Certified Registered Nurse Anesthetists' Professional Recertification Process: A Grounded Theory

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Dedication

This work is dedicated to the highly competent members of the nurse anesthesia profession.

Abstract

This qualitative study was designed to develop a grounded theory that would provide an understanding of what certified registered nurse anesthetists (CRNAs) and their colleagues value and expect from the nurse anesthesia profession's recertification process. The grounded theory was based on analysis of the data obtained from a total of 27 CRNAs during four face-to-face focus group sessions. Analysis of the data from mailed surveys completed by 21 CRNA associates also contributed to the grounded theory. Rank order scaling of the survey activities identified three recertification activities CRNA associates felt would provide assurance of CRNA competency: (1) Hands-on simulation testing, (2) continuing medical education (e.g., interactive workshops), and (3) written exams. Focus group participants indicated that hands-on simulation experience and testing provided the most assurance of CRNA competency. Analysis of the focus group and survey data resulted in themes, which established that a recertification process fostering a commitment to professional lifelong learning and providing an assurance of CRNA competency was needed.

The resultant grounded theory, based on voices from within the nurse anesthesia profession, supports the development of a systematic view of the profession's recertification process. The grounded theory can inform the nurse anesthesia profession as it seeks to develop a recertification process that assures CRNAs' competency. It provides direction for the profession and aids in the determination of future actions which would assure CRNA competency. The presentation of the theory in three distinct formats using narrative statement, table, and visual illustration provides the foundation for a

strong competency-based recertification design for the nurse anesthetist profession. The grounded theory may also provide direction for other medical specialties and non-medical professions (e.g., legal, business, and education) as they look towards providing needed assurances of competency to the public, patients, clients, students, and governmental regulatory agencies.

Table of Contents

List of Table

List of Figures

CHAPTER ONE: INTRODUCTION

Throughout history, professions have searched for means to demonstrate to society the competency of their members (Anderson, 2001; Brunt, 2002; Epstein & Hundert, 2002; Gaba, 2004; Gelmon, 1999; Grol, 2002; Lysaght, Altschuld, Grant, & Henderson, 2001; Neufeld & Norman, 1985; Rose & Burkle, 2006). This is especially true in the medical professions, where medical professionals are responsible for their patients' lives. An inadequate knowledge base or skill level can lead to catastrophic results (Foster & Faut-Callahan, 2001; Gaba, Fish, & Howard, 1994; Greaves, 2005; Mort, Goodwin, Smith, & Pope, 2005; Romano, 2005).

There are certain areas of medicine in which there is a higher incidence of adverse medical events (Epstein & Hundert, 2002; Foster & Faut-Callahan, 2001). One such area is the specialty of anesthesiology (Foster & Faut-Callahan, 2001). In this age of rapid advances in surgical and anesthesia techniques and equipment it is vital that all anesthesia professionals are current in their knowledge of pharmacology, physiology, anatomy, case management, computer skills, and technical skills. In addition to having a high level of competency in the skills and knowledge previously listed, it is also necessary that each member of the anesthesia profession has well-developed critical thinking skills (Foster & Faut-Callahan, 2001; Gaba, 2004; Gaba et al., 1994; Kremmer, Faut-Callahan, & Hicks, 2002).

Recertification is the cornerstone on which the nurse anesthesia profession rests its high standards of patient care (Foster & Faut-Callahan, 2001). Many professions initiated their recertification process by requiring continuing education for practioners in their field. Over time, a variety of recertification methods have been added to enhance

professional competence (Bradshaw, 1998; Brooks, 1998; D. Davis & Thompson, 1996; Epstein & Hundert, 2002; Glassman, 1999; Grol, 2002; Kremmer et al., 2002; Norcini, 1995; Rose & Burkle, 2006; Ryan & Lopez, 1998).

In 1978 the nurse anesthesia profession was a pioneer in setting recertification expectations. It was the first nursing group to set such standards and other medical and nursing specialties followed (Foster & Faut-Callahan, 2001). Recently, other professions have instituted recertification requirements that go beyond requiring the completion of 40 continuing medical education (CME) credits every two years mandated by the nurse anesthesia profession. (Hager, Russell, & Fletcher, 2008; Marchione, 2010; Martin-Sheridan, Gondringer, Hagerman, Kossick, LeBel, & Lovell, 2003; Steutz, 2006) Since the implementation of required CME recertification activity, nurse anesthetists have shown little enthusiasm for making changes to their recertification process (Martin-Sheridan et al., 2003). Attempts have been made to determine which changes would be valued and supported by members of the profession. Unfortunately, the attempts to identify which recertification activities would be valued by CRNAs and the medical and public sectors have been limited (Martin-Sheridan et al., 2003).

This research will attempt to describe what CRNAs and their colleagues value in their recertification process and what recertification activities provide a level of assurance of a CRNA's competence. The main areas of discussion in this chapter will be a statement of the problem, the purpose of this research and the research question, the need for the study, definitions, and a summary of the chapter material.

Statement of the Problem

There are members of the nurse anesthesia profession who believe acquiring continuing education credits is the method of choice and sufficient in and of itself to demonstrate that they are up-to-date in their practice (Foster & Faut-Callahan, 2001). Other members of society, the profession, and the medical community believe that this method alone does not truly demonstrate the knowledge and skills needed in a competent anesthesia provider (Gaba, 2004; Martin-Sheridan, et al., 2003; Neufeld & Norman, 1985).

In order to accommodate growing awareness of the need to demonstrate professional competence, there have been moves to require members of medical specialties to complete on a regular basis, one or more of the following re-certification activities: (a) pass a re-certification examination (Gaba, 2004; Martin-Sheridan et al., 2003; Rose & Burkle, 2006), (b) increase the number of continuing medical education credits required (Martin-Sheridan et al., 2003), (c) show evidence of clinical competency skills through the use of simulated activities (Dunn, 2004b; Gaba, 2004; Gaba, Fish, & Howard, 1994), and (d) produce individual portfolios (Ryan & Lopez, 1998).

The public has demanded increasing assurance that all of their health care providers have current and well-developed knowledge bases and skill sets (Epstein & Hundert, 2002; Gaba, 2004; Martin-Sheridan et al., 2003; Neufeld & Norman, 1985). Each medical specialty has specific skills and knowledge requirements, along with political and societal issues that impact that profession's vision of the requirements for their recertification process.

The lack of professional knowledge and skill can result in anesthesia mishaps, as evidenced by anesthesia malpractice judgments (MacRae, 2007). It is important to remember that sometimes accidents do occur due to the fault of no one person, but if harm comes to a patient there is a tendency to place the blame on someone. Anesthesia-related injury malpractice claims, which result in a legal settlement, usually occur due to the nurse anesthetist's lack of knowledge, incompetence, or lack of vigilance (MacRae, 2007). Anesthesia-related injury malpractice claims for financial compensation are considered closed when the claim is either dropped or settled by the parties or the judicial system. The information in Table 1 reflects the most frequently reported anesthesia-related closed claims.

To lessen anesthesia-related patient injuries, the nurse anesthesia profession continues to struggle with the question of what changes, if any, should be made to the profession's recertification process? The big issues the profession grapples with when attempting to ensure patient safety include equating recertification to professional competency, determining which recertification activities would provide an assurance of CRNA competency, and identifying a system's overview for the nurse anesthesia profession's recertification process.

Purpose and Research Question

The purpose of this research was to develop a middle-range theory to guide the nurse anesthesia profession's recertification process, thereby providing a high level of assurance that Certified Registered Nurse Anesthetists (CRNAs) have the current cognitive and motor skills needed to provide a safe and effective anesthetic to each of their patients. A middle-range theory has a narrower focus than a grand theory

Table 1

Anesthesia Professionals' Closed Claims Malpractice Cases: 1990-2007

Event	Occurrence: % of all claims
Respiratory system related events	34% of all claims
Esophageal intubation	17% of all Respiratory related events
Difficult intubation	16% of all Respiratory related events
Inadequate ventilation	14% of all Respiratory related events
Air embolism	12% of all Respiratory related events
Airway obstruction	12% of all Respiratory related events
Nerve Injury-Positioning/padding	17% of all claims
Central venous catheter complications	16.5% of all claims
Trauma care	4.8% of all claims
Wrong drug/dose	4% of all claims
Intraoperative awareness	2% of all claims
Inadequate fluid therapy	2% of all claims
Gas delivery device problems	2% of all claims
Areas with an increase in closed claims cases	
Ambulatory surgery setting	Since the 1990's, three anesthesia practice areas have
Regional anesthesia	seen a rise in closed claims cases
Post-operative pain management	
ASA-CCP categories: Six events identified as an ASA-CCP category	
Obstetrical anesthesia	
Pediatric anesthesia	
Obese Patients anesthesia	
Burns anesthesia	
Postoperative visual loss related to anesthesia	
Consent issues and anesthesia	

Note. This table was developed from *MacRae, M. (2007). Closed claims studies in anesthesia: A literature review and implications for practice. AANA Journal, 75(4), 267-275.*

(Nieswiadomy, 1998). A middle-range theory explains a limited number of concepts related to a specific portion of the human experience (e.g., recertification). Given concerns about recertification in the medical and nurse anesthesia profession (Epstein & Hundert, 2002; Kremmer et al., 2002; Martin-Sheridan et al., 2003), and concerns about the effectiveness of recertification processes (Anderson, 2001; Bradshaw, 1998; Brown, 1998; Gaba, 2004; Mort et al., 2005; Neufeld & Norman, 1985), there appears to be a need for such a theory.

The development of a theoretical model of recertification will help focus the nurse anesthesia profession's goal: to have high-level educational requirements for their recertification process (Nagelhout & Plaus, 2010). The development of a theoretical basis may help to validate the current recertification process and to advance a more effective recertification process for the field of nurse anesthesia. Therefore, the central research question is, "What guiding foundations can be used to develop a theoretical model of recertification for the nurse anesthesia profession?" To address that question a survey was disseminated and a series of focus group interviews were conducted to identify the phenomena of the nurse anesthesia profession's recertification process.

Need for the Study

In order to provide assurance of the quality of a medical specialty's continuing education methods, curricula, and requirements, a strong theoretical base for the recertification process is necessary. While no model exists, several major theoretical streams support and inform this process. Learning theories (e.g., cognitivism, constructivism, behaviorism, reflective learning, and social learning), adult learning

theories (e.g., transformational learning), competency theories, intellectual capital theory, and Kohlberg's (1970) theory of moral development all substantiate the process of recertification. However, there are no learning or adult education theories that are *specifically* directed toward providing a "coherent description, explanation and representation of observed or experienced phenomena" (Gioia & Pitre, 1990, p. 587) related to the necessary proficiencies and competencies needed for recertification within the specialized professions (e.g., nurse anesthesia), which make up the medical community. Nor are there theories that specifically address competency, intellectual capital, or moral development within the nurse anesthesia profession.

The development of a strong theoretically based recertification process can enhance society's, patients', nurse anesthetists', and other medical professions' confidence in the competency of the CRNA who provides anesthesia. A theoretical base for recertification would allow the CRNA profession to identify the components of recertification that are valued by nurse anesthetists and for the individuals CRNAs provide a service. A grounded theory could also provide direction as revisions to the recertification process are considered. Direction could be provided as to which components of the current recertification process should be changed or retained.

Definitions

AANA: American Association of Nurse Anesthetists is the professional organization for Certified Registered Nurse Anesthetists (CRNAs) throughout the United States. It disseminates education, practice standards, and guidelines to the CRNA membership, society, and government bodies (Foster & Faut-Callahan, 2001; Nagelhout, 2010).

Adult education: "A process whereby persons, whose major social roles are characteristic of adult status, undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values, or skills" (Darkenwald & Merriam, 1982, p. 9). Boone (1985) further stated that adults feel there is a need "to engage in educational activities in fulfilling personal or group needs" (p. 218).

Adult continuing education: "A lifelong learning process that builds on and modifies previously acquired knowledge, skills, and attitudes" (ANA, 1979, p. v).

Axial coding: The process of relating categories to their subcategories, termed 'axial' because coding occurs around the axis of the category, lining categories of the level of properties and dimensions" (Strauss & Corbin, 1998, p. 123).

Bracketing: "The act of suspending one's various beliefs in the reality of the natural world in order to study the essential structures of the world" (van Manen, 1990, p. 175).

Certification: A process by which a professional agency or association certifies an individual licensed to practice a profession has met certain standards specified by that profession for specialty practice (ANA, 1979).

Certified Registered Nurse Anesthetists (CRNAs): Advanced practice nurses who have had additional formal and clinical education in the practice of anesthesiology. All nurse anesthesia programs are currently at the master degree or the professional doctorate degree level. All CRNAs must be recertified every two years (Foster & Faut-Callahan, 2001).

Competency: This is a difficult concept to describe. Within the medical field Narhwold (2000) identified that there is the concept of clinical competency and identified several items required for documentation of competency:

1. Evidence of professional standing
2. Evidence of commitment to lifelong learning and involvement in a periodic self-assessment process
3. Evidence of cognitive expertise
4. Evidence of performance in practice.

CME: Continuing medical education provides updates and enhancement of the medical professionals' clinical and academic knowledge and skill base.

COR: The Council on Recertification is an autonomous body, with multidisciplinary and public representation, that is responsible for the recertification of CRNAs (Foster & Faut-Callahan, 2001).

CPE: Continuing professional education helps members of professions reach their goal of achieving higher levels of expertise and increasing their professional knowledge (Caffarella, 1994; Davies & Cleave-Hogg, 2004; D. Davis & Thompson, 1996; J. Davis & Davis, 1998; Langenbach, 1993).

Microanalysis: The "detailed line-by-line analysis necessary at the beginning of a study to generate initial categories (with their properties and dimensions) and to suggest relationships among categories; a combination of open and axial coding" (Strauss & Corbin, 1998, p. 57).

Open coding: The analytical process through which concepts are identified and their properties and dimensions are discovered in data" (Strauss & Corbin, 1998, p. 101).

Points of departure: The guiding interests used to bring concepts into a grounded theory study. The interests used "to form interview questions, to look at data, to listen to interviewers, and to think analytically about the data" (Charmaz, 2006, p. 17).

Professional competency: Described by Epstein & Hundert (2002) as

> The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served. Competence builds on a foundation of clinical skills, scientific knowledge, and moral development. (p. 226)

Relational statements: "Initial hunches about how concepts relate 'hypotheses' because they link two or more concepts, explaining the what, why, where, and how of phenomena" (Strauss & Corbin, 1998, p. 135).

Selective coding: A coding process used to identify a story line that included the axial coding model's categories (Creswell, 1998).

Substantive theory: Glaser and Strauss (1999) described a substantive *grounded* theory as a theory that is "developed for a substantive, or empirical, area of sociological inquiry, such as patient care, race relations, professional education…" (p. 32).

Theory: A set of interrelated concepts that "provide an explanation, a prediction, and a generalization about how the world operates" (Creswell, 1998, p. 84). Pratt (1998) explained that a theory is "a set of abstract principles that can be used to predict facts and to organize them within a particular body of knowledge" (p. 4).

Assumptions

The assumptions of this proposed study were:

1. The recertification process for the nurse anesthesia profession will be enhanced by the development of a theoretical model of recertification.
2. CRNAs are adult learners whose goals are to have the skills and knowledge needed to be competent and proficient anesthesia providers for each of their patients.
3. The data from mailed surveys to nurse anesthesia stakeholders and focus group interviews with experts in the field (CRNAs) will lead to the information needed to construct a model of recertification.

Limitations

My interpretation of the data was informed by the fact that I am a CRNA and the lens through which I see the world is colored by my profession. While conducting the research it was imperative that I practiced bracketing (van Manen, 1990). Throughout the entire research process, I was aware of my subjective preferences and expectations related to the nurse anesthesia profession's current recertification process. Once I reflected on those preferences and acknowledged them, I conscientiously bracketed those expectations so that I remained open to emerging phenomena that would contribute to a grounded theory of the recertification process for the nurse anesthesia profession. It was also important to remember that the information obtained during this research was specific to the participants who were involved in the development of this theory and may not be operationalizable to other nurse anesthetists (Morgan, 1998a & 1998b).

Summary

Chapter One identified the purpose of this grounded theory research: To develop a middle-range theory that will provide direction for the nurse anesthesia profession's

recertification process. Definitions that provide the reader with an understanding of various terms used throughout this document were included in this chapter.

In Chapter Two literature pertaining to adult learners, including an exploration of the definition of the adult learner will be reviewed. Also included in Chapter Two will be reviews of literature related to learning theories (including cognitivism, constructivism, behaviorism, reflective learning, and social learning), competency theories, intellectual capital theory, and Kohlberg's (1970) theory of moral development. Literature related to professional and continuing medical education (CME) will also be reviewed.

Chapter Three will provide an in-depth description of the methods used to develop a grounded theory for the nurse anesthesia profession's recertification process. The focus group methods and survey methods used for this research will be identified. Chapter Four will examine the concepts and themes that resulted in the development of this grounded theory. In Chapter Five a discussion will occur as to how supporting theories are related to the five themes that emerged from this research. Chapter Six will highlight research conclusions and the implications this research has for the nurse anesthesia profession's recertification process.

CHAPTER TWO: REVIEW OF LITERATURE

The purpose of this research was to develop a middle-range theory that would provide direction for the nurse anesthesia profession's recertification process. In preparation for this research a focused review of literature was conducted. Patton (2002) expressed concern that reviewing the literature prior to conducting grounded theory research might "… bias the researcher's thinking and reduce openness to whatever emerges in the field." (p.226). However, Chamaz (2006) supported an initial review of the literature.

> Professional researchers and many graduate students already have a sound footing before they begin a [grounded theory] research project and often have intimate familiarity with the research topic and literature about it. All provide vantage points that can intensify looking at certain aspects of the empirical world but may ignore others. We may begin our studies from these vantage points but need to remain as open as possible to whatever we see and sense in the early stages of the research. (Charmaz, 2006, p.17)

Prior to starting this research, literature on grounded theory and theoretical models for recertification in the medical professions was reviewed. The literature reviewed did not reveal a theoretical model for the Certified Registered Nurse Anesthetists profession's recertification process or for other medical professions. In this literature review the following main topics will be addressed: (a) Continuing professional education and (b) theories undergirding CRNAs' recertification process.

Continuing Professional Education

Knox (1993) reported that continuing professional education's importance started to gain momentum in the 1980's. Since that time continuing professional education has been a mainstay activity for a wide variety of professions' recertification processes (Knox). There have been numerous comparative studies of various professions' continuing education goals and methods (Cervero, 1988; Cervero & Azzaretto, 1990; Houle, 1980; Knox, 1986 & 1993; Nowlen, 1988; Queeney, 1990). Multiple reasons were found for adult participation in continuing professional education (Brunt, 2002; Cervero, 1988 & 1990; Epstein & Hundert, 2002; Houle, 1980; Kane, 1992; Kohn, Corrigan, Donaldson, & Committee on Health Care in American, IOM, 2001; Queeney, 1990; Wear & Gastellani, 2003). The reasons included personal growth, a requirement for recognition of professional standing, and enhancement of knowledge and technical skills related to the specific profession.

This literature review provided a general perspective of continuing professional education. The main focus of continuing professional education efforts arise from attempts to help participants reach their goal of achieving higher levels of expertise and increasing their professional knowledge (Caffarella, 1994; Davies & Cleave-Hogg, 2004; D. Davis & Thompson, 1996; J. Davis & Davis, 1998; Langenbach, 1993). Knox (1993) also described: (a) How each profession's continuing education activities reflect the type of knowledge base needed for practice, (b) how social change can impact a profession's expectations of continuing education, (c) how professional education can impact the relationship to clients that the profession wishes to develop and maintain, and (d) how professional education fits into the organizational arrangements of a profession. Within

the topic of continuing professional education the following topics related to medical recertification and education will be reviewed: (a) Continuing medical education, (b) medical profession's recertification processes, (c) anesthesia provider groups and their recertification processes, and (d) exploration of professional practice competency in the medical field.

Continuing Medical Education

Education that was once viewed as the domain of physicians has spread throughout the medicine and allied health professions (see Table A1, Appendix A). Continuing medical education (CME) provides updates and enhancement of the medical professionals' clinical and academic knowledge and skill base. CME can be education mandated by certifying boards and accrediting boards or it can be used as a personal professional enhancement tool (Epstein & Hundert, 2002; Foster & Faut-Callahan, 2001; Knox, 1993; Rose & Burkle, 2006). Newble (2001) identified two very specific reasons continuing medical education should be used for revalidation or recertification of medical professionals. The first purpose of recertification was to "identify seriously underperforming doctors. The second purpose was to support all doctors in striving constantly to improve performances (p 358)."

With the expansion of continuing medical education (CME) participation, the depth and breadth of the goals of the education process have also expanded. Miller (1990) produced a pyramid which contained four levels of physician continuing medical education learning and assessment. The bottom of the triangle identified that the first learning and patient assessment skill medical providers need is *knows.* The *knows* assessment skill is demonstrated by the use of *declarative knowledge*. The second level of

the triangle indicated the need for the *knows how* assessment skill. That skill is demonstrated by the use of *procedural knowledge*. Level three identified *shows how* as the needed assessment skill, which is demonstrated by *competence.* The top level of the pyramid identified *does* as the assessment skill medical providers need to learn. *Competence* is demonstrated through *professional performance.*

Reflection on Miller's (1990) four levels of learning and assessment resulted in the creation of a systems overview of continuing medical education (CME) as an intervention. Moore's (2008) CME systems overview expanded on the generic feedback loop of *inputs*, *interventions,* and *outputs*:

> A CME activity can produce two potential types of output. The first is *declarative knowledge*. An example of declarative knowledge would be … *knowing what to do*, for example, to manage the complications … After a CME activity, the physician [nurse anesthetist] would also be able to state, what to do. For example, to examine the feet … The second type of output is *procedural knowledge* … if a physician [nurse anesthetist] learns procedural knowledge, four types of desired results are possible: two outcomes (competence and performance) and two impacts (improved or resolved health status of a group or population of patients. (p. 51-52)

Moore, Green, and Gallis (2009) expanded on Miller's (1990) original four levels of medical learning and assessment and created a pyramid that described components of both the traditional and performance types of CME activities and outcomes. These components were identified in a table which described the seven levels of Moore's expanded CME activities and outcomes framework (see Table 2).

Medical Professions' Recertification Processes

To develop insight into medical professions' continuing education and recertification processes, a review of literature related to various medical professions' recertification philosophies and requirements was completed (Anderson, 2001; Biddle, 2010; Epstein & Hundert, 2002; Gropper, 1996; Gunn, 1999; Hager, 2008; Knox, 1993; Martin-Sheridan et al., 2003; Norcini, 1995; Pollauf, Lutes, Ramando, & Christopher, 2004; Rose & Burkle, 2006; Stern, 2006; Steutz, 2006; Walden et al., 2009). The literature reviewed indicated that the purpose of recertification is to assure the public that an individual has maintained a body of knowledge and skills that are required for that profession (see Table A1, Appendix A).

The call for an on-going demonstration of a medical provider's competence has been heard throughout the medical community (Norman, 2002). As a result of the need to demonstrate on-going medical competency, significant research into effective recertification activities has occurred. Medical educators (Colliver, 2000; Dunn, 2004; Gaba 2004; Newble, 2001; Norman, 2002; Vernon & Blake, 1993) found that research outcomes related to professional continuing medical education point toward the use of relatively new teaching and assessment methods (e.g., simulation scenarios that test the practioners' skills, critical thinking abilities, and knowledge base; problem based learning scenarios; and the use of standardized patients (identified or unidentified) that can realistically simulate the symptoms a *real* patient would experience).

Additional tools and techniques have been integrated into the medical education curriculum, but Vernon & Blake (1993) suggested that it has been difficult to determine

Table 2

Seven Levels of Expanded CME Outcomes Framework

Level	Type of CME	Outcome category	Activities documenting outcome	Final CME outcome(s)
One	Traditional	Participation	Attendance records and metrics	Documentation.
Two	Traditional	Satisfaction	Participant feedback and evaluation on program, faculty, content, etc.	Written feedback.
Three	Traditional	Knowledge	Audience response system (ARD), pre/post tests.	CME participants are able to state what/how to do What the CME activity intended them to know or know how to do.
Four	Traditional	Competence	Case-based vignettes and simulated environment	CME participants show in an educational setting how to do what the CME activity intended them to be able to do.
Five	Performance Improvement	Performance	PI CME, Hands-on skills workshops	CME participants do what the CME activity intended them to be able to do in their practices.
Six	Performance Improvement	Patient Health	Chart review, decreased morbidity and mortality	Health status of patients improve due to changes in practice behavior of participants.

Table 2 (continued)

Level	Type of CME	Outcome category	Activities documenting outcome	Final CME outcome(s)
Seven	Performance Improvement	Community Health	Epidemiological data and reports	Health status of a community of patients changes due to changes in practice behaviors of CME participants.

Note. Adapted from Moore's 2009 Expanded Outcomes Framework: Data Examples. *Moore, DE, et al*, *Journal of Continuing Education for Health Professions, 2009; 29:1-15.*

how effective the curriculum is without valid methods to assess knowledge and performance. The advent of simulation has enhanced educators' ability to assess everything from the medical professionals' technical skills to their problem solving skills (Dunn, 2004; Gaba, 2004a and 2004b; Norman, 2002).

In addition to the previous review of continuing medical education (Epstein & Hundert, 2002; Knox, 1993) and medical professions' recertification processes (Hager et al., 2008; Knox, 1993; Norman, 2002), the anesthesia provider groups and anesthesia providers' recertification processes sections will explore the similarities and differences in anesthesia provider groups (Foster & Faut-Callahan, 2001; Rose & Burkle, 2006). Literature emphasizing nurse anesthetists' educational and recertification requirements (COA, 2004; COR, 2007; Foster-Faut Callahan, 2001) will also be reviewed.

Anesthesia Provider Groups and Their Recertification Processes

A literature review identifying the similarities and differences in the various groups of anesthesia providers in the United States, provided a backdrop for grounded theory research related to the nurse anesthesia profession's recertification process. In the United States there are three groups of anesthesia providers: (a) Certified registered nurse

anesthetists (Foster & Faut-Callahan, 2001, Nagelhout & Plaus, 2010), (b) anesthesiologists [physicians] (Rose & Burkle, 2006), and (c) anesthesia physician assistants (Florida, 2004).

To enter a nurse anesthesia program resulting in a master or doctorate degree, an applicant is required to be a registered nurse who has completed a bachelor degree in nursing or a related science field and has worked as a registered nurse (RN) in an acute care setting for a minimum of one year. Currently, as advanced practice nurses, CRNAs must receive their specialty anesthesia education in an accredited graduate program offering a master or doctorate degree (COA, 2004). By the year 2025 all nurse anesthesia programs are mandated to be at the professional doctorate level (AACN, 2004; Hawkins & Nezat, 2009). The current nurse anesthesia curriculum covers:

- Advanced anatomy
- Physiology and pathophysiology
- Biochemistry, organic, and inorganic chemistry
- Physics related to anesthesiology
- Advanced pharmacology
- Principles of anesthesia practice

Additionally, approximately 2,000 hours of hands-on clinical experience in a wide variety of required cases and administering a specific number of specialized cases and techniques are part of the curriculum (COA, 2004; Foster & Faut-Callahan, 2001).

Following graduation from an accredited program, the nurse anesthetist must successfully pass a national certification exam in order to obtain the CRNA credential. Upon certification the CRNA is committed to lifelong learning activities (Langenbach,

1993) which allow the nurse anesthetist to retain certification. To maintain certification all CRNAs must complete a minimum of 40 continuing education hours every two years (COR, 2007; Foster & Faut-Callahan, 2001).

Nagelhout and Plaus (2010) and Delussi and Cromwell (2010) reported that CRNAs work in a variety of practice settings. Nurse anesthetists may practice in a solo CRNA setting (usually in a rural community), an all CRNA group, a setting where CRNAs and anesthesiologists practice side-by-side, and finally, the CRNA may practice in a care team model (Muckle, Apatov, & Plaus, 2009). The CRNA in the care team model is generally the in-room anesthesia provider, while an anesthesiologist acts as a consultant generally covering one to four operating rooms. CRNA providers in certain states may also practice in a non-medically directed environment. Thus, CRNAs are not always required to have a physician (e.g., surgeon or anesthesiologist) supervise their practice.

Following completion of undergraduate education, anesthesiologists complete a four year medical education prior to starting their four year anesthesia residency (Rose & Burkle, 2006). To practice as an anesthesiologist there is not a requirement to be board certified and therefore anesthesiologists are not mandated to participate in recertification activities by their profession. Many hospitals do require that an anesthesiologist be board certified to be credentialed at their institution, but there is not a recertification requirement for insurance, federal, or state reimbursement (Brennan, et al., 2004; Fried, Singer, Lakhani, Wheeler, & Stockman, 2006). Similar to CRNAs, anesthesiologists (e.g., medical doctors [MDs] or doctors of osteopathy [DOs]) may also work in a variety of practice models, including independent, parallel (e.g., CRNAs and anesthesiologists

working in the same setting, but not responsible for each other's practice), and care team practices (Rose & Burkle, 2006; Dulisse & Cromwell, 2010). In addition to documentation of a specific number of continuing CME course hours, the board credentialed anesthesiologist group has moved to requiring a recertification exam, including a hands-on simulation portion, at ten year intervals (Rose & Burkle, 2006).

The smallest group of anesthesia providers in the U.S. is anesthesia assistants (Nagelhout & Plaus, 2010). Anesthesia assistants (AAs) are not required to have a medical background to enter their anesthesia assistant master's program (AAPA, 2005). Following graduation AAs must always work under the supervision of an anesthesiologist (Florida, 2004). Similar to CRNAs, AAs' renewal of certification occurs every two years based on evidence of 40 continuing CME hours. Additionally, for renewal of certification, every six years AAs must pass their Continued Demonstration of Qualifications Examination. Unlike CRNAs, Medicare does not require AAs to be certified or have renewal of certification in order to qualify for reimbursement (Amburgey, Fordham, Payne, & Trebelhorn, 2007).

Despite the variations in the initial requirements to enter formal anesthesia education, the advanced education in the specialty of anesthesia is known to be very similar for anesthesiologists and CRNA providers. Both professional groups are educated to use the same anesthesia processes when delivering anesthesia and related services, and both are legally bound to adhere to the same standards of patient care (AAPA, 2005; Foster & Faut-Callahan, 2001; Nagelhout & Plaus, 2010; Rose & Burkle, 2006).

Literature was also reviewed which discussed nurse anesthesia profession's current practice, long-term vision and mission, and the current recertification process

(Foster & Faut-Callahan, 2001; Gunn, 1999; Kremer et al., 2002; Martin-Sheridan et al., 2003). Nurse anesthetists must have a valid nursing license to provide anesthesia. Individual state nursing licensure provides the legal credential for the practice of nurse anesthesia, but:

> The private voluntary certification indicates compliance with the professional standards in this clinical nursing specialty. The certification credential for nurse anesthetists has been institutionalized in many position descriptions as a practice requirement or as the standard for demonstrating equivalency. It has been recognized through malpractice litigation, selected State Nurse Practice Acts, and state rules and regulations. (CCNA, 2007, p.5)

To fulfill the requirements of the nurse anesthesia profession's recertification process, a set number of Council on Recertification of Nurse Anesthetists (COR) approved CME credits must be obtained by each CRNA (Zaglaniczny & Caulk, 2001). Unlike the other provider groups, the nurse anesthesia profession does not currently require a national recertification exam. COR has explored methods, beyond CME credit requirements, of assuring the public that each recertified CRNA possesses a high level of competency. A 2003 survey designed by COR, questioned the American Association of Nurse Anesthetists' membership as to what they thought would be an adequate demonstration of qualifications for recertification. The membership indicated that they were happy with the current recertification format and did not wish to add additional continuing medical education credits, a recertification exam, or other activities to the recertification requirements (Kremer et al., 2002; Martin-Sheridan et al., 2003).

Exploration of Professional Practice Competency in the Medical Field

There are research studies that have guided on-going development of professional practice in the medical field beyond the recertification process. Publications that addressed how to enhance competence in the medical professions predominated the review of literature related to the on-going development of professional practices' competencies (Epstein and Hundert, 2006; Kohn, 2001; Moore, 2008). Nurses (Brunt, 2002), pediatricians (Pollauf, Lutes, Ramando, & Christopher, 2004), surgeons (Prystowsky, 2002), anesthesia providers (Cooper, Newbower, Long, & McPeek, 1978; Dulisse & Cromwell, 2010; Gaba, Fish, & Howard, 1994; Kremer & Faut-Callahan, 2002; Smith, Kane, & Milne, 2004) , physical therapists (Curtis, 2002), cardiologists (Chen, Rathore, Wang, Radford, & Krumholz, 2006; Norcini, Kimball, & Lipner, 2000), primary care practitioners (Tamblyn, Abrahamowsicz, & Dauphinee, 2002) , medical schools and graduate medical education programs (Brennan et al., 2004), occupational therapists (Curtis, 2002), gerontologists (Norcini, Lipner, Benson, & Webster, 1985), and internists (Norcini, Maihoff, Day, & Benson, 1989) have all conducted studies to identify needed levels of competence among their membership and programs. Epstein and Hundert's (2006) extensive research into competence found that "competence is developmental. There is debate about which aspects of competence should be acquired at each stage of training … Changes in medical practice and the context of care invite redefinitions of competence ...." (p. 228).

Specialty education development, content of required medical curriculum, future curriculum proposals, and the use of various teaching (e.g., simulation and standardized patients) and assessment tools (Brennan et al., 2004; Dunn, 2004a; Epstein & Hundert,

2006; Hager, 2008; Lynch, Swing, Horowitz, Holt, & Messer, 2004; Stern, 2006) were identified as important aspects of professional education that leads to competency among professionals (Brooks, 1998; Bushra, McNell, Wald, Schwell, & Karras, 2004; Lysaght, Altschuld, Grant, & Henderson, 2001; Nahrwold, 2000). Professional competency was shown to impact patient care positively (Kearney, 2005; Wear & Gastellani, 2003). The emphasis placed on medical professionals' communication skills, along with the professions' expectation that their membership entered into a system-based practice (including health economics and teamwork), and the ever growing expectation of professionalism have lead to an increase in positive patient outcomes (Epstein & Hundert, 2006; Foster & Faut-Callahan, 2001; Stern, 2006).

Epstein and Hundert (2006) completed a meta-analysis of professional competence and determined that there were six major components that should be assessed to determine a medical professional's competence. All of these components of professional competence lead to enhanced patient care and outcomes. The six components of professional competence identified were: Patient care (clinical reasoning), acquisition and use of medical knowledge, practice-based learning and improvement (including information management), interpersonal and communication skills, professionalism, and system based practice (including health economics and teamwork). Epstein and Hundert stressed that "… a more comprehensive assessment of professional competence might improve practice, change medical education, and reduce medical errors … Medical educators, professional societies, and licensing boards should view professional competence more comprehensively to improve the process of assessment" (p.233).

Theories That Undergird the Recertification Process

Literature related to relevant theoretical foundations which informed professional practice and more specifically the nurse anesthesia profession's recertification process was reviewed. A multitude of learning theories (Bandura, 1977; Bruner, 1996; Davies & Cleave-Hogg, 2004; D. Davis & Thompson, 1996; J. Davis & A. Davis, 1998; Dewey, 1963; Gagne, 1988; Piaget, 1950; Vygotsky, 1978) and adult learning theories (Galbraith, 1998; Gioia & Pitre, 1990; Knowles, 1980; Knowles, Holton, & Swanson, 1998; Laurillard, 2002; Mezirow, 1991), including lifelong learning (Field, 2000) were explored. Theories and perspectives related to competency (Epstein & Hundert, 2002; Queeney, 1990; Neufeld & Norman, 1985), intellectual capital (Becker, 1993; Stewart, 2001; Storberg, 2002), and moral reasoning (Kohlberg, 1970; Nucci, 2008) provided additional insight into the development of a theoretical model for the recertification process for the nurse anesthesia profession. Within this topic of theories that undergird the recertification process the following theoretical areas related to recertification will be discussed (a) Learning theories, (b) adult learning theories, and (c) supporting theories.

Learning Theories

The American Association of Nurse Anesthetist's (AANA's) Council on Certification of Nurse Anesthetists' (COR) and the AANA's Continuing Education Committee's missions are both grounded in learning theories. Within learning theories there are key theories undergirding this grounded theory, which was developed to inform the nurse anesthesia profession's recertification process. The learning theories focus on areas of epistemological values and provide insight into how a learner comes to *know*. Each collection of learning theories contains a number of theories that relate to how adult

learners assimilate and transfer information into working knowledge and skills. Within the category of learning theories, cognitive, constructivist, reflective, adult learning, and social learning theories will be discussed.

Cognitive learning theory (Bruner, 1996; Gagne, 1988) provided insight into how information is conveyed. Bastible's (2003) description of cognitive learning theory contends, "The key to learning and changing is the individual's cognition (perception, thought, memory, and ways of processing and structuring information" (p. 50).

Constructivist theory (Dewey, 1963; Piaget, 1950; Vygotsky, 1978) highlights, *how we think*. Constructivists assert that a student is someone who is engaged in active learning, makes their own meaning, and constructs their own knowledge in the process. Knowledge and skills are actively built from information obtained through interactions with the environment.

Kolb's (1984) and Laurillard's (2002) reflective learning theories refer to the cyclic manner, in which learning occurs. The learner has an initial experience and then reflects on what that experience means. "As the reflection deepens, the learner formulates abstract conceptualizations about what has taken place, that is, how experience works. As the abstract conceptualizations are developed, they must be tested to see if they do indeed work" (J. Davis & A. Davis, 1998, p.566).

Adult Learning Theories

Adult learning theories (Caffarella, 1994; Davies & Cleave-Hogg, 2004; D. Davis & Thompson, 1996; J. Davis & A. Davis, 1998; Knowles, 1980; Langenbach, 1993) provided insight into how curriculum is developed and presented to adult learners. Andragogy "the art and science of helping adults learn" (Knowles, 1980, p. 43), offers a

starting point for adult learning theory's concept of facilitating behavioral change by incorporating real life experiences into learning goals. Kaufman (2003) further identified how the gap between theory (e.g., adult education) and real life experience (e.g., medical practice) can be narrowed:

> By using teaching and learning methods based on educational theories and derived principles, medical educators will become more effective teachers. This will enhance the development of knowledge, skills, and positive attitudes in their learners, and improve the next generation of teachers. Ultimately, this should result in better trained doctors who provide an even higher level of patient care and improved patient outcomes. (p. 216)

Bandura's (1977) social learning theory emphasized role modeling and the effect the role modeling has on knowledge acquisition and professionalism. Four steps are involved in the social learning theory's observational learning and modeling process: (1) Paying attention, (2) retention of information, (3) reproduction of observed behavior, and (4) experiencing motivation.

Supporting Theories

There was a host of literature which contained supporting perspectives, studies, and theories that undergirded a grounded theory for the nurse anesthesia profession's recertification process. Within this topic of supporting theories related to the nurse anesthesia recertification process (a) competency theories, (b) intellectual capital theory, and (c) moral development theory will be discussed.

Competency Theories

Anderson (2001) reported, "Competency is the ability of a professional to use knowledge, skills, attitudes, and judgment associated with a profession to practice with skill, efficiency, and safety" (p. 449). Competency models and theories identified *why* specific activities and *what type* of activities lent validity to the recertification process (Epstein & Hundert, 2002; Neufeld & Norman, 1985). The main focus of Gonzalez and Wagenaar's (2003) *competency paradigm* was activities which lead to competency. Gonzalez and Wagenaar's *competency paradigm* outlined a shift from a traditional competency paradigm, where the curriculum's focus is on areas of content, to a new competency model where curriculum is based on expected competencies, capacities, and processes resulting from activities closely related to the specified area of needed work competency.

Intellectual Capital Theory

While describing intellectual capital theory, Stewart (2001) outlined concepts related to the value of knowledge:

> Unless you measure knowledge assets and activities, your ability to change will be hindered. *Kaplan, co-inventor of the Balanced Scorecard, advises companies to use measurements*. Knowledge measurements – analyses of intellectual capital and the effectiveness and productivity of knowledge work – should be made so that businesspeople [professions] judge their acts and improve their decisions. (p. 291)

Becker (1993) recognized the importance education plays in the acquisition of human intellectual capital. Stewart (2001) provided several clues as to how intellectual

capital theory applies to the attainment and use of knowledge: "Knowledge is your most important raw material. Knowledge is your most important source of added value. Knowledge is your most important output. If you are not managing knowledge, you are not paying attention to business" (p.109).

Moral Development Theory

Many areas of literature reviewed seemed to indicate that there are compelling reasons to seek a higher level of moral reasoning throughout one's life. As an individual progresses through Kohlberg's six stages of moral development (thinking) one stage at a time, he/she encounters moral dilemmas, which help one to see the reasonableness of a *higher stage* of morality. These dilemmas can move an individual to the next level of moral learning.

Level 1. Preconventional Morality

Stage 1 – Obedience and Punishment

Stage 2 – Individualism and Exchange

Level 2. Conventional Morality

Stage 3 – Interpersonal Relationships

Stage 4 – Maintaining Social Order

Level 3. Postconventional Morality

Stage 5 – Social Contract and Individual Rights

Stage 6 – Universal Principals

At Kohlberg's higher level (Stage 5) of moral reasoning, an individual moves into the postconventional level of reasoning. "Here, democracy refers to more than simply

casting a vote. It entails full participation of community members in arriving at consensual rather than 'majority rules' decision-making" (Nucci, 2008, p. 7).

Summary

During the search of literature related to the nurse anesthesia profession's recertification process multiple theoretical areas were explored. The theoretical areas identified helped to undergird the grounded theory for the nurse anesthesia profession's recertification process (see Figure 1).

The literature review of these theories centered on medical profession education (i.e., continuing medical education), learning theories, adult learning theories, competency theories, intellectual capital theory, and moral and ethical development theories related to continuing medical education. Theory experts (e.g., Bastable, 2003; Dunn, 2004a; Galbraith, 1998; Knowles et al., 1998; Langenbach, 1993) provided input into the development of the framework and concepts integrated into the theoretical model for recertification. This literature review resulted in a visual model of the identified theories related to the nurse anesthesia profession's recertification process (see Figure 1).

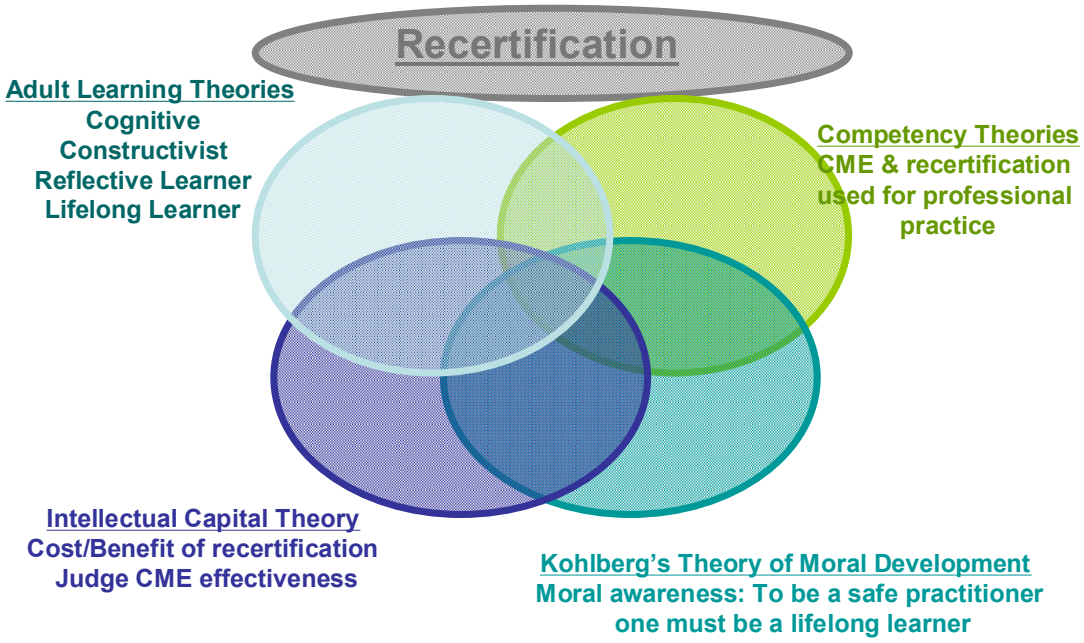

Figure 1. Theories undergirding the nurse anesthesia profession's recertification.

CHAPTER THREE: METHOD

This research was mainly qualitative in design, utilizing principles of grounded theory. The purpose of this research was to develop a middle-range theory to guide the nurse anesthesia profession's recertification process. To that end, in order to create such a theory, multiple audiences were engaged in discussions and a survey about the recertification process for CRNAs. Four CRNA face-to-face focus groups were conducted and a survey was mailed to non-CRNAs who have a professional relationship with nurse anesthetists. This research was conducted following approval of the University of Minnesota's Institutional Review Board (IRB) and was assigned IRB number 0709E16701. Following full disclosure of the research process and maintenance of data, written consent was obtained from each participant (Appendices B and C). Within this chapter a detailed description of grounded theory research will be provided.

Grounded Theory

Grounded theory results from a qualitative research approach. Nieswiadomy (1998) provided a concise description of grounded theory studies:

> Grounded theory studies are studies in which data are collected and analyzed and then a theory is developed that is grounded in data…. [This method] uses both an inductive and a deductive approach to the theory development….Despite the great diversity of the data that are gathered, the grounded theory approach presumes that it is possible to discover fundamental patterns in all social life. (p. 153-154)

Creswell (1998) described *grounded* theory in the following manner:

> A theory is a set of interrelated concepts that structure a systematic view of phenomena for the purpose of explaining or predicting. The purpose of a grounded theory study is to generate or discover a theory, an abstract analytical scheme of a phenomenon, which relates to a particular situation. This situation is one in which individuals interact, take actions, or engage in a process in response to a phenomenon. (p. 56)

Glaser & Strauss (1999) were the sociologists who first fully developed grounded theory research. They maintained that theories should be grounded in data from the field. They proposed that field data should be collected and analyzed prior to using theory in a grounded theory study. Creswell (1998) supported that process. Creswell reported that he refrained from advancing a theory at the beginning of grounded theory research. His theories were generated through data collection and analysis. The theory was then presented as a logical diagram.

Glaser and Strauss (1999) provided descriptions of the two basic kinds of theory that come out of grounded theory research.

> Comparative analysis can be used to generate two basic kinds of theory: substantive and formal. By substantive theory, we mean that developed for a substantive, or empirical, area of sociological inquiry, such as patient care, race relations, professional education…By formal theory, we mean developed for a formal, or conceptual, area of sociological inquiry, such as stigma, deviant behavior, formal organization, socialization, status congruency …. Substantive and formal theories exist on distinguishable levels of generality, which differ only

> in terms of degree. Therefore, in any one study, each type can shade at points into the other. (pp. 34-33)

This research embraced substantive grounded theory as described by Glaser and Strauss (1999). "Substantive theory faithful to the empirical situation….should also study an area without any preconceived theory that dictates, prior to the research, "relevancies" in concepts and hypotheses" (p.33). The concept of a substantive theory used for this grounded research project was further illuminated by Charmaz (2006), Creswell (1998), Krueger (1998a, 1998b, 1998c), and Reynolds (1971).

When conducting grounded theory research, Creswell (1998) noted that it is imperative that the researcher acknowledges several precepts of this type of research. After substantial reflection, I was able to acknowledge and incorporate the following precepts into the research process as described within this paper:

- The investigator needs to set aside, as much as possible, theoretical ideas or notions so that the analytical, substantive theory can emerge.
- Despite the evolving, inductive nature of this form of qualitative inquiry, the researcher must recognize that this is a systematic approach to research with specific steps in data analysis.
- The researcher faces the difficulty of determining when categories are saturated or when the theory is sufficiently detailed. (Creswell, 1998, p. 58)

The following summary of theory generation provided a basis for the method used to research a theoretical model for the certified registered nurse anesthetists professions' recertification process. Glaser and Strauss (1999) summarized the process for generating grounded theory in the following manner:

> In generating theory, one generates conceptual categories or their properties from evidence; then the evidence from which the category emerged is used to illustrate the concept. The evidence may not necessarily be accurate beyond a doubt (nor is it even in studies concerned only with accuracy), but the concept is undoubtedly a relevant theoretical abstraction about what is going on in the area studied. (p. 23)

Theory building is a demanding journey that requires careful thought and meticulous attention to the components and processes needed to generate a new theory. Lynham (2000), Argyris and Schon (1977 & 1996), and Dubin (1976, 1978) emphasized that recognizing that the area of interest in an applied field should be the focal point when developing a theory. The theory should be informed, guided, and judged by practice. Dubin (1976) summarized why a theory must be relevant (applied) to the practice and the practitioner with the following statements:

> The demand that theory be useful clearly characterizes a field…organizations make their managerial decisions affecting people on sensible grounds, and even prefer that these be theoretically respectable grounds, if the theory makes sense….then there will be some reason to believe that the theory will be applied, and hopefully useful in guiding the affairs of men. (p. 19)

Reynolds' (1971) indicated that science knowledge (theory) is useful to "(a) provide a typology (a measure of classification, organization and categorization of "things"), (b) predict future events (phenomena), (c) explain past events (phenomena), (d) provide a sense of understanding (of the phenomena being studied), and (e) possibly control the phenomena" (p. 4).

Gioia and Petrie (1990) stated that to build a theory it may be more valuable to use "(a)…a broader approach to theory building that accounts for differing paradigmatic assumptions and (b) to discuss how multiple views created by different paradigms might be linked or al least juxtaposed, to yield a more comprehensive view of organizational phenomenon" (p. 585). Lynham (1999) encapsulated that sentiment when advocating the use of a combination of research perspectives (i.e., Functionalist, Interpretivist, Radical Humanist, and Radical Structuralist). As a consequence, resulting theory would be more comprehensive, inclusive, and provide a complete view of human/social and organizational phenomena. Thus, theory building can emerge from several approaches. Stake (1994) and Eisenhardt (1998) proposed theory building from case studies, Glaser and Stauss (1999) and Strauss and Corbin (1990) proposed theory building from grounded theory, (van Manen, 1990) from interpretive theory, and Marsick (1990) and Mott (1996, 1998) from action learning theory. I choose to use grounded theory, because it provided a rich tapestry of ideas obtained from individuals who were intimately associated with nurse anesthetists. Within this topic of grounded theory research the following topics will be discussed: (a) Focus groups, (b) recruitment, (c) quantitative and qualitative surveys, and (d) analyzing survey data. Finally the assumptions and limitations of the process used to develop the grounded theory will be identified in this chapter.

Focus Groups

Focus groups were used to obtain data that helped explain and identify the relationships that exist with the phenomena of recertification. Morgan (1998a; 1998b) identified four basic components that should be considered when conducting focus group

sessions. The four components were planning, recruiting, moderating, and analyzing. Analyzing the data can be a daunting task (Creswell, 1998; Glaser & Strauss, 1999; Krueger, 1998a, 1998b, 1998c; Krueger & King, 1998; Patton, 2002), but following the guidelines for planning focus groups allow the researcher to fully develop a grounded theory. The guidelines included the following steps: (a) Sequencing of questions, (b) determining group membership, and (c) group session logistics, while using a systematic approach to the analysis (capturing and handling data, coding the data, participant summarization of thoughts and feelings, and debriefing). Krueger (1998a) stressed that throughout the process the researcher must be cognizant of the possibility of an unanticipated *big idea* emerging from the data. *Big ideas* can emerge from not only the key responses, but from the group discussions.

The formulation of focus group questions (e.g., focus group questions that would elicit thoughtful and insightful responses) was an important factor in the success of this study (see Appendix D). Morgan (1998a) pointed out that because the purpose of the focus group session was to explore the participants' thinking, it was important that the questions were structured in a way that not only captured the participants' interest, "But also gets them to talk in a meaningful way about the topics [recertification process of nurse anesthetists] that interest the research team" (Morgan, p. 49). Within this topic of focus groups the following topics will be further explored: (a) Focus group question categories, (b) pilot focus group, and (c) sampling.

Focus Group Question Categories

Krueger (1998b) suggested five categories of questions to aid in sequencing and bringing focus to the focus group questions: (a) An opening question to allow the

participants to get acquainted and feel connected, (b) an introductory question to begin the discussion of the topic, (c) a transition question to move the discussion into the key questions, (d) a variety of sequenced key questions and possible follow-up questions to provide insight into the central area of concern [the recertification process], and (e) the ending question to help determine where the researcher should place emphasis on the discuss during analysis and to help bring closure to the session (p. 22). These categories were used to guide the flow of focus group questions (see Appendix D).

Pilot Focus Group

Krueger (1998a) stressed the importance of developing well thought out questions that provide a comfortable flow to the focus groups. Piloting questions with a group, to make certain that the questions were clear, actually elicited responses, and resulted in data that contributed to the research, was an important component in the development of fruitful focus group questions.

Before conducting the focus groups for data collection, a pilot face-to-face focus group was conducted. It was found that the sequencing of questions was important to remaining on track with the question at hand. An exercise that required recertification requirements to be matched with specific medical professions was carried out during the pilot focus group (see Table A1, Appendix A). Some participants reported that they felt the exercise had a hidden agenda of promoting recertification testing. They focused the discussion on the pros and cons of a recertification exam. Throughout the pilot focus group session, attempts to gain a deeper understanding of what recertification means to the nurse anesthesia profession were impeded by this exercise. After careful consideration of the pilot group's response to the exercise, which changed the focus of

the discussions to the extent it did not allow data that would contribute to an understanding of meaning and value CRNAs place on the recertification process, the exercise was removed from subsequent focus groups' activities and questions.

Sampling

Purposive or purposeful sampling associated with qualitative research was used for this research. When using purposive sampling, subjects who were able to shed light on the phenomena associated with nurse anesthesia recertification were chosen in a non-random method. Patton (1990) expanded upon the usefulness of purposive sampling in the following passage:

> The logic and power of purposeful sampling lies in selecting *information-rich cases* [italics in original] for study in depth. Information - rich cases are those from which one can learn a great deal about issues of central importance to the purpose of research, thus the term purposeful sampling. (p.169, italics in original)

The CRNA focus groups were held at the following meetings: A Spring Assembly of School Faculty Meeting in Newport Beach, CA (approximately 1 percent of the total CRNA population attended that meeting), the Annual Mayo Clinic October Seminar for Nurse Anesthetists in Rochester, MN (approximately half of one percent of the total CRNA population attended that meeting), and the Minnesota Association of Nurse Anesthetist Fall State meeting in Bloomington, MN (approximately one-tenth of one percent of the total CRNA population attended that meeting).

Only one to two percent of the total CRNA population was presented with an opportunity to participate in a focus group session. However, in grounded theory research probability sampling is not applicable or needed. The number and type of participants is

determined by the questions to be answered, the phenomena to be described, and the quality and quantity of data collected during each focus group (Creswell, 1998).

Recruitment

The CRNAs participating in the focus groups were recruited in two ways. After determining who was registered for the meetings and prior to the designated meetings, a list of possible focus group participants was developed. The initial lists of the four meeting participants was developed through a national call for participants via a national CRNA program directors and faculty list serve, an invitation sent by the state association to all participants at the Fall Minnesota State Meeting, and an invitation sent to all CRNA attendees at the Annual Mayo Clinic Nurse Anesthesia Seminar. Those individuals who received an invitation were also asked to extend the invitation to CRNA colleagues who would be attending one of the meetings at which the focus groups were to be conducted. Those CRNAs who responded prior to the meetings were formally invited to participate via e-mail (see Appendix B). One focus group session each was held at meetings in Rochester, MN and Bloomington, MN. Two focus group sessions were held at a national nurse anesthesia meeting in Newport Beach, CA. There was some overlap of attendees at the listed meetings, but traditionally each meeting draws CRNAs from a variety of practice settings. No CRNA participated in more than one focus group session.

When additional participants for a focus group were needed, a second round of recruitment occurred. Informational flyers were posted at the meeting site, inviting CRNAs who were in attendance to participate in the focus groups. Flyers contained this researcher's cell phone number. Through phone contact or stopping to volunteer face-to-

face, additional CRNA participants volunteered for a focus group session (see Appendix B).

It should be noted that although the topic of discussion was prominently identified in all correspondence, flyers, and verbal invitations, the participants who volunteered for the fourth focus group were all recruited via flyers distributed at the AANA Assembly of School Faculty Meeting in Newport Beach, CA and word-of-mouth at the meeting. When a response to a question resulted in polling members of the fourth and last focus group as to why they were willing to participate, every participant indicated that they had heard by word-of-mouth that a doctoral research focus group was being conducted by a CRNA. Although the members of this group had not initially paid attention to what topic was to be discussed, they were willing to sign up to help a fellow CRNA's research. As a result of not being acutely aware of the topic to be covered in this focus group, responses from this group were quite spontaneous. The participants who were recruited in advance of the other focus group sessions had time to reflect on the recertification process and develop a considered response to the focus group discussions. The group that participated without advanced thought on the discussion topic, provided similar responses to the other groups.

Krueger (1998a) emphasized that prior to developing specific focus group questions it was important to, "gather ideas about questions that will shed light on the problem" (p. 14). After reviewing literature related to recertification, questions for this research were constructed to center around the following concepts: Changing professional requirements, patient safety, quality of patient care, professionalism competencies, recertification activities, and effects of the recertification process on the nurse anesthesia profession and medical colleagues who have a professional dependence

upon CRNAs (Cooper et al., 1978; COR, 2007; Foster & Faut-Callahan, 2001; Hatem, 2003; Horton, 1998; Kearney, 2005; Leape, Berwick & Bates, 2002; MacRae, 2007; Neufeld & Norman, 1985; Wear & Gastellani, 2003). These concepts were used as *points of departure* for the formulation of interview questions (Charmaz, 2006).

Criteria specific to competence in the medical profession is a major factor in any discussion about recertification. Various studies (COR, 2007; Epstein & Hundert, 2002; Foster & Faut-Callahan, 2001; and Neufeld & Norman, 1985) identified criteria that are valued when determining professional competence for a medical/nurse anesthesia profession. Knowledge, practice, and professionalism were the most frequently identified criteria for determining professional competence within the nurse anesthesia and medical professions.

Knowledge pertinent to nurse anesthetists includes patients' medical conditions and all that implies, anesthetic and surgical techniques, laboratory and x-ray results, medications and adjunct drugs, technical skills related to the care of the anesthetized patient, and previous experience with delivering anesthesia, are important components from which the CRNA develops each patient's anesthetic plan. The *practice* of anesthesia involves many elements. Those elements include the number and complexity of cases performed by the CRNA during a period of time. The CRNA's patient outcomes are another factor related to the *practice* of a CRNA. *Professionalism* is a concept that means different things to different medical providers and educators (Hatem, 2003; Kearney, 2005; Wear & Gastellani, 2003). Questions related to the various areas of team work, ethical standards, and professional contributions also provided valuable details to the grounded theory of recertification for nurse anesthetists. After reviewing the

previously discussed concepts and criteria, questions that addressed these areas of competence were constructed (see Appendix D). Within the topic of recruitment the following areas will be discussed: (a) Focus group participant population, (b) focus group environment and equipment, and (c) collecting and analyzing focus group data.

Focus Group Participant Population

After receiving Institutional Research Review approval from the University of Minnesota, the first of four CRNA focus groups was conducted. For this research, the focus groups were made up of Certified Registered Nurse Anesthetists (see Table 3). At the time the focus groups were conducted there were more than 36,000 practicing CRNAs in the United States (Buetler, 2006).

Individuals who participated in the focus groups were predominately female (63%). That percentage was slightly higher than the profession's 56% female membership (Buetler, 2006). The 27 focus group participants came from varied nurse anesthesia career paths: Eight staff CRNAs, four CRNA supervisors/chief CRNAs/clinical specialists, nine program directors, four assistant program directors, one staff CRNA who is also an adjunct instructor, and one administrative CRNA. Of the participants, 55% were 41 years or older.

The CRNA population was chosen to be focus group participants because they were able to provide a *rich description of the phenomenon* (Patton, 1990) of recertification for the nurse anesthesia profession. Therefore, the four focus groups included only CRNAs who worked in a variety of practice settings. The CRNAs' practice settings were at large, medium, and small institutions; academic and non-academic settings; rural, suburban, veteran, and urban hospitals; solo CRNA practices, all CRNA

Table 3

CRNA Focus Group Participants' Profile

Participant	Age	Gender	Job title	Years in Current position	Highest degree
1a	4	F	Staff CRNA	28	BSN
1b	3	F	Staff CRNA	-	BSN
1c	4	F	Staff CRNA	15	BSN
1d	4	F	Staff CRNA	17	Master
1e	4	F	Staff CRNA	7	Diploma
1f	4	M	Staff CRNA	-	BSN
1g	4	F	CRNA Supervisor	30	Master
1h	4	M	CRNA Clinical Specialist	12	BA
2a	3	M	Staff CRNA	13	Master
2b	5	M	Chief CRNA	35	BS
2c	3	M	Staff CRNA	11	Master
3a	2	F	Administrative CRNA	2	MNA
3b	3	F	CRNA Program Director	26	Master
3c	3	F	CRNA Program Director	-	PhD
3d	4	F	CRNA Program Director	5.5	DnNS
3e	2	M	CRNA Program Director	1	Master
3f	4	M	CRNA Clinical Coordinator	15	Master
3g	3	M	CRNA Program Director	3	PhD
3h	3	F	CRNA Adjunct Instructor	3	Master
4a	4	M	Assistant CRNA Program Director	3	Master
4b	4	F	CRNA Program Director	5	DnSc
4c	3	F	Assistant CRNA Program Director	19	Master

Table 3 (continued)

Participant	Age	Gender	Job title	Years in Current position	Highest degree
4d	5	F	CRNA Program Director	35	PhD
4e	4	F	CRNA Program Director	5	DNSc
4f	2	M	Assistant CRNA Program Director	2	Master
4g	3	F	Assistant CRNA Program Director	6	PhD
4h	4	F	CRNA Program Director	27	Master

Note. The number and letter designation is used only for this table to provide insight into the number of participants in each focus group. The number reflects the focus group the participant was a member and the lower case letters associated with each group reflect how many individuals participated in each group. To maintain anonymity throughout the research the number or letter designation was not be used at any other point in this dissertation. Gender: F = Female, M = Male. $N = 27$

practices, and care team practices. CRNA participants were also department administrators, a department chair in a school of nursing, program directors, and chief anesthetists. The four focus groups were made up of three to eight CRNA participants.

Morgan (1998a) indicated that the size of the focus group matters: "Deciding on the right number of participants for a focus group means striking a balance between not having enough people to generate a discussion and not having so many people that some feel crowded out" (p. 71). Creswell (1998) found in his experience, a combined total of 20-30 focus group participants provided adequate detail to develop a grounded theory. To assure that a rich description of the phenomena that surrounds recertification was obtained, 27 focus group participants were enlisted for this research. Upon completion of the fourth focus group session I felt saturation had been reached. Similar concepts were

brought forth by participants during the final session and when a topic was explored further the data obtained were similar to what had been obtained in previous focus groups.

Focus Group Environment and Equipment

The focus groups were conducted according to the traditional principles of focus group design (Creswell, 1998; Krueger, 1998a, 1998b, 1998c; Morgan, 1998a, 1998b). Four focus groups, with three to eight members in each group, were conducted to obtain information that was used to develop assumptions and identify phenomena that provided the basis for developing a theoretical model of recertification. Each focus group lasted 90-120 minutes.

A private room at the meeting site headquarters was used for each focus group session. The only remuneration participants received were the light refreshments provided during the focus group sessions. Sessions were tape recorded and field notes were taken during the sessions. The focus groups' start time was determined by the meeting agenda. An easel and colored pens were used to diagram participants' responses to the initial question, which asked participants to identify which of the three listed activities provided the closest analogy as to how they viewed recertification and why they choose the response of either drivers' license, union card, or airline simulation. The easel paper was saved as a field note.

Collecting and Analyzing Focus Group Data

Data were collected from the focus groups using field notes and/or transcripts of tape recorded group sessions (Krueger, 1998a; Morgan, 1998a). I conducted the focus groups. During the two California focus group sessions an assistant of convenience

helped with location set up and the initial intake of participants. The assistant remained in the room and took notes of the CRNAs' verbal responses.

Once a CRNA focus group was completed, the tape recordings of the group proceedings were transcribed by a transcriptionist (who also assisted with the California focus groups). The transcription and/or field notes from group sessions one through three were reviewed following each session to refine the questions for the remaining focus group sessions. Time was spent reflecting on the data from previous focus groups prior to conducting subsequent focus group sessions (Krueger, 1998a, 1998b, 1998c). Once all of the focus groups were completed, the tape recordings transcribed, and field notes reviewed and filled in for lapses in complete thoughts and sentences, the coding process was instituted. The coding process distilled the phenomena, which helped to develop a coherent grounded theory of the recertification process for the nurse anesthesia profession.

Krueger (1998a) compared the initial analysis of focus group data to detective work:

> One looks for clues, but in this case, the clues are trends and patterns that reappear among various focus groups. The researcher's task is to prepare a statement about what was found, a statement that emerges from and is supported by available evidence. (p.6)

Line-by-line analysis and coding was done to identify themes related to the CRNAs' recertification process. This procedure was repeated over and over again until the themes were reduced to the most fundamental form, resulting in a grounded theory for the nurse anesthesia profession's recertification process (see Figure 2).

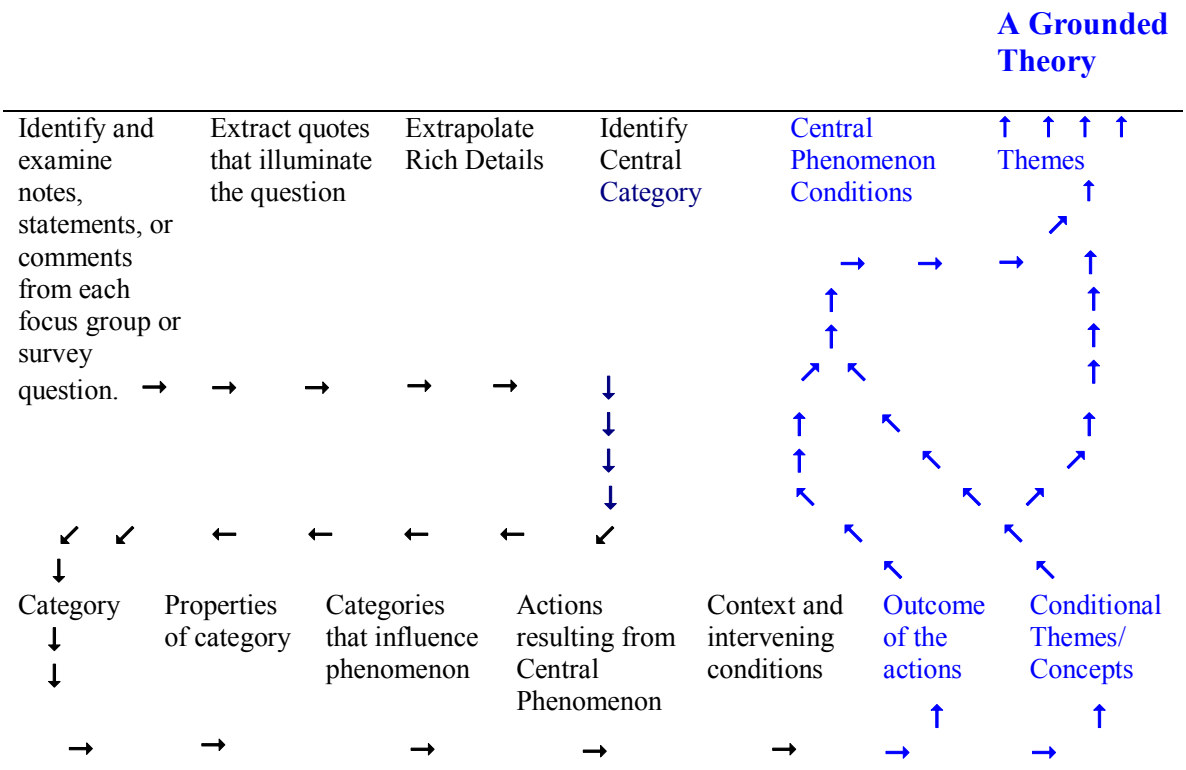

Figure 2. Schematic description of Creswell's steps for development of a grounded theory.

Graphic adapted from J. Creswell's (1998) text. *Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks, CA: SAGE Publications, Inc.*

Quantitative and Qualitative Survey

To gain additional insight into the nurse anesthesia profession's recertification process, data was obtained from a survey of CRNAs' colleagues and administrators (see Appendix E). Survey participants were asked to identify which recertification activities would provide a sense of CRNA competency. In 2003 an attempt was made to identify CRNAs' acceptance of possible changes to their recertification activities. A Council on Recertification (COR) CRNA survey (Martin-Sheridan et al., 2003) provided powerful percentages (98% opposition), suggesting that changes in the recertification process should not occur; but the COR survey did not appear to explore what might be the best recertification process for the future of the nurse anesthesia profession.

A decision was made to not invite CRNAs to participate in the recertification survey. That decision was based on the concern that this survey would be viewed by CRNAs as another attempt to require a change in the recertification process, instead of the goal to gain a perspective of the value CRNAs place on the recertification process and the value CRNA associates place on related recertification and professional activities. The main areas of further discussion within this section will be related to (a) survey methodology and methods, (b) instrumentation, (c) survey sampling and recruitment, and (d) survey participants' response rates.

Survey Methodology and Methods

The survey for this grounded theory research (Creswell, 1998; Glaser & Straus, 1999; Strauss & Corbin, 1998) was developed to gain insight into which recertification activities individuals who work or employ CRNAs would view as worthwhile indicators of a CRNAs' competence. Survey questions required the participants to respond to a 5 point Likert scale, which rated how recertification and professional activities were perceived as an indicator of competency for CRNAs' administrators and colleagues. Participants were asked to rank 1 (least valued activity) through 5 (most valued activity) the grouping of five recertification activities. The participants were also asked to rank 1 (least valued activity) through 7 (most valued activity) the grouping of seven professional activities. The numerical data were analyzed using simple descriptive statistics. Written comments were requested for each survey item. The written comments were analyzed using qualitative grounded theory methodology (see Figure 2).

Instrumentation

A four page paper survey, using a Likert scale for rating items, rank order scaling for ranked items, and a comment section for each item, was developed to (a) rate the importance the five listed types of recertification activities, which were (1) continuing education courses, (2) written recertification exam, (3) simulation test-out, (4) case log, and (5) portfolios, have in fulfilling recertification requirements (Dunn, 2004a; Epstein & Hundert, 2002; Martin-Sheridan et al., 2002; McFadden & Thiemann, 2009; Muckle et al., 2009), (b) rank the order of importance of the five listed recertification activities, (c) rate the importance the seven listed professional activities, which were (1) membership in professional organization, (2) active participation in professional organization, (3) participation in medical mission trips to underserved communities or countries, (4) lecturer for anesthesia program, (5) clinical instructor for anesthesia program, (6) lecturer for community organization, and (7) dress and decorum, have in fulfilling recertification requirements (Epstein & Hundert, 2002; Martin-Sheridan et al., 2002), and (d) rank the order of importance of those seven listed professional activities. Three questions related to the value of CRNA recertification were also included in the survey (see Appendix E).

The survey questions and layout were reviewed by a Mayo Clinic survey section staff member, University of Minnesota faculty members, and an expert in focus groups and surveys (Krueger, 1998a, 1998b, & 1998c; Krueger & King, 1998). The survey was then piloted with four individuals associated with CRNAs: (a) A nurse practitioner, (b) a post anesthesia care unit (PACU) registered nurse, (c) a CRNA, and (d) a respiratory therapist, to determine pertinence, validity, and to assure a common understanding of each item's query (Portney, 2000). Following completion of a review of the pilot survey,

slight modifications were made to the questions and the CRNA and CRNA associates were asked to again review the survey for pertinence and understanding of each item. Validity was determined when I was able to identify that the survey responses reflected what I intended the survey items to measure (Bailey, 1991). A short demographic questionnaire was also included in the survey. Names were not attached to the returned questionnaire or survey (see Appendices C and E).

Survey Sampling and Recruitment

As with the focus group participant selection process, purposive or purposeful sampling associated with the qualitative research was used for the identification of the survey participants (Patton, 2002). The mailed surveys sampled individuals, who had a working relationship with nurse anesthetists. One to three individuals from each of the following professions completed a survey: hospital administrators, anesthesiologists, nurse practitioners, nurse midwives, physician assistants, physical therapists, recovery room registered nurses, respiratory therapists, internal medicine MDs, and surgeons. Survey participants were recruited from professionals I personally knew or had knowledge of, who were members of the various professions which had a working relationship with CRNAs, and individuals who would be in position to employ CRNAs (e.g., physicians and hospital administrators). The categories of colleague participants (e.g., nurse practitioners, physician assistants, recovery room nurses, respiratory therapists, and clinical nurse educators) were selected because they would have a high probability of having an opinion of the importance of nurse anesthetists maintaining professional competence (see Table 4). The CRNA associates would also have an

Table 4

Survey Participants' Profile

Profession	Professional relationship with CRNAs
Advanced Practice Nurse Midwife	Colleague
Respiratory Therapist	Colleague
Respiratory Therapist	Colleague
Physician Assistant – Surgical	Colleague
Physician Assistant – Surgical	Colleague
Physician Assistant – Surgical	Colleague
Nurse Practitioner	Colleague
Registered Nurse Post Anesthesia Care Unit	Colleague
Registered Nurse Post Anesthesia Care Unit	Colleague
Surgeon	Administrator
Hospital Administrator	Administrator
Anesthesiologist	Administrator
Surgeon	Administrator
Medical Doctor Radiology	Administrator
Surgeon	Administrator
Anesthesiologist	Administrator
Anesthesiologist	Administrator
Medical Doctor	Administrator
Hospital Administrator	Administrator
Anesthesiologist	Administrator
Hospital Administrator	Administrator

Note. For research purposes the 21 participants were divided into two groups. Participants who worked with CRNAs, but determined to be in a profession in which they had no or limited administrative power over CRNAs, were placed in the Colleague (C) group (n=9). Participants in professions viewed as administrative in nature by CRNAs or to whom CRNAs report, were placed in the Administrative (A) group (n=12).

understanding of what the nurse anesthesia profession means to the health community and society. Surveys were sent via United States Postal Service or Mayo Clinic Rochester's intra-clinic mail to the business address of the participants. Included in each mailing was a cover letter explaining the research and the survey and an invitation to respond to the survey for research purposes (see Appendices C and E).

The survey return rate was 84%, with 21 of the 25 mailed surveys returned. Survey participants came from a wide variety of medical professions (see Table A2, Appendix A). An almost equal number of participants were male and female. Participants' ages spanned from less than 30 to greater than 60 years of age. All but one survey participant indicated that they belonged to their professional organization. The comment section was emphasized in the survey's directions; therefore, in addition to numerical responses, numerous qualitative comments were obtained via the surveys (see Appendix E).

Analyzing Survey Data

The surveys' numerical data were analyzed using simple descriptive statistics (see Table A2, Appendix A) and written comments were qualitatively analyzed. JMP software (Version 8.0, SAS Institute Inc., Cary, NC) was used for the descriptive statistical analysis. The survey data were used to inform and enrich the description of the phenomenon of recertification for the nurse anesthesia profession. Although the small number ($N = 21$) of survey participants made in-depth statistical analysis difficult, descriptive statistics allowed a look at survey participants' rating and ranking of recertification and professional activities in relation to individuals' perceptions of how each activity assured CRNA competency. Based on the mean response for the survey

questions related to recertification and professional activities a ranking number was given to each set of responses for the overall group of respondents. The overall group of respondents was divided into a colleague group (n = 12) and an administrative group (n = 9). The division of the overall group's responses distinguished activity competency value rankings for each of the two groups of survey participants. Except for two ranking items all 21 participants responded to each item. One colleague participant did not provide a ranking for simulation and one administrator participant did not provide a ranking for membership in a professional organization.

Developing the Theory

The steps used by Creswell (1998) to develop a grounded theory helped to guide data analysis of the survey participants' written comments and the oral focus group comments (see Figure 2). The written comments were analyzed similar to the oral focus group comments. Within this topic of analyzing survey data the following topics will be discussed (a) analysis of written survey responses and oral focus group responses, (b) systematic analysis, (c) comparative analysis, (d) coding, (e) central phenomenon, and (f) expressing the theory.

Analysis of Written Survey Responses and Oral Focus Group Responses

The surveys' written comments were qualitative in nature. Therefore, written data obtained from the surveys were analyzed in the same manner as the focus groups' written transcript data. The majority of the following data analysis discussions will refer to focus groups. It should be acknowledged that there are principles related specifically to focus group analysis (Krueger, 1998a). It is important to note that in focus groups "Participants influence each other, opinions change, and new insights emerge …. Some

people seek to influence others …. This makes analysis difficult, because if you … fail to recognize the … presence of other views, the analysis will be incomplete" (Krueger, p. 20). Krueger also pointed out that it is important to remember that the research plan was developed to obtain information of a certain type and the plan should be reflected upon and used to guide the analysis. Conversely, when analyzing the data there is the danger of not being able to set aside previous interpretations and assumptions and listen anew to each group.

These directions were followed and reflected upon throughout the entire initial qualitative analysis. Prior to and after each focus group session it was important to continue to bracket both old and newly informed ideas about the recertification process for nurse anesthetists. This was especially true as the first group was made up of CRNAs with strong personalities, whose beliefs and ideas could have excessively colored how I directed the questions for the following groups. I had to remind myself that the research plan was developed to obtain information of a certain type and the research question was what should guide the group discussions, not the ideas and beliefs of previous CRNA group members. The areas of discussion in this section will be related to analysis of the qualitative data. The specific areas of discussion will be systematic analysis, comparative analysis, coding, central phenomenon and developing the theory.

Systematic Analysis

When analyzing the focus group and written survey data there were several principles of qualitative analysis that were taken into consideration: (a) "Analysis must be systematic in that it follows a prescribed sequential process…. It will help to ensure that results will be as authentic as possible" (Krueger, 1998a, p. 10), (b) analysis must be

verifiable with enough data to provide a trail of evidence beginning with "field notes and recordings…, continues with the oral summary (verification) of key points…, and also includes the electronic recordings, with the possibility of an interview transcript" (Krueger, p.11), (c) analysis takes time and is jeopardized by delay, and (d) analysis should seek to enlighten and as a result, should take new data about an issue or concept that was previously known to a new level of understanding and interpretation. This can be accomplished via the use of "Typologies, continuums, diagrams, or metaphors that depict how focus groups view the topic of study" (Krueger, p. 14).

Comparative Analysis

Comparative analysis can occur in tandem with systematic analysis. Comparative analysis principles are described in the following manner: "Analysis is improved by feedback and corrective feedback is available from four sources: group participants, co-researchers, experts who were not present in the focus group, and decision makers" (Krueger, 1998, p.15). Analysis is a process of comparison of "Data within a group and also among groups. One of the dangers of single focus groups, is the lack of comparison and the inability to discern patterns" (Krueger, p.17). Analysis is dynamic and situationally responsive. "The researcher makes decisions and refines the quest for knowledge en route. Sample size is clarified en route, and questions are adjusted and fine-tuned en route. The analysis protocol should also be responsive to en route signals from the environment" (Krueger, p.18).

Coding

It is important to note that no attempt was made to provide a sense of who was speaking during the focus groups or to identify the author of the survey comments. By

providing minimal information that would link individual participants with the transcribed text presented in this paper, the researcher and future readers were allowed to hear the participants' words without attaching a label (e.g., educator, practitioner, etc.) to the person who was speaking. Because the current recertification process itself and the idea that possible changes that may occur in the nurse anesthetists' recertification process are emotionally charged topics for members of the nurse anesthesia profession (Martin-Sheridan et al., 2003), it was important that focus group participants felt safe and secure that what they shared during a session would not be identifiable to their colleagues. Therefore, every effort was made to de-identify the data presented. Random initials were not attached to the quotes used throughout this text. The words of the participants were shared in a way that speakers' anonymity remained in place throughout this paper. The same anonymity was given to the survey participants.

The process of data analysis in grounded theory research is systematic and follows a standard format (see Figure 2). The format moves from open coding, to axial coding, to selective coding, and culminates in a theory. The initial step requires that the researcher forms categories, next the researcher identifies central phenomenon conditions and specific strategies, followed by the development of conditional propositions or themes. "The result of this process of data collection and analysis is a theory, a substantive-level theory, written by the researcher close to a problem or population of people" (Creswell, 1998, p. 68).

Sub-questions that emerged related to general categories of the focus group and survey data were explored by this researcher to allow a distillation of the data into a more robust concept and/or theme. Valerio (1995) felt that sub-questions were important to the

development of a grounded theory. A deeper analysis of the data can occur when they are systematically used by the researcher:

> The sub-questions follow the paradigm for developing a theoretical model. The questions seek to explore each of the interview coding steps and include: What are the general categories to emerge in open coding? What central phenomenon emerges? What are the causal conditions? What specific interaction issues and larger conditions have been influential? What are the resulting strategies and outcomes? (Valerio, p. 3)

Central Phenomenon

When using axial coding, a central category is chosen around which the theory is developed. The central category is chosen from the axial coding category that holds the most conceptual interest; it may be the most frequently discussed category, and it is the category most *saturated* with information. That category is placed at the center of the newly developed grounded theory model and is labeled as the central phenomenon (see Figure 2). Strauss and Corbin (1998) indicated that the development of the theory occurs when theoretical saturation is achieved "Theoretical saturation is 'the point in category development at which no new properties, dimensions, or relationships emerge during analysis' " (Strauss and Corbin, p.143).

Emerging Theory

It is through the coding process, which is a comparative (Glaser & Strauss, 1999) and systematic (Krueger, 1998a) analysis of focus group data and the survey data, that the conditional propositions (or hypotheses) were identified and used to generate the themes that resulted in the substantive theory for the nurse anesthesia profession' recertification

process. Glaser and Strauss (1999) described a substantive grounded theory as a theory that is "developed for a substantive, or empirical, area of sociological inquiry, such as patient care, race relations, professional education…" (p.32). Valerio's (1995) suggestion to develop sub-questions helped the emergence of the general categories that lead to the development of themes. Through the use of focus groups, central phenomenons were identified for the grounded theory. Creswell (1998) described central phenomenon as "a central category about the phenomenon" (p.67), which is formulated through the use of axial coding and the formation of a visual model.

Patton (2002) distilled Strauss and Corbin's (1998) techniques and procedures for developing grounded theory into three steps:

> Grounded theory begins with *basic description,* moves to *conceptual ordering (*ordering data into discrete categories 'according to their properties and then using description to elucidate those categories,' p.19), and then *theorizing* ('conceiving or intuiting ideas—concepts—then also formulating them into a logical, systematic, and explanatory scheme,' p.21). (p. 490)

There are several options researchers can choose to express their newly developed grounded theory:

> The results of grounded theory research are the development or generation of a theory closely related to the context of the phenomenon being studied. Strauss and Corbin (1994) indicated that a theory is a plausible relationship among concepts and sets of concepts. The theory developed can be articulated in a variety of ways. Strauss and Corbin (1990) used a narrative statement. Morrow

> and Smith (1995) chose a visual picture, while Creswell and Brown (1990) provided a series of hypotheses or propositions. (Creswell, 1998, p. 57)

A narrative statement, a visual diagram, and a table were used to fully develop and express my grounded theory for the nurse anesthesia profession's recertification process (see Figure 3 and Table 5).

Summary

Through focus group sessions' data using Creswell's (1998) and Krueger's (1998a & 1998b) methods of conducting and analyzing focus group sessions and through analysis of the mailed surveys' quantitative and qualitative results, a grounded theory for the nurse anesthesia profession's recertification process was developed. Input from 27 CRNAs and 21 health professionals who have a working relationship with CRNAs provided the data used in the development of the grounded theory.

The focus group questions were developed to obtain responses that would provide insight into the value CRNAs placed on the recertification process and specifically which recertification and professional activities would demonstrate their competence (see Appendix D). The survey items were constructed to provide numerical results to determine which recertification processes and activities would most likely provide the participants, as an aggregate group and as either a CRNA's colleague or a CRNA's administrator, an assurance of CRNAs' competence. Additionally, directions to the survey participants requested written qualitative comments for each survey question (see Appendices C and E).

This grounded theory was developed to inform the members of the nurse anesthesia profession as they explore the direction they wish to move their recertification

process. The methods used to develop this theory were largely based on Glaser and Strauss' (1999), Krueger's (1998) and Creswell's (1998) discussions of the various sequential steps that are needed to successfully analyze data that will result in a grounded theory (see Figure 2).

The focus group data and survey results will be reported in Chapter Four. The themes that emerged from the data will be identified. The grounded theory will be expressed in a table and in a narrative and graphic manner. Chapter Five will discuss the how the themes are indeed related to the theory and how the research data results informed the newly developed grounded theory. Chapter Six will discuss how established theories that undergird the concepts and themes that inform this grounded theory for the nurse anesthesia's profession can support moving the CRNA profession to higher level of competency. The implications of such a movement will be discussed.

CHAPTER FOUR: RESULTS

Given that the purpose of this research is to develop a middle-range theory that will provide direction for the nurse anesthesia profession's recertification process, this chapter will describe the themes that emerged during the analysis of four focus group sessions with Certified Registered Nurse Anesthetists' (CRNAs') and the results of surveys completed by professional associates who work with or employ CRNAs. The systematic analytical process used to develop the themes identified in this current chapter and the theoretical models supporting the CRNA recertification process were previously discussed in Chapter Three (see Figures 1 and 2).

A total of five themes were revealed as the data from the surveys and focus groups were analyzed. This chapter will identify each theme, including a concise explication of that theme. Excerpts from the transcribed focus group text will be used to support each theme. The data from the surveys will also be used to support the themes. Additional focus group and written survey data supporting the results contained in this chapter can be found in Appendix F. Within this chapter are the following main headings: Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession, Theme 2: The Yang of Professional Lifelong Learning, Theme 3: Reconciliation: Incompetence is Unacceptable, Theme 4: Recertification Is Valued When It Demonstrates Competence, Theme 5: Recertification Activities Demonstrate a High Level of Competency, and Survey Comments and Numerical Results.

Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession

"Everyone mentioned patients. It [nurse anesthesia] is patient centered."

CRNAs stated they had a strong passion for their profession:

> "Everyone [in the nurse anesthesia profession] is involved [in their profession]."

> "I think everyone [in the nurse anesthesia profession] shows a passion for what they do for the career that they have … and everyone is so different."

Scope of Practice Is a Source of Professional Pride

Nurse anesthetists have diverse practice models, but all are equally proud of their profession. CRNAs voiced pride in their clinical abilities, pride in their practice settings and scope of practice, pride in caring for military veterans, and pride in taking on non-clinical roles that help move their profession forward:

> "I will say my first love in anesthesia is definitely cardiac anesthesia and I am always amazed and it never ceases that every time I look into someone's chest and see the beating heart it is almost a spiritual type thing for me. So I really love cardiac anesthesia."

A focus group participant shared how much it means to be able to provide anesthesia to wounded and ill veterans:

> "I work for the VA and I love working for the veterans. Once you get to know the veterans it is something I don't know if I could do without. And they appreciate our work very, very much and sometimes they do need some special care because of their high number of mental health issues. My goal next is to work with the soldiers that are just coming back from this war, because I have had to take care of a few of them and it is just terrible what they are going through."

CRNAs want to make certain that it is known that much of the anesthesia provided throughout the country is safely delivered by CRNAs in independent practices:

> "The thing that is unique about my practice is that it is totally CRNA only. So I practice what I have been taught to practice. We do all of our own regional anesthesia and OB. We have an autonomous [practice]. We have a collaborative agreement with our physicians. We are actually named in the medical staff bylaws as to what we can do in our practice."

Non-clinical roles are a part of CRNAs' practice. Although some CRNAs questioned the value of their non-clinical roles within their profession, several members of the focus groups embraced the importance of the roles of the CRNA educator, CRNA

administrator, technical support CRNA, and CRNAs who are full-time employees with the national and international nurse anesthesia organizations:

> "Recently I have stepped down from doing cardiac anesthesia and was asked to do the electronic medical record as part of my practice. That has been a real challenge because there are over 800 charting events. My goal is less documentation for all of us while giving good care. I am busy right now learning what the billing issues are, the business issues in taking good care of them."

> "What is unique about my nurse anesthesia practice now is that although it is not a clinical practice, I interact with several external organizations that look at quality in the practice of nurse anesthetists. I interact with various facility accreditation organizations and things of that nature. I have a wide number of hats in that arena. I also am responsible for maintenance evaluation of practice related documents for the association."

> "I am chairman of adult health nursing, so unique to my role is that I am chair of a very large academic department in the College of Nursing. [I am] responsible not only for the Nurse Anesthesia Program, but all of the other graduate programs that are adult specialties."

A focus group participant summarized the dilemma some CRNAs have with determining the value non-clinical CRNAs add to the profession:

> "At this point in your life you are in a different role, different skill sets that you are learning, but that does not mean you are not a nurse anesthetist. It is a different role definition. So being a nurse anesthetist, is that by definition that we can intubate? That was a skill that we have learned in school. Over and above that the diversity of roles that we make in our careers, is [intubation] the sole validation of how we are [viewed] as nurse anesthetist? I just throw it out there."

Commitment to Quality Anesthesia Care Is Necessary

The CRNAs who are so proud of their professional practice want to demonstrate to the public, their patients, and medical colleagues that they are competent and committed to providing the best patient care possible. Their voices were heard expressing that from a variety of practice perspectives:

> "I think one of the things though that we also have to keep in mind is that we are going to be faced with responding to outside forces that are saying "I want to see something measurable, accountable, quantifiable", check list or whatever you

> want to call it, and as much as I think, "Yes, it should be helping people to get to where they want to be", and "Yes, I know about the time", but when it comes to the safety of the public that stuff does not mean squat."

> "My experience on the AANA Practice Committee: I have been on it 3 times and the public members are constantly pushing competency recertification aspects of things and how we hold ourselves accountable to the public. To me it is growing and how it is going to play out, whether it is accrediting bodies are going to take it on, legislature or regulatory agencies, I don't know. I think the public is increasingly demanding accountability and want to be more involved in their health care decisions, not just leave it to somebody else."

Professionalism/Professionalization Is Necessary

During the focus group sessions, CRNAs articulated what professionalism meant to them within their own practice:

> "The bottom line is that it is the practitioners' professionalism to keep himself [sic] up to date. Keep the person's skills up to date or know where or when not to practice."

Theme 2: The Yang of Professional Lifelong Learning

The CRNAs' pride in their professionalism was present when they discussed the need to continue and enhance a culture of lifelong learning. During the focus group discussions CRNAs shared their definition of professionalism and also what does not demonstrate professionalism within the context of the nurse anesthesia profession. The topics within this section which informed Theme 2 are (a) professionalism/professionalization is necessary, (b) a lack of commitment to lifelong learning is a concern, (c) lack of motivation impacts commitment to lifelong learning, (d) aging can impact skill level, and (e) budget impacts the recertification process.

Lack of Commitment to Lifelong Learning Is a Concern

Lack of commitment to lifelong learning was a concern echoed throughout the focus group discussions. All participants spoke to the realization that even one CRNA's

mistake reflected on the whole profession. Because there are other anesthesia provider groups and the public's lack of understanding of the CRNA role, the need to guard against practice mistakes was felt to be of paramount importance. Preventing professional mistakes was deemed important for the well being of CRNAs' patients and the nurse anesthesia profession:

> "We could as an organization put in so many safeguards, but the bottom line is that it is the practitioner's professionalism to keep himself up to date. Keep the person's skills up to date or know where or when not to practice. We could do only so much [with] safeguards, then it is up to that individual CRNA who carries that credential. Unfortunately, that one CRNA taints all of us, but I think that is the reality."

A focus group participant was quick to point out that safeguards to ensure quality anesthesia practice are only *so good* and then a CRNA's knowledge and skill must shine through:

> "Part of the other issues, too, is that people across all levels of experience don't necessarily stay in touch with the current literature. That is a major problem as to whether to select this medication or that medication or to use this technique... using ultrasound, not using ultrasound."

As the demands of the nurse anesthesia profession change and grow over the coming years, CRNAs identified additional issues that may be encountered when CRNAs who have specialized in their practice (niche practioners) are expected to be experts in all types of anesthesia management:

> "I think this is a demographic of where you are practicing, too. Mine is rural practice. I don't do arts. I don't do carotids. I don't do brains. It is not that I can't do them, but I would have to have a refresher course and do it. So now if we are going to a simulator and they are going to test you in all of these areas, I probably would fail in some of those areas. Because I have done hearts, but it has been years. It is like, yah I could retrain and do them again but it would be difficult. I am geared to rural anesthesia."

Focus group members identified that certain skills and knowledge should be universal requirements for all CRNAs. Rather than expecting a recertification activity to ensure a specialized competence for the niche practitioner, it was suggested that competencies needed in every type of anesthesia practice should be demonstrated for CRNA recertification:

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice, because they never happen, like MH, anaphylaxis or the other ones. Airway, right, which you could say that they are anesthesia adverse effects everybody needs to, somebody is going to have to come to some degree of agreement that there are core competencies that every anesthesia provider needs to have in their armentarium because of the virtue of what we do. I think it needs to cross all practices but it scares me to death that [what] if I flunk that..."

A participant also identified needed activities that would allow niche practioners to return to a generalist practice:

> "Like [participant] said about having everyone [CRNAs] mentor each other, help educate and support each other, so that people do start to feel more comfortable and be more current."

Lack of Motivation Impacts Commitment to Lifelong Learning

CRNAs who participated in the focus groups were concerned about those in their profession who have not kept up with the advances in anesthesia. CRNAs voiced a strong belief that being a self-directed lifelong learner is a significant part of the CRNAs' definition of professionalism. During the focus groups, comments were shared that provided insight into what lifelong learning means to the individual CRNA and the entire profession:

> "I think being a lifelong learner requires openness. I think it requires openness and being willing to experience and look for new things. It also involves a level of internal motivation. External motivators, the mom, might not work all the time. It does work to a certain degree. Once you are a practitioner out of the student phase and into the clinical phase there has to be that internal motivation for you to

> want to learn and if they don't have it, it is really difficult to motivate those individuals to stay abreast of the material."

Several CRNAs expressed how important lifelong learning was to their profession. They felt that a commitment to lifelong learning conveyed the high value nurse anesthetists place on providing their patients with quality anesthesia care. I heard CRNAs indicate that lifelong learning helped to ensure that high quality of anesthesia care was maintained**:**

> "I really had to teach myself, but I did not really teach myself. I came to the meetings here. I learned how to use a new gas. I had to start using Sevo when I was all by myself. I had to start putting a LMA in. The first thing I did when I was going out by myself was do training with Ohio Company so I could take apart and put together my anesthesia machine if I needed to. So if it [the anesthesia machine] goes bad, I have a background just like everyone else. Something goes bad while I am working I have to have a back up just like everyone else. I have to take in oxygen. You pick your classes according to your practice needs."

The previous statements by CRNAs indicated that nurse anesthetists felt lifelong learning was necessary, although one focus group CRNA found that staying in his/her own practice box felt comfortable and safe:

> "My practice is a small, actually there are X of us in a group. I think in that practice you stay very safe. You stay within your box versus up here [large academic medical center] where you are outside that box probably everyday, trying something new or someone is coming in an saying, "Let's try this technique today." or "Let's do total IV anesthesia." or where when I was practicing in [town] by myself it was like use this, maintain them with this, wake them up with this and know that was safe anesthesia. You did not walk outside that box very often."

Statements regarding the concept of lifelong learning were expressed by the focus group CRNAs:

> "It is not quantifiable, but for me lifelong learning is directly connected with the value system of the individual. A value system that in the end, is about your patients and being able to give good care to them."

Focus group CRNAs shared examples of when society demanded documentation of lifelong learning and a meaningful recertification process. The CRNAs felt that such

documentation provided society with a sense of assurance that CRNAs' possess a high level of skills and knowledge:

> "The public is aware of recertification, they find out [about it] on the internet. They think they get better care from boarded people."

> "I think the public would assume that if I told them I was recertified that I have done something much like a simulator, not that I paid my $500 to the AANA or that I have [something like] my driver's license. There again you just send it in and if I had not gotten any violations… If I am recertified, the public would expect that, me as a CRNA, would mean something. I would have something to prove myself, I had taken courses or demonstrated that my abilities are still up there."

CRNAs discussed the strain those individuals, who were not current or lagged behind in their knowledge and technical skills, put on the profession's reputation and growth. CRNA participants discussed members in their profession who were not committed to being current in their practice:

> "I work in surgicenters too, but the thing that I worry about is the people who have gotten so far away from knowing what is standard care, and I have practiced anesthesia in a number of states and I have gone into places where they are pushing 150 of propofol and there is not an oral airway in the room. There is not a laryngoscope in the room and they are just doing it the way they have always been doing it. That is the segment that I really worry about."

> "Part of the other issues too, is that people across all levels of experience don't necessarily stay in touch with the current literature."

One CRNA expressed an awareness of how lack of motivation permeates all age groups. But that individual also identified the lack of motivation is often modeled by those CRNAs who are already *in the trenches*:

> "But we also hear your nurse anesthesia students are more dedicated then other graduate students. It is laid out what our culture is, what are values are and what is meaningful to us and how we take that and translate that and get that to our students. That is really the issue and for me, as I was thinking about this talk tomorrow it has nothing to do with students. It has to do with CRNAs in the trenches. You can't do a thing with students until you change [motivation] in the trenches…"

Aging Can Impact Skill Levels

The aging anesthetist who is unwilling to stop working when their critical thinking abilities and skills are slowed was a concern identified by focus group members. Focus group members shared situations where an aging CRNA's ability to apply their knowledge was not adequate and when the aging CRNA had a lack of anesthesia knowledge due to a lack of commitment to a philosophy of lifelong learning:

> "I agree that unlike the state of [State] that says that when you get to 72 [you have to test to drive], I think it [professional testing] ought to be done [with CRNAs] every 5-10 years. I am not always convinced that we can hang it all on something that is easily defined as when you are 70."
>
> "I feel the same way. It is going to be a major concern in the next 10 to 12 years because we used to talk about, when we would get manpower studies, we would talk about 2010. We are going to have this big drop and everybody is going to be retiring. [Now] the money is so good, people are not going to retire. Then they are practicing into their 70s."
>
> "And where is their critical thinking skills? They can hardly drive to the hospital let alone drive an anesthesia machine."
>
> "A perfect example, 3 years ago, I was on backup call at one of our hospitals. It was the 4th of July, but I was told that I was the backup, second CRNA. The night before, the primary CRNA on call called me, and she said, " I understand you are taking second call and I am first call CRNA, but I have been retired for eight years and I am 78 and I am a little nervous, how often have you done this?" I thought, "Dear God what I have gotten myself into?" I ended up getting called in and it was a pretty big ortho MVA and I went into the room to help her and I finally said to her, go to the lounge and take a break and let me get this squared away for you and then you can come back. She was eternally grateful, but the point being she had the same CRNA credential that I have. And you know, what does that say?"

A more positive example of age related issues was shared by a focus group CRNA, but the following *positive* example still raised negative concerns about the level of care the CRNA in question would be able to provide in all situations to her patients.

The participants identified that the aging CRNA made an attempt to develop needed skills, but did not embrace the need to be fully competent in her scope of practice:

> "In OB there was this lady CRNA who had maintained her practice since 1945. She had been there 34 years. She was still giving ether and cyclopropane. She had not intubated ever. She had never given a spinal or epidural. So, no one had ever told her she had to change her practice. She had been doing it [her way]. I talked to the circulating nurses in OB and they would say, "Yea, she had four patients at one time giving cyclopropane and she would say yell at me if one of the bags stop going in and out." We took her under our wing and said, "Mam, if you want to continue to work [you have to update your practice to a safe level]." She did have a good idea, because every time she took a picture of all of the babies and gave the mother a rose as she was handing her the insurance form. She had some lifelong learning there. She was a good business woman. We said, "I am sorry, but this is illegal the way you are practicing. If you want to keep practicing we will take you under our wing and we will teach you how to do epidural, intubate, and spinals." She said, "Yes." and she did it. She was not the greatest and she avoided intubating as much as possible and she did those epidurals and spinal until they were coming out of her nose. There is an individual that wanted to continue to learn, but she had never been given the opportunity to do it."

Budget Impacts the Recertification Process

The focus group members identified various financial factors, which negatively influenced how much time and money is spent to maintain up-to-date anesthesia practices:

> "She [a new graduate] must have been [trained] at a place where it [modern anesthetic gas], was not in the budget, but it still astounded me that she is just new into anesthesia and that the bulk of her experiences [was so limited], and she said even in the school where she trained, that was what they used. Mostly it was Ethrane gas and then there was some Sevoflurane. It just took me back a little bit because I thought, "Wow, her education was based on cheapest agent."

> "We also have to recognize that the demands on the practitioner in the terms of productivity are just more and more and more. The problem where one of the things we face is peer review and it would be great if it was evidenced based, but [that is difficult] if the practitioner had within their scope of practice no time. If they have literally no time to get into the database then you can see where, guess what, they are going to keep doing what they have been doing. Because it has worked, patients are in, patients are out and we have to recognize that this is an issue. Because, if the CRNA is not in the operating room, they are not generating revenue for the hospital. And whether we like it or not, the margin runs the mission. If there is no margin there is no mission."

> "We should integrate competency exam and/or simulation exam [into practice requirements]. It will take a lot of money and manpower for exam and /or simulator…Cost is an issue, so we need to look at cost/benefit of those activities."

Theme 3: Reconciliation: Incompetence Is Unacceptable

Nurse anesthetists discussed that the maximum competency one can expect/mandate from a CRNA is the minimum competency one will accept from another CRNA. Participants determined that the minimum level of competency expected of CRNAs must be at a high level and within the profession incompetency is unacceptable. Additional topics which provided insight into Theme 3 are: (a) recertification processes imply competence, (b) change produces fear, and (c) ethics is paramount.

Recertification Processes Imply Competence

CRNAs discussed at length that the nurse anesthesia profession is judged by the least competent CRNA. There was strong feeling among the participants that the maximum CRNA competency mandated via recertification is also the minimum competency the profession should accept:

> "The value of the credential, the CRNA, is only as high as the poorest performer holding the same credential. So they have a tremendous impact on our profession because it goes back to the mini/max thing. The maximum you can expect from anyone is the minimum that you will accept. When you have people who are still practicing how I was taught this way, whether it was 20 years ago or 10 years ago or 5 years ago, if the reason you are practicing [a certain way] is because this was how I was taught, I do this, I do this and I do this, then I am practicing and I am current, all it takes is one terrible outcome and they have the same credential and the black tar brush comes out and guess what, everybody gets painted with it."

> "Keep the person's skills up to date or know where or when not to practice. We could do only so much safeguards then it is up to that individual CRNA who carries that credential. Unfortunately, that one CRNA taints all of us but I think that is the reality."

> "[In order to practice] CRNAs should have minimal level of competency in some basic skills. Every negative thing that happens [in a CRNA's practice] effects the profession."

The members of the CRNA focus groups expressed a need to have a mechanism to ensure the minimum expected competency level for their profession was high enough to ensure anesthesia care was at a safe level. The need for a mechanism to ensure safe and competent CRNAs was heard in all four focus group sessions:

> "We were ahead of the [recertification] curve for health care. For me personally, I think we are falling behind and I think that the competency piece is key and somehow we have to weave competency into our recertification."

> "When talking about our current recertification process and if it really ensures competence, nobody will say "Yes". That [is what they feel] if you get them one-on-one."

> "We are going to have to have some competency based recertification, re-licensure, however you want to do it, mandated. If we want lifelong learning and we want to continue practicing then, well you give me my 5 year notice. Will somebody help me by setting up these modules and over that 5 year period of time that I am working on those modules? Then we will see whether I go to a simulator center or I take a test [paper and pencil]."

A focus group participant spoke to the issue that there is more than one group of anesthesia providers. As a result of multiple groups of anesthesia providers, a point was made that CRNAs need to have their recertification set at the same or higher level than other anesthesia provider groups. A participant identified that if the CRNA's recertification standard does not reflect a high level of competency, there is the possibility that CRNAs would not be viewed as respected providers:

> "And also there are two other anesthesia providers, the AAs and the anesthesiologist. If they move in a direction [and] we don't… Anesthesiologist already retest, re-board. So do the AAs. So if we are going to say we are at that [their] level it is fine, as long as the public does not know, but eventually they are going to get that out or the ASA or AAs will promote that they retest and we don't. Are they going to say we are so good we don't have to retest?"

Change Produces Fear

Various members of the focus groups were very passionate about the need for a meaningful recertification process that would emphasis that incompetent practitioners are

unacceptable to the profession. At the same time participants acknowledged that a move to change the current recertification process would engender various types of fear in members of the nurse anesthesia profession:

> "Anytime there is change, you know the master's mandate and the fear that engendered…you were going to push me out if I don't have one. You have to deal with the fear factor. You have to deal with it."

There were focus group discussions related to fear of failure with retesting.

> "You have to [discuss possible changes to the CRNAs' recertification process] for our profession, but the survey [sent our several years ago by the AANA, asking about possible changes in the recertification process] was how it was worded…Nobody wants to retest if you know it could potentially ruin your career if you don't pass it."

> "If you are not recertified you cannot work … there is fear of the loss of huge personal financial rewards to me, so any change in the process [that could cause me to fail the process] engenders all this fear."

A focus group participant also identified that changes in their practice which resulted in a shift of their knowledge and skill base was another source of fear:

> "There comes a point for most of us where you have to finally accept that I have given up this other skill set that I worked so hard to achieve and that is how far we have gone. [A colleague present at the focus group session] has watched me over the past seven years and it has been very difficult for me to let go because I worked so hard to get those skills and the thought of losing them is scary."

A focus group participant recognized that if nurse anesthetists did not take on the responsibility to consider changes in their recertification process, CRNAs would have an on-going fear that another agency or group would take on that responsibility and dictate changes to the profession:

> "Like XX said, we are going to have to do something to keep our profession at [a high] level. If we don't do anything we are going to be in fear. That is the thing I am going to take away from here."

The fear of the unknown was identified as an issue when a focus group participant discussed how the AANA's survey that addressed possible changes to the recertification activities and processes was received by CRNAs:

> "But the AANA survey's [problem] was how it was worded. It scared the sxxt out of everybody."

Ethics Is Paramount

CRNA focus group members said that nurse anesthetists' "professionalism is based on a culture of lifelong learning and ethical practice**."** Ethical implications surfaced as discussion centered around CRNAs who do not subscribe to on-going professional education and those who were unaware of or unwilling to acknowledge their declining critical thinking and technical skill. CRNAs discussed the ethics of these concerns:

> "How can recertification prevent bad practitioners from practicing? The culpability falls on the institution and on [all CRNAs'] personal and professional responsibility."

A focus group participant spoke of the responsibility CRNAs have to make certain other members of the profession are competent:

> "I think it goes back again to competencies. If someone comes that you don't know, you have a responsibility to make sure that person is safe and you do that by direct observation and making sure they understand, not only there is so much to it, but the basic anesthesia."

Another focus group participant identified that when there is a bad outcome, being open, present, caring, and truthful with patients is a CRNA's [ethical] responsibility:

> "If they have a bad outcome, you are not a bad person but you still have to go and make that post-op visit. You still have to explain to them why probably there was a bad outcome and then they accept it. I work in that situation everyday. I think it is a teaching piece that we as providers have to do for our patients. I think we have to talk to patients pre-operatively and go do our visits."

One participant expressed confidence that CRNAs are ethical in their decision making process when determining what they need to do to personally maintain a high level of professional competence:

> "I think we [CRNAs] are very good at assessing our practice and where we work and what we need to do to maintain our excellence in our practice."

Within the focus group discussion it was pointed out that it is ethically important that CRNAs know their clinical limitations. The participants also indicated that they felt it was important that CRNAs know how to address those limitations:

> "I have respect for someone who will let you know when it was beyond their capabilities. When someone I would interview for new CRNA staff ... all of a sudden they knew it all. They made me more nervous then anyone because I thought, 'Your learning is just really getting underway here and I hope you have enough sense to know when you are in over your head.' I have been doing this now for over 15 years … I know my strengths and limitations and actually in my mind have a little plan to whom am I going to contact and those people don't seem to think that is important."

Theme 4: Recertification Is Valued When It Demonstrates Competence

Members of the focus groups and the survey participants identified that a recertification process, which demonstrates a nurse anesthetist's competence is a needed and valued activity by individual nurse anesthetists and society. Not only is it needed for the nurse anesthetist, but it is needed for the livelihood of the profession. The topics that will be discussed within this section to provide additional insight into Theme 4 are (a) it [recertification] has to be meaningful to us and (b) it [recertification] needs to give society assurance of competency.

It Has To Be Meaningful To Us

Focus group participants pointed out that CRNAs' competency and the recertification had to be intertwined. Society wants a process that gives it confidence in

those who provide anesthesia to members of their community. Yet, a concern was expressed that one could not easily identify which competencies indicated a safe nurse anesthesia professional:

> "As a professional organization, we should not limit ourselves to defining competencies itself. I think what [participant] said is important, "What is the essence of a CRNA credential?" We cannot go into specifics because we have to realize that we practice in a wide variety of institutions."

Concern was expressed by CRNAs as to the current recertification processes' lack of a demonstration of competency:

> "…I think our cert or re-cert card carries far less meaning and value then it should, based on the way we recertify. It seems to me that you can sit in the hall downstairs or you can walk in and walk out and still get the same number of points and it is not very meaningful from the perspective of what it is supposed to stand for, which is continued competence. It is a crazy way and I know we don't use that phrase, *continuing education*, but there is a fictitious sense to it that it somehow means being competent."

> "I agree. I don't think that current recertification [process] is measuring competency. I think the majority of practitioners believe I maintain current knowledge of anesthesia to the best I can and there is no way we are measuring competency with the [current] recertification process."

It Needs To Give Society Assurance of Competency

> "I see the public demanding more of an accountability factor to show how you maintain that [competency]."

One group of CRNAs grappled with the question, "Does recertification equate lifelong learning, competency, and patient safety?":

> "Lifelong learning and recertification, is there a connection? In some ways you could almost demonstrate lifelong learning in a recertification process….We may make that linkage as to where they need to bolster their information and that commitment."

> "If I had to argue in front of somebody that the current system, [obtaining CMEs] reassure the public that a certain provider is certified as competent, I could not argue that [it does that or that] we are [competent]."

> "I thoroughly believe that the way all of medicine is going that at some time we are going to have to have validation of competency. They are pushing the simulator to do that."

Theme 5: Recertification Processes Demonstrate a High Level of Competency

Throughout the focus groups' comments reflecting the importance of CRNAs' competency were identified. As the comments were reviewed it became apparent that focus group participants were aware of the importance of a recertification process that could demonstrate CRNAs' competence to society, patients, and colleagues:

> "…because it is being driven by the public and consumers, if professions don't take that on themselves, to show that we are doing them [recertification activities] in some concrete fashion, whether it is a credentialing body or a regulatory agency, it may be shoved on us in some fashion which we don't like."

This awareness moved the research participants to take a frank look at what activities would provide an assurance of competency for members of the nurse anesthesia profession. The topics within this section, which informed Theme Five are: (a) competencies for the recertification process should be identified and (b) a variety of recertification activities demonstrate competencies.

Competencies for the Recertification Process Should Be Identified

An awareness of the importance of demonstrating nurse anesthetists' competency raised questions as to what recertification methods and activities are needed for CRNAs to provide assurance of competency to society, patients, and colleagues:

> "I want to talk about where I think it [recertification] should be and that is, I agree with what is on the table and it should be a demonstration of competency, somehow, and I believe that our patients believe that if we are going to put them to sleep we have recently intubated and we recently have managed [anesthetics]. Some people have not intubated in 10 years and if they do… I know this because I know people who have not done that and they have complications and trouble intubating because they have not done it. Our patients expect that we would be able to proficiently be able to handle an airway."

> "Isn't it trying to figure out what is the essence of being a nurse anesthetist? Is it airway management and/or is it line placement and/or is it understanding pharmacology and this particular set of 10 or 30 or 20 drugs that we would have to identify? Because I think we are all on the same page in terms of performance where people are safe. But what are the skill sets that constitute safe? I am not sure that airway is the only."

> "We also have to look at the fact that competency itself has many components. I mean there are people who are expert task performers that can't think their way out of a paper bag. And other people who might take 3-4 times to get the spinal in but by god if something starts going south they are the first one to pick it up. So, to demonstrate competency you have to think wait a minute there are the psychomotor domains, there are the cognitive domains and then there is what do you want to call it, crisis management skills or psychological ability to see the picture even when people are yelling and screaming and things are going down, because there are those who maybe cognitively understand what is happening but when the heat is on their performance starts tanking. There are an awful lot of components when we talk about being competent."

> "Obviously we are all pretty passionate about that. I think that something that would also work is increasing internet access to databases for the staff in ORs."

Recertification Activities Demonstrate Competencies

Several members of the focus group members identified lifelong learning as the basis for ensuring professional competency. CRNAs had a variety of ideas as to how to promote lifelong learning within the profession:

> "We have more things like algorithms or pattern responses to certain crisis like BP, seizures, ICP and things like that ... It would be nice as a profession to have these evidence based practice modules that we have in different areas and then people could know what we are supposed to do. Not to pigeon hole us but to give us a framework within which to work."

> "I would like to see all of our departments are really mandated to do real morbidity and mortality [M & M] conferences."

> "Every 2-4 years you go online and do these modules or a simulation and the next year you may be doing a simulation, you may be doing this, or that."

> "We need to work with students [nurse anesthesia students] so we don't always do things the same way. When working with students you update your practice."

> "It is good to go to other places [hospitals and surgical centers] and find out what is new."

> "I have seen people go to seminars and workshops through the AANA to learn new techniques or take a refresher course with spinals and epidurals. I have done it myself. I have seen some of the staff go to airway management courses, so I see that happening in our profession which is real positive."

> "That is not where people are having trouble and where they are killing people. It is on basic things. It is on recognition, airway issues, hypotensive crisis an arrhythmia and that is really where people need retraining reinforcement. It seems to me that we could build a program where what are those things where we can retrain on periodically.

A considerable amount of focus group discussion time was devoted to the recertification activity of hands-on simulation testing. Hands-on simulation testing generated the most in-depth focus group discussions of all the recertification activities identified throughout the focus group sessions. The discussions provided close inspection as to how this activity should be introduced into the recertification process, as a way to demonstrate CRNA competence:

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice because they never happen, like MH, anaphylaxis or the other ones. Airway, right?...which you could say that they are anesthesia adverse effects. Everybody needs to [show competency in these areas]."

> "Are we talking tasks or are we talking about providing experiences about making people [CRNAs] better? Or is this [simulation testing] a required experience to make people [CRNAs] better? I personally feel strongly that if we jump and we've talked about retesting in this profession as long as I have been in it, it seems to me that is where you get that horrible push back and you also cannot put a person in a simulator that has never seen one and test them because there is a learning curve to working with a simulator. Those of us that use simulators know that. But there are ways that you can bring people into those type of environments."

The focus group participants pointed out the concerns and the impact hands-on simulation testing for recertification could have on the individual CRNA and the nurse anesthesia profession:

> "I think we have to be willing to educate our members along the way because if we don't, first of all there is going to be a lot of backlash and people are going to say, I am going to keep on working even if I don't meet this. You know we can't expect that 30,000 people are going to be out of jobs. I think it is just all going to be how we sell this to the members, how we create it. You do the mandatory part like we talked about and then you work in the higher level competencies, skill building things over the next decades."

> "I think this is a demographic of where you are practicing too. Mine is rural practice. I don't do arts. I don't do carotids. I don't do brains. It is not that I can't do them but I would have to a refresher course and do it. So now if we are going to a simulator and they are going to test you in all of these areas, I probably would fail in some of those areas because I have done hearts but it has been years. It is like yeah I could retrain and do them again but it would be difficult. I am geared to rural anesthesia."

In spite of CRNAs' concern of feeling unprepared to undergo a hands-on simulation examination, which some feared could include demonstration of clinical activities not regularly used in a CRNA's current practice, discussions conveyed a general sense of expectation and acceptance of this activity as a viable means to provide evidence of CRNA competency. Many focus group participants felt professional lifelong learning could be demonstrated through the use of the critical thinking skills, technical skills, and case management skills purported to be evidenced during hands-on simulation sessions:

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice because they never happen, like MH, anaphylaxis or the other ones. Airway, right?...which you could say that they are anesthesia adverse effects. Everybody needs to [show competency in these areas]."

> "There are different ways to use a simulator…Is it punitive or is it something where we want to be able to access and /or teach and bring people to a standard

> level? Most of us use a simulator in that [positive] way in our educational programs."

It was important to some members of the focus groups that the basic skills of a CRNA would be tested in a simulated setting:

> "That [the complex case] is not where people are having trouble and where they are killing people. It is on basic things. It is on recognition, airway issues, hypotensive crisis, an arrhythmia, and that is really where people need retraining reinforcement. It seems to me that we could build a program where what are those things where we can retrain on periodically…I wrote down a half dozen things that people should be retrained every couple of years."

Some members of the focus groups saw applicability of the hands-on simulation recertification exams that went beyond the basic skills:

> "Currently recertification is the significant engagement of a nurse anesthesia practice. But practice is not necessarily defined as clinical practice. It could be defined as research, administration, just like everyone is talking about, multiple facets. If you are significantly into research, simulation could be used to demonstrate competence in research protocol in a simulator. So it is not just necessarily clinical scenarios as XX was talking about. So there is a wide variation in what we could use simulation for. The question is how, right now I agree with the majority of CRNAs you were to walk up and say what is recertification, they would say clinical competence, unless they are engaged in another role. If you are engaged in another role your recertification needs should look very different theoretically."

Involving the AANA in the development of simulation training and testing centers was identified as a possible contribution the nurse anesthetists' professional association could make that would ensure a level of competency among its members:

> "That is the ideal for AANA to get involved in this. Set up [simulation testing] centers around the United States and you would go through a difficult intubation course, get refreshed, go through a simulator course that you pay for, if you want to continue practice you go in there for a week and go through simulated studies and brush yourself up to show that still have the skills."

Focus group participants identified a need for a change in the current system of requiring only Continuing Medical Education (CME) as the recertification activity for the nurse anesthesia profession:

> "Some people think CME courses are the answer. But they [CME courses] are passive. They don't provide documentation of interaction with the knowledge provided."

Conversely one of the focus group participants shared the belief that the current system is adequate and should remain in place unchanged:

> "I hope we never come to that [change CRNAs' recertification process] because first of all I think our society [AANA] has done a good job. They require 40 continuing education units (CEUs) every 2 years. You have to keep that current, ACLS and different things, and I think that most people do that. You know, that is a good process to have in place and I don't necessarily think we have to go all the way to the extreme of saying come in here we have to give you a test on a little mannequin over here that shows you can provide the anesthesia or not."

Survey Comments and Numerical Results

The voices of the CRNAs were heard during the focus group sessions, but another aspect of this research was to hear what CRNA associates had to say when reflecting on what the CRNA profession's recertification process and associated activities meant in their working relationships with CRNAs. The main areas which will be expanded on in the following discussions are (a) survey comments, (b) survey recertification process scores, (c) recertification activity scores, (d) statistical significant results, and (e) other recertification and professional activity scores.

Survey Comments

The survey comment data were analyzed using grounded theory development methods described by Creswell (1998), Glaser and Strauss (1999), Krueger (1998b), and Strauss and Corbin (1998). The survey participants' comments further elucidated the

importance the recertification process, recertification activities, and professional activities had in demonstrating nurse anesthetists' competence. In this section survey comment data that informed Themes 1 through 5 will be reported.

Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession

A theme expressed by CRNA colleagues, administrators, and employers when providing written comments, which supplemented their quantitative survey responses, was the positive results of CRNAs participating in lifelong learning. That theme was expanded upon when survey respondents addressed the pride that surrounds the high level of quality CRNAs provide at their institutions:

> "I have to utmost respect for the CRNAs we have here. They are always very professional and most important competent."
>
> "In a smaller hospital with only 5 CRNAs, they have to really be comfortable and knowledgeable in how to handle all different cases and situations."
>
> "I depend on CRNAs for quality patient care."

Comments were also written supporting the concept that the recertification process documented and demonstrated the value of professional activities:

> "Professional competence/social stability/Personality and ability to relate in all social activities with ease are most important in my assessment(s)."
>
> "This expertise [Lecturing for the community] and ongoing recertification of such will enhance patient safety, quality and credibility in the practice of this professional."

Theme 2: The Yang of Professional Lifelong Learning

It was important to CRNA colleagues and administrators that CRNAs are lifelong learners and that they are professional. A theme heard throughout the survey respondents' comments was that while various professional activities are important, they do not necessarily demonstrate CRNAs' practice competency. Generalized lifelong learning was

recognized as an important goal, but when participants considered the nurse anesthesia profession's recertification process they identified it was important that recertification activities lead to enhanced practice competencies:

> "This [professional activities] should not be required, but does offer additional dimension [to CRNA role and consideration in recertification]"

> "Recertification should be separate process, independent of other professional aspects. Recert should assess knowledge level and some quantitative /qualitative evaluation of clinical/technical skills/ experience."

One respondent commented on the low value they would place on a recertification process that placed importance on just paying professional dues:

> "Bringing [paying] money [to a professional organization] does not denote professionalism."

Although it was pointed out that not all CRNAs have an opportunity to instruct students, the professional activities related to educational activities were valued as an indicator of professionalism by many of the survey respondents:

> "Value in providing some type of support to educating the future."

Theme 3: Reconciliation: Incompetence Is Unacceptable

Survey participants identified that the Yin and the yang of lifelong learning needed to be reconciled so that a recertification process and associated activities would assure CRNA competence. There was an expectation that the CRNA recertification process would identify both competence and incompetence, thus assuring patient safety:

> "[CRNAs need to be] knowledgeable to handle all cases and situations."

A survey respondent noted that a new recertification process that would demonstrate competence was needed and must be supported:

> "This will be a transition-we must support the [new recertification] process [i.e., simulation, recert exam, etc]."

Theme 4: Recertification is Valued When It Demonstrates Competence

Threaded throughout the survey responses were comments about how important it was to each individual respondent that a recertification process for nurse anesthetists demonstrated CRNAs' knowledge of current anesthesia practice and competence within the practice of anesthesia. The theme that recertification is personally valued by those who work with or employ CRNAs when the process demonstrates competence, was summed up in the following statements:

> "Recertification is vital to the future of nurse anesthesia. If it is not done, quality/safety will not be ensured."

> "I have the utmost respect of the CRNAs we have here. They are always very professional and most important competent."

Other respondents continued with that theme when sharing the following comments:

> "I want them [CRNAs] to be current and up to date with new technology and science."

Theme 5: Recertification Activities Should Demonstrate a High Level of Competency

The final theme heard through CRNA colleagues' and employers' comments was the high value placed on a recertification process for nurse anesthetists. Survey comments identifying that the recertification process would be valued as long as the required recertification activities would actually result in a high level of CRNA clinical competency:

> "I feel demonstration of hands-on [simulation] experience is very vital. Also, a mechanism to ensure individuals are keeping up to date in their respective field."

> "I feel that CRNAs may also benefit from a recertification [exam] process in addition to an initial clinical exam for initial certification."

"[CMEs] show effort to stay current, maybe?"

Survey comments were made about specific activities listed within the survey itself. The participants' comments discussed why specific activities listed in the survey did or did not provide assurance of competence to the respondents.

Continued medical education courses.

"Shows effort to stay current. Keeps [CRNAs]updated on what's new."

Recertification exam.

"[Exams] test knowledge and verifies knowledge."

"[Shows] written proof of recertification to public."

Hands-on simulation testing.

"I think this speaks to true skills and verifies knowledge."

"Best overall assessment. Not only should you [CRNAs] be tested [for knowledge level], but also tested for clinical competency."

"[Downside of] it [simulation] is [it is] not widely available."

Case log.

"[It provides an accounting of the] simple #s of cases - peds, CV, etc [a CRNA has delivered]."

Portfolio.

"No correlation to competence."

Survey comments were made regarding the seven professional recertification activities identified in the survey. Although participants acknowledged that the activities were worthwhile, some indicated that they were uncertain as to the assurance of a CRNA's competence those activities would provide.

> "I don't feel any of these [professional activities] play a role in recertification process. It [recertification] should be test[ing] knowledge and competency and none of these do [that]."

Medical missions.

> "[Mission work and lecturing for nurse anesthesia programs] Both of these activities are important and value added but not required to prove continued competency."

Clinical and didactic instructors.

> "Important but everyone isn't "made" to lecture."

> "Unequal opportunity and personal life commitments need to be considered."

Membership and active participation in professional organizations.

> "[Survey items #] 23 and 24 [indicated]: Political involvement alone is not a factor.

Dress and decorum.

Survey participants identified that CRNAs' attention to their dress and decorum contributed to perceptions of CRNA competency:

> "Dress? They always wear scrubs. I expect proper decorum in a professional."

> "Perception is everything."

Survey Scores

Survey scores were used to obtain an enhanced understanding of how the CRNAs' colleagues, administrators, and the overall group of associates viewed CRNA competence in relation to the profession's recertification process. The CRNA associates rated and ranked how confident they felt specific recertification and professional activities would be as an indication of a CRNA's competence. Each participant's mean rating or ranking score for each item was then combined with the members of the appropriate groups (e.g., Overall, Colleague, and Administrator) to obtain a group mean

score. Each group item's mean rating score was then placed in rank order with the other recertification or professional activities. Each group's mean ranking scores for both recertification and professional activities were also placed in rank order.

Survey Recertification Process Scores

A five-point Likert Scale (5 equaled *Very Important,* 4 equaled *Important,* 3 equaled *Neutral, 2* equaled *Not Important*, and 1 equaled *No Value)* was used to rate the level of CRNA competency survey respondents felt the items, related to a recertification process, provided. The mean scores and standard deviations obtained from the Overall group's ($N = 21$) responses indicated that a process which verified CRNAs' skills (4.48, +/- 0.81) and CRNAs' current knowledge base (4.71, +/- 0.64) was rated *greater than important* in demonstrating CRNAs' competence. A process that provided assurance of competency when hiring a CRNA (3.81, +/- 1.08), was rated as *greater than neutral* importance (see Table A2, Appendix A).

To give a more individualized look at how CRNAs' Colleagues ($n = 9$) and Administrators ($n = 12$) valued the three items related to nurse anesthesia recertification processes, the Overall group of survey participants was divided into two subgroups. A process that demonstrated CRNAs' technical skills was found to rate *greater than important* for the Colleague (4.44, +/- 0.73) and the Administrator (3.92, +/- 0.66) subgroups of survey respondents. A process that demonstrated CRNAs' current knowledge was found to also rate *greater than important* for the Colleague (4.56, +/- 0.73) and the Administrator (4.83, +/- 0.58) subgroups. The level of assurance of competency the recertification process provided when determining if a respondent

worked with nurse anesthetists was rated *greater than neutral* by for the Colleague (3.78, +/- 1.20) and the Administrator (3.83, +/- 1.03) subgroups (see Table A2, Appendix A).

Importance of Recertification Activities

Survey respondents rated the level of CRNA competence they felt the five individual recertification activities demonstrated. The results of the Overall group's mean rating and ranking scores for each activity are reported in the following section. The Colleague (C) and Administrator (A) subgroups' responses are reported in the same manner as the Overall group's responses.

Each listed recertification activity was rated using the previously described five point Likert scale. The Overall group's ($N = 21$) mean scores indicated that the written recertification exams (4.19, +/- 0.81), CME lectures/ courses (4.14, +/- 0.73), and simulation hands-on exam (4.00, +/- 1.05) all demonstrated levels of assurance of CRNA competency *equal to or greater than important*. Similar *equal to or greater than important* mean ratings were reported by the two subgroups for CME lectures/ courses (4.44, +/- 0.73 = C and 3.92, +/- 0.66 = A), written recertification exams (4.00, +/- 1.00 = C and 4.33, +/- 0.98 =A), and simulation hands-on exam (3.56, 1.03 = C and +/- 4.33 = A) activities. Mean subgroup rating scores for case logs (3.22, +/- 1.20 = C and 3.91, +/- 0.67 = A) and portfolios (3.00, +/- 0.87 = C) activities were *greater than neutral.* Administrators rated portfolios (2.92, +/- 0.51) as a *below neutral* activity (see Table 5 and Table A2, Appendix A).

Rank order scaling was used to determine the most important (score of 5) recertification activity down to the least important (score of 1) activity. The Overall group's ($N = 21$) mean ranking scores, resulted in simulation hands-on exam receiving

the highest mean rank score (3.80, +/- 1.06), followed by CME lectures/ courses (3.57, +/- 1.16), written recertification exams (3.43, +/- 1.33), case logs (2.95, +/- 1.24) and finally portfolios (1.38, +/- 0.80). The Colleague subgroup's (n = 9) mean ranking of the five recertification activities, resulted in CME lectures/ courses receiving the highest mean rank score (3.57, +/- 1.16), followed by simulation hands-on exam (3.25, +/- 1.04), written recertification exams (3.11, +/- 1.45), case logs (2.67, +/- 1.50), and finally portfolios (1.89, +/- 0.71) . The Administrator subgroup's (n = 12) mean ranking of the five recertification activities, resulted in simulation hands-on exam receiving the highest mean rank score (4.17, +/- 0.94), followed by written recertification exams (3.67, +/- 1.23), case logs (3.17, +/- 1.03), CME lectures/courses (3.08, +/- 0.97), and finally *portfolios* (1.00, +/- 0.00) activities (see Table 6 and Table A2, Appendix A).

Importance of Professional Activities

Survey respondents were asked to rate seven individual professional activities as to the level of CRNA competence each activity demonstrated. The data was analyzed to determine the Overall group's mean rating and ranking scores for each activity. The Colleague (C) and Administrator (A) subgroups' responses were analyzed in the same manner as the Overall group's responses.

Each of the seven listed professional activities were rated using the previously described five point Likert scale. The Overall group's highest mean rating score was determined to be for the clinical instructor for a nurse anesthesia program (4.05, +/- 0.74) activity, followed by participation in professional organization (3.86, +/- 0.65), membership in professional organization (3.85, +/- 0.67), dress and decorum (3.71, +/- 0.94), lecturer for nurse anesthesia program (3.52, +/- 0.68), lecturer for the community

Table 5

Ranking of Recertification Activities' Mean Rating Scores

Rank	Overall colleagues and administrators (n=21)	Colleagues (*n*=9)	Administrators (*n*=12)
1	Case Log	Portfolio	Portfolio
2	Portfolio	Case Log	Case Log
3	Simulation Test-out	Simulation Test-out	Continuing medical education courses
4	Continuing medical education courses	Written Exam	Written Exam
5	Written Exam	Continuing medical education courses	Simulations Test-out

Note. A 5 point Likert scale was used: 5= Very important and 1= No value. A 5 point ranking scale was used: 5= Most important and 1= Least important.

Table 6

Ranking of Recertification Activities' Mean Ranking Scores

Ranking	Overall colleagues and administrators (n=21)	Colleagues (*n*=9)	Administrators (*n*=12)
1	Portfolio	Portfolio	Portfolio
2	Case Log	Case Log	Continuing medical education courses
3	Written Exam	Written Exam	Case Log
4	Continuing medical education courses	Simulation Test-out	Written Exam
5	Simulation Test-out	Continuing medical education courses	Simulations Test-out

Note. A 5 point ranking scale was used: 5 = Most important and 1 = Least important

(3.14, +/- 0.66), and finally medical mission trips (2.90, +/- 0.60) activities (see Table A2, Appendix A).

The Colleague subgroup's *(n* = 9) rating of the seven professional activities, resulted in both the clinical instructor for a nurse anesthesia program (4.11, +/- 0.78) and participation in professional organization (4.11, +/- 0.78) activities receiving the same highest mean rating score. Following the two activities which received the Colleague subgroup's highest professional mean scores were membership in professional organization (3.89, +/- 0.93), lecturer for nurse anesthesia program (3.22, +/- 0.67), dress and decorum (3.67, +/- 0.87), lecturer for the community (3.22, +/- 0.67), and finally medical mission trips (2.77, +/- 0.67) activities (see Table 7).

The Administrator subgroup's (*n* = 12) rating of the professional activities identified clinical instructor for a nurse anesthesia program (4.00, +/- 0.74) as the highest rated professional activity, which corresponded with the Colleague subgroup's highest rating. Using mean rating scores, professional activity was followed in importance by membership in professional organization (3.82, +/- 0.40), dress and decorum (3.75, +/- 1.06), participation in professional organization (3.67, +/- 0.50), lecturer for nurse anesthesia program (3.42, +/- 0.51), lecturer for the community (3.08, +/- 0.67), and medical mission trips (3.00, +/- 0.60) activities. Both the Overall group and the Colleague subgroup rated medical mission trips activities as the professional activity that was least likely (score of 1) to demonstrate CRNAs' competence (see Table 7)

Continuous rank order scaling was used to identify the most important (score of 7) recertification activity down to the least important (score of 1) activity. The Overall group's mean ranking scores, resulted in clinical instructor for a nurse anesthesia program receiving the highest mean rank score (5.14, +/-1.98), followed by membership in professional organization (5.05, +/-1.66), lecturer for nurse anesthesia program (4.57,

Table 7

Ranking of Professional Activities' Mean Rating Scores

Rank	Overall colleagues and administrators (n=21)	Colleagues (*n*=9)	Administrators (*n*=12)
1	Participation in medical mission trips	Participation in medical mission trips	Lecturer for Community
2	Lecturer for Community	Lecturer for Community	Participation in medical mission trips
3	Dress and Decorum	Dress and Decorum	Participation in AANA
4	Participation in AANA	Lecturer for nurse anesthesia program	Dress and Decorum
5	Lecturer for nurse anesthesia program	Membership in AANA	Lecturer for nurse anesthesia program
6	Membership in AANA	Participation in AANA	Membership in AANA
7	Clinical Instructor	Clinical Instructor	Clinical Instructor

Note. A 5 point Likert scale was used: 5 = Very important and 1 = No value. A 7 point ranking scale was used: 7 = Most important and 1 = Least important.

+/-1.75), participation in professional organization (4.29, +/-1.93), dress and decorum (3.67, +/-2.22), lecturer for the community (2.90, +/-1.75), and medical mission trips (2.48, +/-1.33) activities (see Table A2, Appendix A).

The Colleague subgroup's mean ranking of the seven professional activities, resulted in clinical instructor for a nurse anesthesia program receiving the highest mean rank score (5.22, +/-2.17) followed by membership in professional organization (5.00, +/-1.73), participation in professional organization (4.89, +/-1.58), lecturer for nurse

Table 8

Ranking of Professional Activities' Mean Ranking Scores

Rank	Overall colleagues and administrators (n=21)	Colleagues (*n*=9)	Administrators (*n*=12)
1	Participation in medical mission trips	Participation in medical mission trips	Participation in medical mission trips
2	Lecturer for Community	Lecturer for Community	Lecturer for Community
3	Lecturer for nurse anesthesia program	Lecturer for nurse anesthesia program	Lecturer for nurse anesthesia program
4	Dress and Decorum	Dress and Decorum	Participation in AANA
5	Membership in AANA	Membership in AANA	Dress and Decorum
6	Participation in AANA	Participation in AANA	Membership in AANA
7	Clinical Instructor	Clinical Instructor	Clinical Instructor

Note. A 7 point Likert scale was used: 5 = Very important and 1 = No value.

anesthesia program (4.56, +/-2.01), lecturer for the community (3.33, +/-2.00), dress and decorum (3.11, +/-1.90) and finally medical mission trips (2.11, +/-1.05) activities (see Table 8).

The Administrator subgroup's ranking of the seven professional activities, resulted in both clinical instructor for a nurse anesthesia program (5.08, +/-1.93) and membership in professional organization (5.08, +/-1.68) activities receiving the highest mean rank scores, followed by lecturer for nurse anesthesia program (4.58, +/-1.62), dress and decorum (4.08, +/-2.43), participation in professional organization (3.83, +/-1.56), medical mission trips (2.75, +/-1.48), and lecturer for the community (2.58, +/-1.61) activities. (see Table 8).

Summary

The focus group and survey data helped to inform the five themes that shaped a grounded theory for the nurse anesthesia profession's recertification process. Members of the nurse anesthesia profession who participated in the focus groups and the survey participants, identified recertification as a needed and valued activity for members of the CRNA profession.

Research results expanded the picture of what CRNAs and CRNA associates value in a recertification process and which recertification and professional activities would provide needed assurance of CRNA competence. Three recertification activities were identified that would signal assurance of CRNAs' competence. Hands-on simulation experience and testing, continuing medical education, and written exams surfaced as valued recertification activities which could provide survey participants a level of assurance of CRNAs' competence.

Focus group data identified that recertification activities via hands-on simulation experience and testing was the recertification option that would provide the most assurance of CRNAs' competence. Within those focus group discussions, concern was expressed as to how to introduce and implement hands-on simulation as a recertification activity.

Although a strong mandate for using the listed professional activities as recertification tools to ensure competence was not voiced by the focus group and survey participants, but the numerical value of survey results and survey and focus group participants' comments, indicated that there was a sense that most of the listed professional activities were valuable professional activities. Providing instruction for

nurse anesthesia students was the most frequently cited professional activity that would demonstrate assurance of CRNA competency by both the Colleague and Administrative subgroups of survey respondents. Survey results also indicated that active participation in the profession's national and state organizations would be valuable professional activities.

Focus group and survey participants identified that changes to the current CRNA recertification process were needed. Only a few of the focus group CRNAs and none of the survey participants specifically indicated that the recertification process should remain unchanged. With those few exceptions the survey and focus group participants indicated that new or renewed emphasis on quality recertification processes, recertification activities, and/or professional activities were needed to assure the nurse anesthetist would be viewed as a highly competent individual and assure that the anesthesia profession would continue to be viewed as a profession which values CRNA competency.

Creswell's (1998) grounded theory development steps (see Figure 2), which ultimately combined survey and focus group data, resulted in a grounded theory for the nurse anesthesia profession's recertification process. This grounded theory is expressed in three ways. It is described in a narrative statement, a graphic illustration, and a table format (see Figure 3 and Table 9).

The narrative expression of the grounded theory is: *The recertification process includes a system of inputs and activities leading to the outcomes of refreshed and increased knowledge and skills for the individual CRNA, achieving the goal of enhanced professional competence. Thus, an effective mandated nurse anesthesia recertification*

process is a reiterative one in which having reflected on current anesthesia practices, the CRNA engages in needed recertification activities, thereby increasing individual professional competence in cognition and safe delivery of anesthesia and greater professionalization within the field.

Figure 3. Graphic depiction of a grounded theory for the nurse anesthesia profession's recertification process

Table 9

A System's Overview of the Nurse Anesthesia Profession's Recertification Process

	Steps	Description
1.	Inputs	Reflection on practice leads a CRNA to identify a need to enhance or add a case management skill or essential anesthesia knowledge.
2.	Recertification process activities	Commitment to lifelong learning leads CRNAs to participate in activities which increase professional competence in identified areas of practice, e.g., Valued recertification activities: Hands-on simulation of needed activity Written exam of current practice Continuing education activities: (Lectures, workshops, demonstrations) Professional activities: Clinical instructor Membership and participating in national organization.
3.	Intended individual outcomes for nurse anesthetists	Refreshed and increased professional knowledge and skills, e.g., Increased competence: Case management skills and knowledge. Implementation of evidence-based anesthesia practice. Commitment to professional ideals and practice standards.
4.	Intended impact on the profession	Development of safe, competent, and professional anesthesia providers who individually have a commitment to lifelong learning, thereby enhancing professionalization within the field.

CHAPTER FIVE: DISCUSSION

A grounded theory for the nurse anesthesia profession's recertification process was developed to provide the individual CRNA, the profession, society, and other members of the health profession a sense of which activities CRNAs value and what goals they are striving to achieve when taking part in their professional recertification process. The narrative expression of this grounded theory are the following statements: *The recertification process includes a system of inputs and activities leading to the outcomes of refreshed and increased knowledge and skills for the individual CRNA, achieving the goal of enhanced professional competence. Thus, an effective mandated nurse anesthesia recertification process is a reiterative one in which having reflected on current anesthesia practices, the CRNA engages in needed recertification activities, thereby increasing individual professional competence in cognition and safe delivery of anesthesia and greater professionalization within the field (see Figure 3 and Table 9).*

The variety of professionals who participated in this grounded theory research reflected the diversity seen in the nurse anesthesia practioners, practices, and their associates (see Tables 3 and 4). The decision to ensure participant diversity was born out when the participants of this research identified important components of a recertification process, with the caveat that the process needed to take into account the CRNAs' diversity of anesthesia practice, case management, and various learning styles (Dulisse & Cromwell, 2010; Foster & Faut-Callahan, 2001; Gardner, 1999; Hogan, Seifert, Moore, & Simonson, 2010).

Through the CRNA focus group participants' own words, the written comments of survey participants, and analysis of the survey items' numerical results, a clearer

picture of the value placed on the nurse anesthesia recertification process was revealed. The survey and focus groups identified the importance they placed on a recertification process that provided a sense of assurance that CRNAs are competent when delivering anesthesia to patients in a multitude of settings. In that context it is important to note that in the United States anesthesia is delivered by CRNAs in a variety of practice settings. CRNA practice settings include rural, urban, suburban, academic, and outpatient settings. Nurse anesthetists also provide anesthesia in combat and noncombat settings and as volunteer anesthetists for patients in developing and underserved countries. CRNAs deliver anesthesia in a routine manner to fairly healthy patients undergoing routine surgeries. CRNAs also provide anesthesia for more difficult and complex patients undergoing complex surgeries. At the highest end of the continuum of anesthesia complexity, CRNAs provide anesthesia for extremely ill patients undergoing highly specialized cardiac, transplant, pediatric, neurosurgery and obstetrical procedures (Dulisse & Cromwell, 2010; Foster & Faut-Callahan, 2001; Hogan, 2010).

The concepts and theories that undergird the grounded theory developed from the research data will be presented in the following sections. The main headings for this chapter will be (a) existing theories undergird the recertification process and (b) the theory.

Existing Theories Undergird the Recertification Process

Research for this grounded theory identified clinically and educationally based values, activities, and goals for the nurse anesthesia profession's recertification process. The resulting grounded theory is supported by established theories that underpin the identified research themes. An enhanced view of how the identified themes are bolstered

by established theories, will allow the profession, the medical community, and society to have an additional layer of confidence in this grounded theory. While reflecting on each theme and subtheme there were distinct learning theories and associated theories and concepts that provided additional support for this grounded theory for the nurse anesthesia profession's recertification process (see Table A3, Appendix A).

As the analysis of the focus group and survey data progressed, it became apparent that not just one or two theories would enhance the understanding of the many facets of knowledge, skills and professionalism that participants of this study felt were needed to demonstrate competence within the profession. The theories associated with this grounded theory's themes signaled a desire for a recertification process that encourages meaningful professional growth and a demonstration of CRNAs' competency. Within the topic of existing theories undergird the recertification process, the following topics related to supporting theories and concepts will be discussed for Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession, Theme 2: The Yang of Professional Lifelong Learning, Theme 3: Reconciliation: Incompetence is Unacceptable, Theme 4: Recertification Is Valued When It Demonstrates Competence, Theme 5: Recertification Activities Demonstrate a High Level of Competency, survey comments, and numerical results.

Supporting Theories and Concepts for Theme 1: The Yin Of Lifelong Learning: There Is Pride in the Profession

A multitude of theories support the importance CRNAs place on lifelong learning and their pride in their professional scope of practice. Self-determination theory (Ryan & Deci, 2000) acknowledges that if individuals [CRNAs] are to maintain pride in their

profession, they must recognize that rapid changes in their practice knowledge and skills are required. CRNAs' pride in their profession was also reflected in their commitment to lifelong learning and high level of competence, through incorporating evidence-based research (Biddle, 2010) into their practice.

Nurse anesthetists and their associates identified strong affinity and support for lifelong learning within the nurse anesthesia profession. There are a wide variety of adult learning theories and learning theories and concepts which validate the importance of lifelong learning and competence for the individual CRNA and their profession. Competency models (Epstein & Hundert, 2002; Foster & Faut- Callahan, 2001; Martin-Sheridan et al., 2003; Nahrwold, 2002; Neufield, 1985; Spencer, S. & Spencer, L., 1993) and evidence-based learning theories (Biddle, 2010; McFadden & Thiemann, 2010) reflect CRNAs' commitment to lifelong learning and a high level of competence as a result of utilizing evidence-based research.

Cognitive Theory (e.g., cognitivism, contextualized individual learning, social cognitivism and constructivist learning theories) describe the complex problem solving required of all CRNAs. CRNAs organize professionally learned information for future use in manner that is easily accessible when emergent [practice] situations arise (Bandura, 1999; Brunner, 1996; Gagne, Briggs, & Wagner, 1992). The areas of focus in this section will be (a) scope of practice is a source of professional pride, (b) a commitment to quality anesthesia care is necessary, and (c) professionalism/professionalization is necessary.

Scope of Practice Is a Source of Professional Pride

CRNAs have diverse practice models, but all are equally proud of their profession. During the focus group sessions, various CRNAs voiced pride in their clinical abilities, pride in their practice settings and scope of practice, pride in caring for military veterans, and pride in taking on non-clinical roles which helped to move their profession forward. The grounded theory was further informed by linking Maslow's (1968) *self-actualization theory* with the pride CRNAs have in their knowledge and skill competencies. CRNAs' also expressed an awareness that they must continually work at becoming the very best in their practice roles:

> "I think in addition to that is … what are the new things? What are the updates that are coming through? What is evidence-based practice? I mean do you practice based on evidence that is current, because you may 5-10 years ago certified, the knowledge base you had 10 years ago is different from now? I think that is what we have to look at as a professional…"

A Commitment to Quality Anesthesia Care is Necessary

The participants of this research brought forth the concept that all CRNAs must have a commitment to providing quality anesthesia care at all times. Cognitive theory (Gagne, Briggs, & Wagner, 1992) provided a basis for CRNAs' need to organize previously learned professional knowledge and skills in a manner that allows knowledge and skills to be utilized at the very moment they are needed. Contextualized and social cognitive learning theories (Bandura, 1999; Bruner, 1996) informed the complex problem solving process that is also necessary when CRNAs provide quality anesthesia care.

The drive to keep CRNAs' generalist skills current was reflected in Hager, Russell, & Fletcher's (2008) goals to enhance competence and performance in daily practice situations. Focus group participants identified that all CRNAs need to recognize

it is necessary to the individual CRNA and the profession to have a commitment to providing quality anesthesia.

The survey data also attested to the importance survey participants placed on a recertification process, which when employing or working with a CRNA would assure CRNAs' have an expected level of technical skill and knowledge. Similar to what Schon (1991) expressed in *The Reflective Practitioner* and to what other proponents of *reflective learning* have described (Laurillard, 2002, Mott, 1998, Kolb, 1984), CRNAs spend time reflecting on what they value and what they need to do to provide better care for every subsequent anesthetic they provide:

> "… I really had to teach myself, but I did not really teach myself, I came to the meetings here. I learned how to use a new gas. I had to start using Sevo when I was all by myself. I had to start putting a LMA in. The first [thing] I did when I was going out by myself was do training with Ohio Company so I could take apart and put together my anesthesia machine if I needed to. So it goes back to, I have a background just like everyone else. Something goes bad while I am working, I have a back up just like everyone else. I have to take in oxygen. You pick your cases. You decide for instance, are you going to use the LMA, what if I can't do the airway. The ones I tried it on were the little old fellows with no teeth that I knew I could tube in a fast way. I came here to learn it at this meeting or another meeting where I could pick out what I wanted and went home and did it."

> "I think it is individual. It is personal. You wanted to learn all of that [new information related to your anesthesia practice], so you went out and found out how to do all those things. If you did not want to do that you would have to stay in that box."

While evidence-based learning is an emerging expectation for all nurse anesthetists (Biddle, 2010), Kolb's (1984) *experiential learning theory* continues to resonate within the profession. Experience provides the foundation for lifelong evidence-based learning. When CRNAs connect what they learn to what they practice, the material becomes more relevant and memorable (Kolb, 1984; Laurillard, 2002). CRNAs also

recognized their need for lifelong learning through experiences they encounter in their day-to-day practice or observation of colleagues' practice activities:

> "I have seen people go to seminars and workshops through the AANA to learn new techniques or take a refresher course with spinals and epidurals. I have done it myself. I have seen some of the staff go to airway management courses, so I see that happening in our profession which is real positive."

When examining what *professional lifelong learning* actually means to the nurse anesthesia profession, the term can be divided into two parts, (a) professionalism or professionalization and (b) lifelong learning. CRNA participants of this research were able to provide definitions of *professionalism* within the nurse anesthesia profession.

Professionalism/Professionalization Is Necessary

Langenbach (1993) and Houle (1980) concurred, in concept, with the CRNAs' definitions of *professionalism*.

> "The bottom line is that it is the practitioners' professionalism to keep himself up to date. Keep the person's skills up to date or know where or when not to practice."

Reflecting on Langenbach's and Houle's definitions, it was evident that CRNAs felt it was important that the term professionalism should, in reality, be viewed as the more active concept of professionalization. Langenbach (1993) stated, "The goal [of professionalization] is not to achieve some ideal state, once and for all, but to continue to strive for goals that lie outside their reach" (p.111). When discussing the importance of *professionalization* as a concept versus the more static term of *professionalism*, Langenbach (1993) referenced the following passage written by Houle (1980):

> The needs of society require that every professionalizing occupation become better than it is, and at least part of the effort it must exert is the improvement of

> its pattern of lifelong learning. A dynamic concept of professionalization offers educators both the opportunity and the challenge to use active principles of learning to help achieve the basic aims of the group which they work. (Houle (1980, p. 30)

Lifelong learning is the second part of the term *professional lifelong learning.* Throughout the development of the grounded theory for the nurse anesthesia profession's recertification process, *(professional) lifelong learning* has been used extensively by this researcher when developing this grounded theory. During focus group discussions centering on lifelong learning, several concepts surfaced that helped to highlight the importance of lifelong learning to the nurse anesthesia profession and informed this grounded theory.

Houle's (1980) concept of *three modes of learning* informed the following survey comments:

> "I am concerned about the few CRNAs who demonstrate a lack of commitment to lifelong learning."

> "I want to be certain that all CRNAs continue to expand their knowledge of current anesthesia practice."

The three modes provide a roadmap as to how to engage those who lack the ability or drive to be a professional lifelong learner. Houle (1980) determined that there were three overlapping avenues for learning within one's professional environment. *Inquiry* occurs when an individual or group investigates a new idea whose outcome is not known. He contrasted *inquiry* with *didacticism* (e.g., learning via a lecture), where the objectives are predetermined. The second mode of learning Houle identified was *instruction.* Objectives are known and at times activities are planned in advance of

continuing professional education instruction. The final mode Houle (1980) discussed was *performance,* "The mode of *performance* is the process of internalizing an idea or using a practice habitually, so that it becomes a fundamental part of the way in which a learner thinks about or undertakes his or her work" (p.32). Langenbach (1993) felt it was important to recognize that in order for an educational effort to have any impact on a professional, that professional must "… incorporate the newly acquired knowledge, skill, or sensitivity in his or her behavior … " (p. 109).

In the context of this grounded theory, Houle's (1980) *performance* mode of learning could be taken literally when identifying meaningful CRNA recertification activities. CRNAs would be asked to perform a return or hands-on demonstration of skills that would allow them to be recertified. The learner who is not committed to lifelong learning or the person who does not have needed knowledge of current practice, would not only hear about what they need to know to demonstrate a set level of competence, they would learn, during the recertification process, how to use the demonstrated knowledge and skills. The needed knowledge and skills for recertification would then be incorporated into the CRNA's professional behavior:

> "What I am saying is, is this [simulation testing] pass/fail or is it let's get this person to the level where they need to be? So let us say you can't clip through malignant hypothermia algorithm [the first time], but at the end of this experience with the simulator, if you can, is that really what we are out after or [is it] to remove people from practice? We cannot remove people from practice, we have to teach people and then it won't be as threatening to people. They know they can go and learn and get better."

There are a variety of theories which explicate the concept of professional lifelong learning. Adult learning theories (i.e., behaviorism, cognitive, constructivist, content, continuing professional education, continuing medical education, experiential, reflective

learning, transformative learning, and Gardner's (1999) multiple intelligences,) and competency theories associated with continuing medical education and recertification, all help to undergird this grounded theory's emphasis on the CRNAs' need to continually expand their knowledge of current anesthesia practice, along with their individual professional competence in cognition and safe delivery of anesthesia and to obtain greater professionalization within their field.

Supporting Theories and Concepts for Theme 2: The Yang of Professional Lifelong Learning

The importance of continuing medical education (CME) has been identified by many medical disciplines. Hager, Russell, and Fletcher (2008) stated, "With accelerated advances in health information and technology, physicians, nurses and other health professionals must maintain and improve their knowledge throughout their careers in order to provide safe, effective, and high quality healthcare for their patients" (p. 13). But concern has also been expressed as to the state of CME, "Yet continuing education in the health professions is in disarray … CE, as currently practiced, does not focus adequately on improving clinician performance and patient health. There is too much emphasis on lectures and too little emphasis on helping health professionals enhance their competence and performance in their daily practice" (Hager, Russell, & Fletcher, 2008, p.13).

With the concern that continuing medical education (CME) did little to enhance competence and performance within the medical professions, Miller (1990) identified four levels of physician learning and assessment (see Table 1) that should be considering when developing CME material. These levels of learning and assessment seem to have just as much relevance to CME that enhances CRNAs' competence and performance as it

does to the physician learner. The levels embraced the need to both enhance the learner's professional knowledge and the learner's ability to incorporate that knowledge into a new level of technical skills.

Moore (2008) further developed these levels of learning and assessment to create a systems overview of CME as an intervention. This system overview influenced the table describing the systems overview of the nurse anesthesia profession's recertification process (see Table 3). Areas for further discussion related to Theme 2 were (a) a lack of commitment to lifelong learning is a concern, (b) a lack of motivation impacts commitment to lifelong, (c) continuing medical education, and (d) budget issues can impact the recertification process.

Lack of Commitment to Lifelong Learning Is a Concern

Self-determination theory provided insight into an educational process, which could enhance needed commitment to lifelong learning. Self-determination theory informs the process in which "high quality learning and conceptual understanding as well as enhanced personal growth…" (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 325) occur. Deci et al. also identified that the "highest quality of learning seems to occur under the same motivational conditions that promote growth and adjustment (p. 326)….in terms of education, it has become ever more apparent that self-determination, in the forms of intrinsic motivation and autonomous internalization, leads to the types of outcomes that are beneficial to both individuals and society….The specific supports for self-determination we suggest…making available information that is needed for decision making and for performing the targeted task" (p. 342).

Lack of Motivation Impacts Commitment to Lifelong Learning

> "Part of the problem that we are starting to see is that we have people [CRNAs] who are no longer internally motivated. They are strictly externally motivated and their attitude is that if I don't get paid for it, I don't do it."

During the focus group discussions of CRNAs' scope of practice, characteristics of a self-actualized (Maslow, 1968) professional were shared. Data received from the participants indicated that there is an expectation that CRNAs are motivated to be the best that they can be in every aspect of their professional life. CRNAs' motivation to provide a high level of care could be equated to Maslow's belief that it is imperative individuals [CRNAs] have the drive to become more of what they are currently and that they ultimately become the best they are capable of becoming. To become the most developed CRNA possible, CRNAs use their individual strengths to develop their professional and personal skills in a manner that not only enhances their feeling of being all that they can be, but also allows their profession to flourish. When that motivation is lacking focus group participants identified a lack in the expected and required competence of a CRNA. That lack of competence was identified as a concern for the nurse anesthesia profession and the profession's patients.

Aging Can Impact Skill Levels

When the aging anesthetist whose critical thinking abilities and skills are slowed, is unwilling to stop working, competency issues should be raised. Generational and aging theories informed the concern expressed by focus group participants and society about the aging anesthetists' skills and cognition levels (Lancaster & Stillman, 2003; Macario, 2010; Moody, 2010).

Budget Issues Impact the Recertification Process

Stewart's (2001) Intellectual Human Capital Theory, addressed the importance of maintaining a learning environment, even when financial concerns are brought forth:

> At its core is the simple observation that organizations' tangible assets-cash, land and buildings, plants and equipment, and other balance sheet items – are substantially less valuable than the intangible assets not carried on the books. Among these…most important of all - "soft" assets such as skills, capabilities, expertise, cultures, loyalties and so on. These are knowledge assets - intellectual capital - and they determine success or failure [of a profession]. (p. x)

Stewart further cautioned professionals, professions, employees, and employers to keep in mind the importance of individuals [CRNAs] remaining current in their knowledge and skills:

> Knowledge is your most important raw material.
>
> Knowledge is your most important source of added value
>
> Knowledge is your most important output.
>
> If you are not managing knowledge, you are not paying attention to business. (Stewart, 2001, p.109).

Langerbach (1993) concurred with the sentiment that education, which results in increased professional knowledge, should be provided throughout the professional's employment. To enhance the professional's worth to the institution or profession, Langenbach spoke of the importance of maintaining quality services through on-going education, "A higher sounding reason of participation in continuing professional

education is to keep abreast of changes in the field in order to improve the quality of services…" (p. 105).

An argument for budgeting for recertification activities that allow CRNAs to remaining current in their practice is the resulting compliance with state and federal rules, regulations, and standards of care, which result in additional financial compensation (pay-for-performance). The financial and professional rewards of such knowledge and the reward of improved patient care through maintaining up-to-date knowledge and practices were pointed out by Hannenberg & Sessler (2008) when discussing the importance of maintaining normothermia in [surgical] operations lasting more than an hour:

> In summary, considerable Level 1 evidence shows that thermal management improves outcomes in a variety of surgical patients. Core temperature should thus be measured in most surgical patients, and clinicians [CRNAs] should make serious efforts to maintain normothermia in operations lasting more than an hour. This emerging standard-of-care is likely soon to be associated with financial incentives; thus, use of reliable methods and sites for temperature monitoring is of paramount importance (p. 1457).

Conversely, Hannenberg & Sessler (2008) pointed out that noncompliance due to lack of knowledge or failure to conform to professional standards could result in large fines to an individual, practice or institution. Starting in 2015, a 1% reduction in Medicare payments will occur for the U.S. hospitals with the highest rate of medical errors and infections. At that time Medicare will also stop paying hospitals for treatment

when a patient was harmed by the care they received during their hospitalization (e.g., wrong medication dose, a fall, a surgical error).

Supporting Theories and Concepts for Theme 3: Reconciliation: Incompetence in My Profession Is Unacceptable

Although for years many CRNAs have made it a priority to obtain the knowledge and skills needed to be current in their practice that is now becoming a more formal expectation. As *evidence-based* practice changes permeate the profession (Biddle, 2010; McFadden & Thiemann, 2009), professional journals, conferences, websites, and anesthesia departments are encouraging nurse anesthetists to actively seek out and embrace practice changes. Those expectations are a result of an understanding of evidence-based research:

> Evidence-based practice and decision making are active, not passive processes requiring commitment and adherence to certain principles that result in uniquely focused decision-making about patient care in the context of specific clinical circumstances. Fundamentally, the approach hinges on the desire of individual anesthetists to make judgments based on scientifically valid information in conjunction with their own experience and expertise. (Biddle, 2010, p. 19)

Maintaining and demonstrating a high level of CRNA competence was important to the research participants for a variety of reasons, but the two dominate reasons were to improve patient safety and anesthesia outcomes. In 2001 there was a public outcry following the publication of the Institute of Medicine's (IOM's) reports, *To Err is Human* (Kohn, Corrigan, Donaldson, & Committee, 2001) and *Crossing the Quality Chasm* (Committee on Quality of Health Care in America, 2001). The documents reported a

staggering number of patient deaths and adverse medical events which placed patients in harms way. Over 1 million adverse medical events and up to 100,000 deaths per year were found to have occurred because of medical provider error. This news was a wake-up call to the medical and anesthesia community that a better job needs to be done to not only search out and identify medical errors, but to prevent them from occurring.

Nurse anesthesia providers have an excellent safety record (Dulisse & Cromwell, 2010), but following the IOM reports, the public's awareness of medical injury and death has been heightened and assurance of competency for the nurse anesthesia profession is needed. The question of how to demonstrate CRNAs' competence had been a concern for nurse anesthetists, but with the publication of the *To Err is Human Report* (Kohn et al., 2001) assuring CRNAs' competency became even more of a concern. With the quest for assurance of CRNA competence came the need for a grounded theory that provided insight into which aspects of a recertification process and specific recertification activities were valued by members of the profession and other stakeholders.

Members of the focus groups expressed strong sentiment that individual lapses of judgment, technique, or knowledge by a CRNA were seen as a personal failure by the other members of the profession. There was a call for a way to prevent those lapses from occurring within the profession. The following areas which will inform Theme 3 are (a) the maximum CRNA competency mandated is also the minimum competency, (b) change produces fear, and (c) ethics is paramount when providing anesthesia.

The Maximum CRNA Competency Is Also the Minimum Competency

The *maximini* (Harsanyi, 1975) or *weakest link* (Casti, 1996) theories captured the quintessence of the concept that incompetence of even one CRNA within the

profession impacts society's impression of the entire profession. With that concept in mind, CRNAs who embrace evidence-based research, learning, and practice (Biddle, 2010; Marcario, 2010; McFadden & Thiemann, 2010) provide the nurse anesthesia profession with confirmation of their members' commitment to competency.

Change Produces Fear

Although the results of this research provided evidence that a high level of CRNA competence is expected of nurse anesthetists and the practice of nurse anesthesia requires the CRNA to respond rapidly and calmly to an ever-changing operating room environment, the thought of having to experience a change in the profession's well entrenched recertification process raised members' fear levels. The thought of experiencing failure or making a mistake when completing suggested recertification and professional activities raised a real level of fear among CRNAs. But Casey's (2002) change theory pointed out that a heightened level of anxiety is "one of the major reasons why people change [and grow] (p. 205)."

Those who feel that change needs to occur and that it will take much effort to achieve, are also fearful of the backlash from their CRNA colleagues who might not feel a change is needed. A CRNA focus group member was able to express their appreciation for the need to change the recertification process to one that better reflected the CRNAs' competency. At the same time, that CRNA was very straightforward when expressing concern that other CRNAs could react negatively if approached in a dictatorial manner, with the requirement for immediate and specific change to the recertification process.

To institute a change in the recertification process in a manner that engenders minimal fear for the nurse anesthetists, the culture of nurse anesthesia needs to be

considered. Horton (1998) and Tunajek (2008) identified that the CRNAs' cultural identity is based on a foundation of education, cohesiveness, commitment to the profession, and competence. Tunajek (2008) stated that those values were fostered by:

> Cooperation and interdependence, perceptions of strength in numbers, and belonging to a group that will "close ranks" to protect shared beliefs. Although culture plays a significant role in the Association [AANA] decision-making processes, nurse anesthetists recognize and value the individual right to speak out. (p.22)

Mezirow's transformational learning theory (TLT) provided an explanation as to "how adults interpret life experiences, make meaning, and change a belief, an attitude, or an entire perspective" (Moore et al., 2005, p. 394). Elias (1997) provided an encompassing description of TLT in the following statement:

> Transformative learning is the expansion of consciousness through the transformation of basic worldview and specific capacities of the self; transformative learning is facilitated through consciously directed processes such as appreciatively accessing and receiving the symbolic contents of the unconscious and critically analyzing underlying premises. (p. 3)

Mezirow's phases of transformational learning reflect the stages that the nurse anesthesia profession's members may need to experience if changes to the nurse anesthesia recertification process are to occur. As detailed in Table 10, Moore et al. (2005) coupled Mezirow's (2000) transformational learning phases to identified stages of change. The combined stages and phases of change readily linked to focus group

Table 10

Mezirow's and Moore's Phases and Stages of Transformational Learning Explicated by CRNA Comments

Moore's stages	TLT phases of transformational learning	Moore's stages and TLT phases as related to CRNA focus group questions and discussions	Associated focus group comments related to Moore's stages and TLT phases
Pre-contemplation stage	Disorienting dilemma	A focus group participant's question: "Does the current recertification process assure competency?	"We were ahead of the [recertification process] curve for health care…I think we are falling behind and I think that the competency piece is key and somehow we have to weave competency into our recertification [process] "
Contemplation stage	Critical assessment	A focus group participant's question: "What type of skills, knowledge and behaviors are expected of a CRNA?"	"Isn't it trying to figure out what is the essence of being a nurse anesthetist? [Is it] airway manage-ment and/or is it line placement and/or is it understanding pharmacology and this particular set of 10 or 30 or 20 drugs that we would have to identify?

Table 10 (continued)

Moore's stages	TLT phases of transformational learning	Moore's stages and TLT phases as related to CRNA focus group questions and discussions	Associated focus group comments related to Moore's stages and TLT phases
Contemplation stage (continued)	Critical assessment (continued)	A focus group participant's question: "What type of skills, knowledge and behaviors are expected of a CRNA?" (continued)	What are the terms of performance where people are safe? But what are the skill sets that constitute safe?" (continued)
Preparation/ Determination stage	Explore new options. Plan a course of action	Focus groups explored the question: "What recertification activities would provide a level of assurance of a CRNA's competency?"	"What are we going to do to get recertified? To put more power into it, more truth and knowledge?"
Action stage	Initiate a course of action. Acquire knowledge, skills and competencies.	Focus groups and survey respondents discussed the possibility of a recertification process that centered around written exams and meaningful continuing education courses. The hands-on simulation testing activity resulted in the most in-depth discussion and identified a need for a curriculum.	"I think it [recertification process] should be education, not try to fail everybody out ...You need to go through and have your psychomotor skills tested."

Table 10 (continued)

Moore's stages	TLT phases of transformational learning	Moore's stages and TLT phases as related to CRNA focus group questions and discussions	Associated focus group comments related to Moore's stages and TLT phases
Maintenance stage	Continue to build competencies and self-confidence. Reintegration of new perspectives.	See comments for Action Stage.	"We could build a program that could edge ourselves toward something like that [required simulation testing] in the future and measure competency and measure change."
Termination stage	Transformed perspective	See comments for Action Stage.	"… decreased morbidity and mortality and let's look at a decrease in lawsuits and things like that [with hands-on simulation testing for re-certification]."

Note. The CRNA comments in the table above were obtained from CRNA focus group data collected in 2007 and 2008. This table uses the seven stages of Mezirow's transformational learning as identified by Moore (2005), The transtheoretical model of the stages of change and the phases of transformative learning: Two theories of transformational change." by Moore, M. J. et al., 2005. *Journal of Transformative Education, 3(394), 394-415* and the table "Phases of Mezirow's Perspective Transformation and the Processes of Change in Relation to the Stages of Change" found within Moore's 2005 article.

comments and concepts related to the recertification change process the nurse anesthesia profession may experience. CRNAs who participated in focus group sessions provided comments that explicated the stages of learning needed for the change process (see Table 10).

Ethics is Paramount

CRNAs strive to make ethical and morally sound decisions as they provide anesthetics for their patients. CRNAs are considered the true patient advocate in the operating room and must stand strong in matters that could bring harm to their patients. *Primum non nocere*, first do no harm, is the legal and ethical tenet that CRNAs incorporate into the very fabric of their professional being (Foster & Faut-Callahan, 2001). To preserve that ethical principle, CRNAs need to sustain throughout their career an expectation of a high level of competency in themselves and their professional colleagues.

Throughout the focus group sessions ethics were brought to the forefront of the discussion. There was a sentiment that CRNAs must be ethically motivated to acknowledge their limitations and know how to address those limitations. This concept was informed by Kohlberg's higher level (Stage 5) of moral reasoning. It takes an elevated ethical and moral stand, to be aware and act when a CRNA becomes aware that their own or when another member of the profession's level of competency is not at the needed safe level of professional competency. When a CRNA is aware that there is a lapse in knowledge, skill, or other areas of competency, participants identified that it becomes the CRNA's duty to address that inadequacy in a manner that improves the CRNA's competency or removes the incompetent practitioner. Ethical concepts for nurse anesthetists were emphasized in professional publications, discussions with CRNAs and comments received from survey respondents. Foster & Faut-Callahan (2001) discussed the principles of ethics and integrity as it relates to nurse anesthetists' competency:

> [Integrity] implies any action taken by a clinician must be characterized by an intent to achieve excellence and to do so within an ethical context. Actions taken, or in the case of CRNAs, clinical decisions made or collegial behaviors demonstrated, should always reveal elements of critical thinking, careful evaluation of consequences, and competent justification. (p. 12)

A CRNA focus group participant discussed the ethical importance of maintaining competence and integrity in their practice:

> "I have respect for someone who will let you know when it was beyond their capabilities…I have been doing this now for over 15 years, but I know when things are above me and I have enough sense to know who to go to as the resource person when I need to get help whether it is a difficult airway situation or different things. I know my strengths and limitations and actually in my mind have a little plan to whom am I going to contact."

A survey participant expanded on the ethical responsibility CRNAs have to make certain other members of the profession are competent:

> "I think it goes back again to competencies. If someone comes that you don't know, you have a responsibility to make sure that person is safe and you do that by direct observation and making sure they understand, not only there is so much to it, but the basic anesthesia."

Supporting Theories and Concepts for Theme 4: Recertification Is Valued When It Demonstrates Competence

Theme 4 brought to the forefront competency theories that were underpinnings of this grounded theory for the nurse anesthesia profession's recertification process. A commitment to competency via lifelong learning was the value CRNAs consistently voiced when discussing what the CRNA recertification process should mean to their practice, profession, and society. The areas of focus in this section will be (a) a

meaningful recertification process is needed and (b) the public wants a recertification process that gives assurance of competency and safe practice.

A Meaningful Recertification Process Is Needed

A meaningful recertification process was described by the CRNA focus group participants in a variety of ways. The words *competency* and *competent* were used innumerable times in those descriptions. Those two terms seemed to provide the basic tenet of what a meaningful recertification process meant to CRNAs. Senior (1976) "made a distinction between 'competence' and 'performance', the former meaning what a physician [CRNA] is capable of doing and the latter what a physician [CRNA] actually does in his [sic] day-to-day practice" (Neufeld & Norman, 1985, p.15). Analysis of the data provided a sense that participants were not only interchanging *competence* and *competent*, but according to Senior's definition, the competency discussed by the CRNA and survey participants reflected Senior's definition of *performance*. The expected *competency* discussed by participants was not only what a CRNA is capable of doing, but also was what the CRNA is expected to do in their daily practice of anesthesia.

The Public Wants a Recertification Process That Gives Assurance of Competency and Safe Practice

Society and medical providers have a high expectation that CRNAs will be competent in all aspects of their anesthesia practice. Fulfilling less than that expectation would be a blow to the nurse anesthesia profession as a whole and to the individual CRNA. With that in mind, CRNAs saw their profession and themselves as much more than an individual CRNA or a group of anesthesia providers who are performers of day-

Table 11

Characteristics of Competent People

Competent people have:	Illumination of characteristic
Motives	Things a person consistently thinks about or wants that cause action [as related to their practice of anesthesia].
Traits	Physical characteristics and consistent responses to situations or information [as related to their practice of anesthesia].
Self-Concept	A person's [positive] attitudes, values or self-images.
Knowledge	Comprehension of [anesthesia practice] specific content areas.
Skill	The ability to perform a certain physical or mental task [as related to their practice of anesthesia].

Note. Adapted from "Competence at work: Models for superior performance." text by Spencer, S. M., & Spencer, L. M. (1993). New York: John Wiley & Sons, Inc., pp 10-11.

to-day tasks and duties. CRNAs wished to be viewed by others as professionals in the full sense of what the term professional embodies (Foster & Faut-Callahan, 2001; Martin-Sheridan et al., 2003). Stern (2006) described medical professionals as individuals "with high levels of competence, compassion, and moral integrity, who will be worthy of the ideals of the profession and the trust of society" (p.75). Within that definition is again the word *competency*. As competency theories (Benner, 1984; Epstein & Hundert, 2002; Nahrwold, 2002; Neufield & Norman, 1985; Spencer, S. & Spencer, L., 1993) were explored, a deeper understanding of the meaning of competency evolved. Spencer, S. and Spencer, L. developed a competency model which reflected many of the fundamental

competencies CRNAs value and expect of themselves and other members of their profession. Part of that model was distilled into a list of five competency characteristics important for people [CRNAs] who are part of a complex profession where superior performance is necessary (see Table 11). Spencer, S. and Spencer, L. identified that a personal awareness of the five listed characteristics is vital to a competent person.

Supporting Theories and Concepts for Theme 5: The Recertification Process Should Demonstrate a High Level of Competency

Focus group CRNAs and survey participants identified recertification activities they felt would give an assurance of CRNA competency. Within this topic of supporting theories and concepts for Theme 5, the following topics will be discussed: (a) competencies for the recertification process should be identified and (b) a variety of recertification activities demonstrate CRNA competence, and (c) hands-on simulation testing demonstrates competency.

Competencies for the Recertification Process Should Be Identified

An underlying dilemma is faced by those CRNAs who wish to develop a meaningful recertification process for the nurse anesthesia profession. It was clear that CRNAs value a process that demonstrates competency in all areas of their practice and professionalism. Yet some CRNAs felt the many facets of the practice of nurse anesthesia and the diverse individuals who make up the profession slowed the achievement of that goal.

The focus group participants pointed out that the multiplicity of CRNA practice configurations enrich the CRNA profession and is valued by the profession. With that in mind, a change in the recertification process to identification of universal competencies

and recertification activities that would assure competency for each member of the nurse anesthesia profession, no matter what type of professional practice, would also be valued.

Transformative learning theory may be a useful tool to accomplish that goal. Mezirow's (2000) transformative learning theory described a learning process of "becoming critically aware of one's own tacit assumptions and expectations and those of others and assessing their relevance for making an interpretation" (p. 4). Using the transformative learning process may encourage CRNAs to re-evaluate past beliefs about their recertification process. Merriam and Caffarella (1999) structured transformative learning into three phases: critical reflection, reflective discourse, and action. Utilizing the transformative learning phases, as CRNAs consider options related to their recertification process, may provide a sense of clarity about which activities and processes would best assure CRNA competency.

A Variety of Recertification Activities Demonstrate Competencies

The CRNA focus group participants valued their ability to personally determine the lifelong learning activities they needed to master in order to competently and safely practice their profession to the fullest. CRNA discussions indicated that to maintain a safe practice, they depended on their ability to think on their feet; thus, modeling Schon's (1983) description of a reflective learner (reflection-in-action). Through continual reflection CRNAs are able to identify and then utilize in their practice the internal and external resources they obtain through their commitment to professional lifelong learning. This concept was expressed in the grounded theory that grew out of the focus group and survey data analysis.

Many of the focus group participants demonstrated an awareness that professional lifelong learning is essential for CRNAs to maintain the competencies needed when making crucial moment-to-moment decisions for their anesthetized patients. They also provided insight into the need to have a process that gave options as to what activity would best fulfill their learning needs. Instead of being pigeonholed into a recertification activity that did not fit a nurse anesthetist's learning style, there was a call for recertification activities that would allow a nurse anesthetist to maintain or grow in their professional skills and knowledge. Gardner's (1999's) multiple intelligence theory provided a basis for developing a recertification process, which has several learning style options for the myriad of learning styles encountered in the diverse membership of nurse anesthetists. Suggesting a recertification process that offers a variety of professional lifelong learning recertification activities (e.g., hands-on simulation testing, a comprehensive written clinical exam, and/or attending a set number of CME presentations, demonstrations, and workshops) to demonstrate a CRNA's competence, could provide the opportunity for open dialogue within the nurse anesthesia community to examine entrenched beliefs about their current recertification process. Within the topic of a variety of recertification activities demonstrate competency the following topics will be discussed: (a) Analysis of recertification activities and (b) analysis of scores determining importance of professional activities.

Analysis of recertification activities.

The survey's numerical results were used to inform the grounded theory as to the importance specific activities would have when viewed by the nurse anesthesia profession, CRNA associates, and society. With the addition of the focus group

participants' and survey respondents' comments, a greater understanding as to which activities were viewed as indicators for a CRNA's and the profession's competence was obtained. Review of the recertification activities' ratings and rankings, by survey respondent groups' (e.g., Overall, Colleague, and Administrator), indicated that out of the five recertification activities that were presented, hands-on simulation experience and testing would provide the highest overall level of assurance of CRNA competence. Focus group discussions also emphasized the value hands-on simulation experiences and testing would have for the profession and the individual CRNA. Two additional recertification activities (e.g., CME activities and written recertification exams) were identified as viable evidence of CRNA competency during the focus group sessions. Little, if any, discussion about portfolios and case logs demonstrating CRNA competence occurred during the focus group sessions. A lack of enthusiasm for incorporating portfolios and case logs into a recertification process was also reflected in the lower survey scores those activities received.

Hands-on simulated activities seem to show the most promise in providing the profession, the public, and CRNA associates a sense of assurance that a CRNA has the necessary level of competence to provide a safe and current anesthetic. That activity provides the CRNA opportunities to continually develop needed technical skills and hone critical thinking skills that were identified as necessary for a nurse anesthetist's competency (see Tables 5 and 6).

Analysis of scores for importance of professional activities.

Although the listed professional activities were not specifically addressed during the focus group sessions, a great deal of the discussion was related to a recertification

process that would assure CRNA competence through on-going enhancement of CRNAs' technical skills and knowledge base. The surveys indicated that the highest rated and ranked professional activities (e.g. clinical instructor for a nurse anesthesia program activity, membership in professional organization, and lecturer for nurse anesthesia program,) demonstrated CRNAs' commitment to their profession. Teaching in the clinical areas and in the classroom allows CRNAs to remain current and to enlarge upon clinical knowledge and skills. The importance of involvement with the CRNAs' professional organization was also referred to in a variety of context during the focus group sessions. The lowest rated activity was medical missions trips and that activity was not mentioned as an important aspect of CRNAs' practice during the focus group sessions (see Tables 7 and 8).

Hands-on Simulation Testing Demonstrates Competency

Throughout the CRNA focus group sessions and upon review of the numerical data and comments from the stakeholders' surveys, simulation was the recertification activity that consistently generated the most discussion, comments and numerical response. Not every participant was in agreement that a hands-on simulation examination was the recertification activity that would provided the best opportunity for CRNAs to demonstrate their competency, but there was strong sentiment that simulation holds a great deal of promise as a recertification activity. That was felt to be especially true if the exam was not a pass-fail exam, but instead it was constructed as a teaching and learning activity that would ultimately demonstrate a CRNAs' competency:

> "I think it [recertification process] should be education, not try to fail everybody out ...You need to go through and have your psychomotor skills tested."

As previously discussed, CRNAs are a diverse group of individuals and as a result have a variety of learning styles. Simulation provides an opportunity to learn in a variety of methods. The most obvious theory of learning related to simulation is experiential learning (Dewey, 1963; Kolb, 1984; Merriam & Caffarella, 1991). The main areas of discussion in this section will be (a) Kolb' learning cycle reflected in simulation activities, (b) Kolb's concrete experience stage for simulation activities, (c) Kolb's observation and reflection stage for simulation activities, (d) Kolb's generalization and abstract conceptualization stage for simulation activities, and (e) Kolb's active experimentation stage for simulation activities.

Kolb's learning cycle reflected in simulation activities.

Kolb's (1984) four-stage cycle reflects the learning process and the learning styles simulation satisfies. Kolb described a reiterative cycle that starts with a concrete experience. During the second stage of the cycle the learner reviews and reflects upon that observed concrete experience. By reflecting on the experience the learner next identifies what they learned from the experience. In stage four the learner identifies how the experience can be generalized into life situations and looks for opportunities to try out what they learned. When a CRNA has a concrete experience using what they learned during the four stage process, the process starts anew.

Simulation allows CRNAs to reflect on their practice, use evidence-based research, and observe other providers' practice as a means to enhance their professional competency. A focus group participant expressed how building simulation into the recertification process could allow for reflection on practice by measuring CRNAs' competency and the amount of change resulting from the recertification activity:

> "We could build a program that could edge ourselves toward something like that [required simulation testing for recertification] in the future and measure competency and measure change."

Kolb's concrete experience stage for simulation activities.

The nurse anesthesia lifelong learning process can be superimposed upon the Kolb cycle. Similar steps emerged upon examination of how a reflective CRNA learns and grows in their practice.

A CRNA can learn through the *concrete experience* of hands-on management of a simulated case. The CRNA can manage the physiological responses the mannequin presents in response to their simulated situation, medications given to the patient, and the procedures that the CRNA or surgeon conducts on their patient. The CRNA who learns and then demonstrates knowledge by doing may be able to conduct a safe anesthetic and see in real time the mannequin's physiological responses to the anesthetic management (Dunn, 2004b; Gaba, 1994). That simulated learning experience may allow generalization of the knowledge to be obtained. That generalized knowledge may transfer into action when the CRNA experiences a similar situation with a real patient.

Kolb's observation and reflections stage for simulation activities.

During and following the simulation experience the CRNA has the opportunity to *reflect* on their patient's responses, the entire experience, and judge their personal performance, while also making decisions on how to improve competencies in both the simulation session and in the actual care of their patients. An extension of the reflective learning aspect of simulation is the debriefing portion of their simulation experience and possibly seeing other individuals perform in similar or other competency based scenarios. The observation and review of simulated activities during the debriefing session allows

all learners, but especially those who learn best by *observing and reflecting* on an experience, to enhance their competencies (Dunn, 2004b; Kolb, 1984).

Kolb's generalization and abstract conceptualization stage for simulation activities.

Following a simulation experience CRNAs are encouraged to delve into the evidence-based literature that supports the competency based activity. It is well documented that individuals learn through a variety of venues. Those who learn best using the written word will be able to use the simulation experience to direct them to the literature and research that expands on the situation they experienced. Through conceptualization of the events that took place the CRNA will be able to generalize that experience to future events that occur when caring for a living patient (Dunn, 2004b; Gaba, 1994).

Kolb's active experimentation stage for simulation activities.

The greater understanding and conceptualization gained from the simulated experience could allow the CRNA to put that experience into active case management. The CRNA would be able to draw on that store of simulated experience and try variations of the hands-on activities and real time decisions that occur during the recertification process, when encountering similar, yet ever-changing real life patient scenarios (Dunn, 2004b; Kolb, 1984).

The Theory

After reflecting on all of the data obtained from the focus group participants and survey respondents using grounded theory methodology, a theory emerged for the nurse anesthesia profession's recertification process. This grounded theory was undergirded by

learning theories (Bandura (1977); Biddle, 2010; Bruner, 1996; Caffarella, 1994; Davies & Cleave-Hogg, 2004; D. Davis & Thompson, 1996; J. Davis & A. Davis, 1998; Dewey, 1963; Gagne, 1988; Gardner, 1999; Knowles, 1980; Kolb (1984); Langenbach, 1993; Laurillard's (2002); Mezirow, 2000; Piaget, 1950; Schon, 1983; Vygotsky, 1978), intellectual capital theory (Becker, 1993; Stewart, 2001; Storberg, 2002), Kolberg's theory of moral development (Kohlberg, 1970; Nucci, 1998), competency theory (Epstein & Hundert, 2002; Queeney, 1990; Neufeld & Norman, 1985), and theories related to continuing professional and medical education (Epstein & Hundert; Knox, 1993; Queeney, 1990). All of these identified theories appeared to describe the important components of the nurse anesthesia profession's recertification process (i.e., competency, adult learning, lifelong learning, moral reasoning, intellectual capital, lifelong learning, and evidence-based learning). Previously discussed theories appear to be closely related to continuing professional education and recertification in the medical profession. Looking at the various theories from continuing education and professional recertification perspectives helped to illuminate possible activity options for the nurse anesthesia profession's recertification process.

The data analysis of the focus group and survey data resulted in five themes and numerous sub-themes, which provided a mandate for a recertification process that ensures to the public and the health care community, nurse anesthetists' high level of professional competence and demonstrates nurse anesthetists' commitment to professional lifelong learning, resulting in a safe evidence-based nurse anesthesia practice. The grounded theory for the nurse anesthesia profession's recertification process is expressed in the following narrative manner: *The recertification process includes a*

system of inputs and activities leading to the outcomes of refreshed and increased knowledge and skills for the individual CRNA, achieving the goal of enhanced professional competence. Thus, an effective mandated nurse anesthesia recertification process is a reiterative one in which having reflected on current anesthesia practices, the CRNA engages in needed recertification activities, thereby increasing individual professional competence in cognition and safe delivery of anesthesia and greater professionalization within the field (see Figure 3 and Table 9).

CHAPTER SIX: CONCLUSIONS AND IMPLICATIONS

The purpose of this research was to develop a middle-range theory that would provide an understanding of what nurse anesthetists and their colleagues value and expect from the nurse anesthesia profession's recertification process. The grounded theory that resulted from this research is expressed in the narrative format in the following statement: *The recertification process includes a system of inputs and activities leading to the outcomes of refreshed and increased knowledge and skills for the individual CRNA, achieving the goal of enhanced professional competence. Thus, an effective mandated nurse anesthesia recertification process is a reiterative one in which having reflected on current anesthesia practices, the CRNA engages in needed recertification activities, thereby increasing individual professional competence in cognition and safe delivery of anesthesia and greater professionalization within the field (Figure 3 and Table 9)*

Chapter One outlined the need for a recertification theory based on calls from society, patients and medical colleagues that the profession's recertification process provide an assurance of nurse anesthetists' competence. The literature review in Chapter Two supported the necessity for a recertification process for nurse anesthetists and identified theories that undergird the grounded theory for the nurse anesthesia profession's recertification process. Medical providers' commitment to lifelong learning and evidence-based practice, ethical behavior, professionalization and competence were identified in Chapter Two, as important components of the nurse anesthesia profession's recertification process. Theoretical models related to the components supporting the need for a grounded theory for the CRNA recertification process were also discussed in Chapter Two.

Chapter Three discussed the methods used to develop the grounded theory. Qualitative research methods were used to conduct and analyze the focus group research. A combination of qualitative and quantitative methods was used to conduct the survey and analyze data obtained from the survey research. The development of the grounded theory was guided by methods described by Glaser and Strauss (1999) and Creswell (1998). The focus groups were conducted using Krueger's (1998a, 1998b, 1998c) methods and techniques. The surveys were constructed and carried out utilizing Portney's (2000) survey research methods. All of the data collected via the focus group sessions and the survey's numerical and comment results provided the basis for the development of this grounded theory.

The method used for this grounded theory research project, which included focus groups and surveys, was guided by the method proposed by Glaser and Strauss (1999) and augmented with Krueger's (1998a, 1998b, 1998c), Reynolds' (1971), and Charmaz' (2006) grounded theory research methods. Creswell (1998) provided input into the sequencing of the steps this researcher used to develop the grounded theory (see Figure 2). By conducting focus groups, using Creswell's and Krueger's research methods and through the analysis of the mailed surveys' comments and numerical responses, data was obtained from 48 CRNAs and associated health professionals (see Tables 5, 6, 7, and 8; see Table A2, Appendix A; see Appendices D and E).

Chapter Four described the results of the focus group interviews and the numerical results and comments obtained from the survey of CRNAs' administrators and colleagues. Based on the input collected from the Certified Registered Nurse Anesthetists' (CRNAs') focus group interviews and the results of surveys completed by

professionals who work with or employ CRNAs components that formed the intent of this research's grounded theory were identified. The five themes which underpin this grounded theory are: Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession, Theme 2: The Yang of Professional Lifelong Learning, Theme 3: Reconciliation: Incompetence is Unacceptable, Theme 4: Recertification Is Valued When It Demonstrates Competence, and Theme 5: Recertification Activities Demonstrate a High Level of Competency.

The recertification process that is currently in place for the nurse anesthesia profession was instituted during the infancy of recertification in the medical profession. Although the process was innovative at that time, changing responsibilities, public expectations and evolving techniques, skills, and an increase in a CRNA's required knowledge base now calls for a more rigorous approach to nurse anesthetists' recertification process. (Biddle, 2010; Foster & Faut-Callahan, 2001; Martin - Sheridan, et al., 2003) The need for a change in CRNAs' recertification process was clearly identified by the nurse anesthesia professionals and associates involved in this research. Through the development of the five themes, which formed this grounded theory for the nurse anesthesia recertification process, a clearer picture of what recertification means to CRNAs and those who work with or employ CRNAs unfolded. The CRNA focus groups and individuals who participated in the survey expressed that recertification is valued by nurse anesthetists and their colleagues, yet many see that it does not reflect the current level of competency CRNAs, society and the medical community expects of all members of the nurse anesthesia profession.

Chapter Five provided an opportunity to further discuss the various theories and concepts that undergird this grounded theory for the nurse anesthesia profession's recertification process. Following analysis of the data collected for this research, an extensive review of the literature, in conjunction with the review completed at the start of the research process, identified a variety of theories and concepts that informed this grounded theory for the CRNA's recertification process. It is important to note that although the literature did not identify a previously developed grounded theory that reflected the values, attitudes, and vision of the recertification process for the nurse anesthesia profession, a variety of theories including learning theories, adult learning theories, Maslow's self-actualization theory, human intellectual capital theory, and Kohlberg's moral reasoning theory all helped inform the themes that formed the basis for this grounded theory (see Table A3, Appendix A).

In Chapter Six the conclusions that resulted in a grounded theory for the nurse anesthesia profession's recertification process will be discussed. The main areas addressed in this chapter will be explication of the themes, the value of recertification activities, implications, limitations and future research, and final conclusions.

Explication of the Themes

Within this main heading, I will present rationale for each of the five theme's conclusions. How these conclusions informed the development of my grounded theory for the nurse anesthesia profession's recertification process will also be presented.

Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession

The CRNA focus group members' expressions of pride in their profession and their motivation to provide a high level of care could be equated to Maslow's (1968)

theory of self-actualization. The *Self-actualization theory* supported the belief that it is imperative individuals [CRNAs] have a commitment to become a more developed nurse anesthetists then they are currently and ultimately become the best they are capable of becoming. To become the most developed CRNA possible, CRNAs discussed how they used their individual strengths in anesthesia case management to provide quality care and to develop their professional and personal skills in a manner that would not only enhance their feeling of being all that they can be, but to also allow their profession to flourish.

Evidence-based learning, experiential learning, and lifelong learning were brought to mind when reflecting on how strongly CRNA participants' felt a *commitment to quality anesthesia care is necessary* to their profession. Evidence-based learning is an emerging expectation for all nurse anesthetists (Biddle, 2010). Kolb's (1984) experiential learning theory also resonates within the nurse anesthesia profession. Biddle (2010) brought Kolb's (1984) theory even closer to the nurse anesthesia profession when he intimated that experience provides the foundation for nurse anesthetists' need to value lifelong learning and evidence-based practice.

Like many other professionals, CRNAs in the focus groups identified that when they can connect what they learn to what they practice, the material becomes more relevant and memorable. CRNAs also recognized their need for lifelong learning through experiences they encountered in their day-to-day practice or their observation of colleagues' practice activities. A recertification process that supports CRNAs' need for professional lifelong learning, which will result in an assurance of competency, was at the forefront of the focus group discussions.

Theme 2: The Yang of Lifelong Learning

Although some CRNAs were concerned that a change in the recertification process would be difficult for those CRNAs who have a very specialized niche practice, CRNAs identified that the specialized activities were not what caused CRNAs' patients to have negative outcomes. Focus group participants' reported there were negative anesthesia outcomes that resulted from the CRNAs' shortcomings in keeping abreast of basic technical and case management skills, a lack of current general knowledge related to their patients' illnesses, and a deficiency in their ability to handle situations that could be encountered during the administration of a specific type of an anesthetic.

Professional lifelong learning theories encompassed what focus group CRNAs identified as the way to ensure that competency was maintained within their profession. CRNA focus group members were anxious to make certain that all members of their profession remained current in their practice. They questioned if all members were as energized to complete an educational task as one might expect. The data showed that there was a link between continuing medical education activities and the need for that education to be relevant and timely. That link may encourage CRNAs to be internally motivated and absorbed in the professional learning process. Research participants also acknowledged that recertification activities need to be clinically anchored to keep members of the nurse anesthesia profession energized and engaged in the lifelong learning process.

Recertification and professional activities were discussed by the focus groups and examined via the survey. Research data provided insight into which of the listed activities might provide a level of confidence that a nurse anesthesia recertification

process demonstrated CRNA competence. This data reinforced the grounded theory's system model, which informed the nurse anesthesia profession's recertification process. A valued recertification process includes inputs from the profession as a whole or from a CRNA's individual practice, which identify gaps in practice knowledge and skill. A perception of not being at the highest practice level will move the CRNA or the profession to utilize recertification activities to fill the gaps. The knowledge and skill resulting from the recertification activity allows the goal of enhanced professional competence for self and the profession to be achieved (see Figure 3 and Table 9).

Theme 3: Reconciliation: Incompetence is Unacceptable

Focus group discussions revealed that CRNAs are concerned as to how they are viewed by the public, other anesthesia providers, and other medical providers. Nurse anesthetists are fiercely concerned when competency is an issue for even one member of their group. During the focus group sessions the question kept returning, "How can the profession best ensure that a high level of competence is obtained and maintained by all CRNAs?"

The focus group participants discussed several activities they felt would provide concrete demonstrations of competence. Only two CRNAs felt that the profession should not change the current recertification process. The discussions in all the groups emphasized the need to change the CRNA recertification process. There was a call for a process that would demonstrate to the public, patients, and other medical professionals that individual CRNAs and the profession itself has a high expectation of competence in the care that CRNAs provide to their patients. There was discussion about the usefulness of *written examinations*, *CME,* and *professional activities*, but the bulk of

the focus group discussion of possible recertification activities centered around the use of *hands-on simulation experiences and testing*. CRNAs' employers and administrators and the CRNAs' colleagues also reviewed recertification activity options via the survey and weighed in with what activities they valued as a way to demonstrate CRNA competence. The recertification activities CRNA associates valued centered around three recertification activities: *CMEs*, *written examinations* and *hands-on simulation experiences and testing* (see Table A2, Appendix A).

All of the suggested recertification activities cost money and CRNAs raised the question as to how changes to the recertification process would be cost effective for the profession and the individual CRNA. Demonstrating CRNAs' intellectual human capital (Stewart, 2001) worth provided a theoretical base for the need to concretely substantiate CRNAs' high level of competence. In this time of economic flux institutions are looking for ways to tighten their budgets. Education has become a very enticing target for budget cuts by institutions and individual practitioners (Darves, 2009). Administrators and financial officers of medical institutions, along with CRNAs need to understand that quality services translate into dollars for both the hospitals and for individual practioners as a result of high quality, informed nurse anesthesia practice. Additions to an institution's intellectual human capital occur when the CRNA is knowledgeable and skilled in providing the most current evidence-based anesthetics. Knowledge also allows the CRNA to adhere to state and federal rules and regulations with resulting increases in revenue or at the very least avoidance of governmental fines and/or loss of fees (Spencer, S. & Spencer, L., 2003).

There was evidence of an ethical component to the development of a recertification process. CRNAs felt incompetence was unacceptable within their profession. CRNAs felt that they had a moral and ethical responsibility to ensure that members of their profession were able to provide patients a safe anesthetic. Kohlberg's (1970) theory of moral development supported the focus group CRNAs' and the survey participants' expectation that CRNAs should ascribe to the highest level of moral development that would ensure their patient's safe outcome. Kohlberg's (1970) higher stage of moral thinking identified that the individual [nurse anesthetists] who has reached a higher level of moral reasoning is more concerned with the principles and values that make for a good society and profession. As a result of adhering to high moral principles and values CRNAs will continue to evaluate their own practice and professionalism. CRNAs will also be driven to continue to evaluate their profession as whole and hold it to a high standard of competence.

A CRNA competency continuum line developed from the review of this grounded theory data illustrated how the focus group CRNAs and other stakeholders envisioned CRNAs' required levels of competence (see Figure 4). The small left hand section of the CRNA competency continuum line represents a very small segment of CRNAs who practice with only *basic* technical skills, knowledge, and professional requirements. The next section on the continuum is a bit larger and captures those members who meet the basic practice requirements and also have meet *core competencies* and have many of the higher level skills specific to their practice. The largest section of the continuum portrays the survey participants' and focus groups' view that a preponderance of the members of the nurse anesthesia profession should demonstrate an all encompassing high level of

excellence in their knowledge, skills and professionalism. The final *expert* level is achieved by those few who reach a point in their career where their knowledge and skills go beyond a high level of excellence. These CRNAs' professional contributions visibly promote and extend the scope of CRNA practice in the eyes of society and their profession. The expert nurse anesthetist has reached Erikson's (1968) *generative* stage of life. The *experts* feel they need to give back to their profession and have a strong sense of obligation to prepare the next generation of nurse anesthetists for professional excellence.

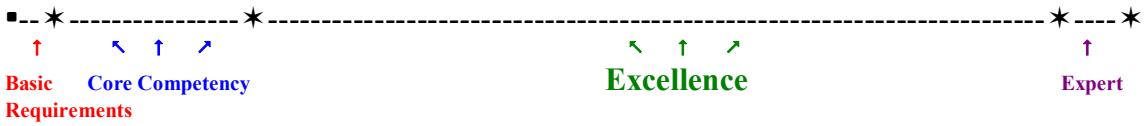

Figure 4. CRNA's competency continuum: Incompetence is unacceptable.

Data from the focus group participants and intimated by the survey participants indicated that below *basic requirement* is not a level of practice that should be tolerated. CRNAs recognized that they are often judged as a group by those members of their profession who are the least competent. As a result of that awareness, the minimum level of nurse anesthetists' competence that CRNAs and survey participants felt was acceptable and must be demonstrated through the recertification process, should be placed at a high level. Therefore, there was not a section on the continuum line that depicted below basic requirements for CRNA performance.

Theme 4: Recertification Is Valued When It Demonstrates Competence

Competence can be defined in many ways, but CRNAs kept returning to a definition that was multifaceted and touched on the various domains of CRNAs' abilities, knowledge, and professionalism (Epstein & Hundert, 2002). There was strong evidence in statements by the CRNAs, administrators, and colleagues that there is a need to be able

to show to the public and other individuals that recertification provides assurance of competence, professionalization, and the resulting patient safety. There was sentiment among the research participants that recertification activities need to demonstrate competence not only for the individual nurse anesthetist, but it is also needed for the livelihood of the profession.

Because of concern that the current recertification activities did not demonstrate a high level of competence, possible options for change in the process were raised by the participants. There was a strong sentiment that recertification activities should not be considered a pass or failure proposition, but instead should be considered an opportunity to ensure competency through additional education, learning, and finally a demonstration of knowledge.

With that discussion came the acknowledgement that such changes engendered fear on several levels. Fear of failure and the unknown were the most prominent fears expressed by the CRNAs. They feared that failure to pass or achieve recertification requirements would result in the loss of their career and financial livelihood. Additionally, the CRNAs discussed their fear of a backlash from some members of their profession if recertification requirement changes were instituted.

Theme 5: Recertification Activities Must Demonstrate a High Level of Competency

CRNAs and survey participants identified a variety of learning venues that would enhance CRNAs' lifelong learning and ensure the recertification process reflected their competence (see Table A2, Appendix A). A majority of the focus group discussions concerning appropriate recertification activities centered around the use of hands-on simulation experience and testing. Both the positive and the concerning issues discussed,

related specifically to simulation as a recertification activity, but the focus group discussions and survey comments also addressed other recertification and professional activities identified in the survey. All listed recertification and professional activities were discussed and commented on at length, with the consensus that if hands-on simulation test-out is not used in the recertification process, another recertification testing method (written exam) would inevitably surface as a required demonstration of competency.

Kohlberg (1970) reported that stages of moral development arise from an individual thinking about moral problems (i.e., the need for safe, competent, and professional delivery of anesthesia by all nurse anesthetists). Kohlberg identified that an individual's collective experiences promote development of higher moral stages by stimulating mental processes. This expectation was evidenced when focus group discussions about the current nurse anesthesia recertification process took place. Old views about the process were questioned and challenged, in part as a result of CRNAs having faced moral dilemmas related to other CRNAs' lack of competence. This research identified that nurse anesthetists are motivated by their higher moral stage to engage in open discussion and debate to review the current recertification process and seek a process that would ensure the high level of competency expected of nurse anesthetists.

The Value of Recertification Activities

Analysis of the survey responses also informed this grounded theory's proposition that the nurse anesthesia recertification process should include CRNAs engaging in appropriate recertification activities, which would increase both the individual's and the profession's competence. When identifying which of the listed recertification activities

were most valued in demonstrating CRNA competence the survey responses concurred with the focus group data. Hands-on simulation experiences and testing followed by written exam and CMEs were identified by the survey respondents as the most valued activities. Portfolio and case log activities received little support as valued recertification activities (see Tables 5 and 6; See Table, Appendix A).

Professionalism has been studied and emphasized by many leaders within the medical, anesthesia, and nursing profession (Biddle, 2010; Epstein, 2002; Foster & Faut-Callahan, 2001; Kearney, 2005; Prelipp et al., 2010). To determine if there were specific professional activities that would be valued as a recertification activity, seven professional activities were included in the recertification survey completed by CRNA associates (see Appendix E).

Although a strong mandate was not voiced by the research participants for using the listed professional activities as a recertification tool that would ensure competence, the analysis of the numerical values and the participant comments indicated that there was a sense that these activities are valuable CRNA recertification activities. A survey participant commented on the importance of the listed professional activities, "[It] depends on the individual, which [activity] will be most valuable. [It is] important to value all options but not require all."

The three professional activities that generated the most support for inclusion in the CRNA recertification process were providing clinical instructor for nurse anesthesia program, followed by participation and membership in CRNAs' professional organization. Compared to the other six professional activities, participation in medical mission trips was viewed as the least valuable activity for ensuring CRNA competency.

That lesser view could be debated by many CRNAs who have actually participated in medical mission trips (Mayo, 2011), but for the CRNA associates who responded to the survey, that activity was not perceived as an activity that demonstrated to others CRNAs' professionalization within the field (see Tables 7 and 8; see Table A2, Appendix A).

Implications

Through the development of a grounded theory of nurse anesthesia recertification, a clearer picture of what recertification means to the CRNAs and to those who work with or employ CRNAs unfolded. The CRNAs verbalized that recertification is valued by nurse anesthetists and their colleagues, yet many see that it is not currently reflecting the level of competency and professionalism CRNAs expect of the members of their profession. Although some educators and professions do not feel that recertification or even certification is a reflection of a level of competency (Stuetz, 2006), there is an increasing public and professional call for some demonstration of competency on a regular basis for medical professionals (Epstein & Hundert, 2002; Marchione, 2010).

The members of the CRNA focus groups displayed an awareness that changes to their recertification process will be required by outside forces sometime in the future. As a result of that awareness they also recognized that it will be important for the profession to be on the defining edge of what those changes will be. There was an undercurrent sentiment that, "If we don't make the changes ourselves, other groups will come forth to dictate our process". Allowing other members of the medical community or society dictate how to conduct the CRNA recertification process was not an appealing prospect in the eyes of the focus group participants.

Table 12

Goals for Health Care Continuing Education and Identified Grounded Theory Themes

Conference themes	CRNA recertification grounded theory theme/subtheme/associated concept	Concepts gleaned from CRNA focus groups and written survey comments
Conference Conclusions		
To improve the quality of patient care by promoting improved clinical knowledge, skills and attitudes, and by enhancing practitioner performance.	Theme 3: Reconciliation: Incompetence is unacceptable	Recertification should be a means to enhance CRNAs' competence and to demonstrate a high level of competence in the CRNAs' performance.
To assure the continued competency of clinicians and the effectiveness and safety of patient care.	Theme 4: Recertification is valued when it demonstrates competence	Those CRNAs who are incompetent are a threat to the profession. A CRNA Competency Continuum does not have incompetence on it.

Table 12 (continued)

Conference themes	CRNA recertification grounded theory theme/subtheme	Concepts gleaned from CRNA focus groups and written survey comments
To provide accountability to the public.	Theme 5: The recertification process should demonstrate a high level of competency	Recertification should be a means to enhance CRNAs' competence and to demonstrate a high level of competence in the CRNAs' performance.
Too much CME relies on a lecture format and counts hours of learning rather than improved knowledge, competence and performance.	Theme 2: The yang of lifelong learning	For some CRNAs, learning does not occur in the lecture setting. Other hands-on activities were identified as providing a means to lifelong learning.
Too little attention is given to helping individual clinicians examine and improve their own practices.	Theme 4: Recertification Is Valued When It Demonstrates Competence	"Those who can't intubate and do not have other anesthesia related

Table 12 (continued)

Conference themes	CRNA recertification grounded theory theme/subtheme/associated Concepts:	Concepts gleaned from CRNA focus groups and written survey comments
		skills and knowledge are a threat to the nurse anesthesia profession."
Insufficient emphasis is placed on individuals' learning driven by the need to answer the questions that arise during patient care.	Theme 1: The yin of lifelong learning: There is pride in the profession	Scope of practice and ability to handle many types of patient situations is a source of pride to CRNAs. CRNAs are aware of how important it is that they know how to access needed knowledge and skills at a moments notice.

Table 12 (continued)

Conference themes	CRNA recertification grounded theory theme/subtheme/associated Concepts:	Concepts gleaned from CRNA focus groups and written survey comments
CE does not promote inter-professional collaboration, teamwork, or efforts to improve systems of care, activities that are key to improved performance by health professionals.	Theme 2: The yang of professional lifelong learning	CRNAs use various types of lifelong learning as a means to gain the knowledge and skills to work within all types of health-care systems.
CE does not make adequate or creative use of internet technology, which can help clinicians examine their own practice patterns, bring medical information to them during patient care, and aid them in learning new skills.	Theme 5: The recertification process should demonstrate a high level of competency	CRNAs identified learning venues that would enhance their lifelong learning and allow their recertification process to reflect their competence.
CE Principles for Health Professionals		
Stress innovation and evaluation of new educational methods.	Theme 5: The recertification process should demonstrate a high level of competency. Subthemes: Competencies for the	Hands-on Simulation Activities are gaining acceptance

Table 12 (continued)

	CRNA recertification grounded theory theme/subtheme/associated Concepts:	Concepts gleaned from CRNA focus groups and written survey comments
CE Principles for Health Professionals		
	recertification process should be identified. A variety of recertification activities demonstrate competencies.	as a means to providing assurance of CRNAs' competence.
Address needs of clinicians across a wide spectrum, from specialists in academic health centers to rural solo practitioners.	Associated concept: Niche practioners.	There is a move to identify basic recertification simulated activity requirements for all CRNAs in all types of practices.

Note. Conference themes are from the 2007 Josiah Macy, Jr, Bermuda Conference. Fletcher, S.. (2008) *Chairman's summary of the conference. In Hager, M. (Ed) Continuing education in the health professions: Improving healthcare through lifelong learnin*g that resonated with the data obtained from CRNA focus groups and survey participants for this development of this grounded theory for the nurse anesthesia progression's recertification process.

Fletcher's (2008) conference report on continuing education in the health professions resonated with the themes and subthemes identified throughout this grounded theory (see Table 12). By juxtaposing similar conclusions, themes and principles from this grounded

theory, with Fletcher's report and the words of the research participants, it was evident that the CRNA focus group members and the survey participants valued continuing education goals similar to those of the national healthcare leaders who took part in the 2007 Josiah Macy Jr. Foundation Conference (see Table 12). The conference's identified goals for health care professionals' continuing education provided support for the conclusions reached by analyzing the word and numerical data from this grounded theory research. The grounded theory participants' voices indicated that the current CRNA recertification process needed to undergo a change. Valued activities, which demonstrate CRNAs' competence to their patients, the public, other medical professionals, and administrators, need to be incorporated into the recertification process.

In this era of healthcare reform and economic challenges, this grounded theory may provide a template for other medical professional groups as they investigate ways to demonstrate competence to their stakeholders. The grounded theory may also provide direction for other medical specialties and non-medical professions (e.g., legal, business, and education) as they look towards providing needed assurances of competency to the public, patients, clients, students, and governmental regulatory agencies.

Limitations and Future Research

This study did not look at the costs involved for implementing suggested changes to the current recertification process. This study did not look for any idiosyncratic solutions that might be needed for specific age groups or culturally diverse populations.

The data collected during the focus groups can not be generalized to the entire CRNA profession. The small survey participant number did not allow for in-depth statistical analysis of the numerical data obtained from the survey responses. In spite of

the limitations identified, both the focus groups' data and the surveys' numerical data and comments did provide rich detail that allowed insight into the participants' views, values, and beliefs about the CRNA recertification process. This data resulted in both a narrative and a graphic explication of a grounded theory for the nurse anesthesia profession's recertification process.

It will be important that future research is completed to evaluate any changes that may occur in the nurse anesthesia recertification process. Verification of the level of competence different CRNA recertification activities provide will require investigation into changes in perception of CRNAs' competence as experienced by CRNAs' patients, colleagues, and the public. The importance of professionalization of CRNAs new to the profession should also be investigated. A determination of the amount of professional lifelong learning that occurs and is needed at the various stages of a CRNA's career would be helpful to know when future curriculum is designed for CRNA recertification activities. Additionally, further exploration of which recertification and professional activities specific types of colleagues and employers, along with specific anesthesia practices, value most as a demonstration of competency may help CRNAs determine which activities they should undertake to incorporate into their curriculum vitae when applying for specific positions within their profession.

Final Conclusions

CRNAs expressed pride in their profession in a variety of ways. They shared information about their scope of practice and their commitment to promoting and providing quality patient care. Their tone was positive and enthusiastic throughout the

focus group discussions. As a whole, members of the focus groups and the survey respondents expressed positive views of the nurse anesthesia profession.

CRNAs as a group are committed to their professional education and value lifelong learning. As a result of this commitment, learning theories appear to have a strong influence on the nurse anesthesia profession's recertification process. Additionally, theories for lifelong learning and evidence-based practice (Foster & Faut-Callahan, 2001; Biddle, 2010) were reflected in this grounded theory. The theories associated with this grounded theory's themes signaled CRNAs' desire for a recertification process that encourages meaningful professional growth and a demonstration of CRNAs' competency.

Analysis of the data identified that if the recertification process was to assure CRNA competency, the recertification activities needed to foster a commitment to professional lifelong learning and an expectation of CRNA competency. Of the theoretical components that undergirded this grounded theory, professional lifelong learning theories and competency theories were echoed throughout the five themes that comprised this grounded theory. (see Figure 5 and Table A3, Appendix A). As a result of this research, the initial theories identified as undergirding the nurse anesthesia profession's recertification process (see Figure 1) were expanded to highlight the theoretical implications of lifelong learning theories and competency theories and models (see Figure 5).

CRNAs are known to be strong individuals who have a great deal of pride related to their professional abilities. They also have been identified as practioners who have individual learning styles (Foster & Faut-Callahan, 2001). Experiential learning theory

(Dewey, 1963; Kolb, 1984; Mirriam & Caffarella, 1991) supported data that identified CRNAs have a strong desire to experience learning in a manner that will allow them to apply their educational experience to their specific clinical practice. In addition to the identified learning theories, self-actualization, evidence-based practice, and professionalism also were important concepts, which contributed to the grounded theory of nurse anesthesia profession's recertification process.

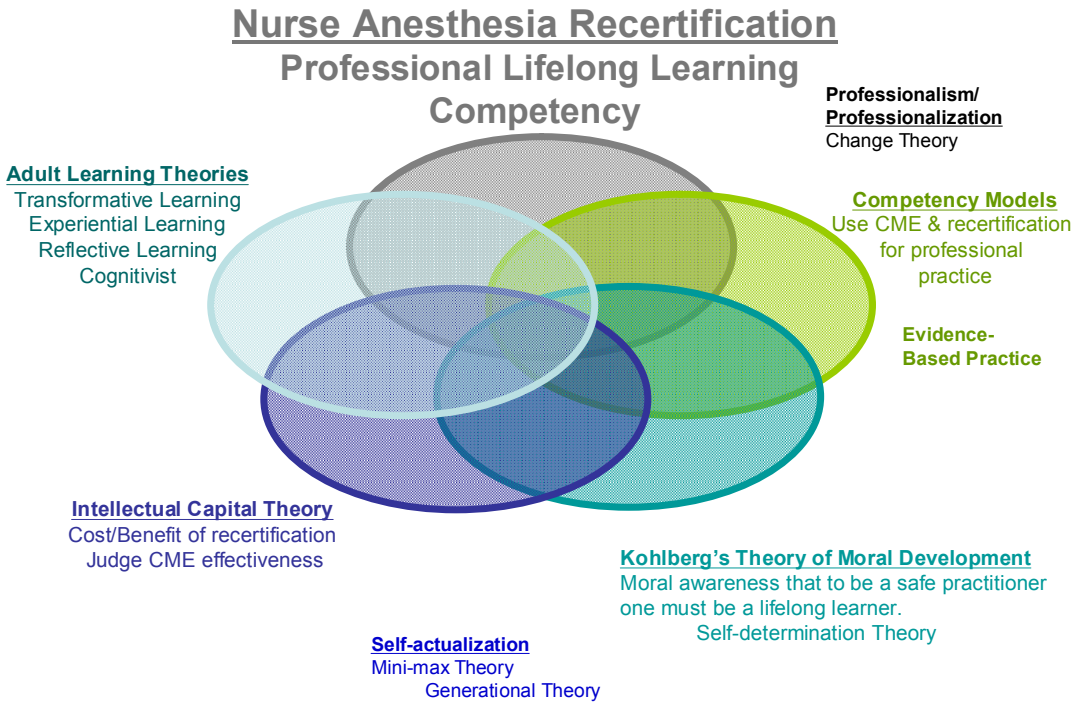

Figure 5. Expanded theoretical foundations for the nurse anesthesia profession's recertification process.

Hands-on simulation testing generated the majority of the comments during the focus group discussions related to valued recertification activities. Kolb's Learning Cycle as it relates to the CRNAs' recertification process and activities, including hands-on simulation testing, reflected many aspects of a recertification process that CRNAs and their associates indicated they would value.

When completing the recertification survey, CRNA colleagues and administrators/employers also spoke of their pride in the quality of patient care CRNAs provided for their patients. The colleagues' and administrators' expectations of excellent patient care were heard in their comments about nurse anesthetists. Those individuals placed their trust and their own professional reputation in the hands of nurse anesthetist on a regular basis. The CRNAs' colleagues and administrators trust a CRNA has a high level of knowledge and skills. A sense of assurance of competency was identified by CRNA associates as paramount when working with a CRNA in the clinical setting or when a CRNA is hired to provide anesthesia services for patients who seek care at an employer's institution or practice.

Universally the data from this research, which resulted in a grounded theory for the nurse anesthesia profession's recertification process, had the underlying theme of competency. Competency within the CRNA profession was highly valued by the members of the focus groups and the survey participants. Following a review of the literature it was apparent that society had similar expectations of competency for medical [anesthesia] providers. Marcario (2010) discussed society's surprise with the realization that there was not a "uniform, well-defined, and validated sets of criteria with which to measure the overall competency of residents when they finish their [anesthesia] residency programs." (p.5 ¶ 7) The lack of attention in identifying competency markers was a concern expressed by society regarding not only learners, but all members of the nurse anesthesia profession.

Members of the CRNA focus groups expressed pride in their professional abilities. The focus group participants and those survey respondents who worked with or

employed CRNAs, identified CRNAs' commitment to lifelong learning, professionalism, and high quality, safe patient care as CRNA attributes they valued and which pointed towards a high level of professional competence. All research participants grappled with the question, "What would best demonstrate CRNAs' competence to society, health professionals and their patients?" Recertification and professional activities were identified and then quantified by the survey participants as to which activities provided a level of assurance of a CRNA's competence. Hands-on simulation experience and testing, written examinations and on-going continuing professional education was activities that garnered strong support from the CRNA associates (see Tables 5, 6, 7, and 8; see Table A2, Appendix A). Focus groups most frequently discussed mandated hands-on simulation experience without pass/fail testing as the activity they felt would increase their individual professional competence. Both participants in the focus groups and the survey respondents indicated that all three activities would be valued. When incorporating the survey and focus group data analysis into the development of the grounded theory, it appeared that these three recertification activities supported the proposition that increased cognition and safer delivery of anesthesia to patients would result from incorporating the three activities into the system of inputs and activities that would lead to an enhancement of CRNAs' professional competence.

Because health care professionals have an ever increasing expectation that practice should be based on evidence (Biddle, 2010), established theories were linked to each of the five themes and multiple subthemes developed from the survey and focus group data (see Table A3). The insight provided by the themes developed through this research may help to move the nurse anesthesia profession towards a recertification

process that will reflect the pride CRNAs have in delivering a high level of up-to-date quality care. Data indicated a strong sentiment that the CRNA recertification process should ensure that the profession's members had achieved the needed competencies to be able to deliver excellent anesthesia care to all patients. To reach that goal of competency there was the realization that each CRNA must have a commitment to professionalization and professional lifelong learning. That commitment needs to be instilled from the very beginning of the nurse anesthetist's education and the expectation of lifelong learning and professionalization has to be present throughout the span of every nurse anesthetist's career. That expectation has to be fostered by the goals of the recertification process.

The goal of commitment to professional lifelong learning resonates in the words of Dr. Charles C. Mayo (1928), "Once you start studying medicine [anesthesia] you never get through with it" (in Willius, 1951, p 15). Nurse anesthetists' commitment to competency was also clearly expressed in a separate quote by Dr. William Mayo (1928), "We have never been allowed to lose sight of the fact that the main purpose to be served by the [Mayo] Clinic is the care of the sick" (in Willius, 1951, p. 45). The intent of Dr. William Mayo's statement has become Mayo Clinic's primary value. *The needs of the patient come first* is the primary value that Mayo Clinic embodies and also summarizes why there is a need for a grounded theory for the nurse anesthesia profession's recertification process. Dr. William Mayo's (1928) statement is reflected in the five themes identified in this grounded theory. Each theme identifies reasons why CRNAs must be competent in their practice and which recertification activities would be valued for assuring that competence. The significance of the Mayo value to a valued CRNA recertification process was supported by the research participants who recognized the

importance of CRNAs embracing a recertification process which provides assurance that all CRNAs are safe, competent, and professional anesthesia providers who individually have a commitment to lifelong learning, thereby enhancing professionalization within the field.

The goal of obtaining and demonstrating competency is a lifelong process for the nurse anesthetist. What was learned five years ago may no longer be valid practice for anesthesia management of new procedures and the event of new drugs. The recertification activities identified by this research are only examples of what may be needed in the future. An important result of this grounded theory research was the heightened awareness members of the profession and CRNA associates provided as to the need for a recertification process that demonstrates the essence of nurse anesthetists' competency and professionalism, while spurring the profession and individuals to continually move to higher levels of knowledge, skill and patient safety within the profession's field.

> "As a professional organization, we should not limit ourselves to defining competencies itself. I think in addition to that is, what are the new things? What are the updates that are coming through? What is evidence-based practice? Do you practice based on evidence that is current, because you may 5-10 years ago certified? The knowledge base you had 10 years ago is different from now."

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Appendix A: Tables

Table A1

Medical Professions' Recertification Requirements

Profession	Length of recertification cycle	Number of Continuing (Medical) Education credits required per recertification cycle	Recertification exam required: A. Years between re-examination. B. Members grandfathered in and do not need to take recertification exam	A. Portfolio required for recertification B □Case numbers C □Case descriptions D □Conferences Presentations' Authorship: Readings:
Radiology	2	24 credits 12/yr	N/A	None
Sonography - OB	3	30 10/yr	N/A	None
Ortho Surgeon	10	N/A	10 years-Yes	None
Registered Nurse (MN)	2	24 12/yr	N/A	None
Registered Respiratory Therapist	2	24 12/yr	N/A	None
Physical Therapist – Specialists	10		May choose this – Most do a portfolio	Yes: Multiple activity areas
Pediatric Surgeon	10	100 hours (60 CME category 1) 10/yr	10 years-Yes	Yes: Case # and descriptions
Physical Therapy	2	20 10/yr	N/A	None
Nurse Practitioner	5	75 + 2 ANCC Professional development categories 15/yr	In discussion	1.Credits from Academic courses 2. Presentations 3. Publication or research 4.Preceptorship - 120 hours
Physician Assistant-Orthopedics	6	120 20/yr	6 years No one is *grandfathered.*	Conferences attended, presentations, authorship, and readings.
Peridontist	6	60 hours CEU 10/yr	6 years No one is *grandfathered.*	Initial certification required. Completion of cases, oral exam and written exam
Anesthesiologist		"Lifelong learners"	10 years Written and simulation-Yes	None

Note. Information was obtained in 2008 by querying licensed individuals practicing in these medical professions.

Matching Exercise: Medical Professions' Recertification Requirements:

Step 1.
Please review the following descriptions of requirements for re-certification
Please rank them in the order of perceived rigor

Step 2 Using the same descriptions place the name of the profession you believe is associated with a specific (set of) recertification requirement(s).

Step 3.
The rank of the rigor of recertification is revealed. As it is revealed take another set of stickers with the profession's name on it and put it next to your list that you developed in Step 2.

Discussion questions:
Were you surprised with the results of the rankings?
Did you think the nurse anesthesia profession's ranking was as high or as low as you expected?
How did your blinded ranking of the professions' recertification process make you feel about the nurse anesthesia profession's recertification process?

Due to the pilot CRNA focus group's immediate focus on other professions' additional requirements, especially the written exam requirement, it was determined that this exercise would skew the discussion to focus only on possible changes in the process, instead of allowing a discussion of what recertification meant to the CRNAs. As a result this exercise was not included in the focus group discussions. The information related to other professions' recertification requirements was included to provide readers of this document a comparison of medical professions' recertification processes.

Table A2

Survey Results Using Descriptive Statistics

Question Content	Overall				Colleagues				Administrators			
	Mean	*SD +/-*	*n*	*Rank*	***Mean***	*SD +/-*	*n*	*Rank*	***Mean***	*SD +/-*	*n*	*Rank*
Rate recertification process importance												
Q3. Recertification verifies technical skills ^	**4.47**	0.81	21	NA	**4.44**	0.73	9	NA	**4.5**	1.06	12	NA
Q4. Recertification verifies current knowledge ^	**4.71**	0.64	21	NA	**4.56**	0.73	9	NA	**4.83**	0.58	12	NA
Q5. Recertification is important when I determine who I work with ^	**3.81**	1.08	21	NA	**3.78**	1.20	9	NA	**3.83**	1.03	12	NA
Rate each recertification activity's												
Q6. CEUs/CME ^	**4.14**	0.73	21	4	**4.44**	0.73	9	5	**3.92**	0.66	12	3
Q7. Written exam ^	**4.19**	0.81	21	5	**4.00**	1.00	9	4	**4.33**	0.65	12	5
Q8. Simulation test ^	**4.0**	1.05	21	3	**3.56**	1.03	9	3	**4.33**	0.98	12	4
Q9. Case log ^	**3.62**	0.97	21	1	**3.22**	1.20	9	2	**3.91**	0.67	12	2
Q10. Portfolio ^	**3.95**	0.67	21	2	**3.0**	0.87	9	1	**2.92**	0.51	12	1
Rank each recertification activity's												
Q11.CEU/CME @	**3.57**	1.16	21	4	**4.22**	1.09	9	5	**3.08**	0.97	12	2
Q12.Written Recert exam @	**3.43**	1.33	21	3	**3.11**	1.45	9	3	**3.67**	1.23	12	4
Q13.Simulation test @	**3.80**	1.06	20	5	**3.25**	1.04	8	4	**4.17**	0.94	12	5
Q14. Case log @	**2.95**	1.24	21	2	**2.67**	1.50	9	2	**3.17**	1.03	12	3
Q15. Portfolio @	**1.38**	0.80	21	1	**1.89**	0.71	9	1	**1.00**	0.00	12	1

Table A2 (continued)

Question Content	Overall				Colleagues				Administrators			
	Mean	*SD +/-*	*n*	*Rank*	***Mean***	*SD +/-*	*n*	*Rank*	***Mean***	*SD +/-*	*n*	*Rank*
Rate recertification process importance												
Q16. Membership of professional org ^	**3.85**	0.67	20	5/6	**3.89**	0.93	9	5	**3.82**	0.40	11	6
Q17. Participation in professional org ^	**3.86**	0.65	21	5/6	**4.11**	0.78	9	6/7	**3.67**	0.50	12	4
Q18. Medical Mission Trip ^	**2.90**	0.60	21	1	**2.77**	0.66	9	1	**3.00**	0.60	12	1
Rate each professional activity's												
Q19. Lecturer for NAP ^	**3.52**	0.68	21	3	**3.67**	0.87	9	3/4	**3.42**	0.51	12	3
Q20. Clinical instructor for NAP ^	**4.05**	0.74	21	7	**4.11**	0.78	9	6/7	**4.00**	0.74	12	7
Q21. Lecturer for community Organization ^	**3.14**	0.65	21	2	**3.22**	0.67	9	2	**3.08**	0.67	12	2
Q22. Dress & Decorum ^	**3.71**	0.96	21	4	**3.67**	0.87	9	3/4	**3.75**	1.06	12	5
Rank each recertification activity's												
Q23. Membership of professional org $	**5.05**	1.66	21	6	**5.00**	1.73	9	6	**5.08**	1.68	12	6/7
Q24. Participation in professional org $	**4.29**	1.93	21	4	**4.89**	1.83	9	5	**3.83**	1.94	12	3
1Q25. Medical Mission Trip $	**2.48**	1.33	21	1	**2.11**	1.05	9	1	**2.75**	1.48	12	2
Q26. Lecturer for NAP $	4.57	1.75	21	5	**4.56**	2.01	9	4	**4.58**	1.62	12	5
Q27. Clinical instructor for NAP $	**5.14**	1.98	21	7	**5.22**	2.17	9	7	**5.08**	1.93	12	6/7
Q28. Lecturer for community Organization $	**2.90**	1.79	21	2	**3.33**	2.00	9	3	**2.58**	1.62	12	1
Q29. Dress & Decorum $	**3.67**	2.22	21	3	**3.11**	1.90	9	2	**4.08**	2.43	12	4

Note. (^) indicates a 5 point Likert scale was used: 5 = Very important and 1 = No value. (@) indicates a 5 point ranking scale was used: 1= Least important and 5= Most important. ($) indicates a 7 point ranking scale was used: 1= Least important and 7= Most important

Table A3

Associated Theories and Concepts Related to Themes and Subthemes

Subthemes and associated concepts	Examples of associated theories	Explication of themes and subthemes
Theme 1: The Yin of lifelong learning: I am proud of my profession		
ST 1A: Scope of practice is a source of professional pride.	Self Actualization (Maslow, 1968)	CRNAs are motivated to be the best that they can be in every aspect of their professional life
ST 1B: Commitment to quality anesthesia care is necessary	Competency Model (Epstein & Hundert, 2002; Foster & Faut-Callahan, 2001; Martin-Sheridan et al., 2003; Nahrwold, 2002; Neufield & Norman, 1985; Spencer, S. & Spencer, L., 1993) Constructivism (Brunner, 1996; Dewey, 1963; Piaget, 1950; Vygoysky, 1978)	CRNAs have a commitment to competency even when encountering new techniques, medications, and patient pathophysiology. Constructing and attaching new meaning to experiences results in identification of what new knowledge is needed and how to apply that knowledge to future experiences.
AC 1A: Recertification impacts niche practioners.	Self-determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000)	Rapid changes in the anesthesia practice require all CRNAs to increase their knowledge and skills throughout their career.
ST 1C: Professionalism/ professionalization is necessary	Reflective learning (Aygyris & Schon, 1996; Kolb, 1984; Laurillard, 2002; Mott, 1998; Schön 1983) Professionalization (Houle, 1980; Langenbach, 1993)	CRNAs spend time reflecting on what they value and need to do to provide better care for every subsequent anesthetic they provide.
AC 1B: Expanded knowledge of current anesthesia practice is necessary.	Self-actualization (Maslow, 1968) Self-determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000)	

Table A3 (continued)

Subthemes and associated concepts	Examples of associated theories and concepts	Explication of themes and subthemes
	Theme 2: The yang of lifelong learning	
	Adult Learning Theory: Behaviorism (Parkay & Hass, 2000), Cognitivism (Bandura, 1977; Bandura, 1999), and Constructivism (Brunner, 1996; Dewey, 1963; Piaget, 1950; Vygoysky, 1978)	
ST 2A: Lack of commitment to lifelong learning is a concern.	Cognitive Theory: Cognitivism, contextualized individual learning, social cognitivism and constructivist learning theories. (Bandura, 1977; Bandura,1999)	Complex problem solving is required of all CRNAs. CRNAs need to organize professionally learned information for future use.
ST 2B: Lack of motivation impacts commitment to lifelong learning.	Self-determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000)	
ST 2C: Aging can impact skill levels.	Generational Theory (Lancaster & Stillman, 2003; Macario, 2010)	CRNAs need to demonstrate their high-level of competence throughout their lifespan
ST 2D: Budget impacts the recertification process	Intellectual Capital Theory (Becker, 1993; Foster & Faut-Callahan, 2001; Stewart, 2001)	CRNAs need to demonstrate to society and other medical professionals their worth and competency through recertification activities (See above)
	Theme 3: Reconciliation: Incompetence is unacceptable	
ST 3A: Recertification processes must imply competence.	Evidence-based Learning (Biddle, 2010; McFadden & Thiemann, 2010)	Evidence-based research supplements CRNAs' commitment to lifelong learning and a high level of competence.

Table A3 (continued)

Subthemes and associated concepts	Examples of associated theories and concepts	Explication of themes and subthemes
AC 3A: Maximum mandated CRNA competency equals minimum mandated competency.	Mini-Max Theory / The Weakest Link Theory (Casti, 1996; Harsanyi, 1975)	CRNAs' recertification process must identify the minimum level of competency acceptable to members of the profession.
AC 3B: Change produces fear.	Change Theory (Casey, 2002; Mezirow, 1991)	CRNAs do not see failure as an option. Initially change can increase the possibility of mistakes and failure.
ST 3B: Ethics is paramount.	Kohlberg's Moral Development Theory (de Casterle, Roelens, & Gastmans, 1998; Kohlberg, 1970)	CRNAs recognize their obligation to maintain professional competence and a responsibility to their profession and patients to prevent incompetence within their profession.
Theme 4: Recertification is valued when it demonstrates competence		
ST 4A: It has to be meaningful to us.	Competency Model (Benner, 1984; Dreyfus, 1980; Epstein, 2002; Foster, 2001; Martin-Sheridan et al., 2003; Nahrwold, 2002; Neufield & Norman, 1985; Spencer, S. & Spencer, L., 1993)	There is an expectation that CRNAs' professional competency is at a high level.
ST 4B: It needs to give society assurance of competency.	Competency Model (Epstein, 2002; Foster, 2001; Martin-Sheridan et al., 2003; Nahrwold, 2002; Neufield & Norman, 1985; Spencer, S. & Spencer, L., 1993)	The current recertification process does not fully demonstrate to the public CRNAs' professional knowledge, skills, and competence.
Theme 5: Valid recertification process must demonstrate a high level of competency		
ST 5A: Recertification competencies should be identified.	Transformative Learning (Mezirow, 1991; Moore et al., 2005)	There is a call for the CRNA profession to re-evaluate their recertification process.

Table A3 (continued)

Subthemes and associated concepts	Examples of associated theories and concepts	Explication of themes and subthemes
ST 5B: A variety of recertification activities demonstrate competency.	Reflective Learning (Aygyris & Schon, 1996; Kolb, 1984; Laurillard, 2002; Mott, 1998; Schön 1983)	CRNAs have to have the ability to think on their feet. (Reflection-in-action)
	Multiple Intelligence (Gardner, 1999)	CRNAs' recertification process needs to acknowledge the diversity of practice models and practitioners.
AC 5A: Simulation test-out demonstrates competency.	Experiential learning (Dewey, 1963; Kolb, 1984; Mirriam & Caffarella, 1991)	Simulation allows CRNAs to reflect on their practice, use evidence-based research, and observe other providers' practice as a means to enhance their professional competency.

Note. ST = Subthemes and AC = Associated Concepts

Appendix B: Focus Group Packet

Dear _____, CRNA:

My name is Mary Shirk Marienau, and I am a graduate student at the University of Minnesota. I am conducting a research study as part of the requirements for my Ph. D. in Education. I invite you to participate in this research study that will be used to develop a grounded theory of recertification for the nurse anesthesia profession.

Study

The purpose of this study is to develop a theoretical model of recertification that will supply guidance to the nurse anesthesia profession, as it determines the most effective and efficient process that will provide assurance of the nurse anesthetist's knowledge, skills and professionalism. I am looking to find common concepts and ideas that help in the understanding of this experience and what it means to the nurse anesthesia profession and society. I will conduct focus group sessions about your experiences, feelings, and attitudes towards the recertification process for nurse anesthetists. Your answers will be transcribed word-for-word and will be analyzed for themes and ideas. Each session may last from 90-120 minutes; you will be free at any time to terminate your participation or have your data withdrawn from the study. Information gained from this research project will be used as the basis for my Ph. D. dissertation. I will share the results of the study with you when it is completed.
I am looking for participants who meet the following criteria:

- They will be CRNAs whose practice focus is clinical, educational or administrative in nature.
- They will be of any ethnic background.

Risks/benefits: There are no risks or benefits to the participants in this study.

Confidentiality: All records of this study will be kept private. Demographic data will be collected, but will be kept anonymous and will be stored separately from the focus group transcripts. Interview recordings will be erased within one month of the publication of my dissertation. Consent forms will be kept securely along with results for 7 years after the completion of this study.

Voluntary nature/questions: Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or with your institution of higher education. If you decide to participate in this study you are free to withdraw at any time without affecting your relationship with the University of Minnesota or your institution of higher education.

If you are willing to participate in this research study, please contact me upon receipt of this letter. You may both complete and send back the enclosed postcard, or you may e-mail me at: marienau.mary@mayo.edu. I look forward to hearing from you. Thank you for your consideration of my request.

Sincerely,

Mary Shirk Marienau

Mary Shirk Marienau, CRNA, MS

Research Exempt from IRB Committee Review, Category 2
Attachment 10.3 Consent Form
Confidential Participant Consent Form
IRB # 0709E16701

Department of Work and Human Resource Education
University of Minnesota
St Paul, MN 55108

You are invited to be in a research study that will seek to obtain information that will lead to a theoretical model for the certified registered nurse anesthetists' recertification process. You were selected as a participant because you are a CRNA who will be attending one of the national meetings where I will be conducting focus groups. As a CRNA you will be able to give insight into the process, which results in your recertification. I ask that you read this form and ask any questions that you may have before agreeing to be in the study.

This study is being conducted by May Shirk Marienau. I am a graduate student at the University of Minnesota. I am conducting this research study as part of the requirements for my Ph.D. in Adult Education.

Background Information:
The purpose of this study is to investigate the dimensions that help explain and predict the relationships that are part of the nurse anesthesia profession's recertification process. This information will be used to develop a theoretical model of recertification for the nurse anesthesia profession. This information will be derived from focus group discussion with certified registered nurse anesthetists (CRNAs). Each focus group may last from 90- 120 minutes, you will be free at any time to terminate your participation or ask that your data be withdrawn from the study. Additional information will be obtained via a mailed survey sent to 20 non-CRNA medical professional, who interact on a professional level with nurse anesthetists.

Procedures:
If you agree to be in this study, I would ask you to do the following things:
You will be asked to participate in in-depth, semi-structured focus group discussions. The discussions will center on a variety of aspects that relate to the nurse anesthesia profession's recertification process. The discussions may include patient care, and changing professional requirements. Additionally, knowledge, practice and professional competencies, in relation to the recertification process, will be explored. The groups will be facilitated by the investigator. An assistant may be present to assist in the logistics of seating, taping and note taking. All interviews will be transcribed verbatim by a paid transcriptionist. Field notes will also be taken during the focus group interviews. The focus group tapes will be anonymized, as will all data from the study. The identity of the participants will be known only to the researcher and the assistant who may be present. Members of each focus group will be asked to maintain confidentiality of other group members. Detailed analysis of focus group tapes and notes will take place following each group to determine common themes. Interpretations and conclusions will be shared with participants if so desired.

Risks and Benefits of being in the Study:
There are no risks or benefits to the participants in this study.

Compensation:

You will not receive any monetary compensation. Light refreshments will be served during the focus group sessions.

Confidentiality:
All records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Demographic data will be collected, but will be kept anonymous and will be stored separately from the interview transcripts. Research records will be stored securely and only researchers will have access to the records. Interview recordings will be transcribed by a paid transcriptionist. Recordings will be erased within one year of the publication of my dissertation. Consent forms will be kept securely along with results for 7 years after the completion of this study.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota, with your institution of higher education, your workplace, or with your professional association. If you decide to participate in this study you are free to withdraw at any time without affecting your relationship with the University of Minnesota, your institution of higher education, your workplace, or with your professional association.

Contacts and Questions:
This study is conducted by Mary Shirk Marienau. You may ask questions you have now. If you have questions later, you are encouraged to contact her at (507)-284-8331 or at marienau.mary@mayo.edu. The supervising advisor for this research is Dr Shari Peterson, you may contact her at (612)-624-4980 or at peter007@umn.edu .

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature of Participant _____ Date _____

Signature of Investigator _____ Date _____

Response e-mail

Mary Shirk Marienau
1011 Siebens
Rochester, MN 55905

Dear Ms Shirk Marienau;
I have received and read your invitation to participate in the research study you are doing as part of your graduate work. I understand that I may contact you for further information or to ask questions about my participation in this study.

At this time I have enough information to make a decision about participating in the study.

Please contact me personally to arrange participation in a focus group at the upcoming meeting:

Name:

Meeting site:

Contact phone number:

Contact FAX number:

Contact e-mail:

Mailing address:

This was e-mailed to all nurse anesthesia program directors via the Program Directors' Distribution List. Program Directors were asked to post this invitation to participate in a focus group session in prominent areas in their hospitals' operating room suites.

CRNAs NEEDED

For participation in Focus Group Session to discuss The CRNA Recertification Process

At the upcoming [CRNA] meeting in_____, I am planning to conduct a focus group session. This research is being conducted for my Ph.D. dissertation. During the focus group, open-ended questions will be asked to obtain data that will be used to develop a grounded theory of recertification for nurse anesthetists. The session will be conducted at the meeting hotel and will last 90-120 minutes. The entire session will be taped recorded. Light refreshments will be served.

If you know of any CRNAs who are planning to attend this meeting or any of the meetings listed below, please ask them to consider volunteering to participate in the focus group session. I need 6-8 participants for each session. If you are attending any of the session, please feel free to volunteer yourself. Anyone who is interested in participating, please contact me for further information.

Mary Shirk Marienau, CRNA, MS
marienau.mary@mayo.edu
1011 Siebens, 200 first Street SW
Rochester, MN 55905
1-507-284-8331 (office phone)

I will be conducting focus groups at several upcoming CRNA meetings, so please watch for additional focus group invitations.
Projected meetings for focus group sessions:
MANA Fall Meeting – Bloomington, MN
33rd Annual Mayo Clinic Seminar for Nurse Anesthetists – Rochester, MN
Assembly of School Faculty Meeting – New Prot Beach, CA
AANA Spring meeting – Washington DC
AANA Annual Meeting – Minneapolis, MN

When additional participants were needed, this was posted at meetings where the focus groups were conducted. My hotel phone number was inserted at the time of the meeting.

CRNAs NEEDED

For participation
in
Focus Group Session
to discuss
The CRNA Recertification Process

PhD Dissertation Study
Conducted by
Mary Shirk Marienau, CRNA, MS

If you are willing to participate in a 90-120 minutes focus group session, with 6-7 other CRNAs, please contact Mary Shirk Marienau by (Date /Time) via phone 1-507-254-8314 (Cell) XXX-XXXX (Hotel)

Appendix C: Survey Consent Form

You are invited to be in a research study that will seek to obtain information that will lead to a theoretical model for the certified registered nurse anesthetists' recertification process. You were selected as a participant because you are a medical professional who has a working relationship with CRNAs. As such you will be able to give insight into the recertification process for CRNAs. I ask that you read this form and ask any questions that you may have before agreeing to be in the study.

This study is being conducted by Mary Shirk Marienau. I am a graduate student at the University of Minnesota. I am conducting this research study as part of the requirements for my Ph.D. in Adult Education.

Background Information:

This survey is being sent to individuals who are members of medical professions that depend on CRNAs to complete their work. The intent of this survey is to obtain information that will assist in the development of a theory of recertification for the nurse anesthesia profession.

Literature has indicated that recertification is valued by society, other professions and nurse anesthetists as a means of demonstrating competency. Knowledge, technical skills, and professionalism have been identified as components of competency.

Procedures:
If you agree to be in this study, I would ask you to do the following things:
You will be asked to determine how important listed concepts are to the validation of nurse anesthesia competency and which recertification components best assure that a nurse anesthetist is competent and current in their practice. This survey was validated by a panel of experts in the nurse anesthesia profession.

Risks and Benefits of this Study:
There are no risks or benefits to the participants in this study.

Compensation:
There will be no compensation awarded for participation in this study.

Confidentiality:
All records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Demographic data will be collected, but will be kept anonymous and will be stored separately from the interview transcripts. Research records will be stored securely and only researchers will have access to the records. Consent forms will be kept securely along with results for 7 years after the completion of this study.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota, with your institution of higher education, your workplace, or with your professional association. If you decide to participate in this study you are free to withdraw at any time without affecting your relationship with the

University of Minnesota, your institution of higher education, your workplace, or with your professional association.

Contacts and Questions:
This study is conducted by Mary Shirk Marienau. If you have questions, you are encouraged to contact her at (507)-284-8331 or at marienau.mary@mayo.edu. The supervising advisor for this research is Dr Shari Peterson, you may contact her at (612)-624-4980 or at peter007@umn.edu .

Please keep a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. If necessary, have been able to reach the researcher to ask questions and received answers. I consent to participate in the study.

Signature of Participant _____ Date _____

Appendix D: Focus Group Questions

This is a qualitative research study and therefore, the interviews will be semi-structured with open-ended questions. The format will be conversational to allow free exchange of ideas and alternative views between the participants. Unscripted probes may be used to elicit further descriptions and detail. The participants will be able to remove themselves from the focus group at any time; this is made clear in the participant consent form and will be repeated verbally at the beginning of the focus group.

There are four categories of questions (Krueger, 1998) that will be asked during the focus groups:

1. *An opening question to allow the participants get acquainted and feel connected:*
   Tell me your name, where you are from, and what is unique about your own anesthesia (or professional) practice?

2. *An introductory question to begin the discussion of the topic:*
   What is similar to recertification in life?
   - **Possessing a driver's license**
   - **Possessing a union card**
   - **Using an airline simulator**

3. *A variety of sequenced key questions and possible follow-up questions are designed to provide insight into the central area of concern - the recertification process:*
   Key: **What makes a CRNA current in their practice?**
   FOLLOW-UP:
   What impact do you feel those who are not current have on your profession?
   How can the public and other professions be confident that a CRNA possesses the *basic* knowledge needed to be recertified?
   How can the public and other professions be confident that a CRNA possesses the necessary *current* knowledge needed to be recertified?

The discussion then will move to the practicality of the tests and/or other requirements:

Key: **What are or have been effective means of obtaining the knowledge and skills that keep the CRNA's practice up-to-date?**
FOLLOW-UP:

What would make CRNA's recertification a negative process?
Are the required testing or reporting procedures for CRNAs (others) fair, unbiased, valid, and practical?

Key: **What should CRNA recertification accomplish?**
FOLLOW-UP:
What would make recertification more successful for the nurse anesthesia profession?
(Components? Ingredients? How will that process work?)
In addition to knowledge and practice, should professionalism be viewed as an important component in the CRNAs' recertification process?
What does the term lifelong learning mean to you?

4. *The ending questions are used to help determine where the researcher should place emphasis on the discuss during analysis and to help bring closure to the session:*

What is the value of CRNA recertification to you?
What is the value of CRNA recertification to your profession?
What are the cost/benefits of Recertification?
What was the most important thing that we talked about in relation to recertification and the professional continuing education process?

General Demographic Information Sheet

(To be completed at the time of the focus group session)

Please answer the following questions as best you can. Your answers will be used to provide demographic information about participants. All information will be collated to give an overview of the research population. No specific information you provide will be shared beyond the investigator and the investigator's advisor.

1. Name (Last, First, Middle Initial)	
2. Meeting site	
3. Participant Code	
4. Age	☐ < 35 ☐ 35-40 ☐ 41-50 ☐ 51-60 ☐ 61+
5. Gender	☐ Female ☐ Male
6. Marital status	☐ Never been married ☐ Divorced/Widowed ☐ Married
7. Job Title	
8. Years in current position	
9. Highest degree (major/minor)	
10. Year of degree completion	
11. List the last three continuing education courses you attended as a CRNA	1. 2. 3.
12. Reason for choosing CE courses you attended Please check all that apply and provide short explanation of why you checked that item:	☐ Self satisfaction: ☐ Lifelong learning: ☐ Increase pay: ☐ Career advancement: ☐ Content: ☐ Meeting location:
13. Have you participated in a previous focus group?	☐ Yes ☐ No

Appendix E: Recertification Survey

The intent of this survey is to develop a theory of recertification for the nurse anesthesia profession. Literature has indicated that recertification is valued by society, other professions and nurse anesthetists as a means of demonstrating competency. Knowledge, technical skills, and professionalism have been identified as important components of competency.

The following questions are asked to determine how important you feel each of the listed concepts are to the validation of nurse anesthesia competency and which recertification components best assure that a nurse anesthetists is competent and current in their practice. This survey was validated by a panel of experts in the nurse anesthesia profession.

1. Are you a member of your professional organization? Y/N

2. Please select which of the listed profession most closely describes your profession:

Hospital Administrator	
Anesthesiologist	
Advanced practice nurse Circle one (Midwife, Nurse Practitioner, Clinical Nurse Specialist)	
Physician assistant	
Anesthesia Assistant	
Physical Therapist	
Registered Nurse (RN)	
Radiographers	
Respiratory Therapist	
Internal Medicine Physician	
Surgeon	

3. How important is it to you that a CRNA's recertification process verifies a substantial level of technical skills related to the practice of anesthesia?

Very Important 5	Important 4	Neutral 3	Not important 2	No value 1	Please comment on your response:

4. How important is it to you that the CRNA recertification process verifies that the nurse anesthetist has current knowledge related to the practice of anesthesia?

Very Important 5	Important 2	Neutral 3	Not important 2	No value 1	Please comment on your response:

(Continued on next page)

5. How important is CRNA recertification to you when determining if you work with nurse anesthetists?

Very Important 5	Important 4	Neutral 3	Not important 2	No value 1	Please comment on your response:

6-10. Please rate how important the following recertification activities are to validating nurse anesthesia competence. (**Your comments will provide additional substance to this survey**):

Activity	Very Important 5	Important 4	Neutral 3	Not important 2	No value 1	Comments
Continuing education courses						
Written recert exam						
Simulation test-out						
Case log						
Portfolio of scholarly activity (Publications, Poster presentations, Lectures, etc)						

(Continued on next page)

11-15. *Rank the following activities in their importance to the nurse anesthesia recertification process.* (**Your comments will provide additional substance to this** *1=Least important and 5= Most important:*

Activity	1-5	Comments
Continuing education courses		
Written recert exam		
Simulation test-out		
Case log		
Portfolio of scholarly activity (Publications, Poster presentations, Lectures)		

(Continued on next page)

16- 22 Professionalism has been identified as an important concept in determining the competency of a member of the medical community. Please rate how important the following professional activities are to validating nurse anesthesia competence. (**Your comments will provide additional substance to this survey)**:

Activity	Very Important 5	Important 4	Neutral 3	Not important 2	No value 1	Comments
Membership in professional organization						
Active participation in professional organization						
Participation in medical mission trips to underserved communities or countries						
Lecturer for anesthesia program						
Clinical instructor for anesthesia program						
Lecturer for community organization						
Dress and Decorum						

(Continued on next page)

23-29. *Rank the following professional activities in their importance to the nurse anesthesia recertification process.* (**Your comments will provide additional substance to this survey)**
1= Least important and 7= Most important:

Activity	1-7	Comments
Membership in professional organization		
Active participation in professional organization		
Participation in medical mission trips to underserved communities or countries		
Lecturer for anesthesia program		
Clinical instructor for anesthesia programs		
Lecturer for community organization		
Dress and Decorum		

END

General Demographic Information Sheet

(To accompany survey)

Please answer the following questions as best you can. Your answers will be used to provide demographic information about participants. All information will be collated to give an overview of the research population. No specific information you provide will be shared beyond the investigator and the investigator's advisor.

1. Name (Last, First, Middle Initial)	
2. Participant Code	
3. Age	☐ < 35 ☐ 35-40 ☐ 41-50 ☐ 51-60 ☐ 61+
4. Gender	☐ Female ☐ Male
5. Marital status	☐ Never been married ☐ Divorced/Widowed ☐ Married
6. Job Title	
7. Years in current position	
8. Highest degree (major/minor)	
9. Year of degree completion	
10. List the predominate content areas of continuing medical education courses (**last three**) you have attended (i.e.; comprehensive, orthopedic, pediatric, etc)	1. 2. 3.
11. Reason for choosing CE courses you have attend	Please check all that apply and provide short explanation of why you checked that item: ☐ Self satisfaction: ☐ Lifelong learning: ☐ Increase pay: ☐ Career advancement: ☐ Content: ☐ Meeting location:

Appendix F: Additional Quotes Informing the Grounded Theory Themes and Subthemes

Within this Appendix are the specific quotes used in Chapter 4, which is the *Result* chapter of this dissertation. The quotes used in Chapter 4 are in 9 font in Appendix F. Additional quotes that inform the themes and subthemes within Chapter 4 are in 12 font in Appendix F. The additional quotes in this appendix were identified as important data, but for ease of reading, only quotes that seemed to best encapsulate the themes and subthemes were incorporated into the body of the dissertation. It is this author's hope that the additional quotes attached to the author's text in Appendix F will be read and used to supplement the grounded theory developed for the nurse anesthesia profession's recertification process. This grounded theory was developed from the many CRNAs' and CRNA associates' voices and I believe it is important that those many voices are heard through the additional oral and written responses found in Appendix F.

Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession

"Everyone mentioned patients. It [nurse anesthesia] is patient centered."

CRNAs stated they had a strong passion for their profession:

"Everyone [in the nurse anesthesia profession] is involved [in their profession]."

"I think everyone [in the nurse anesthesia profession] shows a passion for what they do for the career that they have … and everyone is so different."

Scope of Practice Is a Source of Professional Pride

Nurse anesthetists have diverse practice models, but all are equally proud of their profession. CRNAs voiced pride in their clinical abilities, pride in their practice settings and scope of practice, pride in caring for military veterans, and pride in taking on non-clinical roles that help move their profession forward:

"We are always on the cutting edge. We now do bypass cases in the cardiac cath lab, so I am on top of what a lot of other places do."

"I have done anesthesia all over the world. The last 13 years I have been in [State] in a solo practice and I have two [CRNA] partners and we do a little bit of everything."

"I will say my first love in anesthesia is definitely cardiac anesthesia and I am always amazed and it never ceases that every time I look into someone's chest and see the beating heart it is almost a spiritual type thing for me. So I really love cardiac anesthesia."

A focus group participant shared how much it means to be able to provide anesthesia to wounded and ill veterans:

> "I work for the VA and I love working for the veterans. Once you get to know the veterans it is something I don't know if I could do without. And they appreciate our work very, very much and sometimes they do need some special care because of their high number of mental health issues. My goal next is to work with the soldiers that are just coming back from this war, because I have had to take care of a few of them and it is just terrible what they are going through."

CRNAs want to make certain that it is known that much of the anesthesia provided throughout the country is safely delivered by CRNAs in independent practices:

> "The thing that is unique about my practice is that it is totally CRNA only. So I practice what I have been taught to practice. We do all of our own regional anesthesia and OB. We have an autonomous [practice]. We have a collaborative agreement with our physicians. We are actually named in the medical staff bylaws as to what we can do in our practice."

> "We [CRNAs] are going to become more transparent and even the surgeon's outcomes will be posted by institutions….people are going to be able to select surgeon [with that posted information] and maybe anesthesia will be a part of that, where [the public will know] anesthetic outcomes at this locale were provided by X number of CRNAs. These are the outcomes. These are the things that we do here so that the general public does know when they come to our new clinical setting, for instance, this is a non-medically directed practice. We have physicians available, however, anesthesia is provided by nurse anesthetists..."

Non-clinical roles are a part of CRNAs' practice. Although some CRNAs questioned the value of their non-clinical roles within their profession, several members of the focus groups embraced the importance of the roles of the CRNA educator, CRNA administrator, technical support CRNA, and CRNAs who are full-time employees with the national and international nurse anesthesia organizations:

> "I do a little bit of everything. I am the Clinical Coordinator for the largest clinical site...I also am Director of Special Projects which is a new title. I have to get used to that. I also am a didactic instructor in the program also...I work very hard to make it work."

> "Recently I have stepped down from doing cardiac anesthesia and was asked to do the electronic medical record as part of my practice. That has been a real challenge because there are over 800 charting events. My goal is less documentation for all of us while giving good care. I am busy right now learning what the billing issues are, the business issues in taking good care of them."

> "What is unique about my nurse anesthesia practice now is that although it is not a clinical practice, I interact with several external organizations that look at quality in the practice of nurse anesthetists. I interact with various facility accreditation organizations and things of that nature. I have a wide number of hats in that arena. I also am responsible for maintenance evaluation of practice related documents for the association."

> "I am chairman of adult health nursing, so unique to my role is that I am chair of a very large academic department in the College of Nursing. [I am] responsible not only for the Nurse Anesthesia Program, but all of the other graduate programs that are adult specialties."

A focus group participant summarized the dilemma some CRNAs have with determining the value non-clinical CRNAs add to the profession:

> "At this point in your life you are in a different role, different skill sets that you are learning, but that does not mean you are not a nurse anesthetist. It is a different role definition. So being a nurse anesthetist, is that by definition that we can intubate? That was a skill that we have learned in school. Over and above that the diversity of roles that we make in our careers, is [intubation] the sole validation of how we are [viewed] as nurse anesthetist? I just throw it out there."

Commitment to Quality Anesthesia Care Is Necessary

The CRNAs who are so proud of their professional practice want to demonstrate to the public, their patients, and medical colleagues that they are competent and committed to providing the best patient care possible. Their voices were heard expressing that from a variety of practice perspectives:

> "It took a lot of teaching of the medical staff as to what we could do as CRNAs and what we were taught to do. They really respect our knowledge like XX said in his presentation, it is a learning curve that we have to go through with our physicians and [now] they consult me as to different disease types [and anesthesia interactions]. They are respectful of us as CRNAs…. I think it was respect for all CRNAs per se, because the questions has been asked, "Do you think we should have an anesthesiologist here?", and the staff physicians said, "Absolutely no." They are satisfied with the service that we provide them and the education base [we have]."

> "I think one of the things though that we also have to keep in mind is that we are going to be faced with responding to outside forces that are saying "I want to see something measurable, accountable, quantifiable", check list or whatever you want to call it, and as much as I think, "Yes, it should be helping people to get to where they want to be", and "Yes, I know about the time", but when it comes to the safety of the public that stuff does not mean squat."

> "My experience on the AANA Practice Committee: I have been on it 3 times and the public members are constantly pushing competency recertification aspects of things and how we hold ourselves accountable to the public. To me it is growing and how it is going to play out, whether it is accrediting bodies are going to take it on, legislature or regulatory agencies, I don't know. I think the public is increasingly demanding accountability and want to be more involved in their health care decisions, not just leave it to somebody else."

Professionalism/Professionalization Is Necessary

During the focus group sessions, CRNAs articulated what professionalism meant to them within their own practice:

> "Taking your own responsibility. You chose the profession so you have to grow in the profession by education, gaining new knowledge."

> "The bottom line is that it is the practitioners' professionalism to keep himself [sic] up to date. Keep the person's skills up to date or know where or when not to practice."

Theme 2: The Yang of Professional Lifelong Learning

The CRNAs' pride in their professionalism was present when they discussed the need to continue and enhance a culture of lifelong learning. During the focus group discussions CRNAs shared their definition of professionalism and also what does not demonstrate professionalism within the context of the nurse anesthesia profession. The topics within this section which informed Theme 2 are (a) professionalism/professionalization is necessary, (b) a lack of commitment to lifelong learning is a concern, (c) lack of motivation impacts commitment to lifelong learning, (d) aging can impact skill level, and (e) budget impacts the recertification process.

Lack of Commitment to Lifelong Learning Is a Concern

Lack of commitment to lifelong learning was a concern echoed throughout the focus group discussions. All participants spoke to the realization that even one CRNA's mistake reflected on the whole profession. Because there are other anesthesia provider groups and the public's lack of understanding of the CRNA role, the need to guard against practice mistakes was felt to be of paramount importance. Preventing professional mistakes was deemed important for the well being of CRNAs' patients and the nurse anesthesia profession:

> "It does impact us in that we all claim to be full service, full scope practice providers and that we have this broad scope, but yet some of us are not keeping current… That does not look so good on me professionally, but it doesn't look good for the whole thing if I allow myself to be put in that position."
> "If we were talking about this 30 years ago when you did not have all of the safety issues that you have today [this would be a bigger issue]. With all of our drugs, monitors and everything else it makes anesthesia awful easy to give for the most part and so we are able to safely cover up those with weaknesses with the monitors."

> "Part of the other issues, too, is that people across all levels of experience don't necessarily stay in touch with the current literature. That is a major problem as to whether to select this medication or that medication or to use this technique... using ultrasound, not using ultrasound."

A focus group participant was quick to point out that safeguards to ensure quality anesthesia practice are only *so good* and then a CRNA's knowledge and skill must shine through:

> "We could as an organization put in so many safeguards, but the bottom line is that it is the practitioner's professionalism to keep himself up to date. Keep the person's skills up to date or know where or when not to practice. We could do only so much [with] safeguards, then it is up to that individual CRNA who carries that credential. Unfortunately, that one CRNA taints all of us, but I think that is the reality."

As the demands of the nurse anesthesia profession change and grow over the coming years, CRNAs identified additional issues that may be encountered when CRNAs who have specialized in their practice (niche practioners) are expected to be experts in all types of anesthesia management:

> "[An all encompassing recertification exam will not work] because one size is not going to fit all…you have that person who works in Surgery Center for 10 years and has not done a vascular case in such and such a time and they have the exact same credential as someone else who day in day out is in a Level 1 trauma center, liver transplant and all that other stuff. So OK some of us may be digging our own hole here. If I turn to the simulator, you might talk about my having to go back and study for it."

> "I think this is a demographic of where you are practicing, too. Mine is rural practice. I don't do arts. I don't do carotids. I don't do brains. It is not that I can't do them, but I would have to have a refresher course and do it. So now if we are going to a simulator and they are going to test you in all of these areas, I probably would fail in some of those areas. Because I have done hearts, but it has been years. It is like, yah I could retrain and do them again but it would be difficult. I am geared to rural anesthesia."

Focus group members identified that certain skills and knowledge should be universal requirements for all CRNAs. Rather than expecting a recertification activity to ensure a specialized competence for the niche practitioner, it was suggested that competencies needed in every type of anesthesia practice should be demonstrated for CRNA recertification:

> "Isn't it trying to figure out what is the essence of being a nurse anesthetist? Is it airway management and/or is it line placement and/or is it understanding

> pharmacology and this particular set of 10 or 30 or 20 drugs that we would have to identify? Because I think we are all on the same page in terms of performance where people are safe. But what are the skill sets that constitute safe? I am not sure that airway is the only [way to demonstrate a CRNA is safe]."

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice, because they never happen, like MH, anaphylaxis or the other ones. Airway, right, which you could say that they are anesthesia adverse effects everybody needs to, somebody is going to have to come to some degree of agreement that there are core competencies that every anesthesia provider needs to have in their armentarium because of the virtue of what we do. I think it needs to cross all practices but it scares me to death that if I flunk that."

A participant also identified needed activities that would allow niche practioners to return to a generalist practice:

> "Like [participant] said about having everyone [CRNAs] mentor each other, help educate and support each other, so that people do start to feel more comfortable and be more current."

Lack of Motivation Impacts Commitment to Lifelong Learning

CRNAs who participated in the focus groups were concerned about those in their profession who have not kept up with the advances in anesthesia. CRNAs voiced a strong belief that being a self-directed lifelong learner is a significant part of the CRNAs' definition of professionalism. During the focus groups, comments were shared that provided insight into what lifelong learning means to the individual CRNA and the entire profession:

> "It [lifelong learning] is an individual effort to be current. It is their [CRNA's] personal and professional responsibility."

> "[Lifelong learning is] accountability. Actively taking responsibility [to be professionally up-to-date] for your patients and peers."

> "I think being a lifelong learner requires openness. I think it requires openness and being willing to experience and look for new things. It also involves a level of internal motivation. External motivators, the mom, might not work all the time. It does work to a certain degree. Once you are a practitioner out of the student phase and into the clinical phase there has to be that internal motivation for you to want to learn and if they don't have it, it is really difficult to motivate those individuals to stay abreast of the material."

Several CRNAs expressed how important lifelong learning was to their profession. They felt that a commitment to lifelong learning conveyed the high value nurse anesthetists place on providing their patients with quality anesthesia care. I heard

CRNAs indicate that lifelong learning helped to ensure that high quality of anesthesia care was maintained**:**

> "A lifelong learner is someone who challenges self to be current in their practice…To assimilate knowledge and skills into practice…To learn as much as possible to have a healthy outcome."
>
> "I came here to learn at this meeting or another meeting where I could pick out what I wanted and went home and did it."
>
> "I think lifelong learning is individual. It is personal. You wanted to learn all of that, so you went out and found out how to do all those things. If you did not want to do that you would have to stay in that box."
>
> "But I know when things are above me and I have enough sense to know who to go to as the resource person when I need to get help, whether it is a difficult airway situation or different things. I know my strengths and limitations and actually in my mind have a little plan to whom am I going to contact and those people."
>
> "I really had to teach myself, but I did not really teach myself. I came to the meetings here. I learned how to use a new gas. I had to start using Sevo when I was all by myself. I had to start putting a LMA in. The first thing I did when I was going out by myself was do training with Ohio Company so I could take apart and put together my anesthesia machine if I needed to. So if it [the anesthesia machine] goes bad, I have a background just like everyone else. Something goes bad while I am working I have to have a back up just like everyone else. I have to take in oxygen. You pick your classes according to your practice needs."

The previous statements by CRNAs indicated that nurse anesthetists felt lifelong learning was necessary, although one focus group CRNA found that staying in his/her own practice box felt comfortable and safe:

> "My practice is a small, actually there are X of us in a group. I think in that practice you stay very safe. You stay within your box versus up here [large academic medical center] where you are outside that box probably everyday, trying something new or someone is coming in an saying, "Let's try this technique today." or "Let's do total IV anesthesia." or where when I was practicing in [town] by myself it was like use this, maintain them with this, wake them up with this and know that was safe anesthesia. You did not walk outside that box very often."

Statements regarding the concept of lifelong learning were expressed by the focus group CRNAs:

> "It is not quantifiable, but for me lifelong learning is directly connected with the value system of the individual. A value system that in the end, is about your patients and being able to give good care to them."
>
> "We need to tie in lifelong learning [with recertification] because we need to learn what is new and what is going on."

Focus group CRNAs shared examples of when society demanded documentation of lifelong learning and a meaningful recertification process. The CRNAs felt that such documentation provided society with a sense of assurance that CRNAs' possess a high level of skills and knowledge:

> "The public is aware of recertification, they find out [about it] on the internet. They think they get better care from boarded people."

> "I think the public would assume that if I told them I was recertified that I have done something much like a simulator, not that I paid my $500 to the AANA or that I have [something like] my driver's license. There again you just send it in and if I had not gotten any violations… If I am recertified, the public would expect that, me as a CRNA, would mean something. I would have something to prove myself, I had taken courses or demonstrated that my abilities are still up there."

CRNAs discussed the strain those individuals, who were not current or lagged behind in their knowledge and technical skills, put on the profession's reputation and growth. CRNA participants discussed members in their profession who were not committed to being current in their practice:

> "OK, here is another aspect…here is a current journal article applicable to practice. We will toss it out there, maybe it's [the start of] a thinker. Our students talk about it [a new drug, skill, anesthetic management technique] … but then they run into somebody who says, "This is what we did, this is what we give, this is how we have *always* done it ." [when the student just read an article with new information contradicting the CRNA]."

> "I just want to add that I think one of the barriers [to lifelong learning priority] is something that you alluded to. It is that we see clock watchers and we see students who are not as motivated as we would hope they would be and if you don't do anything else, do what a mom does and threaten kind of a thing. I think one of the big barriers that I have personally seen over the years is becoming increasingly annoying to me is the Generation Xs and Ys and Zs. They exist. It is a real barrier to a lot of the lifelong learners who are keeping students motivated and encouraging them to practice well ..."

> "I work in surgicenters too, but the thing that I worry about is the people who have gotten so far away from knowing what is standard care, and I have practiced anesthesia in a number of states and I have gone into places where they are pushing 150 of propofol and there is not an oral airway in the room. There is not a laryngoscope in the room and they are just doing it the way they have always been doing it. That is the segment that I really worry about."

> "Part of the other issues too, is that people across all levels of experience don't necessarily stay in touch with the current literature."

One CRNA expressed an awareness of how lack of motivation permeates all age groups. But that individual also identified the lack of motivation is often modeled by those CRNAs who are already *in the trenches*:

> "But we also hear your nurse anesthesia students are more dedicated then other graduate students. 'They are different.' You know it is interesting because I have to do this talk tomorrow but we have a defined culture and values. Horton did that work almost a decade ago and she really did look at people and who where key members of the profession at the time. It would be interesting to replicate that study with people coming out at this time. It is laid out what our culture is, what are values are and what is meaningful to us and how we take that and translate that and get that to our students. That is really the issue and for me, as I was thinking about this talk tomorrow it has nothing to do with students. It has to do with CRNAs in the trenches. You can't do a thing with students until you change [motivation] in the trenches…"

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Aging Can Impact Skill Levels

The aging anesthetist who is unwilling to stop working when their critical thinking abilities and skills are slowed was a concern identified by focus group members. Focus group members shared situations where an aging CRNA's ability to apply their knowledge was not adequate and when the aging CRNA had a lack of anesthesia knowledge due to a lack of commitment to a philosophy of lifelong learning:

> "I agree that unlike the state of [State] that says that when you get to 72 [you have to test to drive], I think it [professional testing] ought to be done [with CRNAs] every 5-10 years. I am not always convinced that we can hang it all on something that is easily defined as when you are 70."

> "I feel the same way. It is going to be a major concern in the next 10 to 12 years because we used to talk about, when we would get manpower studies, we would talk about 2010. We are going to have this big drop and everybody is going to be retiring. [Now] the money is so good, people are not going to retire. Then they are practicing into their 70s."

> "Some already are."

> "Some lady in south Florida is 75 years old. She works 2 days a week."

> "I have one in my institution."

> "And where is their critical thinking skills? They can hardly drive to the hospital let alone drive an anesthesia machine."

> "A perfect example, 3 years ago, I was on backup call at one of our hospitals. It was the 4th of July, but I was told that I was the backup, second CRNA. The night before, the primary CRNA on call called me, and she said, " I understand you are taking second call and I am first call CRNA, but I have been retired for eight years and I am 78 and I am a little nervous, how often have you done this?" I thought, "Dear God what I have gotten myself into?" I ended up getting called in and it was a pretty big ortho MVA and I went into the room to help her and I finally said to her, go to the lounge and take a break and let me get this squared away

for you and then you can come back. She was eternally grateful, but the point being she had the same CRNA credential that I have. And you know, what does that say?"

"Over the last 5 years the National Airway faculty has done a poll for physicians and nurse anesthetist asking how frequently they would expect to repeat a course like that and they said, "based on the changes and the standards of care and the research that has come out, many people are finally coming back to their skills and say if they had never come to a course they would not have known about what the current standard of care is now. So when you get called on the carpet and your get to court, then people ask you, "Why didn't you have a blue sheet?" and you say, "What is a blue sheet?" It is the gold standard of care now and they would not know that their competency was based on their local standards." "But us old folks, that is asking a lot of 40% of our practitioners, [they] would have a big struggle, I think, if they were sent into a simulator lab and do all the stuff the students do. Could I do it? Yea, because I run a simulator lab. I have not practiced anesthesia for 3 years, but I still do it all in the simulator lab. But could others? [It is very scary for those CRNAs to think about that requirement.]"

A more positive example of age related issues was shared by a focus group CRNA, but the following *positive* example still raised negative concerns about the level of care the CRNA in question would be able to provide in all situations to her patients. The participants felt the aging CRNA described made an attempt to develop needed skills, but did not embrace the need to be fully competent in her scope of practice:

"In OB there was this lady CRNA who had maintained her practice since 1945. She had been there 34 years. She was still giving ether and cyclopropane. She had not intubated ever. She had never given a spinal or epidural. So, no one had ever told her she had to change her practice. She had been doing it [her way]. I talked to the circulating nurses in OB and they would say, "Yea, she had four patients at one time giving cyclopropane and she would say yell at me if one of the bags stop going in and out." We took her under our wing and said, "Mam, if you want to continue to work [you have to update your practice to a safe level]." She worked 7p to 7a and she took vacation four weeks out of the year and she bought herself a new Cadillac and new fur coat every year. So she was doing well. She did have a good idea, because every time she took a picture of all of the babies and gave the mother a rose as she was handing her the insurance form. She had some lifelong learning there. She was a good business woman. We said, "I am sorry, but this is illegal the way you are practicing. If you want to keep practicing we will take you under our wing and we will teach you how to do epidural, intubate, and spinals." She said, "Yes." and she did it. She was not the greatest and she avoided intubating as much as possible and she did those epidurals and spinal until they were coming out of her nose. There is an individual that wanted to continue to learn, but she had never been given the opportunity to do it."

Budget Impacts the Recertification Process

The focus group members identified various financial factors, which negatively influenced how much time and money is spent to maintain up-to-date anesthesia practices:

> "She [a new graduate] must have been [trained] at a place where it [modern anesthetic gas], was not in the budget, but it still astounded me that she is just new into anesthesia and that the bulk of her experiences [was so limited], and she said even in the school where she trained, that was what they used. Mostly it was Ethrane gas and then there was some Sevoflurane. It just took me back a little bit because I thought, "Wow, her education was based on cheapest agent."

> "We also have to recognize that the demands on the practitioner in the terms of productivity are just more and more and more. The problem where one of the things we face is peer review and it would be great if it was evidenced based, but [that is difficult] if the practitioner had within their scope of practice no time. If they have literally no time to get into the database then you can see where, guess what, they are going to keep doing what they have been doing. Because it has worked, patients are in, patients are out and we have to recognize that this is an issue. Because, if the CRNA is not in the operating room, they are not generating revenue for the hospital. And whether we like it or not, the margin runs the mission. If there is no margin there is no mission."

> "We should integrate competency exam and/or simulation exam [into practice requirements]. It will take a lot of money and manpower for exam and /or simulator…Cost is an issue, so we need to look at cost/benefit of those activities."

Theme 3: Reconciliation: Incompetence Is Unacceptable

Nurse anesthetists discussed that the maximum competency one can expect/mandate from a CRNA is the minimum competency one will accept from another CRNA. Participants determined that the minimum level of competency expected of CRNAs must be at a high level and within the profession incompetency is unacceptable. Additional topics which provided insight into Theme 3 are: (a) recertification processes imply competence, (b) change produces fear, and (c) ethics is paramount.

Recertification Processes Imply Competence

CRNAs discussed at length that the nurse anesthesia profession is judged by the least competent CRNA. There was strong feeling among the participants that the maximum CRNA competency mandated via recertification is also the minimum competency the profession should accept:

> "We are fortunate too that we have had a good track record. We don't often hear about a nurse anesthetist who really screwed it up. It would only take a few of those situations that the anesthetist was not proficient and there was a bad outcome and our image would be on the defensive. Right now we have a good track record. We don't necessarily have to prove everyday through out patients." "We could as an organization put so much safeguards, but the bottom line is that it is the practitioner's [sense of] professionalism to keep himself up to date."

> "This is a much needed discussion and I am honored to be part of it. I do feel like whatever we do, it will have to be mandated because I don't think people will do it just because. I do strongly urge that the basic minimum standards of care be out there and identified in all the areas that we talked about."

> "The value of the credential, the CRNA, is only as high as the poorest performer holding the same credential. So they have a tremendous impact on our profession because it goes back to the mini/max thing. The maximum you can expect from anyone is the minimum that you will accept. When you have people who are still practicing how I was taught this way, whether it was 20 years ago or 10 years ago or 5 years ago, if the reason you are practicing [a certain way] is because this was how I was taught, I do this, I do this and I do this, then I am practicing and I am current, all it takes is one terrible outcome and they have the same credential and the black tar brush comes out and guess what, everybody gets painted with it."

> "Keep the person's skills up to date or know where or when not to practice. We could do only so much safeguards then it is up to that individual CRNA who carries that credential. Unfortunately, that one CRNA taints all of us but I think that is the reality."

> "[In order to practice] CRNAs should have minimal level of competency in some basic skills. Every negative thing that happens [in a CRNA's practice] effects the profession."

The members of the CRNA focus groups expressed a need to have a mechanism to ensure the minimum expected competency level for their profession was high enough to ensure anesthesia care was at a safe level. The need for a mechanism to ensure safe and competent CRNAs was heard in all four focus group sessions:

> "That is why as a profession, I think in the whole competency question, I think recertification/certification should be about competency whether there is a move from Joint Commission to make credentialing the competency piece; whereas, to me credentialing is the minimum bar. We as a profession should not be willing to give up the competency piece because it is our profession and it shouldn't be somebody else telling us what makes us competent."

> "How do we address it? What are we going to do to get recertified to put more power into it, more truth and knowledge? How are we going to create this program, per se. I think there are a lot of things that we should look at. It would be real healthy for our profession."

> "We were ahead of the [recertification] curve for health care. For me personally, I think we are falling behind and I think that the competency piece is key and somehow we have to weave competency into our recertification."

> "When talking about our current recertification process and if it really ensures competence, nobody will say "Yes". That [is what they feel] if you get them one-on-one."

> "We are going to have to have some competency based recertification, re-licensure, however you want to do it, mandated. If we want lifelong learning and we want to continue practicing then, well you give me my 5 year notice. Will somebody help me by setting up these modules and over that 5 year period of time that I am working on those modules? Then we will see whether I go to a simulator center or I take a test [paper and pencil]."

A focus group participant spoke to the issue that there is more than one group of anesthesia providers. As a result of multiple groups of anesthesia providers, a point was made that CRNAs need to have their recertification set at the same or higher level than other anesthesia provider groups. A participant identified that if the CRNA's recertification standard does not reflect a high level of competency, there is the possibility that CRNAs would not be viewed as respected providers:

> "And also there are two other anesthesia providers, the AAs and the anesthesiologist. If they move in a direction [and] we don't… Anesthesiologist already retest, re-board. So do the AAs. So if we are going to say we are at that [their] level it is fine, as long as the public does not know, but eventually they are going to get that out or the ASA or AAs will promote that they retest and we don't. Are they going to say we are so good we don't have to retest?"

Change Produces Fear

Various members of the focus groups were very passionate about the need for a meaningful recertification process that would emphasis that incompetent practitioners are unacceptable to the profession. At the same time participants acknowledged that a move to change the current recertification process would engender various types of fear in members of the nurse anesthesia profession:

> "Anytime there is change, you know the master's mandate and the fear that engendered…you were going to push me out if I don't have one. You have to deal with the fear factor. You have to deal with it."

There were focus group discussions related to fear of failure with retesting:

> "I think the required skill set is contact dependent. My reality right now is that my skill set involves generating knowledge, new ways of looking at things research, how do I get other people to learn the art and science of anesthesia? I could probably get the tube in. I certainly couldn't get a central line in right now. So if I had to do a simulation I would want to go to [City]. That is because of where I am right now with my life and my skill set."

> "You have to [discuss possible changes to the CRNAs' recertification process] for our profession, but the survey [sent our several years ago by the AANA, asking about possible changes in the recertification process] was how it was worded…Nobody wants to retest if you know it could potentially ruin your career if you don't pass it."

> "If you are not recertified you cannot work … there is fear of the loss of huge personal financial rewards to me, so any change in the process [that could cause me to fail the process] engenders all this fear."

A focus group participant also identified that changes in their practice which resulted in a shift in their knowledge and skill base was another source of fear:

> There comes a point for most of us where you have to finally accept that I have given up this other skill set that I worked so hard to achieve and that is how far we have gone. [A colleague present at the focus group session] has watched me over the past seven years and it has been very difficult for me to let go because I worked so hard to get those skills and the thought of losing them is scary."

Another focus group participant recognized that if nurse anesthetists did not take on the responsibility to consider changes in their recertification process, CRNAs would have an on-going fear that another agency or group would take on that responsibility and dictate changes to the profession:

> "Like XX said, we are going to have to do something to keep our profession at [a high] level. If we don't do anything we are going to be in fear. That is the thing I am going to take away from here."

The fear of the unknown was identified as an issue when a focus group participant discussed how the AANA's survey that addressed possible changes to the recertification activities and processes was received by CRNAs:

> "But the AANA survey's [problem] was how it was worded. It scared the sxxt out of everybody.

Ethics Is Paramount

CRNA focus group members said that nurse anesthetists' "professionalism is based on a culture of lifelong learning and ethical practice**."** Ethical implications surfaced as discussion centered around CRNAs who do not subscribe to on-going professional education and those who were unaware of or unwilling to acknowledge their declining critical thinking and technical skill. CRNAs discussed the ethics of these concerns:

> "Well to me it [ethics] is key. If you don't have people in the profession that take it upon themselves to assure their own competency you cannot force it down their throat. It [ethics] is key."

> "How can recertification prevent bad practitioners from practicing? The culpability falls on the institution and on [all CRNAs'] personal and professional responsibility."

A focus group participant spoke of the responsibility CRNAs have to make certain other members of the profession are competent:

> "I think it goes back again to competencies. If someone comes that you don't know, you have a responsibility to make sure that person is safe and you do that by direct observation and making sure they understand, not only there is so much to it, but the basic anesthesia."

Several: "I agree."

Another focus group participant identified that when there is a bad outcome, being open, present, caring, and truthful with patients is a CRNA's [ethical] responsibility:

> "I think it comes to where we, as nurse anesthetist [want] to gain a good rapport with our patients before we put them to sleep and also do a post op visit with these patients. That is where they [patients] gain confidence in you that they have had an excellent experience, you are the best person in the world."

> "I have spent half of an hour to 45 minutes with a patient reassuring them that they are going to have a good anesthetic. Most patients come into the hospital and say we are just going to go to sleep, there is no risk. I am just going to take a little nap and I will feel good when it is all over with. That is not all true."

> "If they have a bad outcome, you are not a bad person but you still have to go and make that post op visit. You still have to explain to them why probably there was a bad outcome and then they accept it. I work in that situation everyday. I think it is a teaching piece that we as providers have to do for our patients. I think we have to talk to patients pre-operatively and go do our visits."

One participant expressed confidence that CRNAs are ethical in their decision making process when determining what they need to do to personally maintain a high level of professional competence:

> "I think we [CRNAs] are very good at assessing our practice and where we work and what we need to do to maintain our excellence in our practice."

Within the focus group discussion it was pointed out that it is ethically important that CRNAs know their clinical limitations. The participants also indicated that they felt it was important that CRNAs know how to address those limitations:

> "I have respect for someone who will let you know when it was beyond their capabilities. When someone I would interview for new CRNA staff and they would come in, and I hate to say this, some of our younger colleagues, fresh green out of school, and all of a sudden they knew it all. They made me more nervous then anyone because I thought your learning is just really getting underway here and I hope you have enough sense to know when you are in over your head. I have been doing this now for over 15 years, but I know when things are above me and I have enough sense to know who to go to as the resource person when I need to get help whether it is a difficult airway situation or different things. I know my strengths and limitations and actually in my mind have a little plan to whom am I going to contact and those people don't seem to think that is important."

Theme 4: Recertification Is Valued When It Demonstrates Competence

Members of the focus groups and the survey participants identified that a recertification process, which demonstrates a nurse anesthetist's competence is a needed and valued activity by individual nurse anesthetists and society. Not only is it needed for the nurse anesthetist, but it is needed for the livelihood of the profession. The topics that will be discussed within this section to provide additional insight into Theme 4 are (a) it [recertification] has to be meaningful to us and (b) it [recertification] needs to give society assurance of competency.

It Has To Be Meaningful To Us

Focus group participants pointed out that CRNAs' competency and the recertification had to be intertwined. Society wants a process that gives it confidence in those who provide anesthesia to members of their community. Yet, a concern was expressed that one could not easily identify which competencies indicated a safe nurse anesthesia professional:

> "As a professional organization, we should not limit ourselves to defining competencies itself. I think what [participant] said is important, "What is the essence of a CRNA credential?" We cannot go into specifics because we have to realize that we practice in a wide variety of institutions."

Concern was expressed by CRNAs as to the current recertification processes' lack of a demonstration of competency:

> "The same thing with our certification as far as messing up in the OR. You really have to do something out the door to get someone to take away your certification. I think that is where the majority of practitioners look at it."

> "There are so many people who are practicing clinically and if you were to ask them the same questions [What recertification activities ensure competence?] … They would say it is the money I have to pay to jump through the hoops to do what I do."

> "I agree. I don't think that current recertification [process] is measuring competency. I think the majority of practitioners believe I maintain current knowledge of anesthesia to the best I can and there is no way we are measuring competency with the [current] recertification process. I agree we have to have some

various different levels of -- what does the national board exam do? It tests your critical thinking and can you make the right decision and problem solve. So the practitioner in the Eye Clinic probably could still do, with a little brushing up, critical thinking. Now if we ask them to intubate or put an epidural in, they will probably fail."

"…I think our cert or re-cert card carries far less meaning and value then it should, based on the way we recertify. It seems to me that you can sit in the hall downstairs or you can walk in and walk out and still get the same number of points and it is not very meaningful from the perspective of what it is supposed to stand for, which is continued competence. It is a crazy way and I know we don't use that phrase, *continuing education*, but there is a fictitious sense to it that it somehow means being competent."

It Needs To Give Society Assurance of Competency

"I see the public demanding more of an accountability factor to show how you maintain that [competency]."

One group of CRNAs grappled with the question, "Does recertification equate lifelong learning, competency, and patient safety?":

"Lifelong learning and recertification, is there a connection? In some ways you could almost demonstrate lifelong learning in a recertification process….We may make that linkage as to where they need to bolster their information and that commitment. I am not saying that it takes away the driver's license component where X number of continuing education credits are required, but it would at least address the applicability of the type of practice they are in and what their clinical practice needs are."

"I thoroughly believe that the way all of medicine is going that at some time we are going to have to have validation of competency. They are pushing the simulator to do that. I think it is going to start and grandfather in a lot, a lot of people. I am saying that starting in 201X the people that got their initial certification in 200X, they will have their competency recertified by whatever means we have determined."

"If I had to argue in front of somebody that the current system, [obtaining CMEs] reassure the public that a certain provider is certified as competent, I could not argue that [it does that or that] we are [competent]."

Theme 5: Recertification Processes Demonstrate a High Level of Competency

Throughout the focus groups' comments reflecting the importance of CRNAs' competency were identified. As the comments were reviewed it became apparent that focus group and survey participants were aware of the importance of a recertification process that could demonstrate CRNAs' competence to society, patients, and colleagues:

"…because it is being driven by the public and consumers, if professions don't take that on themselves, to show that we are doing them [recertification activities] in some concrete fashion, whether it is a credentialing body or a regulatory agency, it may be shoved on us in some fashion which we don't like."

This awareness moved the research participants to take a frank look at what activities would provide an assurance of competency for members of the nurse anesthesia profession. The topics within this section, which informed Theme Five are: (a) competencies for the recertification process should be identified and (b) a variety of recertification activities demonstrate competencies.

Competencies for the Recertification Process Should Be Identified

An awareness of the importance of demonstrating nurse anesthetists' competency raised questions as to what recertification methods and activities are needed for CRNAs to provide assurance of competency to society, patients, and colleagues:

> "Definitely. The other element is, say for example, response time and you say they are a competent provider because they respond. Is it because I respond in 5 seconds that I am competent or is it because I am an expert in 5 seconds and is 7 seconds competent. It is very difficult. My belief as a professional perspective we don't have a consensus as to what competency is. We each have our own perspective and our past experiences that we bring to the table as to what a competent provider looks like. They are probably going to be subtly different. We don't have a consensus of a professional perspective. Continue competency I should say."

> "I would also like to throw in the public's input part of credentialing and the impact on safety."

> "You have the public's interpretation of competency and their definition of competency is, I get more of the perception that the public thinks that competency equals expert in many senses... Not competent, which is minimally acceptable performance. OK, so now you have that public perception as well and other external agencies that may have that understanding."

> "Over the last 5 years the National Airway faculty has done a poll for physicians and nurse anesthetist asking how frequently they would expect to repeat a course like that and they said, "based on the changes and the standards of care and the research that has come out, many people are finally coming back to their skills and say if they had never come to a course they would not have known about what the current standard of care is now." So when you get called on the carpet and your get to Court then people ask you why didn't you have a blue sheet and they say, "What is a blue sheet?". It is the gold standard of care now and you

would not know that somewhere where competency was based on their local standards."

"I think we have to be willing to educate our members along the way because if we don't, first of all there is going to be a lot of backlash and people are going to say, "I am going to keep on working even if I don't met this" and you know what we can't expect that 30,000 people are going to be out of jobs. I think it is just all going to be how we sell this to the members, how we create it. You do the mandatory part like we talked about and then you work in the higher level competencies, skill building things over the next decades."

"Be that as it may, I have to disagree and say we are going to be mandated. We are going to have to have some competency based recertification, re-licensure, however you want to do it, mandated."

"Obviously we are all pretty passionate about that. I think that something that would also work is increasing internet access to databases for the staff in ORs. Because we have talked about evidenced based in the literature and they ask us to do this and so forth. Many facilities are starting to add it computers] into the holding area and so forth, greater internet access and allowing their clinical staff access to their library data base. So at least they do have the access, so if they have a case that they have not cared for in 6 months, they are able to go out and do a keyboard search for it. That assumes that they have the knowledge that exists too and have the skills to do a search. Over the course of time, seeing people do that in working with students in that clinical environment and students automatically gravitate toward that. This translates to the clinicians as well."

"I want to talk about where I think it [recertification] should be and that is, I agree with what is on the table and it should be a demonstration of competency, somehow, and I believe that our patients believe that if we are going to put them to sleep we have recently intubated and we recently have managed [anesthetics]. Some people have not intubated in 10 years and if they do… I know this because I know people who have not done that and they have complications and trouble intubating because they have not done it. Our patients expect that we would be able to proficiently be able to handle an airway."

"Isn't it trying to figure out what is the essence of being a nurse anesthetist? Is it airway management and/or is it line placement and/or is it understanding pharmacology and this particular set of 10 or 30 or 20 drugs that we would have to identify? Because I think we are all on the same page in terms of performance where people are safe. But what are the skill sets that constitute safe? I am not sure that airway is the only."

"We also have to look at the fact that competency itself has many components. I mean there are people who are expert task performers that can't think their way out of a paper bag. And other people who might take 3-4 times to get the spinal in but by god if something starts going south they are the first one to pick it up. So, to demonstrate competency you have to think wait a minute there are the psychomotor domains, there are the cognitive domains and then there is what do you want to call it, crisis management skills or psychological ability to see the picture even when people are yelling and screaming and things are going down because there are those who maybe cognitively understand what is happening but when the heat is on their performance starts tanking. There are an awful lot of components when we talk about being competent."

Recertification Activities Demonstrate Competencies

Several members of the focus group members identified lifelong learning as the basis for ensuring professional competency. CRNAs had a variety of ideas as to how to promote lifelong learning within the profession:

> "I would say that where I learn more about practice management is in those kind of [M & M] conferences, because we do them once or twice a month and we go through 6-7 cases and they are all evidence based. I get a lot more out of that then sitting in a lecture."
>
> "I learn best when teaching others."
>
> "I am sure there are more people in this room who do medical malpractice review and based on the alarmingly increase in the number of phone calls that I am getting to review cases. They are very scared and it is very scary. The cases that I am getting recently it is typically people who have been in practice forever who do things they way they have done things forever. I try not to do plaintiff's cases but you know, it is because they really don't know any better. No one has drilled them on things. They have not had to go through emergency procedures because they have been coasting for a long time. That reminds me of my dissertation, where I really looked at that bias that we form when things start to go wrong. We think it is going in one direction. It is not seeing the forest for the trees but we take a course to see where we are going, everything but this. I have had some very, very sad cases. "I just thought it was blood pressure". "I thought the oxymetry fell off or something". I think that kind of thing as a professional group we have to address it because I get a couple calls a week."
>
> "We have more things like algorithms or pattern responses to certain crisis like BP, seizures, ICP and things like that. When I was preparing for a lecture that I gave a couple of years ago, I knew that the UK had a list of patterned responses for anything that can happen… because I think it would be great to have evidenced. Everyone knows what the difficult airway algorithm is based on evidence. It would be nice as a profession to have these evidence based practice modules that we have in different areas and then people could know what we are supposed to do. Not to pigeon hole us but to give us a framework within which to work."
>
> "I would like to see all of our departments are really mandated to do real morbidity and mortality [M & M] conferences. That would be lovely to see in the real world. They would have those every month and they would do it and their explanation [for how they handled specific cases] would appear … they would do it [conference]on evidenced based research, to do their morbidity/mortality conference. It would be a learning tool."
>
> "Every 2-4 years you go online and do these modules or a simulation and the next year you may be doing a simulation, you may be doing this, or that."
>
> "We need to work with students [nurse anesthesia students] so we don't always do things the same way. When working with students you update your practice."

> "It is good to go to other places [hospitals and surgical centers] and find out what is new."

> "I have seen people go to seminars and workshops through the AANA to learn new techniques or take a refresher course with spinals and epidurals. I have done it myself. I have seen some of the staff go to airway management courses, so I see that happening in our profession which is real positive."

> "That is not where people are having trouble and where they are killing people. It is on basic things. It is on recognition, airway issues, hypotensive crisis an arrhythmia and that is really where people need retraining reinforcement. It seems to me that we could build a program where what are those things where we can retrain on periodically. You know when we had the big mess out in Nebraska with the infection. I wrote down a half dozen things that people should be retrained every couple of years."

A considerable amount of focus group discussion time was devoted to the recertification activity of hands-on simulation testing. Hands-on simulation testing generated the most in-depth focus group discussions of all the recertification activities identified throughout the focus group sessions. The discussions provided close inspection of how this activity could successfully be introduced into the recertification process, as a way to demonstrate CRNA competence:

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice because they never happen, like MH, anaphylaxis or the other ones. Airway, right?...which you could say that they are anesthesia adverse effects. Everybody needs to [show competency in these areas]. Somebody is going to have to come to some degree of agreement that there are core competencies that every anesthesia provider needs to have in their armentarium, because of the virtue of what we do. I think it needs to cross all practices but it scares me to death [to think] that if I flunk that [the simulation exam, what would happen to my practice?]."

> "Are we talking tasks or are we talking about providing experiences about making people [CRNAs] better? Or is this [simulation testing] a required experience to make people [CRNAs] better? I personally feel strongly that if we jump and we've talked about retesting in this profession as long as I have been in it, it seems to me that is where you get that horrible push back and you also cannot put a person in a simulator that has never seen one and test them because there is a learning curve to working with a simulator. Those of us that use simulators know that. But there are ways that you can bring people into those type of environments online classrooms whatever, and they finish off a better prepared then sitting in a room dozing off, working the blackberry and calling that learning. I think as a profession if we would set some kind of mandatory testing whether it is pencil paper or on the simulator at this point in time. I don't want to be around, but we could build a program that could edge ourselves toward something like that in the future and measure competency and measure change and look at decreased morbidity and mortality and let's look at decrease in lawsuits and things like that."

The focus group participants pointed out the concerns and the impact hands-on simulation testing for recertification could have on the individual CRNA and the nurse anesthesia profession:

> "There is a difference between demonstrated skill and needing to demonstrate it in order to practice."

> "…unless you have a practitioner that is truly practicing at that full spectrum, to [fully] assess that individual for continued competency becomes very difficult. Because, probably not a lot of people are practicing at that level. Even in those academic medical centers who are working day in, day out."

> "It would be very interesting to find out how many are practicing peds, OB, cardiovascular, neuro, trauma, eyeballs."

> "Well don't you think that, and this is absolutely the wrong thing to say, [but the] ASA is doing the same exact thing and having this discussion…they are doing simulation and trying not to make it punitive. It has to be acceptable to the members. The fact is there is no licensing agency anywhere in this country that is going to draw a line in the sand for CRNA or ASA for the next 5 or 10 years. We need to work that. I think we have to be willing to educate our members along the way because if we don't, first of all there is going to be a lot of backlash and people are going to say, I am going to keep on working even if I don't meet this. You know we can't expect that 30,000 people are going to be out of jobs. I think it is just all going to be how we sell this to the members, how we create it. You do the mandatory part like we talked about and then you work in the higher level competencies, skill building things over the next decades."

> "I think this is a demographic of where you are practicing too. Mine is rural practice. I don't do arts. I don't do carotids. I don't do brains. It is not that I can't do them but I would have to a refresher course and do it. So now if we are going to a simulator and they are going to test you in all of these areas, I probably would fail in some of those areas because I have done hearts but it has been years. It is like yeah I could retrain and do them again but it would be difficult. I am geared to rural anesthesia."

In spite of CRNAs' concern of feeling unprepared to undergo a hands-on simulation examination, which some feared could include demonstration of clinical activities not regularly used in a CRNA's current practice, discussions conveyed a general sense of expectation and acceptance of this activity as a viable means to provide evidence of CRNA competency. Many focus group participants felt professional lifelong learning could be demonstrated through the use of the critical thinking skills, technical skills, and case management skills purported to be evidenced during hands-on simulation sessions:

> "One of the arguments that you hear for simulation is for those events that are so rare now that you cannot maintain a competency based on your clinical practice because they never happen, like MH, anaphylaxis or the other ones. Airway, right?...which you could say that they are anesthesia adverse effects. Everybody needs to [show competency in these areas]. Somebody is going to have to come to some degree of agreement that there are core competencies that every anesthesia provider needs to have in their armentarium because of the virtue of what we do. I think it needs to cross all practices but it scares me to death that [what will happen] if [I] flunk that."

> "There are different ways to use a simulator…Is it punitive or is it something where we want to be able to access and /or teach and bring people to a standard level? Most of us use a simulator in that [positive] way in our educational programs."

It was important to some members of the focus groups that the basic skills of a CRNA would be tested in a simulated setting:

> "We have more things like algorithms or pattern responses to certain crisis like BP, seizures, ICP and things like that."

> "It is sort of like what I do with rank review with faculty. There are criteria that are [for] when they are up for promotion or whatever and my faculty have to do a self assessment with evidence, how they meet those criteria and those who do not they have to come up with ways to meet the criteria."

> "Are we talking tasks or are we talking about providing experiences about making people better? Or is this a required experience to make people better? I personally feel strongly that if we jump and we've talked about retesting in this profession as long as I have been in it, it seems to me that is where you get that horrible push back and you also cannot put a person in a simulator that has never seen one and test them because there is a learning curve to working with a simulator. Those of us that use simulators know that.... I don't want to be around but we could build a program that could edge ourselves toward something like that in the future and measure competency and measure change and look at decreased morbidity and mortality and let's look at decrease in lawsuits and things like that."

> "That [the complex case] is not where people are having trouble and where they are killing people. It is on basic things. It is on recognition, airway issues, hypotensive crisis, an arrhythmia, and that is really where people need retraining reinforcement. It seems to me that we could build a program where what are those things where we can retrain on periodically…I wrote down a half dozen things that people should be retrained every couple of years."

Some members of the focus groups saw applicability of the hands-on simulation recertification exams that went beyond the basic skills:

> "Currently recertification is the significant engagement of a nurse anesthesia practice. But practice is not necessarily defined as clinical practice. It could be defined as research, administration, just like everyone is talking about, multiple facets. If you are significantly into research, simulation could be used to demonstrate competence in research protocol in a simulator. So it is not just necessarily clinical scenarios as XX was talking about. So there is a wide variation in what we could use simulation for. The question is how, right now I agree with the majority of CRNAs you were to walk up and say what is recertification, they would say clinical competence, unless they are engaged in another role. If you are engaged in another role your recertification needs should look very different theoretically."

Involving the AANA in the development of simulation training and testing centers was identified as a possible contribution the nurse anesthetists' professional association could make that would ensure a level of competency among its members:

> "That is the ideal for AANA to get involved in this. Set up [simulation testing] centers around the United States and you would go through a difficult intubation course, get refreshed, go through a simulator course that you pay for, if you want to continue practice you go in there for a week and go through simulated studies and brush yourself up to show that still have the skills."

Focus group participants identified a need for a change in the current system of requiring only Continuing Medical Education (CME) as the recertification activity for the nurse anesthesia profession:

> "Sometimes I think our certification or recertification card carries far less meaning and value then it should based on the way we recertify. It seems to me that you can sit in the hall downstairs or you can walk in and walk out and still get the same number of points and it is not very meaningful from the perspective of what it is supposed to stand for, which is continued competence. It is a crazy way and I know we use that phrase, Continuing Education, but there is a fictitious sense to it that somehow being competent. I don't think that is what this [Continuing Education] means…"

> "Some people think CME courses are the answer. But they [CME courses] are passive. They don't provide documentation of interaction with the knowledge provided."

Conversely one of the focus group participants shared the belief that the current system is adequate and should remain in place unchanged:

> "I hope we never come to that [change CRNAs' recertification process] because first of all I think our society [AANA] has done a good job. They require 40 continuing education units (CEUs) every 2 years. You have to keep that current, ACLS and different things, and I think that most people do that. You know, that is a good process to have in place and I don't necessarily think we have to go all the way to the extreme of saying come in here we have to give you a test on a little mannequin over here that shows you can provide the anesthesia or not."

Survey Comments and Numerical Results

The voices of the CRNAs were heard during the focus group sessions, but another aspect of this research was to hear what CRNA associates had to say when reflecting on what the CRNA profession's recertification process and associated activities meant in their working relationships with CRNAs. The main areas which will be expanded on in

the following discussions are (a) survey comments, (b) survey recertification process scores, (c) recertification activity scores, (d) statistical significant results, and (e) other recertification and professional activity scores.

Survey Comments

The survey comment data were analyzed using grounded theory development methods described by Creswell (1998), Glaser and Strauss (1999), Krueger (1998b), and Strauss and Corbin (1998). The survey participants' comments further elucidated the importance the recertification process, recertification activities, and professional activities had in demonstrating nurse anesthetists' competence. In this section survey comment data that informed Themes 1 through 5 will be reported.

Theme 1: The Yin of Lifelong Learning: There Is Pride in the Profession

A theme expressed by CRNA colleagues, administrators, and employers when providing written comments, which supplemented their quantitative survey responses, was the positive results of CRNAs participating in lifelong learning. That theme was expanded upon when survey respondents addressed the pride that surrounds the high level of quality CRNAs provide at their institutions:

> "I have to utmost respect for the CRNAs we have here. They are always very professional and most important competent."
>
> "In a smaller hospital with only 5 CRNAs, they have to really be comfortable and knowledgeable in how to handle all different cases and situations."
>
> "I depend on CRNAs for quality patient care."

Comments were also written supporting the concept that the recertification process documented and demonstrated the value of professional activities:

> "I believe some type of professional involvement is important. Difficult to rank the top 3 [professional activities]."

> "Respect for the profession and the professionals, enhances team work and rapport in the continuing care."

> "[Survey item #s] 23-29: Depends on individual, which will be most valuable. Important to value all options, but not require all."

> "This expertise [Lecturing for the community] and ongoing recertification of such will enhance patient safety, quality and credibility in the practice of this professional."

> "Professional competence/social stability/Personality and ability to relate in all social activities with ease are most important in my assessment(s)."

Theme 2: The Yang of Professional Lifelong Learning

It was important to CRNA colleagues and administrators that CRNAs are lifelong learners and that they are professional. A theme heard throughout the survey respondents' comments was that while various professional activities are important, they do not necessarily demonstrate CRNAs' practice competency. Generalized lifelong learning was recognized as an important goal, but when participants considered the nurse anesthesia profession's recertification process they identified it was important that recertification activities lead to enhanced practice competencies:

> "[Mission work and lecturing for nurse anesthesia programs] Both of these activities are important and value added but not required to prove continued competency."

> "[Survey items #] 23 and 24 [indicated]: Political involvement alone is not a factor."

> "[Professional activities listed] should not be required for recertification."

> "I don't feel any of these [professional activities] play a role in recertification process. It [recertification] should be test[ing] knowledge and competency and none of these do [that]."

> "Recertification should be separate process, independent of other professional aspects. Recert should assess knowledge level and some quantitative /qualitative evaluation of clinical/technical skills/ experience."
> "This [professional activities] should not be required, but does offer additional dimension [to CRNA role and consideration in recertification]"

One respondent commented on the low value they would place on a recertification process that placed importance on just paying professional dues:

> "Bringing [paying] money [to a professional organization] does not denote professionalism."

Although it was pointed out that not all CRNAs have an opportunity to instruct students, the professional activities related to educational activities were valued as an indicator of professionalism by many of the survey respondents:

> "Value in providing some type of support to educating the future."

Theme 3: Reconciliation: Incompetence Is Unacceptable

Survey participants identified that the Yin and the yang of lifelong learning needed to be reconciled so that a recertification process and associated activities would assure CRNA competence. There was an expectation that the CRNA recertification process would identify both competence and incompetence, thus assuring patient safety:

> "Patient safety [should be ensured]."

> "I assume [competency is demonstrated through CRNAs] practicing through employment."

> "[CRNAs need to be] knowledgeable to handle all cases and situations."

A survey respondent noted that a new recertification process that would demonstrate competence was needed and must be supported:

> "This will be a transition-we must support the [new recertification] process [i.e., simulation, recert exam, etc]."

Theme 4: Recertification is Valued When It Demonstrates Competence

Threaded throughout the survey responses were comments about how important it was to each individual respondent that a recertification process for nurse anesthetists demonstrated CRNAs' knowledge of current anesthesia practice and competence within the practice of anesthesia. The theme that recertification is personally valued by those who work with or employ CRNAs when the process demonstrates competence, was summed up in the following statements:

"I depend on CRNAs for quality patient care."

"Recertification is vital to the future of nurse anesthesia. If it is not done, quality/safety will not be ensured."

"I have the utmost respect of the CRNAs we have here. They are always very professional and most important competent."

Other respondents continued with that theme when sharing the following comments:

"Keep updated on what is new."

"I want them [CRNAs] to be current and up to date with new technology and science."

Theme 5: Recertification Activities Should Demonstrate a High Level of Competency

The final theme heard through CRNA colleagues' and employers' comments was the high value placed on a recertification process for nurse anesthetists. Survey comments identifying that the recertification process would be valued as long as the required recertification activities would actually result in a high level of CRNA clinical competency:

"Recert should assess knowledge level and some quantitative/qualitative evaluation of clinical/technical skill/experience."

"I feel demonstration of hands-on [simulation] experience is very vital. Also, a mechanism to ensure individuals are keeping up to date in their respective field."

"I feel that CRNAs may also benefit from a recertification [exam] process in addition to an initial clinical exam for initial certification."

"[CMEs] show effort to stay current, maybe?"

Survey comments were made about specific activities listed within the survey itself. The participants' comments discussed why specific activities listed in the survey did or did not provide assurance of competence to the respondents.

Continued medical education courses.

"Shows effort to stay current. Keeps [CRNAs]updated on what's new."

Recertification exam.

"[Exams] test knowledge and verifies knowledge."

"[Shows] written proof of recertification to public."

Hands-on simulation testing.

"I think this speaks to true skills and verifies knowledge."

"Best overall assessment. Not only should you [CRNAs] be tested [for knowledge level], but also tested for clinical competency."

"[Downside of] it [simulation] is [it is] not widely available."

Case log.

"I think this speaks to true skills and verifies knowledge."

"[Shows CRNA is] knowledgeable to handle all cases and situations."

"[It provides an accounting of the] simple #s of cases - peds, CV, etc [a CRNA has delivered]."

Portfolio.

"[Every]1-5 years, depending on time frame. The 1-5 year CRNA may have different opportunities then the 10+ year [CRNA]."

"No correlation to competence."

Survey comments were made regarding the seven professional recertification activities identified in the survey. Although participants acknowledged that the activities were worthwhile, some indicated that they were uncertain as to the assurance of a CRNA's competence those activities would provide.

"I don't feel any of these [professional activities] play a role in recertification process. It [recertification] should be test[ing] knowledge and competency and none of these do [that]."

Medical missions.

"[Mission work and lecturing for nurse anesthesia programs] Both of these activities are important and value added but not required to prove continued competency."

Clinical and didactic instructors.

"[Mission work and lecturing for nurse anesthesia programs] Both of these activities are important and value added but not required to prove continued competency."

"[Clinical and didactic instructor items numbered] 26, 27 & 28: Some involvement in education."

"[Clinical instruction is] great to do, but not a measure of quality."

"May not be an option."

Membership and active participation in professional organizations.

"Important but everyone isn't "made" to lecture."

"Unequal opportunity and personal life commitments need to be considered."

"[Survey items #] 23 and 24 [indicated]: Political involvement alone is not a factor.

Dress and decorum.

Survey participants identified that CRNAs' attention to their dress and decorum contributed to perceptions of CRNA competency:

"Dress? They always wear scrubs. I expect proper decorum in a professional."

"Perception is everything."