines, principles, and current knowledge. By being aware of what foundational knowledge and background the student has will help make new information more meaningful and applicable.

All the participants present the information in an enthusiastic manner. The enthusiastic attitude will help the students enjoy the subject more, which will motivate them to spend more time studying the material. According to Helen it is "passion for the subject matter that makes the difference."

Evaluation

Evaluation is an ongoing consideration throughout the instructional design process. Participants use summative and formative evaluation strategies in their instructional design process. The faculty conducts evaluations through student and peer feedback, review of tests, and student interaction to evaluate the effectiveness of the instruction. Once this evaluation is completed, participants consider modifications as needed when they begin to prepare for the next time the class is offered.

This composite design diagram provides an overview of the key instructional design events and considerations that each of the participants identified as they design instruction individually

Partially Ordered Metamatrix Results

The event-state network method was useful to illuminate the events and considerations the participants had while thinking about designing instruction. The diagrams provide insight into concepts the participants had as they mentally went through their instructional design process. However, the diagrams did not accurately reflect the sequence of the thought processes as the participants actually verbalized them. The metamatrix illustrated in Appendix Q, provides sample data from each participant in the sequence they verbalized the thought. In the metamatrix, only sample data is provided to help illustrate the idea. The complete text of what was verbalized in the transcripts that would frame the context is not included because of the large volume of space that it would require.

When given the design task, each participant started with an analysis thought. Each participant asked a question to analyze something they felt they needed to know before proceeding. For example, Sara wanted to know about the students' prior experience. Mary wanted to know the expected outcomes. Some participants asked more than one question or made statements indicating they would identify more information.

However, it was common that the participants would vacillate between thoughts of design and thoughts of analysis. Mary first inquired about outcomes but then expressed thoughts of strategies she would use in her design. She then went back to seeking information about identifying things they needed to know. After answering the question for herself, she would consider how she would design that feature into the instructional event.

Sara started her process with a statement that she would "make the information personal for them." At this point in the think-aloud, all she knew about the design task was the task and number of students. She was actually starting to design the instructional event based on minimal data. However, she made the statement that if the students were first year students they would not have a lot of experience. So this statement would indicate that she was aware of a need to know the background experience of the students. Before any further analysis was verbalized, she expressed that tests would be used to evaluate learning.

These examples illustrate the disparity between the linear appearing ADDIE design diagrams and the actual thought sequences the participants designed instruction. Sara did say that her process was really an "iterative" process. This may explain why it is often difficult to find design patterns among designers as Visscher-Voerman and Gustafson (2004) have indicated.

Summary of Results

Interviews, think-aloud protocol, and artifacts were used to collect data to produce the results of this study. The instructional design thought processes of six expert nurse educators were described and illustrated using an event-state framework. The additional elements of enthusiasm, meaningful, prior knowledge, engaged, faculty-student relationship, and faculty preparation emerged as additional elements beyond the initial ADDIE coding. The participants did not use a formal instructional design model.

A composite instructional design diagram was described and illustrated. This diagram was consolidated from each participant's diagram and transcripts using a between-subject approach. This provided a more comprehensive view of the instructional design process used by the participants as a group.

The results of two follow-up questions are given. From their responses minor changes were made to their diagrams that mainly resulted in a changes to a few arrows that connected concepts. The participants stated they would not have changed their design process during the think-aloud if a psychomotor skill was assigned, compared to the more conceptual topic given in the exercise.

Finally, the think-aloud protocols were analyzed using a partially ordered metamatrix. This matrix illustrated that the expert nurse educators' thoughts oscillated among events of the design process instead of working linearly. This nonlinear approach is consistent with findings in studies of designers (Rowland, 1992; Vosscher-Voerman and Gustafson, 2004).

CHAPTER FIVE

SUMMARY, LIMITATIONS, IMPLICATIONS, AND CONCLUSIONS

The purpose of this study was to investigate the instructional design process used by six expert nurse educators to provide information for greater understanding of their thought processes as they design instruction. This research explored their processes using interviews, think-aloud protocols, and artifacts.

This study is based on a Type 2 developmental research approach. The goal of developmental research is to ultimately enhancing the knowledge base for building models and principles that guide the instructional design process. Conclusions from this type of research pertain to a technique or model and, typically, are generalized, although there are "context-specific" conclusions in the literature (Richey et al., 2004, p.1103). In this study, the goal is to improve the instructional design processes used by nurse educators. Event-state diagrams illustrate the techniques and instructional design processes used by the participants. A partially ordered metamatrix method revealed the thought sequence.

A Type 2 study may produce more than one type of conclusion (Richey et al., 2004). I adapt categories of conclusions offered by Richey and Nelson (2004) for Type 2 developmental research as a framework for addressing conclusions in this study. Richey and Nelson used the terms "conditions and procedures" to describe one category that facilitates the successful use of a particular technique or model. I will use the terms "events and tasks" in their place to better relate the terms used in the events-task diagrams developed to illustrate the instructional design process demonstrated by the nurse educators.

Another category described by Richey and Nelson (2004) is a synthesis of events and/or opinions related to the use of a particular technique or model. For this study, I will describe the second category of conclusions as a synthesis of events and ID used by nurse educators. In this category, the composite diagram of all the nurse educator participants will be discussed.

Summary

No instructional design model is formally used by any of the faculty. One participant acknowledges her process is similar to the nursing process as previously described. Through

studying the instructional design thought processes of expert nurse educators, this study identifies events and tasks the nurse educators incorporated into their design process. These events and tasks provide insight that may suggest elements that contribute to successful instructional design processes. All the participants went through the basic instructional design model events of analysis, design, development, implementation, and evaluation, even though they were not aware of any particular instructional design model.

As described by Sara, her instructional design process is an iterative process. This is consistent with the studies reported by Rowland (1992) and Visscher-Voerman and Gustafson (2004) describing expert designers working as a non-linear and variable fashion. Oscillation among design events was seen in the nurse expert participants' thought processes as it became apparent, using the partially ordered matrix. It also was clear that all events in the design process were not equally given equal attention.

Participants analyzed learners and learning contexts, identified objectives, and selected strategies. The development phase was rarely mentioned, but the material was produced and implemented by the participants. Evaluation was valued by the participants as manifested by both formative and summative evaluation strategies incorporated throughout their designs.

As the participants progressed through each event of the design process, they considered various elements or tasks. Five tasks, in particular, were consistently identified in the participants' instructional design process. These tasks were faculty preparation, engaging the students, making the information meaningful, showing enthusiasm for the topic, and fostering faculty-student relationships.

Faculty preparation was a common task. They wanted to conduct a thorough review of the current literature and contact other experts to update their own knowledge of the topic. This enabled them to develop objectives that are more appropriate and to prepare the instructional material. Each faculty felt faculty preparation was critical to success.

After faculty prepared their own knowledge base and identified objectives when designing instruction, they selected strategies that engaged the learners with the material. Having the learners interact with the information was a common expression of the educators. They saw student engagement as a critical factor for learning.

In addition to selecting engaging strategies, the nurse educators wanted the learners to find the information meaningful and applicable. They designed the presentation of the information so the students would receive it in a simple to complex manner. Engaging the learners and making the information meaningful enables the learners to build new knowledge on prior knowledge from background experience.

Participants described enthusiasm and the faculty-student relationship as vital conditions for successful implementation of instruction. Each participant implemented instruction with enthusiasm and verbalized a love for the topic. Along with enthusiasm, each participant sought to establish positive faculty-student relationships that complimented the implementation. The goal of the faculty was to develop a colleagial relationship with the students as they progressed through the curriculum.

Limitations and Further Research

Purposeful sampling was used in this study. Although the small numbers of participants were information-rich, it is not a representative sample of the population of nursing educators. For example, all participants were Caucasian, female, and teaching in Virginia schools of higher education. Males compose only 5% of all nurses and even a smaller percentage of nursing faculties. The perspective of male nursing faculty on instructional design will add value to the total body of knowledge on how nurse educators design instruction. By expanding the sample size and diversity, more participants will provide additional insights that will not be disclosed in this small sample size and be more representative of nursing faculty from across the country.

All participants taught in Virginia. Some nursing faculty, such as Mary, believed this state is generally very conservative in its teaching philosophy. Future research designs should include larger geographical regions/populations that encompass wider philosophical orientations. This approach may identify variation in design approaches based on the philosophical orientations of the designers.

My background as a nurse educator may introduce bias in the recording of phenomena, selection of artifacts, and how patterns are identified in the data (Savenye & Robinson, 2004). Interview data is subject to anxiety and a “simple lack of awareness” of the interviewer and “reactivity of the interviewee to the interviewer” (Patton, 2002). Each

participant was interviewed for up to several hours. Even with follow-up interviews, think-aloud protocols, and follow-up questions, this short time limited the perspectives of the instructional design process reflected in the data.

Initially, it was planned to conduct one interview and think-aloud, transcribe the information, and send it back to the participant for a member check prior to repeating the process with the next participant. Once one participant process was completed, the questions could have been modified for the next participant, if necessary, to improve the information obtained. The new questions then could have been presented to the subsequent participants.

Due to time pressures, this did not occur. After Helen was interviewed and her information was transcribed over a two-week period, it was then sent to her for a member-check. It so happened that she had the opportunity to travel to China for several weeks to look at nursing education in that country. Meanwhile, Beth's interview was scheduled. She was approaching a grant deadline, in addition to teaching at her university, which made her schedule very inflexible. Therefore, Beth was interviewed before a member check was completed on Helen's information. Consequently, the decision was made to ask the same questions to all participants instead of asking different questions to each participant based on lessons learned from the preceding participant. However, an advantage of this approach is that it allowed for consistency in questioning for all participants.

Data collection for this study occurred over a five-month period and was limited to the methods already described. Future research should also include prolonged engagement with participants. Additional data collection strategies, such as observation, would provide additional data and add credibility to conclusions.

The composite instructional design diagram composed of the individual expert nurse may be a springboard for further development incorporating a Delphi and validation studies. But it would be advisable to consider a comment by Gustafon and Branch (2002) that typically ID models are not well known nor put into practice by teachers, and teachers may view ID models as "mechanistic and resulting in dehumanized instruction" (p. 19). Therefore, a challenge is to identify how an ID model for nurse educators can be implemented most effectively.

This research investigated instructional design from a broad perspective using the ADDIE model as a framework. Future research could delve into the subcomponents of this

instructional design process. For example, all the expert nurse educators in this study used objectives in their design process. The question was not specifically answered as to how nurse educators generate objectives in practice.

Additionally, we do not know how novice nurse educators design instruction. Do these novice nurse faculty have the same design process as the experts? Perhaps the experience of the faculty, not the design process, is most important in the success of instruction.

Finally, it would be of interest to know how future nurse educators are being prepared to design instruction and how instructional design concepts are currently taught in graduate nursing education. Are conditions such as enthusiasm, engaging the student with the material, or building new knowledge on prior knowledge more important than the design process used by the nurse educator?

Implications

Through studying the instructional design processes of expert nurse educators, this study provides information for the synthesis of events and opinions related to the instructional design process used by the participant nurse educators. This information is a beginning of a foundation of knowledge for the development of an instructional design model tailored for nurse educators.

The results of this study illustrate six expert nurse educators' individual perspectives on their instructional design process. Events and tasks are revealed as the participants describe their instructional design process. A composite diagram illustrating a consolidated view of the instructional design process that is more comprehensive than that of only one expert nurse educator's provides additional information of significance. This research illuminates process elements for new and seasoned nurse educators that may lead to more effective instructional design processes than those currently used.

Recall that new nurse educators often feel frustrated, overwhelmed, and unprepared for their roles as nurse educators. Nursing graduate education curriculums focus on preparing for a clinical role, not the role of the nurse educator. However, it was revealing that five of the expert nurse educators had received their graduate education at a time when graduate nursing education allowed the nurse to specialize in education and prepare to become a nurse

educator. The participant who selected a clinical focus attended courses on curriculum and instruction shortly after becoming a nurse educator. This is interesting because current graduate nursing programs continue to emphasize clinical practice but do not focus on the role of educator. The emphasis on only clinical practice is alarming for the future of nursing education. Will the fact that nurses generally do not receive this education impact the effectiveness of nursing education?

The composite diagram previously described can provide a resource for further investigation and development of an instructional design model for nurse educators. After additional research to develop, refine, and validate a model, an instructional design model for nurse educators may be made available. The instructional design model for nurse educators can provide a road map to guide them through the instructional design process in hopes of delivering more effective nursing education. It may also relieve some of the frustration new nurse educators experience as they assume the role of a nurse educator and as they design instruction.

A simple and understandable instructional design model could be part of the solution for relieving some of this frustration and advance nursing education by developing the foundational knowledge to guide nurse educators through the design process. This study contributes to the body of knowledge that furthers that cause. This study offers opportunities to further discuss the benefits of nurse educators using instructional design processes. It has implications for future research to foster growth in the field of nursing education.

Conclusion

This study illuminates the instructional design processes used by nurse experts. Expert nurse educators have developed effective instructional design processes to produce effective instruction. They demonstrate steps of the ADDIE model and other key elements they consider when designing and implementing instruction. Although not specific steps in instructional design models, several key elements are important components to the expert nurse educators as they implement their instruction. These elements are building new information on prior knowledge, making the topic meaningful and engaging, being prepared and presenting the topic with enthusiasm, and developing collegial relationships with the learners.

The importance of this study is in the potential for impacting the way new nurse educators design instruction. Clinical nurses transitioning into the new role of nurse educator may experience a little less stress by trying the instructional design ideas illuminated in this study.

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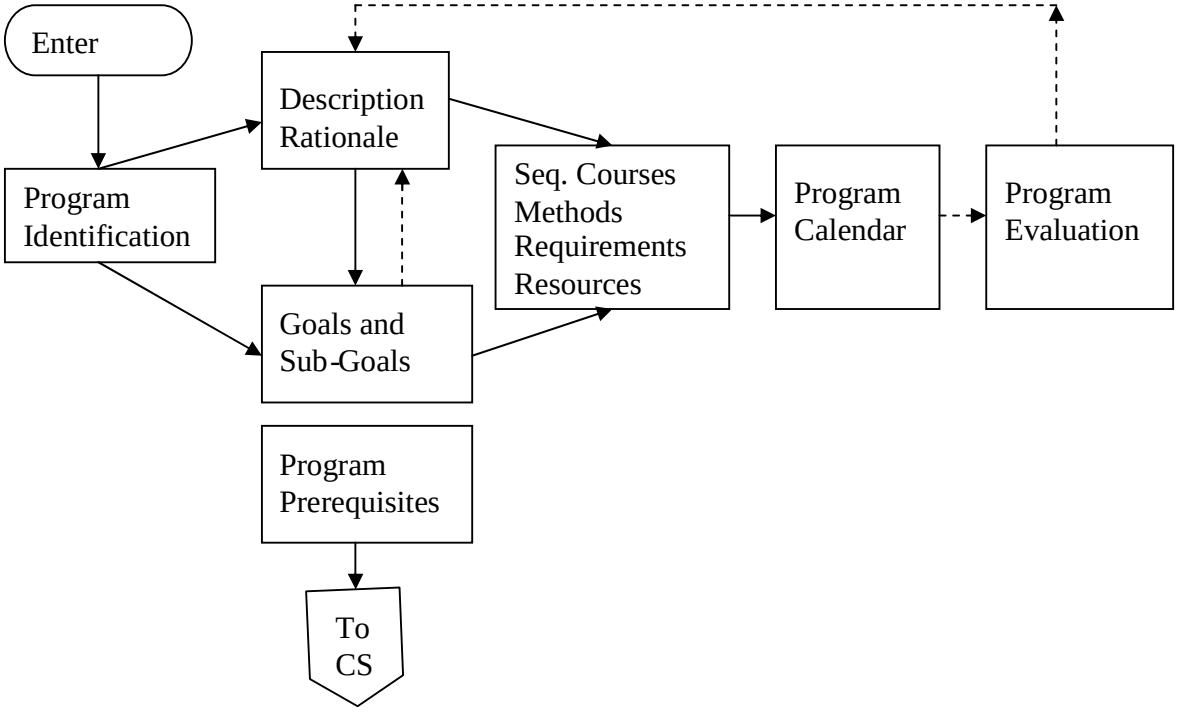
APPENDIX A - SYSTEMS-BASED MODEL FOR DESIGNING A PROGRAM SYLLABUS



Systems-Based Model for Designing a Program Syllabus

CHECKLIST FOR DESIGNING A PROGRAM SYLLABUS

	Check When Completed
1. Identify the program by name.	
2. Describe in narrative form the subject- matter content of the program.	
3. State the rationale for the existence of the program.	
4. List the goals and sub-goals of the program.	
5. Determine program prerequisites.	
6. Outline the various courses, which comprise the program.	
7. Identify the broad categories of instructional methods employed in the program.	
8. Identify and explain major requirements of the program as well as their corresponding deadlines, if any.	
9. Specify the general types of resources available for the program.	
10. Specify the program calendar with an emphasis on correlating program courses with the appropriate time frames in the program.	
11. Describe the categories of evaluation criteria to be used in the program regarding students and instructors.	

Source: Hymel and Deere (1985)

APPENDIX B - GENERIC ID COMPARED WITH SEELS & GLASGOW

Steps in Generic ID Model	Steps in Seels & Glasgow Model	Questions Answered
1. Analysis	1. Problem Analysis	What is the problem? Who is the learner?
2. Design	2. Task/Instructional Analysis	What is the specific content?
	3. Objectives & Tests	How are the objectives classified?
	4. Instructional Strategy	How should the content be organized?
	5. Media Decisions	What media (hardware/software) should be used?
3. Development	6. Materials Development	
4. Implementation	7. Formative Evaluation	Does the material work?
	8. Implementation and Maintenance	
5. Evaluation	9. Summative evaluation	Are objectives achieved?
	10. Dissemination and diffusion	

From Exercises in Instructional Design (p. 52) by Barbara Seels and Zita Glasgow, 1990, Columbus: Merrill Publishing.

APPENDIX C - COMPARISON OF NURSING PROCESS AND GENERIC ADDIE MODEL

Comparison of Nursing Process and Generic ADDIE Model

Steps of Nursing Process and Definition	Steps of ADDIE and Definition
Assessment – the collecting information concerning the patient's health	Analysis- the process of defining what is to be learned
Diagnosis – the statement of the problem	Design – the process of specifying how it is to be learned
Planning – the goals and outcomes are set and nursing actions are identified to prevent, correct, or relieve health problems.	Development – the process of authoring and producing the material
Implementation – care is delivered and the actions are carried out	Implementation – the process of installing the project in the real world context
Evaluation – the plan is reviewed to determine if patient's needs are met and the goals achieved.	Evaluation – the process of determining the adequacy of the instruction

APPENDIX D - ID RESEARCH COMPARISON

ID Research Comparison

Researchers	Research Method(s) Used	Purpose/Question	Participants	Data Collection: Tools & Techniques	Analysis
		Surveys or Interviews Alone			
(Cox & Osguthorpe, 2003)	Survey	How do ID professionals spend their time?	42 Academic & corporate IDers	Email survey	Descriptive stats
(Kerr, 1983)	Interview Project to design, 6th class mtg instructor interviewed.	1. prevalence of initial generation of more than one design solution 2. basis on which solutions were accepted/rejected 3. constraints encountered 4. way designer knew they were finished	26 novice IDer (graduate level)	Design task & Interview audio taped; amplified notes about process and decisions	Coded/categories developed using simple content analysis
(Visscher-Voerman &	Reconstructive Study	1. Describe ID	Purposive sample: 3 to 4	1. Two 1 ½ hour	ADDIE metamatrix by

Gustafson, 2004)	(Developmental research approach) Qualitative "case study data"	strategies/ processes of expert IDers. 2. Specify why they deviate from process approach 3. Determine factors forced them to conduct alternative activities in projects	experts in different design contexts; 24 total	interviews audio taped 2. Documents	case level for cross-case analysis 4 Paradigm: Instrumental, Communicative, Pragmatic, Artistic
(Wedman & Tessmer, 1993)	Survey	If and how do course developers include ID activities in projects	73 training professionals involved in ID	Survey Freq of 11 ID activities; why activity was excluded	Descriptive stats
(Winer & Vazquez-Abad, 1995)	Survey	1. To determine amt of selective use of ID activities 2. To determine amt of selective use of ID activities and factors influencing selective use	N=66 designers/developers	Survey * Replication of Wedman & Tessmer (1993) Exploratory interviews (3 participants)	Descriptive stats

Interviews and Think-Alouds

(LeMaistre, 1998)	Qualitative	1.To identify differences in novice and expert thinking	N=2 (1 expert and 1 novice designer)	Think-aloud during revision of instruction, interviews to debrief and clarify outcomes	Coding scheme based on Newell and Simon's problem-solving model.
Phase I (Perez & Emery, 1995) (PIQ) Phase II (Perez, Johnson Fleming, & Emery, 1995) (Instructional Science	Mixed methods-Quantitative and Qualitative data used to describe and report data	1. What are the differences of ID problem solving strategies of novice & experts? 2. Researchers developed a cognitive model for both novices and experts.	5 experts, 4 novices	1. Phase I: Interviews 2. Phase II: think-aloud audio/video taped	Coding scheme: 1. subproblem, 2. ypes of knowledge, 3. problem solving Two Levels: Knowledge Level: Prior knowledge, Awareness & monitoring Design phases: Plan/assess, Design, Other
(Rowland, 1992)	Qualitative	1. Determine what happens during ID 2. Determine differences between novice and experts	4 novice; 4 experts	Interviews & Think-aloud-design activity/observation	Categorized data-problem understanding, solution generation

Qualitative Empirical					
(Kirschner et al., 2002)	Qualitative empirical study- 2 experiments	1. To determine priorities of expert designers and their actual approach to design.	1. N=15 (9 academic 6 corporate) 2. Same as 1	1. Choose top three design principles from Visscher-Voerman's list of 16 design principles 2. design task measured by an "Action-Object Worksheet"	Descriptive stats
Case Study					
(Hardre & Chen, 2005)	Case Studies: each TA was a unique CS. Phenomenon studied: developmental experience of each TA	1. Role of ID knowledge in the development of TAs. 2. The relationship between the development of expertise/ID discipline/& domain specific teaching expertise	12 teaching assistants 3 males/9 females	1. Artifacts 2. Written responses to prompts, 3. Videos of teaching performances 4. Teacher-student interactions during a semester.	Multiple case study approach to analysis anchored in expert summaries of best practices

APPENDIX E - ELEVEN ACTIVITIES IN ID PROJECTS

1. We conduct a needs assessment.
2. We determine if need can be solved by training.
3. We write learning objectives.
4. We conduct task analyses.
5. We identify the types of learning outcomes.
6. We assess trainee's entry skills and characteristics.
7. We develop test items.
8. We select instructional strategies for training.
9. We select media formats for the training.
10. We pilot test instruction, before completion.
11. We do a follow-up evaluation of the training after implementation.

Winer, L., Vazquez-Abad, J. (1995). The present and future of ID practice. *Performance Improvement Quarterly*, *8*(3), 57.

APPENDIX F - SIXTEEN DESIGN PRINCIPLES

1. Designers should make a prototype in an early stage of the design process.
2. Designers should split the design process into phases with formal decision moments and concrete products, and should only plan the upcoming phase in detail.
3. During the design process, designers should pay as much attention to creating ownership with clients and stakeholders, as to reaching theoretical or internal quality of the design.
4. Designers should base their work in scientific knowledge and principles as much as possible.
5. Even if designers have a clear idea for the (potential) solution at the start of the process, consideration of possible alternative solutions is essential.
6. Designers should not only ask clients and (future) users for content-related input, but should also give them the right to decide about the design itself.
7. A useful means to help clients, partners, and other stakeholders to choose a solution and to formulate product specifications is by showing products from former projects.
8. In order to clarify product specifications, these designers should spend their time on carefully planned, formative evaluations of early versions of a prototype, rather then on an elaborate preliminary analysis.
9. Designer should share the responsibility for creating favorable conditions for the implementation of a design.
10. For efficient and effective formative evaluations, several (about three) sources and several (about three) data gathering instrument should be used.
11. The creativity and artistic skills of the designer should be clearly visible in the final product.
12. Designer should ask those with an important role in the development implementation for their early participation in the design activity.
13. While making an educational design, designer should start from the needs of the learners, rather than from the content-based structure.

14. Designer should conduct formative evaluations themselves.
15. Successful design is served by the use of step-by-step schemes and design models, provided that they are adapted.
16. In an essential part of the analysis phase is a consideration of possible pitfalls and problems during the design and implementation phases.

Sixteen Design Principles from Visscher-Voerman (1999)

APPENDIX G - INVITATION FOR STUDY PARTICIPATION

Hello,

I am seeking expert nurse educators to participate in a pilot study I am conducting as part of my dissertation at Virginia Tech. I am hoping you will participate in this study that will investigate instructional design processes used by nurse educators. You will need to be interviewed for no longer than one and a half hours at a time and location that is convenient to you. In addition, you will participant in a follow up meeting to design an instructional event using a think-aloud technique. This additional meeting time will last no longer than two hours. I would also appreciate obtaining copies of items you feel reflect your work as a nurse educator and how you teach.

After the interview and think-aloud task is completed, I will transcribe the audio tape and make an initial report. I will deliver these two items to you for your review. I ask that you correct any errors or clarify any points. If you have additional comments you would like to make at this time, please feel free to write them on the report prior to returning it to me.

If you are willing to participate, can we schedule a time and place for the interview?

Thank you for your time and consideration.

APPENDIX H INFORMED CONSENT

Virginia Polytechnic Institute and State University

Informed Consent for Participants

Title of Project: Instructional Design Used by Nurse Educators

Primary Investigator: Monty Gross, MSN, RN? mgross@vt.edu

Faculty advisors: Dr. Katherine S. Cennamo (Chair), Dr. Susan Magliaro, Dr. Ireta Ekstrom, Dr. Barbara Lockee, Dr. Peter Doolittle

I. Purpose

The purpose of this study is to describe the perspectives of expert nurse educators as they go through the process of designing, developing, implementing and evaluating instruction.

II. Procedure

The procedure for this research study will include a researcher conducting one-on-one interviews with participants. As the participant, you will be interviewed for approximately one and a half hour. The interview will be audio-recorded _____ (initial). Once recorded, the data will be transcribed and analyzed. Additional artifacts may be requested as examples of ideas discussed prior to, during or after the interview to support those ideas. Once the interview has been transcribed and analysis of data is completed, a summary of the interview and conclusions will be mailed to you for your review for accuracy and additional comments. Once feedback is received, transcriptions and conclusions will be adjusted accordingly. The interviews will take place in a location that is conductive to uninterrupted conversation convenient to you.

Before the interview begins, you will be provided with a copy of this informed consent form. You will be given the opportunity to read the form and ask questions regarding its meaning. If you desire, a second interview can be scheduled so that you have ample time to review this informed consent form. You will be provided a copy of the informed consent form and the researcher will retain the signed copy.

III. Risks

There are no anticipated risks to the participants in this study because the interview questions are not of a sensitive nature. You will have the right to stop the interview or line of questioning at any point.

IV. Benefits

There are no direct benefits to participants in this study nor will any promise or guarantee of benefits encourage participation. The possible indirect benefit would be the eventual improvement of nursing education with an instructional design model. You may find the reflective nature of the interviews enjoyable and the discussions may help you better understand your own learning needs.

V. Extent of Anonymity and Confidentiality

The researcher will keep all data collected confidential and only the researcher's advisors associated with the project will have access to the data. Information gathered from the project may be used in reports, presentations, and articles in professional journals. However, participant names will not be used in any report, presentation, or article and identifying information will be changed so that data cannot be connected to individuals. Pseudonyms will be used. No identifying characteristics of the participants will be revealed in any reporting of the data. However, despite every effort to preserve it, anonymity may be compromised.

Audio tapes of interviews, transcriptions of interviews, artifacts, and journal entries will be stored in a secure location by the researchers. The researcher or a professional administrative assistant will transcribe the interviews. Only the researcher and advisors will have access to the tapes and transcription of interviews.

VI. Compensation

Participants will not be compensated for participating in this study.

VII. Freedom to Withdraw

Participants are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose. There may be circumstances under which the investigator may determine that a participant should not continue to be involved in the study.

VIII. Approval of Research

This research study has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University and by the Department of Teaching and Learning.

IRB Approval Expiration Date:

IX. Subjects Responsibilities

I have read and understand the Informed Consent and conditions of this project. I voluntarily agree to participate in the research project. I have the following responsibilities:

1. To participate in a face-to-face interview lasting approximately one and a half hours.
2. To review the interview summary and conclusions of the research and provide the
? ? researcher with any requested changes in writing.

X. Subjects' Permission

I have read and understand the Informed Consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____? ? ? ? _____

Subject signature Date

Should I have any questions about this research or its conduct, I may contact:

Monty Gross, MSN, RN (Primary Investigator): (540) 819-4736? ? mgross@vt.edu
Dr. Katherine Cennamo (Chair)? (540) 231-5587? cennamo@vt.edu
Departmental IRB Representative Telephone/email
Dr. Jan Nespor (540) 231-8327 nesport@vt.edu
Chair, IRB
Dr. David Moore (540) 231-4991 moored@vt.edu

Subjects must be given a complete copy (or duplicate of original) of the signed Informed Consent.

APPENDIX I - INTERVIEW QUESTIONS

Interview Questions

1. How long have you been a registered nurse?
2. How long have you taught in nursing education?
3. Describe how you became a nurse educator.
4. What do you do as a nurse educator?
5. Draw a diagram, such as a concept map, flow chart, or Venn Diagram to illustrate your thought processes as you develop a class.
6. Tell me about the process as you put together a new course.
7. Tell me the most and least important elements.
8. If the researcher considers key ID element is not addressed in question 4 or 5 ask... Tell me how you address _____ if at all in your process.
9. What are the guidelines or considerations that influence how you develop and implement instruction?
10. What advice regarding how to prepare a class would you give to a new nurse educator?
11. What advice would you give a nurse who is considering becoming a nurse educator?
12. Is there anything you would like to add before concluding this interview today?

APPENDIX J - DESIGN TASK

Your design task is to develop a class for first-year nursing students who are about to enter the clinical setting. The goal of the class is for the nursing student to develop a knowledge base of the ethical and legal aspects of confidentiality. Upon completion of the instructional event, the student should be able to discuss legal and ethical aspects of confidentiality. The allotted time for the class is three hours. You have approximately 20 students in this class.

APPENDIX K - THINK-ALOUD INSTRUCTIONS

Think-Aloud – Instructions

During this session, I will give you a think-aloud task. You may refer to the sheet at any time during the think aloud.

As you work on the design, I want to say in a loud voice everything that crosses your mind. Try as best you can, not to think too much about what you are saying or how it might sound to me. I will be as unobtrusive as possible during this session. Try to relax and let your thoughts speak, as though you were really thinking aloud. In fact, you do not even have to speak in complete sentences. Free associate as much as you like, and again, do not worry if what you say does not necessarily seem logical. Remember, the point of this exercise is to allow me to follow your thought patterns during the design task as realistically as it I can, without intruding in the process. I may prompt you throughout this session in the event that you will stop verbalizing by saying something like -- "what are you thinking" or "keep talking."

I would like to emphasize that I am concerned with the process of the design solution and not the evaluation of the design specification. I am not evaluating how well your final instruction technique is done. Rather I am trying to identify the process by which you completed that instruction. In other words, I will not judge how "polished" or the effectiveness of your strategy. Though I do ask you to take the exercise seriously. If you do not have any questions, I will give you a couple practice examples to allow you to become comfortable with thinking aloud. In the example questions, I am not necessarily interested in your answer, but I am more interested in how you arrive at your answer.

What is your favorite dish that your prepare? Now talk aloud about every step you go through to prepare it.

Explain how you get to work everyday.

If you do not have any questions, we will get started. You may ask questions at any time.

Source: Perez, R, Johnson, J. and Emery, C. (1995) Appendix I p. 347

APPENDIX L - OPERATIONAL DEFINITIONS

Data from the transcripts, think-aloud protocol, and artifacts were examined using the operational definitions below.

Analysis: The identification and examination of elements, such as what the learners will learn, knowledge, skills, attitudes, behaviors and resources that the faculty believes would be determined in order to begin designing instruction. Code (ANA)

Design: The process of conceiving of a plan of how the instruction will be conducted. Code (DES)

Development: The process of authoring and producing the instructional materials. Code (DEV)

Engaged: The state of giving attention to and interacting with the information to be learned. Code (EL)

Enthusiasm: a strong excitement of feeling for the topic or profession. Code (ENT)

Evaluation: the process of determining the adequacy of the instruction. It includes both formative and summative forms of evaluation. Code (EVL)

Faculty Preparation:? steps taken by a faculty member to become ready or prepared to conduct the instruction. Code (FAC)

Faculty-Student Relationship: the characteristics that reflect the connection between or among the faculty, individuals or groups. Code (FSR)

Instructional Design Model: A conceptual tool used to direct and or manage processes for creating instruction. Code (MOD)

Implementation: using the strategies and materials designed and developed in the context. Code (IMP)

Instructional Design Model:

Meaningful: the information or skill is relevant or having a perceived purpose or application for the individual or group. Code (MEA)

Prior Knowledge:? range of information or understanding a learner possesses at the beginning of an instructional event. It is mainly obtained from one's background or experiences. Code (PK)

APPENDIX M - ARTIFACTS

Sara	Helen	Anita	Mary	Beth	Julie
Syllabus	Course packet	Syllabus	Syllabus	Syllabus	Syllabus
Web Assignment	included:	Authored book	Course		Case Study
Discussion	Syllabus	PowerPoint of	descriptions		
Questions	Class schedule	lecture	Article		
Authored	Assigned Readings				
Interactive-CD	Multiple				
	Worksheets				
	Course evaluation				

APPENDIX N - SAMPLE OF SUPPORTING DATA

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Analysis	Experiential learner	Developmental level	Determined need	Topic	Curriculum	Prior knowledge?
ANA	Level of student,	Prior knowledge	Determining content	Teacher prep &	committee	How topic relates to
	Teacher Prep	Task	Colleagues?	Literature search	Personal experience	what they already
	Delivery methods	Student background	Literature and	Goal	Time available to	know.
	Objectives	Standards?	students	# of students &	plan	What they come to
	Level of material	Topic/Content	Time frame for	timeframe	Student level	me from other
	abstractness	Textbook/journals	course	Personal experience	Climate (liberal vs.	courses
	Guidelines	Relevance/meaning	List of learning	of practice	conservative)	Audience/Students
	Time allotted to teach	Advanced organizers	outcomes	Stakeholders and	Class size	assessed 1
			Learners' motivation	standards	Stated and personal	Ask a lot of questions
			Student level	Faculty preparation	outcomes	up front
			Student diversity		Outcome	Look at objectives
			Accrediting standards		What do I want them	before teaching a
			Curriculum fit?		to know?	topic
					Resources	Know students

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Design DES	Using material, application, real world meaning4 Simple to complex Provide an outline because it helps students listen and understand…structure	Provide a stable skeleton Connect to prior knowledge Building a foundation Laying knowledge Application of knowledge Use textbooks at appropriate level NCLEX Coarse pack single sided Meaningful/real life/relevant,? Objectives *Continued*	Determining content Time frame for course List of learning outcomes Learners' motivation Matching learning activities to content Facilitating discussion	Audiovisuals to variety of learning styles Current stories Test reflect NCLEX format Objectives Strategies (discussion/scenarios, student examples, PowerPoint)	Web links Interactive Cases studies, small group, examples, scenarios Share PowerPoints before class	Objectives given to students at beginning Various modes of delivery for different learning styles Plan strategies and figure out how to get feedback Planned strategies would include clinical
Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Development DEV	Prepare, set-up	Organized coarse pack Built coarse pack, found materials Library, Scenarios		Develop case studies		

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Implementation IMP	Energetic/positive demeanor Environment mgmt- Advanced organizers	Course pack Advanced organizers Worksheets Engage Role-playing Enthusiasm Reason to get excited Scripted questions Interactive Passion for subject matter & student Create connection Exhibit caring Note taking? Options based on learning style and level	"Implementing a learning process that helps them think." Facilitating discussion	Reading materials, gaming, case studies PowerPoint Student participation Share with clinical instructors via Blackboard Treat students as you would like to be treated Student progress to colleague status	Introductory material PowerPoints shared before class	"I present lots of different things." "I try to help them participate."

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Evaluation EVL	Student feedback is important Peer evaluation Reflection Group personality	Interactive dialogue- Exam- Summative eval Student feedback Clinical evaluation	Tests, papers, personal feedback What students wanted out of class? and most important	Tests Feedback Group tests Posttest/quiz Student feedback	Student feedback "Let's go get pizza" Student feedback Faculty feedback Test questions	What you do is "based on audience reaction." Feedback from facial expression

	Seek feedback from students Feedback slips Student testing	program driven It's part of it all	point from class	Written work Listening to rationale as students talk
ID Models MOD		Nursing process		

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Faculty Preparation FAC	"Review the material for myself." "…really have to know the material…	"that's done (referring to preparation)…that has been address or I don't come!"		"…read. I do a literature search. I look at texts, articles, anything that could help me with the topic." "I will contact my friends that work in those areas…" "I would never walk into a classroom unprepared."		"I know my field." "current literature… list- in-services…workshop.. "look at objectives"

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Enthusiasm ENT	"I try to be positive…try to have a pretty energetic…positive demeanor	"I am always so excited." "enthusiasm for the topic is an intangible…critical component…My enthusiasm, even if the think you're nuts" "It was passion for the subject matter" 7	"conceptualizing them in a way that will be enjoyable for the students…" "I was trying to get them to think that this course was really interesting."	"…you've got to love what you do. I enjoy being a nurse educator and that comes across to your audience"	"I really believe that learning should be fun." "The students love it.	"I know I impart to my students how much I love …nursing…How much this really turns me on. And how excited I am about this topic."

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Meaningfulness /relevant MEA	Bring examples…they can think.. it means in the real world Use real life situations Make the content meaningful …give them rich situations…in a clinical setting …make it come to life… I would personalize this…specific situations	"they (students) need to constantly be asking themselves why they need to know this as a nurse? Of what application is this?" "I would make this relevant for them" …about how I make this relevant to students" Does it have meaning? "why is should they care, why important…"	On-the-job type of writing "I think…are really important on-the-job." "really focusing on …situations they might encounter in the clinical area." Students grab meaning "they really need to key in on why this is important."	"We should be able to make the material come alive in some way." "…bring live events and true situations…" "What did it mean to them?"	Goal is learners learn what they need to know I added the assignment…anything that was relevant." "something that would get them thinking about the issue." "I'd look at how …it related to other areas of their lives."	"adult learners learn from each other…different point of view..may not be as meaningful to them." "I need to explore what all this means and how they're going to use it." "The examples are important to help them remember." Meaningful/relevance "If students don't have good rationale, what you teach won't have meaning." meaningful learning experience."

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Prior Knowledge PK	"they already bring so much to the table." "mistake new faculty make is given students more credit for knowing more than they do" "getting them some background.." …conceptual basis for understanding.. reading ahead of time …give them some building blocks	"literally they are laying a foundation (of nursing knowledge) and beginning to build "they already bring things to the table…notions…experiences…family influences…culture" "their knowledge was way above where the students were…so they were not connecting" "layering in terms of laying a foundation"	"I …looking at what they had before…"	"pre-assessment tool…"	"some people coming from labor and deliver. Other people coming from critical care."	Prior knowledge , "How topic relates to what they already know." "What they come to me from other courses"

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Engaged learners EL	I try to get the students actively engaged Harder to engage if they are sitting at a distant "students…not really engaging…"	Material needs to be at student level to allow for them to connect "…I tell them that it is there to engage them…getting them engaged" "If they are engaged with the content" "get them engaged" Material engages-Scripted questions validating comprehension, triggering thought to engage in process"	"It is designed to get them to do some creative thinking and take some risk in their thinking."	"it would be more of an exchange then me just getting in front of the class room lecturing." "I would ask the students…"	"students need to be engaged" "Not just for the sake of doing different, but for the sake of keeping me engaged."	"I try to help them to participate." "My goal is to get them talking more than me."?

Labels/Codes	Sara	Helen	Beth	Julie	Mary	Anita
Faculty-Student relationship FSR	Aloof teacher will not model caring behavior (article)	"The really important pieces of what I do come out of the relationship that I have with the students…have a plan and be consistent" "It was a passion for students on a human basis. Create a connection. Exhibit caring…students perceive those pieces.		"Treat students how I like to be treated" "They are not so much your colleague at the beginning, but as they move throughout the curriculum…That was where I began to foster that relationship that soon you would be a colleague."	"I believe I'm dealing with my colleagues or my future colleagues." "It is a developmental process."	"I think if you are going to as students to do something, you need to be able to do it yourself." "facilitator of learning." "it empowers them to know that you are not all knowing" "I want this collegial relationship."

APPENDIX O RESEARCH PERMISSION

From: Carol Seavor

To: Monty Gross

CC: Douglas Southard

Date: Thursday - March 24, 2005

Subject: Pilot Study

Monty,
This email is intended to grant permission for you to conduct a pilot study within Jefferson College of Health Sciences which will begin in April, 2005. The study activities will include you conducting audio taped interviews of two college educators who agree to participate in the study. I wish you well as you engage in this step of your research and look forward to hearing of your successful completion of your dissertation and your doctoral degree.

Sincerely,
Carol Seavor

Carol Seavor,? Ed D
President?
Jefferson College of Health Sciences
PO Box 13186
Roanoke, VA 24031-3186
fax 540-985-9773
phone 540-985-8484

APPENDIX P IRB REQUEST

INSTITUTIONAL REVIEW BOARD REQUEST

Faculty Advisor: Dr. Katherine S. Cennamo

Project Title: *Instructional Design Used by Nurse Educators*

I. Justification / Purpose of the Project

The purpose of this study is to identify and describe the instructional design process perspectives of expert nurse educators. The information gathered will be used to identify common processes and strategies used by these nurse educators. The review of literature indicates that new nurse educators have a difficult time transitioning from the clinical roles to the educator roles. Nurse educators may not have received formal education on the instructional design process (Kemp & Rodriguez, 1992). Therefore, new nurse educators often do not have the requisite skills to provide nursing education that is consistent, systematic, and effective. The proposed study will provide the necessary context specific information for the creation of an instructional design model for nurse educators.

II. Procedures

This study has two phases. The first phase is a pilot study to refine the research questions, procedures, and data analysis methods. The researcher will utilize two colleagues from the nursing department of the institution in which the researcher teaches to conduct a pilot study. The pilot study participants will comply with the same criteria for participants in the main study. The interviews will be guided by the questions listed in Appendix C. These interviews will be audio taped as they are conducted using two volunteer participants in their office or a quiet convenient location conducive to focused conversation. Tools will be used to help elicit tacit knowledge from the participants. For example, the participant will be asked to illustrate ideas by developing a flow chart, concept map, or Venn diagrams to convey thought processes.

The researcher will transcribe the interviews. This will provide an assessment of potential problems with the research questions, technique, field note strategies, or recording equipment. The participants will provide artifacts that support ideas they express. Field notes will be written during the pilot study that will contain descriptive data of what was observed and researcher comments on data and the project itself. The field note-taking guide is in Appendix D. The researcher will discuss these results with his committee to help identify necessary modifications to the study.

No data from the pilot study will be used in data analysis for study conclusions. The Invitation to Pilot Study Participants is in Appendix F. Permission from the President of Jefferson College of Health Sciences (JCHS) to conduct the pilot study. Correspondence is found in Appendix G.

The second phase is the main study. A purposeful sample of experienced expert nurse educators will be selected as participants for the case studies. Participants will be selected from nurse educators known by the researcher or learned of through referral. The researcher will contact the expert nurse educators initially through telephone calls or email. An example of the telephone contact is provided in Appendix H. These information- rich individuals will help illuminate the phenomenon of the instructional design process. A minimum of six to eight participants will be volunteers from a variety of NLNAC or CCNE accredited nursing programs in community colleges, four-year universities and private schools in the United States. To maximize information, additional participants may be added until redundancy of data is identified. The addition of participants will be subject to peer review by the researcher’s committee.

Each participant must have earned at least a master's degree in nursing or a doctoral degree in nursing or other discipline. They must have held a faculty position for a minimum of three years and be recognized by their institution as consistently exceeding established expectations as reported in a faculty evaluation. These expert nursing educators will have demonstrated scholarly behaviors, such as publishing, research, mentoring of colleagues, or serving on committees to improve teaching. Although not mutually exclusive, additional sampling criteria include the following:

Two of the participants must teach or have taught fundamentals of nursing. Two of the participants must teach or have taught medical-surgical nursing. Two of the

participants must teach a specialty subject such as nursing care of mental health, geriatric, or infants and children. Two of the participants must teach for a private school. Two participants must teach for a public university in a bachelor's program, and two participants must teach for a community college in an associate's degree program. Once participants are identified, permission to conduct the study will be obtained from their institution.

Secondary participants may be incorporated into the study. For example, when expert nurse educators (principal participants) refer to instructional designers or other persons who have major influence or act as a resource in the instruction design or development, that designer may be asked to participate in the study and be interviewed for additional insight into the instructional design process. Excluding specific questions about being a nurse educator, the same research questions may be asked of the secondary participants with follow-up questions as needed.

The researcher will ask the study's research questions of the volunteer participant, as the interview is audio recorded. The interview will then be transcribed. This will allow the researcher to assess potential problems with the recording equipment and study questions. The participant will provide artifacts that support ideas they express.

Once the participant volunteers, an agreed upon time and place with be scheduled. The interview will generally last no more than one and a half hours. The questions listed in Appendix A will guide the interview, but the researcher may ask follow-up questions to clarify interviewee responses as the interviews progress. The researcher will take written notes of the subjects' responses during the interviews using the field note-taking guide in Appendix D.

After completing the face-to-face interview, the recordings will be transcribed by the researcher. These data will be coded and analyzed. A summary of the interview and conclusions will be sent via mail to the participant for validation. Changes will be made accordingly in response to the participants' feedback on the summated data and conclusions.

III. Risks and Benefits

There are no anticipated risks to the participants in this study because the interview questions are not of a sensitive nature. There are no direct benefits to participants in this study nor will any promise or guarantee of benefits encourage participation. The possible indirect benefit would be the eventual improvement of nursing education through the use on an instructional design model. The participants may find the reflective nature of the interviews enjoyable and the discussions may help them better understand their own learning needs. The participant will have the right to stop the interview or line of questioning at any point.

IV. Confidentiality/Anonymity

The researcher will keep all data collected confidential, and only the researcher's advisors associated with the project will have access to the data. Information gathered from the project may be used in reports, presentations, and articles in professional journals. Participant names will not be used in reports, presentations, or articles and identifying information will be changed so that data cannot be connected to individuals. Pseudonyms will be used, and no identifying characteristics of the participants will be revealed in any reports of the data in this study. However, despite every effort to preserve it, anonymity may be compromised.

Audio tapes of interviews, transcription of interviews, artifacts, and journal entries will be stored in a secure location by the researcher. The researcher or a professional administrative assistant will transcribe the interviews. Only the researcher and his advisors will have access to the tapes and transcription of interviews. The audio tapes will be destroyed once the research has been completed.

V. Compensation

Participants will not be compensated for participating in this study.

VI. Informed Consent

The researcher will provide a copy of the following informed consent form before each interview begins. The participant will be given the opportunity to read the form and ask questions regarding its meaning. If the subject desires, a second interview time can be scheduled so that the participant has ample time to review the informed consent form. Participants will be provided a copy of the informed consent form and the researcher will retain a signed copy.

APPENDIX Q SEQUENCE OF ADDIE EVENTS SAMPLE DATA

Sara	Code	Helen	Code	Beth	Code
• The situations should make the information personal for them.	DES	• This is a higher ordered task.	ANA	• I would think about how much time I have.	ANA
• If they are first year students they haven't had a lot of experience.	ANA	• I'd find out what they had before.	ANA	• I would identify what is important for them to gain.	ANA
• The evaluation would be interactive	EVA	• JCAHCO standards	ANA	• I would identify what they had before.	ANA
• There are about twenty students.	ANA	• Think about content.	ANA	• I think I would use a case study.	DES
• I will break them into groups.	IMP	• Review the literature.	ANA	• Or, problem I experienced.	DES
• This would be tested material.	EVA	• Identify what resources are included for the level of student and get them.	ANA	• There are twenty students.	ANA
• Give them a case and have them write a short answer.	DES	• I have three hours.	ANA	• I would do in-class writing assignment.	DES
		• Think about how content relates.	DES		
		• Start brainstorming on ways to make this relevant			

Julie	Code	Mary	Code	Anita	Code
• I've identified the task.	ANA	• What are the outcomes?	ANA	• Find a way to relate to the students.	ANA
• How many students?	ANA	• I would start with cases/scenarios.	DES		
• What is the timeframe?	ANA	• I want something that will get them thinking about the topic.	DES	• What was currently being taught	ANA
• What are the students getting ready for?	ANA				
• I would brainstorm about my own practice.		• Go back and think about what they need to know.	ANA	• Help the students relate to topic in class.	IMP
• I would look at the stakeholders.	ANA				
• What regulations are there?		• I would have to think if I wanted the HIPPA training before or after class.	DES	• I would talk about why it's important.	DES
• I would look at literature.	ANA		DES		
• I would develop objectives.	ANA	• When needed?	ANA	• Use examples	IMP
• Based on the time, I would have discussion and some practical components and scenarios.	DES	• I would look at what different hospitals require.	ANA	• I would talk about HIPPA.	DES
• Maybe use a quiz.	EVA	• I would look at what reading/resources are available.	ANA	• I would have questions on a test.	EVA
• I could see having scenarios on PowerPoint.	ANA				
• In class, I would ask the students.	ANA	I would try to identify how it relates to other aeas of their lives.	DES	• Evaluate in clinical also	EVA

Note: Because table is contains only snippets of data without context, it is not possible to understand how this information was coded. The table is only meant to illustrate how the participants thought processes reflected the ADDIE model during the think-aloud protocol.