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Increasing Student Registered Nurse Anesthetists Clinical Self-Efficacy Using Peer Mentoring

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INCREASING STUDENT REGISTERED NURSE ANESTHETISTS CLINICAL SELF-EFFICACY USING PEER MENTORING

by

Megan Christine Bass

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ABSTRACT

INCREASING STUDENT REGISTERED NURSE ANESTHETISTS CLINICAL SELF-EFFICACY USING PEER MENTORING

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The purpose of this project is to determine if clinical self-efficacy is increased in SRNAs at The University of Southern Mississippi after participation in the peer mentoring program. The project was a one-group pre and posttest design in a sample of SRNAs who received peer mentoring. To evaluate the students' perceived clinical self-efficacy before and after the peer mentoring educational intervention, the Rowbotham and Schmitz Student Self-Efficacy scale (SSE) (2013) was adapted and administered to second-year SRNAs (N=17). Clinical performance, skill and knowledge development, social interaction with clinical faculty, and coping with clinical stress are the four areas evaluated by the adapted SSE scale. The study revealed that there was a significant difference in the pre SSE scores (M=34, SD=3.32) and post SSE scores (M=37.88, SD=2.93); $t(16)= -5.13$, $p=0.0001$. Findings from this study determined that peer mentoring is an effective mechanism to increase clinical self-efficacy in this group of SRNAs.

ACKNOWLEDGMENTS

I would like to send my appreciation to my committee chair and members, Dr. Bonnie Harbaugh, Dr. Marjorie Geisz-Everson, and Dr. Sat Ananda Hayden for their guidance throughout this process. Thank you to the nurse anesthesia faculty at The University of Southern Mississippi for this opportunity to become a nurse anesthetist. I would like to also thank my peers who participated in this project.

DEDICATION

First, I would like to thank God for allowing me to reach this milestone. To my loving and supportive family, I would like to dedicate this document to you all for your unwavering support through all of my endeavors. A special dedication to my mother Nora Bass-Crisler, for your support throughout this process in its entirety. Lastly to my extended family and friends, thanks for all of your kind words of encouragement.

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LIST OF ABBREVIATIONS

AANA	American Association of Nurse Anesthetists
CRNA	Certified Nurse Anesthetists
SRNA	Student Registered Nurse Anesthetists
SSE	Student Self-Efficacy
USM	The University of Southern Mississippi

CHAPTER I - INTRODUCTION

Overview

Education is crucial to the professional development of nurses. The rigor associated with the nursing educational process enacts a burden of stress on students that is both helpful and harmful. Although it is important to maintain standards and quality to ensure the competency of these professionals, efforts should be taken to ensure this is done in the most efficient and effective way possible. Coping mechanisms for stress varies among students and can have positive and negative effects on these individuals. Chipas and McKenna (2011), conducted a study on stress and burnout of Certified Registered Nurse Anesthetists (CRNAs) and Student Registered Nurse Anesthetists (SRNAs). They found that the average stress level was 4.7 for CRNAs and 7.2 for SRNAs on a 10-point Likert scale.

Traditionally, nursing education is composed of didactic and clinical components. In comparison to undergraduate programs of study, graduate education is more intense and stressful. This initiative seeks to better understand how to improve student registered nurse anesthetist's (SRNA's) self-efficacy in the clinical setting. Attrition rates among doctoral programs in the United States are excessive (Holley & Caldwell, 2011). Increased self-efficacy can potentially mitigate these findings as it counteracts stress, contributes to well-being, and improves the delivery of care for nurse anesthesia students**.**

The profession of nurse anesthesia has often been touted as the best-kept secret of nursing. It is also regarded as one of the most rigorous and intense didactic and clinical programs in graduate nursing education. Numerous studies have identified the high incidences of stress in nurse anesthesia students and suggest the need for more forms of

social support (Chipas & McKenna, 2011). Peer mentoring programs effectively improve self-efficacy and reduce stress in SRNAs (Conner, 2015).

Problem Statement

Peer mentoring is commonly used as a means of ensuring professional competency. Although effective mentorship is thought to be essential to success in research, it is also thought to impact clinical skills in the medical profession (Flexman & Gelb, 2011). Healthcare systems have embraced this practice in an effort to help improve the quality of care provided to the public. Dorsey and Baker (2004) defined mentoring as the planned act of pairing a more experienced individual (mentor) with a person of less experience (mentee) with the intent of gaining a mutually agreed upon outcome. Social support, which increases self-efficacy, has been shown to be helpful to those facing stressful situations (Conner, 2015). Social support is a form of peer mentoring. Research suggests that mentorship has been instrumental in career growth in the medical and business field (Flexman & Gelb, 2011)**.** The purpose of this DNP project was to determine if a peer mentoring educational intervention can increase the clinical self-efficacy of SRNAs, when evaluated by the Student Self-Efficacy Scale (SSE) created and validated by Rowbotham and Schmitz (2013).

Background and Significance

Patient satisfaction ratings are closely related to the quality of care received from healthcare professionals. These ratings are important as they can determine the amount of reimbursement received by healthcare facilities. This phenomenon is related to the principle of supply and demand. Quality care is in high demand because of its influence on reimbursement. To deliver quality care, a supply of quality nurses is required. The

supply of quality nurses depends heavily on the quality and outcomes of the educational process. This project facilitated the quality of nurses' education by using a peer mentoring system to improve the delivery of quality care in the clinical setting.

The ability of nurse anesthetists to provide quality and safe care is important CRNAs are educated to perform all the tasks that a medical doctor who has specialized in anesthesiology can perform. Nurse anesthetists have dominated the specialty of anesthesia for approximately 150 years in the United States before the influx of physicians in the specialty during the mid-1980s (Dulisse & Cromwell, 2010). According to research, the profession of nurse anesthesia provides the same level of safety and quality of care as an anesthesiologist (Dulisse & Cromwell, 2010). Annually, CRNAs provided 30 million surgical anesthetics in the United States and comprised two-thirds of rural anesthesia providers (Dulisse & Cromwell, 2010).

Learning the art of anesthesia is not easy. The majority of nurse anesthesia educational processes take place in the clinical setting. SRNAs are expected to develop trusting relationships with clinical preceptors, observe cases, and participate in real cases, which allows them to grow into the role of a nurse anesthetist (Smith, Swain, & Penprase, 2011). According to Grost and Brooks (2013), "A current trend in nurse anesthesia programs is the implementation of formal mentoring activities and programs to help facilitate a successful transition into anesthesia and produce a stronger and more competent graduate entering the workforce" (p.34). The entrance into nurse anesthesia programs requires huge adjustments for students in regards to finances, physical, and mental well-being.

Peer mentoring could serve as an avenue to increase self-efficacy among SRNAs. Increased self-efficacy in turn will help enhance the quality of care they provide. Dr. Elise Head (2015) found that peer mentoring was an effective coping mechanism to decrease stress among SRNAs in three-year doctoral nurse anesthesia programs.

The educational process for nurse anesthesia has evolved over the years. Currently, in the U.S. most anesthesia programs are masters or doctorate level. In 2007, the American Association of Nurse Anesthetists announced that doctoral education would be the standard for entry into nurse anesthesia practice by the year 2025 (Enlow, Honig, & Cook, 2014). The transition to doctorate programs increases the workload and stress level of SRNAs. According to Imus, Burns, and Weglarz (2017), the way students approach graduate education vary both in their academic performances and clinical education. The approach students take is believed to be influenced by self-efficacy.

Purpose Statement

Nursing education is a rigorous process and can have various effects on students' self-efficacy. Peer mentoring has been proven to be an effective coping mechanism in nursing education. The purpose of this project is to determine if clinical self-efficacy is increased in SRNAs after participation in the peer mentoring program.

PICO Question

Clinical performance is very important in the practice of nurse anesthesia. The PICO is in SRNAs at The University of Southern Mississippi (USM), will a peer mentoring program improve their clinical self-efficacy versus before peer mentoring? Increased self-efficacy in the clinical setting produces competent clinicians.

Theoretical Framework

The theory guiding this project is Albert Bandura's theory of self-efficacy. Albert Bandura, the psychologist, theorized that people are in constant pursuit to control the events that shape their lives (Bandura, 1997). Self-efficacy is one of the core components of Bandura's social cognitive theory. The core component self-efficacy can be defined as one's belief in their capability to perform a task (Bandura, 1997). According to Bandura's social cognitive model, the environment, the person, and behavior are what influences self-efficacy. Bandura identified personal task mastery, vicarious experiences, verbal persuasion, and emotional support as the four top influences of self-efficacy. In the late 1970s, Bandura concluded that people learn from other behaviors and experiences without having to experience a situation. The characteristic of self-efficacy is very diverse and by no means a fixed entity. One's self-efficacy may vary depending on the task at hand**.**

The healthcare profession has used principles of social learning theory for many years. "For example, they are evident in the mentoring programs where inexperienced health professionals work in close collaboration with the experienced members of their profession as a way to teach clinical skills and performance in the workplace" (Braungart & Braungart, 2011, p. 221). I am interested in the use of peer mentoring to improve self-efficacy among SRNAs in the clinical setting. As a SRNA, I know that the majority of training for the profession of anesthesia takes place in the clinical arena. I can attest to the benefits of peer mentoring and its effects on my self-efficacy in the clinical setting.

Vicarious experiences were one of the major influences of self-efficacy identified by Bandura (Bandura, 1997). It has been theorized that people do not solely rely on their

own experiences to help shape their self-efficacy. Indeed, one may also rely heavily on the experiences of others to measure their self-efficacy. If a person sees someone whom they admire accomplish a task, they will have increased self-efficacy that they too can do the same. Role-modeling is a form of mentoring which plays a factor in shaping one's behaviors and beliefs.

The concept of self-efficacy best fits this DNP project since students in this program spend the first 12 months of a 36-month program in the classroom learning about anesthesia. Nurse anesthesia students are far removed from the clinical setting since they are discouraged from working while pursuing a degree in anesthesia. After 12 months of the didactic component, they return to the clinical setting as a novice learner in pursuit of learning the skills of anesthesia. In the students' basic principle class, they learn the foundations of anesthesia and are expected to build upon them in the clinical arena. The transition from the classroom into clinical can be a stressful one for SRNAs. This transition is when peer mentoring could be of great benefit to SRNAs to help improve self-efficacy.

Self-efficacy is a concept that can be easily confused with other concepts. The confusion lies between self-efficacy and self-esteem, and the two are often used interchangeably. The theory of self-efficacy provides strict guidelines on how to have control over what influences one's life (Bandura, 1997). Bandura (1997) stated, "Perceived self-efficacy is concerned with judgments of personal capability, whereas self-esteem is concerned with self-worth" (p.11). One can have high self-esteem and still fail anesthesia school if they are not confident in their capabilities of performing the clinical tasks that are necessary to graduate. The concept of self-efficacy is fitting to this

intervention which seeks improve one's belief in their ability to perform clinical skills using peer mentoring.

Doctor of Nursing Practice Essentials

The American Association of Colleges of Nursing (AACN, 2006), uses the DNP Essentials as the foundation of core competencies of all advanced practice nurses. There are eight essentials that a curriculum must possess in order to offer a DNP program of study. Graduates of DNP programs are viewed as leaders in the profession. This DNP project addresses all eight essentials, but essentials II, III, and VI were highly related to this project. The three primary keys that were addressed will be discussed in this section.

The organizational and system leadership for quality improvement and system thinking is DNP Essential II. The goal of this project is to increase clinical self-efficacy in the SRNA population to improve the quality and safety of care provided. Increased self-efficacy will produce more competent nurse anesthetist DNP providers within care organizations, which should result in higher quality care in the healthcare system. Clinical scholarship and analytical methods for evidence-based practice are DNP Essential III. This essential was addressed through searching for and analyzing the best evidence and measuring self-efficacy in SRNAs. Rowbotham and Schmitz (2013), who are both nurse educators, developed and validated a student self-efficacy scale to help measure students' perceived self-efficacy in nursing education. The SSE scale will be used to measure nurse anesthesia students' perceived self-efficacy at USM after enrollment in a peer mentoring program.

Inter-professional collaboration for improving patient population health outcomes is Essential VI. Although the population of this project is only comprised of SRNAs, they

interact daily in the clinical setting with CRNAs, anesthesiologists, surgeons, and nurses who make up the perioperative team. Nurse anesthetists must be able to effectively communicate with all members of the perioperative team ensure the patient receives safe and quality care. Use of a mentoring program aims to increase the SRNAs ability to collaborate with other members of the health team by role modeling. See Appendix G for a complete table of the 8 Essentials.

Needs Assessment

An informal needs assessment was conducted among doctoral students of the 2017 and the 2018 USM cohort discussing the stressors faced when entering the clinical setting. After speaking with the 2018 cohort about their stress level, they voiced interest in a peer support from the upperclassmen in the nurse anesthesia program. Several students expressed how being a novice learner in a different area of nursing impacted their self-efficacy negatively. Five of the 17 students in the 2017 cohort spoke highly of their mentors from the graduating class of 2016. The simplest mentoring programs to implement in a nurse anesthesia program is the pairing of a senior SRNA and a junior SRNA (Grost & Brooks, 2013).

Review of Evidence

A review of current clinical and scholarly literature was conducted to gain a more in-depth understanding of whether peer mentoring was effective in increasing self-efficacy within the clinical setting. The following databases were used: EBSCOhost, PubMed, CINAHL, MEDLINE, and Google Scholar. The publication years were limited to between 2010 and 2017. Several searches were conducted with keywords arranged in various ways. The combination of key terms, peer mentoring, self-efficacy, the student

registered nurse anesthetists, and nursing students were all used in the multiple search engines. The initial search using the key terms nurse anesthetist students, self-efficacy, and peer mentoring in google scholar yielded 1,650 articles. The search was further limited to SRNAs and self-efficacy and generated a total of 260 articles. Peer mentoring and nurse anesthetists were also searched together and yielded 754 articles. After searching Google Scholar, the remaining databases were searched similarly, and a total of 74 articles was yielded with the search terms nursing students and peer mentoring. However, there were no articles that addressed the three main search terms (SRNA, peer mentoring, and self-efficacy) together. Upon further review of the evidence, a total of 9 articles were found to be most relevant to this project. A literature matrix of the evidence is in Appendix F.

Peer Mentoring

Peer mentoring has been shown to mitigate stress levels among student registered nurse anesthetists (Conner, 2015). Peer mentoring is becoming popular among different professions as well. Mentorship is known to aid in career progression in the profession of both business and medicine (Flexman & Gelb, 2011). Despite the growing use of mentorship in career development, minimal evidence is available about mentorship's impact on anesthesia (Flexman & Gelb, 2011). In the past, mentorship was related mostly to research; however, it has been shown to impact clinical and education skills of medical providers (Flexman & Gelb, 2011). Dorsey and Baker (2004), stated that mentoring is the planned act of pairing a more experienced individual (mentor) with an individual of less experience (mentee) with the intent of gaining a mutually agreed upon outcome. Research shows that peer mentoring programs yield positive results. Dorsey and Baker

(2004) conducted an integrative review of 16 articles on the study of mentoring in nursing. The findings of the 16 studies indicated that mentoring is positively related to academic success, psychosocial development, retention, and graduation of students (Dorsey & Baker, 2004).

Nursing Students and Student Registered Nurse Anesthetists

The profession of nursing can be very stressful at times. In the U.S., there are over 2 million nurses, and approximately 49,000 are nurse anesthetists. Most of nursing education takes place in the clinical setting. Stress can be both mental and physical tension caused by problems in your life. Stress may vary from individual to individual. On a 10-point Likert scale, AANA members (CRNAs) reported an average stress level of 4.7 and the associate members (SRNAs) reported a stress level of 7.2. Also, CRNAs attributed 48% of their stress to work and SRNAs 67% to school (Chipas & Mckenna, 2011). Another study found that a combination of coping mechanisms such as the use of social support, getting involved with other students, and attending program-sponsored functions were helpful in reducing stress (Phillips, 2010). Both articles support the need to implement more effective coping mechanisms for students pursuing an education in nursing.

Smith, Swain, & Penprase (2011), conducted a study at a large Midwestern hospital to explore clinical teaching characteristics between students and preceptors of nurse anesthesia programs. Data were collected from a 22-item survey evaluating effective clinical teaching characteristics. The study did not support a high level of congruence between CRNAs and SRNAS. Collins and Callahan (2014) stated that "The ability to integrate theory with practice is integral to a student's success" (p.65). This

study evaluated a 17-item clinical evaluation tool. After conducting a factor analysis of the 17-item clinical tool, it was found that three constructs were being measured (Collins & Callahan, 2014). The three constructs were technical skills, patient-focused concepts, and resource management, which are all consistent with safe and quality care. The authors also found there was a connection between specific clinical components and the National Certification Exam (NCE). According to Collins and Callahan (2014), statistical findings were significant in predicting NCE scores were the ability to transfer didactic knowledge to the clinical setting ($p < .001$), efficiency ($p < .027$), the ability to troubleshoot equipment ($p < .035$), and the technical skills factor ($p < .050$). All of these findings and effects may be transferred efficiently to the learners via peer mentoring and role modeling.

Self-efficacy

Self-efficacy is one's belief in their capability to perform a task (Bandura, 1997). Conner (2015), conducted an extensive literature review titled *Self-Efficacy, Stress, and Social Support in Retention of Student Registered Nurse Anesthetists.* According to Conner (2015), high levels of self-efficacy yielded a therapeutic approach behavior, whereas low levels created a behavior of avoidance. Conner stated that "A vicarious experience of social modeling leads to an increase in self-efficacy when a person sees another similar person accomplish the objective" (Conner, 2015, p. 135).

Rowbotham and Schmitz (2013), developed and validated the Student Self-Efficacy scale (SSE). The student self-efficacy scale was adapted from the Teacher Self-Efficacy Scale (TSE) developed by Schmitz and Schwarzer (2000). The authors used Bandura's social learning theory as the framework. The purpose of the study was to

validate the SSE; it was done by measuring student self-efficacy related to didactic coursework. The results for internal consistency was an alpha score of .84 in a sample of 65 students. One of the future implications mentioned by Rowbotham and Schmitz was that research should be conducted on graduate nursing student self-efficacy (2013). Imus, Burns, and Weglarz (2017) found that students in their clinical phase of nurse anesthesia programs have lower self-efficacy than students in their didactic phase.

Summary

The review of evidence highlighted how the nursing educational process impacts student self-efficacy. The findings also communicated the need for a form of social support and mentoring for nurse anesthesia students as they pursue a graduate degree. With consideration to these findings, it is hypothesized that a peer mentoring program based on social support will have a positive influence on SRNAs self-efficacy.

CHAPTER II - METHODOLOGY

Design

The project was designed as a one-group pre and posttest measure in an sample of SRNAs who received peer mentoring. With this design, a measurement was taken before the population was exposed to the peer mentoring intervention. After the population was exposed to the peer mentoring educational intervention, a post-measurement was taken at 2 weeks. This education practice change was guided using a SWOT analysis and logic model (see Appendix A and B). The purpose of this doctoral project was to determine if participation in peer mentoring programs will improve clinical self-efficacy for SRNAs. The clinical question for this project was: Is there an improvement in clinical self-efficacy for SRNAs after participation in peer mentoring? Healthcare professions are known to generate stress. "The practice of anesthesia is a highly stressful nursing specialty" (Phillips, 2010, p. 474). SRNAs are faced with a drastic role change from being an established critical care nurse to a novice learner. Students with increased levels of self-efficacy in their clinical skills according to evidence, should provide competent and quality care. This project evaluated the relationship between peer mentoring and improved clinical self-efficacy in SRNAs. The chosen design for this DNP project was pre and post evaluation of a peer mentoring intervention.

Population and Sample

For this DNP project, the sample included SRNAs enrolled in USM's DNP anesthesia program. The SRNAs, are registered nurses with a minimum of one year of critical care experience prior to enrollment into the course of study. The nurse anesthesia program is a 36-month program. The program is partially front-loaded, students complete

only didactic and simulation in the first 12-months. After having 12-months of didactic, students enter the clinical setting, a period lasting 23-months total. The first 6-months, students are assigned to designated clinical sites for 3-month rotations.

The sample consisted of 17 SRNAs from 2018 cohort. Students in the 2018 cohort began clinical in January 2017. The students were mentored by SRNAs from the 2017 cohort, which entered clinical in January 2016. A limitation to this design is that the 2017 group only had 16 SRNAs. To provide a mentor for each student in the 2018 cohort, one of the mentors was randomly assigned two mentees.

Exclusion Criteria

The researcher was excluded from this project to eliminate bias, which left 16 SRNAs in the 2016 cohort to be mentors. Students who were not in the clinical phase of the program were excluded. No other exclusion criteria were used for this project.

Measurement Tool

The tool used for this DNP project is Rowbotham and Schmitz's Student Self-Efficacy scale (2013). The Student Self-Efficacy Scale (SSE) is an adapted version of the 10-item Teacher Self-Efficacy Scale (TSE) developed by Schmitz and Schwarzer (2000) to explore teachers' self-efficacy. Rowbotham and Schmitz (2013) adapted the scale using students instead of teachers. The TSE scale measured job accomplishment, skill development, social interactions with students and colleagues, and coping with job stress (Rowbotham & Schmitz, 2013). Academic performance, skill and knowledge development, social interaction with faculty, and coping with academic stress are the four areas evaluated by the SSE scale (Rowbotham & Schmitz, 2013).

Permission was granted by the authors to use the 10-item SSE and adapt it in any way needed (Appendix H). Authors used a 4-point response format: 1) not at all true, 2) hardly true, 3) moderately true, and 4) exactly true to score each item. Scores from the SSE ranged from 10-40; hence, higher scores equated to higher self-efficacy (Rowbotham & Schmitz, 2013). The internal consistency reported by the authors was a Cronbach's alpha of 0.84 in a sample size of 65 students.

All 10-items from SSE scale were used but adapted to fit nurse anesthesia clinical skills. The original scale, along with the adapted pre- and post-scale are provided in appendix C, D, and E. This project used pre-and post-evaluation using the SSE scale. Each of the 10-items were measured on the same a 4-point response format: 1) not at all true, 2) hardly true, 3) moderately true, and 4) exactly true. A total of 3 demographic questions (age, gender, and years of experience as a registered nurse) were added to the pre-SSE scale. The post SSE scale had the same pre-SSE scales items with two extra items. One rating the peer mentoring program's effect on clinical self-efficacy and another indicating number of times communicated with the mentor.

Procedure

After approval from the university's Institutional Review Board (Protocol number 17082501), the faculty members from the nurse anesthesia program were contacted and asked if they would allow the researcher to attend their classes and recruit students in the 2017 and 2018 cohorts (Appendix J). This SRNA attended one class with the 2018 cohorts. A PowerPoint presentation on peer mentoring and self-efficacy was presented. Students in the 2018 cohort were asked to participate in the study. They were informed that their participation was optional and they could leave the study at any time. Students

were informed that this study would have no impact on their grade in the course. The pretest SSE scale was provided to the SRNAs who agreed to participate, thereby assessing their baseline clinical self-efficacy. Consent forms were also provided regarding keeping all data confidential. An educational workshop was conducted with the 2017 cohort after class. They were provided literature and a presentation on how to be an effective mentor (Appendix I). After hosting a lecture on the importance of peer mentoring with the 2017 cohort they were asked to be mentors. The pairing of the mentors and mentees was conducted using random selection. Names were pulled from a box for the pairing of students. There were two boxes, one for each cohort. An email was sent out to each mentor and mentee notifying them of their roles. The mentor and mentees were advised to communicate with each other at least once a week during the two-week study. Communication could have been through email, text, phone, or face-to-face. After two weeks had elapsed, the Post-test SSE scale was given to the 2018 cohort after class.

Summary

The one group pre and posttest design worked well in the small sample of SRNAs. However, this design required the researcher to be very organized to ensure all participants completed a posttest. The original SSE scale was easy to adapt for this project.

CHAPTER III - Results

Data Analysis

Data analysis for this DNP project was performed using the statistical software, Statistical Package for the Social Sciences (SPSS) version 23 after data collection. Frequency and descriptive statistics were used to describe the sample in this study and also to perform a data hygiene process. This SRNA assigned a code to each participant before entering the data into SPSS. Missing data and data hygiene were checked. The primary analyses used was a paired t-test in SPSS to compare SRNAs' clinical self-efficacy before and after the peer mentoring educational intervention. An alpha value of $p < 0.05$ was used to establish the statistical significance of this project.

Overview

In SRNAs at The University of Southern Mississippi (USM), will a peer mentoring program improve their clinical self-efficacy versus before peer mentoring? Of the 20 SRNAs in the 2018 cohort, 17 consented to participate in the study. The pre SSE scale was administered to the 2018 cohort two weeks before the post SSE scale. Demographic information collected from the sample were age, gender, and years of experience as a registered nurse. To describe the sample frequency and descriptive analyses were performed using SPSS version 23. The sample was composed of 41.2% males (n=7) and 58.8% females (n=10) in their second year of nurse anesthesia school see (Table 1). The ages for this sample were grouped in following categories: 18-24, 25-34, 35-44, 45-54, and 55+. The majority of the sample (82.4%) were in the 25-34 age category and 17.6% reported that they were 35-44 years old (Table 1). The participants

had a mean of 5.59 years of experience as a registered nurse, ranging from a minimum of 3 years to a maximum of 11years.

Table 1

Demographic Data (N=17)

Participants' Characteristics			
		Frequency	%
Sex	Male	7	41.2
	Female	10	58.8
Age	25-34	14	82.4
	35-44	3	17.6
	Total	17	100.0

A paired t-test was performed to measure the difference in pretest SSE scores and post-test SSE scores after the peer mentoring educational intervention. The tool used was the Rowbotham and Schmitz (2013) validated Student Self-Efficacy scale. Clinical performance, skill and knowledge development, social interaction with clinical faculty, and coping with clinical stress are the four areas evaluated by the adapted SSE scale (Appendix D and E). Table 2 shows results of the comparison between the pre-SSE scores and Post-SSE scores after peer mentoring. There was a significant difference in the pre-SSE score (M=34, SD=3.32) and Post SSE scores (M=37.88, SD=2.93); $t(16)=-5.13$, p=0.0001. The 95% confidence interval for the difference was (-5.49,-2.28). These results indicate that there was an increase in clinical self-efficacy measures after peer mentoring.

Table 2

Reported SRNA SSE

Outcomes Before and After Peer Mentoring Intervention					
	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	t	df	p
Pair 1	34.00 (3.32)	37.88 (2.93)	-5.13	16	<.0001

The SRNA was asked two additional questions on the post-SSE scale: (a) Did peer mentoring help increase my self-efficacy in clinical skills (1-not at all true 2-hardly true 3 moderately true and 4-exactly true), and (b) In the two weeks, I communicated with my mentor (<1 time 2-4 time 5-6 times 7-8 times >10 times). Participants reported a mean of (M=3.88) communication times with the mentor see Table 3. For this project, this SRNA did not specify a certain channel of communication. Figure 1 shows that 58.8% of the participants reported exactly true and 41.2% reported moderately true that peer mentoring increased their self-efficacy in clinical skills.

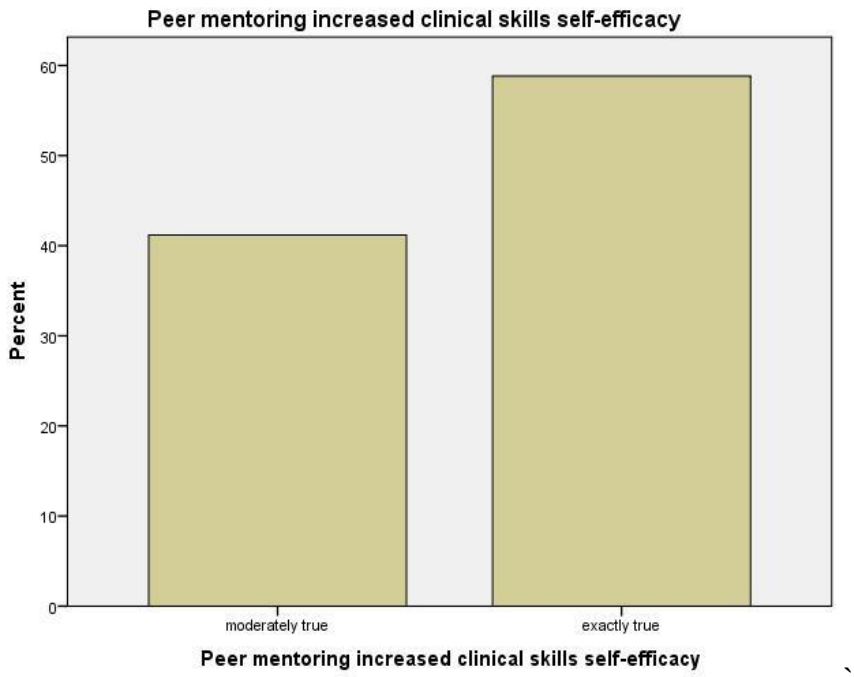


Figure 1. Impact of Peer Mentoring on Clinical Self-efficacy

Table 3

Number of Times Communicated with Mentors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1	1	5.9	5.9	5.9
	2-4	10	58.8	58.8	64.7
	5-6	1	5.9	5.9	70.6
	7-8	3	17.6	17.6	88.2
	10+	2	11.8	11.8	100.0
	Total	17	100.0	100.0	

The comparison of pretest and post-test results from the SSE scale demonstrated significant improvement after the peer mentoring educational intervention. Utilization of the paired t-test revealed that there were significant differences (p=0.0001), between pre

and post clinical self-efficacy for SRNAs after participation in peer mentoring. The p-value of ($p \leq .05$) was selected to apriori for statistical significance.

CHAPTER IV – DISCUSSION

Interpretation of Results

The aim of this DNP project was to determine if there was a significant improvement in clinical self-efficacy after participation in a peer mentoring program. One of the outcomes named in the logic model (Appendix B) of this project was that at least 50% of students in the sample would report increased clinical self-efficacy after the peer mentoring educational intervention. Figure 1 shows that 58.8% of SRNAs in their second year of the nurse anesthesia program reported (exactly true) on a 4-point Likert scale.

Current research supported the use of peer mentoring as an effective technique to improve SRNA's clinical self-efficacy. A student's perceived self-efficacy closely correlates with their level of performance and amount of effort put into tasks (Rowbotham & Schmitz, 2013). Head (2015), found that peer mentoring was effective in decreasing stress among the same population. The results of this project confirm, for this sample, the evidence in the literature.

Limitations

There were several limitations encountered in this project. The small sample size was a major limitation in this project if generalizability is to be considered. However, for this DNP project generalizability was not an aim. Although the statistical results were significant, they cannot be generalized due to the small sample size. There is also an inability to eliminate bias due to the nonrandom sample. The limited time-frame of the study did not seem to hinder the statistical significance.

Future Practice Implications

Peer mentoring has shown to be beneficial in improving clinical self-efficacy in SRNAs. Future investigation in this project is needed to assess the relationship between peer mentoring and clinical self-efficacy in the SRNA population over a longer time period. The comparison of students' perceived self-efficacy in master versus doctoral level nurse anesthesia programs also needs to be explored. Nurse anesthesia programs should consider implementing a peer mentoring program. The peer mentoring program should have educational in-services on the roles of mentors and mentees. Peer mentoring should begin upon entrance into the nurse anesthesia program, but has been shown in this project to work to improve clinical self-efficacy in a limited time period, with 88.2% having less than 10 peer encounters.

Dissemination

The knowledge gained from this project will serve of great benefit to nurse anesthesia students. This project will be disseminated through the digital database Aquila. The results will also be reported to the nurse anesthesia faculty and students at USM.

Conclusion

The 17 participants reported that the peer mentoring educational intervention improved their clinical skill self-efficacy. Therefore, this project has determined that peer mentoring is an effective way to improve clinical self-efficacy in USM SRNAs. Students with high levels of self-efficacy are known to demonstrate high academic performance (Conner, 2015). Peer mentoring may promote an increase in SRNAs self-efficacy while in the clinical setting. Peer mentors need to provide an outlet of support to their mentees

while enrolled in the program. The results from this project may be beneficial in improving future SRNAs perceived self-efficacy in the clinical setting.

APPENDIX A – SWOT Analysis

Table A1.

SWOT Analysis

Strength	Weakness	Opportunities	Threats
• SRNA myself with clinical experience beyond the first semester • Established peer mentoring program at USM nurse anesthesia program • Good clinical sites • New simulation lab • Support of faculty	• Different schedules of the two cohorts create difficulty in communicating face-to-face. • Limited number one school and one cohort	• The nurse anesthesia program is implementing more "grand rounds" where all cohorts meet to discuss clinical events. • Grand rounds will allow more face-to-face communication between the mentor and mentee.	• Requesting to use a modified Bandura self-efficacy evaluation tool (may or may not be approved) • Volunteer participation from USM nurse anesthesia program 2017 and 2018 SRNAs • Support from the nurse anesthesia program staff, the university, and the school of nursing • IRB approval smaller group limited contact amount of times

APPENDIX B – Logic Model

Table A2.

Logic Model

Inputs	Activities	Outputs	Initial Outcomes	Long-Term Outcomes
Volunteer participation from USM nurse anesthesia program 2017and 2018 SRNAs Support from the nurse anesthesia program staff, the university, and the school of nursing.	A workshop hosted with the nurse anesthesia program 2017 cohort. Provide 2017 The cohort with material on how to be an effective mentor.	Adapt a tool on perceived self-efficacy. Provide the pretest to 2018 Follow up with a post-survey in two weeks post initial meeting.	USM nurse anesthesia program mentoring program will grow in strength. USM nurse anesthesia program will report 50% increase in self-efficacy on the post-survey Effective mentor/mente e relationships Improved self-efficacy. Improved clinical confidence	All nurse anesthesia programs in the United States will have a formal peer mentoring program in place in the next ten years. Council on Accreditation mandate all nurse anesthesia program have a peer mentoring program in place.

APPENDIX C – Original Student Self-Efficacy Scale

Table A3.

Student Self-Efficacy Scale (Rowbotham and Schmitz, 2013)

1.	I am convinced that I can successfully learn all relevant subject content even if it is difficult.
2	I know that I can maintain a positive attitude toward this course even when tensions arise.
3	When I try hard, I can learn even the most challenging content
4	I am convinced that, as time goes by, I will continue to become more and more capable of learning the content of this course.
5	Even if I get distracted in class, I am confident that I can continue to learn well.
6	I am confident in my ability to learn, even if I am having a bad day.
7	If I try hard enough, I can obtain the academic goals I desire.
8	I am convinced that I can develop creative ways to cope with the stress that may occur while taking this course.
9	I know that I can stay motivated to participate in the course.
10	I know that I can finish the assigned projects and earn the grade I want, even when others think I can't.

APPENDIX D –Adapted Student Self-Efficacy scale (Pre)

I am confident that in the clinical setting, I can:

1. Please indicate your gender. Male Female
2. Please select the category that includes your age 18-24 25-34 35-44 45-54 55 or above
3. How long have you been an RN? ____ years
4. I am convinced that I can successfully learn all relevant subject content even if it is difficult. 1- not at all true 2-hardly true 3-moderately true 4- exactly true
5. I know that I can maintain a positive attitude towards clinical even when tension arises.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
6. When I try hard, I can learn even the most difficult clinical skills
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
7. I am convinced that, as time goes by, I will continue to become more proficient in my clinical skills with the help of my mentor.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
8. Even if I get stressed in clinical, I am confident that I can continue to perform well in clinical.
   1-not at all true 2- hardly true 3- moderately true 4-exactly true
9. I am confident in my ability to learn, even if I am having a bad day.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
10. If I try hard enough, I can obtain the academic goals I desire.
    1-not at all true 2- hardly true 3-moderately true 4-exactly true
11. I am convinced that I can develop creative ways to cope with the stress that may occur while in the clinical arena.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true
12. I know that I can stay motivated to participate in clinical.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true
13. I know that I can finish the assigned cases and provide quality care, even when others think I can't.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true

APPENDIX E – Adapted Student Self-Efficacy Scale (Post)

I am confident that in the clinical setting, I can:

1. Please indicate your gender. Male Female
2. Please select the category that includes your age 18-24 25-34 35-44 45-54 55 or above
3. How long have you been an RN? ____ years
4. I am convinced that I am able to successfully learn all relevant subject content even if it is difficult. 1- not at all true 2-hardly true 3-moderately true 4-exactly true
5. I know that I can maintain a positive attitude towards clinical even when tension arises.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
6. When I try hard, I can learn even the most difficult clinical skills
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
7. I am convinced that, as time goes by, I will continue to become more proficient in my clinical skills with the help of my mentor.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
8. Even if I get stressed in clinical, I am confident that I can continue to perform well in clinical.
   1-not at all true 2- hardly true 3- moderately true 4-exactly true
9. I am confident in my ability to learn, even if I am having a bad day.
   1-not at all true 2-hardly true 3-moderately true 4-exactly true
10. If I try hard enough, I can obtain the academic goals I desire.
    1-not at all true 2- hardly true 3-moderately true 4-exactly true
11. I am convinced that I can develop creative ways to cope with the stress that may occur while in the clinical arena.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true
12. I know that I can stay motivated to participate in clinical.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true
13. I know that I can finish the assigned cases and provide quality care, even when others think I can't.
    1-not at all true 2-hardly true 3-moderately true 4-exactly true
14. Peer mentoring helped increase my self-efficacy in my clinical skill.
    1-not at all true 2- hardly true 3-moderately true 4-exactly true
15. In the past two weeks, I communicated with my mentor
    <1 time 2-4 times 5-6 times 7-8 times >10 times

APPENDIX F – Literature Matrix

Table A4.

Literature Matrix

Author/ Year/ Title	Level/ Grade	Design	Sample/ Data Collection	Findings	Recommendations
Chipas, A., & Mckenna, D. (2011, April). Stress and Burnout in Nurse Anesthesia.	III/A	Quantitative -descriptive	Diverse AANA members and associate members between February and May of 2008. A total of 28,000 received a survey only (N=7,537) responded.	On a 10-point Likert scale AANA members (CRNAs) reported an average stress level of 4.7 and the associate members (SRNAs) reported a stress level of 7.2. Also, CRNAs attributed 48% of their stress to work and SRNAs67% to school (Chipas& Mckenna, 2011).	More research and education on the coping mechanism to manage stress.

Collins, S., & Callahan, M. F. (2014, February). A Call for Change: Clinical Evaluation of Student Registered Nurse Anesthetists.	II/A	Ex post facto cross-sectional	A purposive sample included all 137 SRNA enrolled in the 4 NA programs in the Southeastern United States. The data was collected from a 17-item clinical instrument tool to demonstrate the need for the validity of clinical instrument tool (Collins & Callahan, 2014, p.65).	A factor analysis of the 17-item clinical tool found that only three items were being measured (Collin & Callahan, 2014). Technical skills, patient-focused concepts, and resource management were the three categories of constructs.	Revision of the clinical evaluation instrument tool as a need was one of the major recommendations. Key concepts that need to be measured need to be thoroughly defined.
Conner, M. (2015, April). Self-Efficacy, stress, and social support in retention of student registered nurse anesthetists.	III/C	Review of Literature	N/A	The review of literature showed no consensus between nurse anesthesia programs admission requirements and	A study of self-efficacy in SRNAs was a recommendation from the author. The author also recommended a study of students will cope in doctoral anesthesia programs.

				academic success.	
Dorsey, L. E., & Baker, C. M. (2004, November/ December). Mentoring undergraduate nursing students Assessing the state of science.	I/B	Meta-Analysis	This data reflects an integrative review of 16 articles that were published between 1992 and 2002.	The findings of the 16 studies were mentoring is positively related to academic success, psychosocial development, retention and graduation of students (Dorsey &Baker, 2004, p.263).	More research on the complexities of mentorship relationship needs to be conducted. Also, more studies exploring an assigned mentor versus a chosen one.
Flexman, A. M., & Gelb, A. W. (2011, December 14). Mentorship in anesthesia how little we know.	IV	Expert opinion	N/A	The lack of data on mentorship in anesthesia is worrisome.	The field of anesthesia needs more research on mentorship and educational performance.

Imus, F. S., Burns, S., & Weglarz, D. M. (2017, June). Self-efficacy and graduate education in a nurse anesthesia program: A pilot study	IV	Descriptive Correlational Pilot Study.	The population and sample for this study were 56 SRNAs from a Midwestern University.	Students in the didactic phase of anesthesia school have higher self-efficacy than a student in the clinical phase.	Integrating self-efficacy into the curriculum of nurse anesthesia programs.
Phillips, J. K. (2010, December). Exploring Student Nurse Anesthetist Stressors and Coping Using Grounded Theory Methodology.	IV	Qualitative Descriptive	The data was collected via individual interviews. The sample included 12 new graduates from 5 different anesthesia programs, who have been out of school for less than 24 months.	Participants found that a mixture of a coping mechanism such as the use of social support, getting involved with other students, and attending program-sponsored functions were helpful in reducing stress (Phillips, 2010, p.474).	Nursing anesthesia programs need to explore more stress reduction mechanisms.

Rowbotham, M., & Schmitz, G. S. (2013). Development and validation of a student self-efficacy scale.	III/C	Principal component analysis	The sample was comprised of 65 nursing students at a public mid-western university. Data were collected via questionnaires	The SSE was found to measure the construct under study and is a valid and reliable scale. The Cronbach's alpha was 0.84.	The use of the SSE scale was recommended in nursing students from more diverse backgrounds. The recommended backgrounds include: males vs. females, accelerated nursing students, and graduate nursing students.
Smith, C., Swain, A., & Penprase, B. (2011, August). Congruence of perceived effective clinical teaching characteristics between students and preceptors of nurse anesthesia programs.	III/B	Quantitative Descriptive	This study was conducted at large Midwestern hospital. Data was collected from a 22-item survey that evaluated effective clinical teaching characteristics. A total of 175 surveys (125 CRNA and 50 SRNA) were distributed. Of the 125 surveys, 95 were returned, and six	The analysis of variance found a high level of consistency between the two groups (Friedman test, 289.21; at $P<.001$). The findings did not support previous study findings.	Limitations of this study are small sample size, one education setting, and one facility.

			were unusable.		

APPENDIX G – Doctor of Nursing Practice Essentials

Table A5.

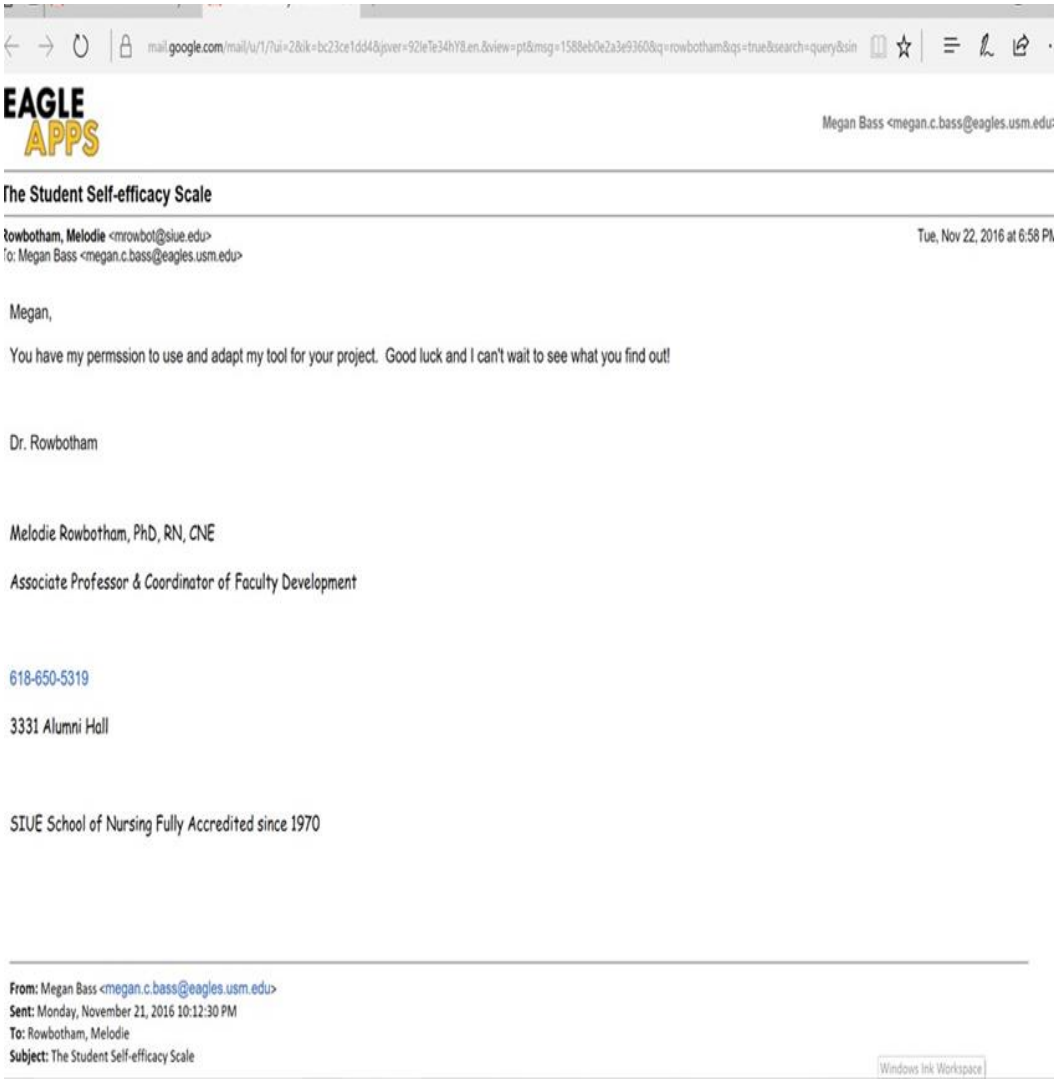
DNP Essentials

Doctor of Nursing Practice Essentials	**How the Essential is Achieved**
I. Scientific Underpinnings for Practice	The use of a peer mentoring program that is guided by Albert Bandura's theory of self-efficacy will increase SRNAs clinical self-efficacy.
II. Organizational and System Leadership for Quality Improvement and System Thinking	The goal of this project is to enhance clinical self-efficacy to improve the quality of care provided. Increased self-efficacy will produce more competent nurse anesthetist's DNP providers.
III. Clinical Scholarship and Analytical Methods for Evidence-Base Practice	This essential was addressed through the clinical skills that are all related to evidence-based practice.
IV. Information System/Technology and Patient Care Technology for the Improvement and Transformation of Health Care	Nurse anesthetists utilize a lot of technology-based equipment in the clinical setting. It is imperative that SRNAs are competent in the use of all equipment to provide safe and quality care. Misuse of anesthesia equipment could result in an adverse patient outcome.
V. Health Care Policy for Advocacy in Health Care	This essential is addressed by educating and training SRNAs to become independent healthcare providers.
VI. Interprofessional Collaboration for Improving Patient and Population Health Outcomes	Although, the population of this project is only comprised of SRNAs they interact in the clinical setting with CRNAs, Anthologists, Surgeons, and Nurses who make up the perioperative team.

VII. Clinical Prevention and Population Health for Improving the Nation's Health	The purpose of this DNP project is to improve clinical self-efficacy in SRNAs. Increased clinical self-efficacy increases competency, which could prevent adverse outcomes of surgical patients undergoing anesthesia.
VIII. Advanced Nursing Practice	The DNP degree prepares advanced practice nurses for more complex patients and healthcare on a local and national level in different nursing specialty areas. This project address Advanced nursing practice in the specialty of anesthesia. Nurse anesthetists must know how to perform complex assessments and utilize appropriate interventions in the clinical setting.

(AACN, 2006)

APPENDIX H – Measurement Tool Permission



mail.google.com/mail/u/1/?ui=2&ik=bc23ce1dd4&jsver=92leTe34hY8.en.&view=pt&msg=1588eb0e2a3e9360&q=rowbotham&qs=true&search=query&sin

EAGLE APPS

Megan Bass <megan.c.bass@eagles.usm.edu>

The Student Self-efficacy Scale

Rowbotham, Melodie <mrowbot@siue.edu> Tue, Nov 22, 2016 at 6:58 PM
To: Megan Bass <megan.c.bass@eagles.usm.edu>

Megan,

You have my permssion to use and adapt my tool for your project. Good luck and I can't wait to see what you find out!

Dr. Rowbotham

Melodie Rowbotham, PhD, RN, CNE

Associate Professor & Coordinator of Faculty Development

618-650-5319

3331 Alumni Hall

SIUE School of Nursing Fully Accredited since 1970

From: Megan Bass <megan.c.bass@eagles.usm.edu>
Sent: Monday, November 21, 2016 10:12:30 PM
To: Rowbotham, Melodie
Subject: The Student Self-efficacy Scale

Windows Ink Workspace

APPENDIX I – Mentoring Brochure

REFERENCES

Conner, M. (2015. April). Self-Efficacy, stress, and social support in retention of student registered nurse anesthetists. *AANA Journal*, 83(2), 133-137.

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MEGAN C. BASS, DNP PROJECT

The University of Southern Mississippi's NAP Peer Mentoring Program

PEER MENTORING

"Mentors are personable, approachable, reasonable, and competent individuals committed to helping mentees achieve the success of which they are capable."

MENTORING

The University of Southern Mississippi's NAP Peer Mentoring Program

What is mentoring?

Dorsey and Baker (2004), stated that mentoring is the planned act of paring a more experienced individual (mentor) with an individual of less experience (mentee) with the intent of gaining a mutually agreed upon outcome.

Who are mentors?

One capable of offering direction and support.

Benefits of Mentorship

- Increased self-efficacy
- Enhanced leadership skills
- Accelerated acclimation to the culture of the clinical setting

Things to Avoid as a Mentor

- Inappropriate behavior
- Belittling
- Arrogance
- Negativity

Tips for Mentors

- Demonstrate exemplary role model behavior.
- Encourage your mentee.
- Monitor your mentee's progress
- Provide constructive feedback.
- Offer guidance in the clinical setting.
- Develop a trusting relationship with your mentee.
- Maintain confidentiality.
- Keep promises and commitments.
- Be supportive in personal issues not just clinicals.
- Help your mentee make decisions for through listening, support, and feedback.

APPENDIX J – IRB Approval Letter

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 17082501
PROJECT TITLE: Increasing Student Registered Nurse Anesthetists Clinical Self-Efficacy Using Peer Mentoring
PROJECT TYPE: Doctoral Dissertation
RESEARCHER(S): Megan Christine Bass
COLLEGE/DIVISION: College of Nursing
DEPARTMENT: Advanced Practice
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 08/25/2017 to 08/24/2018
Lawrence A. Hosman, Ph.D.
Institutional Review Board

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