

5-1-2016

The Relationship Between Clinical Teaching Models and Perceived Clinical Self-Efficacy and Attitude Toward Team Process

Christina H. Plemmons

University of Nevada, Las Vegas, plemmrn@gmail.com

Follow this and additional works at: <https://digitalscholarship.unlv.edu/thesesdissertations>

 Part of the [Education Commons](#), and the [Nursing Commons](#)

Repository Citation

Plemmons, Christina H., "The Relationship Between Clinical Teaching Models and Perceived Clinical Self-Efficacy and Attitude Toward Team Process" (2016). *UNLV Theses, Dissertations, Professional Papers, and Capstones*. 2723.
<https://digitalscholarship.unlv.edu/thesesdissertations/2723>

This Dissertation is brought to you for free and open access by Digital Scholarship@UNLV. It has been accepted for inclusion in UNLV Theses, Dissertations, Professional Papers, and Capstones by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.

THE RELATIONSHIP BETWEEN CLINICAL TEACHING MODELS AND PERCEIVED
CLINICAL SELF-EFFICACY AND ATTITUDE TOWARD TEAM PROCESS

By

Christina Helene Plemmons

Bachelor of Arts in International Business
Gonzaga University
1985

Bachelor of Science in Nursing
South Dakota State University
2002

Master of Science in Nursing Education
South Dakota State University
2008

A dissertation submitted in partial fulfillment
of the requirements for the

Doctor of Philosophy – Nursing

School of Nursing
Division of Health Sciences
The Graduate College

University of Nevada, Las Vegas
May, 2016

Copyright by Christina Helene Plemmons 2016

All Rights Reserved

Dissertation Approval

The Graduate College
The University of Nevada, Las Vegas

March 29, 2016

This dissertation prepared by

Christina Helene Plemmons

entitled

The Relationship between Clinical Teaching Models and Perceived Clinical Self-Efficacy
and Attitude Toward Team Process

is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy -Nursing
School of Nursing

Michele Clark, Ph.D.
Examination Committee Chair

Kathryn Hausbeck Korgan, Ph.D.
Graduate College Interim Dean

Nancy Menzel, Ph.D.
Examination Committee Member

Carolyn Yucha, Ph.D.
Examination Committee Member

Sheniz Moonie, Ph.D.
Graduate College Faculty Representative

Abstract

Nurse educators are called to transform the education of nursing students, a process that is paramount to meet the needs of an increasingly complex health care system. The complexity of health care requires graduate nurses who are self-efficacious, yet also function well as full members of a health care team. In response to this call, clinical instruction, an essential component of nursing education, is receiving increased attention. Clinical education is vital, not only to the development of clinical self-efficacy, but also to the integration of future nurses into a health care team. To further this education process, faculty members from academic institutions are forming clinical partnerships with clinical agencies to promote learning in the clinical setting. The dedicated education unit (DEU) clinical teaching model is emerging as an innovative clinical partnership, which promotes skill development, professional growth, clinical self-efficacy, and integration as a team member. In addition, clinical partnerships are forming which utilize some, but not all, of the features of the dedicated education unit clinical teaching model. These blended clinical teaching models are also promoting both clinical self-efficacy and integration as a team member for nursing students.

This quasi-experimental study explored the relationship between three clinical teaching models (DEU, traditional, blended) and perceived clinical self-efficacy and attitude toward team process. The convenience sample of 272 entry-level baccalaureate nursing students included 122 students participating in a traditional clinical teaching model control group, 84 students participating in a DEU clinical teaching model treatment group, and 66 students participating in a blended clinical teaching model treatment group. The first dependent variable, perceived clinical self-efficacy, was evaluated by the pretest/posttest scores obtained on the General Self-Efficacy (GSE) scale. The second dependent variable, attitude toward team process, was

evaluated by the pretest/posttest scores obtained on the TeamSTEPPS® Teamwork Attitude Questionnaire.

All three clinical teaching models resulted in significant increases in perceived clinical self-efficacy ($p = .04$) and attitude toward team process ($p = .003$). Students participating in the DEU clinical teaching model ($p = .016$) and students participating in the blended clinical teaching model ($p < .001$) had significantly larger increases in perceived clinical self-efficacy compared to students participating in the traditional clinical teaching model. These findings support the use of DEU and blended clinical partnerships as alternatives to the traditional clinical teaching model to promote both clinical self-efficacy and team process among entry-level baccalaureate nursing students.

Acknowledgements

A dissertation is often described as a personal, intellectual journey. It is, however, never described as a solo endeavor. Hence, I would like to express heartfelt appreciation to the following:

To Dr. Michele Clark, my committee chair, for endless guidance and support. Her well-timed, Socratic questioning helped me discover solutions just beyond my vision.

To Dr. Carolyn Yucha, Dr. Sheniz Moonie, Dr. Tish Smyer (posthumously), and Dr. Nancy Menzel, my committee members, for guidance and advice. Dr. Yucha's encouragement and attention to detail kept me optimistic and grounded. Dr. Moonie took time to ensure that I was presenting my research results in a scholarly manner. Dr. Smyer enthusiastically encouraged me to examine the Dedicated Education Unit from a novel perspective. Dr. Menzel was gracious in her willingness to join my committee in the final phase of my dissertation journey.

To Dr. Du Feng, for guidance and assurance as I ventured into the realm of statistical analysis.

To the University of Nevada, Las Vegas, School of Nursing faculty team for embracing the vision of an online Doctor of Philosophy in Nursing Education program, for financially supporting my education through Nurse Faculty Loan Program funds, and for providing a sterling education that prepared me to conduct original research.

Table of Contents

Abstract.....	iii
Acknowledgements.....	v
Table of Contents.....	vi
List of Tables.....	ix
List of Figures.....	xi
Chapter 1: Introduction.....	1
Introduction.....	1
Background and Significance of the Study.....	2
Statement of the Problem.....	3
Purpose.....	4
Variables.....	4
Definition of Terms.....	5
Research Questions.....	7
Chapter 2: Review of the Literature.....	9
Introduction.....	9
Clinical Teaching Models.....	9
Self-Efficacy.....	16
Team Process.....	18
Summary.....	19
Chapter 3: Conceptual Framework.....	21
Introduction.....	21
Conceptual Framework.....	21

Perceived Self-Efficacy	22
Team Process	24
Model.....	25
Summary.....	26
Chapter 4: Methodology	27
Introduction.....	27
Research Design	27
Research Questions.....	29
Sample	30
Instruments Used in the Study.....	31
Data Collection Procedure	33
Data Management Procedures	35
Statistical Analysis Methods.....	36
Ethical Considerations	42
Summary.....	42
Chapter 5: Findings of the Study	43
Introduction.....	43
Descriptive Statistics	43
Variables	53
Reliability of the Instruments	55
Findings of the Research Questions	55
Summary.....	65
Chapter 6: Summary, Discussion, and Recommendations	66

Introduction.....	66
Summary of the Research Study.....	66
Discussion of the Findings.....	69
Study Limitations.....	91
Implications for Nursing Education.....	93
Recommendations for Future Research.....	93
Summary.....	94
Appendix A: Survey	96
Appendix B: Permission for General Self-Efficacy Scale.....	106
Appendix C: Permission for TeamSTEPPS® T-TAQ.....	107
Appendix D: Frequency of Responses for the GSE Scale Pretest.....	109
Appendix E: Frequency of Responses for the GSE Scale Posttest.....	110
Appendix F: Frequency of Responses for the T-TAQ Pretest.....	111
Appendix G: Frequency of Responses for the T-TAQ Posttest.....	115
References.....	119
Curriculum Vitae	129

List of Tables

Table 1. Clinical Teaching Model Distinguishing Features	11
Table 2. Frequencies of Sample Demographic Characteristics	45
Table 3. Relationship Between Demographic Characteristics and Perceived Clinical Self-Efficacy	46
Table 4. Relationship Between Demographic Characteristics and Attitude Toward Team Process	47
Table 5. Descriptive Statistics of Perceived Clinical Self-Efficacy Sample Means.....	54
Table 6. Descriptive Statistics of Attitude Toward Team Process Sample Means.....	55
Table 7. Analysis of Covariance Omnibus Results	56
Table 8. Descriptive Statistics of Perceived Clinical Self-Efficacy (Pretest, Posttest) by Group .	58
Table 9. Descriptive Statistics of Gain in Perceived Clinical Self-Efficacy by Clinical Teaching Model	59
Table 10. Descriptive Statistics of Gain in Perceived Clinical Self-Efficacy by Marital Status	60
Table 11. Analysis of Variance Omnibus Results	61
Table 12. Descriptive Statistics of Attitude Toward Team Process (Pretest, Posttest) by Group .	62
Table 13. Descriptive Statistics of Gain in Attitude Toward Team Process by Clinical Teaching Model	64
Table 14. Descriptive Statistics of Gain in Attitude Toward Team Process by Race/Ethnicity.	64
Table 15. Descriptive Statistics of Team Structure Scores (Pretest, Posttest) by Group.....	77

Table 16. Descriptive Statistics of Gain in Team Structure Scores by Clinical Teaching Model .	78
Table 17. Descriptive Statistics of Leadership Scores (Pretest, Posttest) by Group.....	80
Table 18. Descriptive Statistics of Gain in Leadership Scores by Clinical Teaching Model.....	81
Table 19. Descriptive Statistics of Situation Monitoring Scores (Pretest, Posttest) by Group...	83
Table 20. Descriptive Statistics of Gain in Situation Monitoring Scores by Clinical Teaching Model	84
Table 21. Descriptive Statistics of Mutual Support Scores (Pretest, Posttest) by Group	86
Table 22. Descriptive Statistics of Change in Mutual Support Scores by Clinical Teaching Model	87
Table 23. Descriptive Statistics of Communication Scores (Pretest, Posttest) by Group.....	89
Table 24. Descriptive Statistics of Change in Communication Scores by Clinical Teaching Model	90

List of Figures

Figure 1. Relationship between clinical self-efficacy, team process, and clinical teaching model.	26
Figure 2. Correlation between age and perceived clinical self-efficacy at Pretest.	48
Figure 3. Correlation between age and perceived clinical self-efficacy at Posttest.....	49
Figure 4. Perceived clinical self-efficacy means by group and time.	57
Figure 5. Attitude toward team process means by group and time.....	62
Figure 6. Team structure means by group and time.....	77
Figure 7. Leadership means by group and time.....	80
Figure 8. Situation monitoring means by group and time.	83
Figure 9. Mutual support means by group and time.	86
Figure 10. Communication means by group and time.....	89

Chapter 1

Introduction

The increasing complexity of health care is stirring intensive interest in the education and preparation of professional registered nurses (American Association of Colleges of Nursing, 2008; Benner, Sutphen, Leonard, & Day, 2010; Finkelman & Kenner, 2008; Institute of Medicine, 2011). Since clinical instruction is central to the education and preparation of the registered nurse, one aspect of nursing education that is receiving considerable attention is clinical instruction (Benner et al., 2010; Tanner, 2010). However, the increasing complexity of delivering health care has made selection of clinical sites for nursing students a challenge. To meet these challenges and instruct students in the clinical setting, faculty members from academic institutions have used a number of clinical teaching models. Two models that are relevant to this study are the traditional model and the dedicated education unit (DEU) model. A third clinical model relevant to this study is a hybrid clinical teaching model that combines features from both the traditional model and the DEU model.

In the traditional clinical teaching model, nursing students provide direct patient care under the supervision of a nursing instructor. The instructor and students are regarded as guests, and the nursing staff is careful to avoid interfering with the educational process (O'Connor, 2006). In the DEU clinical model, nursing students provide direct patient care under the supervision of nursing staff. In addition, the faculty from the academic institution have educated and trained the nursing staff so that they are prepared for their supervisory roles. Unlike the traditional model, the nursing staff members participate in the education process, and the students are regarded as welcomed guests who are encouraged to function as members of the

health care team (Edgecombe, Wotton, Gonda, & Mason, 1999). The blended clinical teaching model, alternatively, incorporates elements of both the traditional and DEU models.

Given the challenges inherent in educating and preparing professional registered nurses, it is vital for nursing faculty to utilize clinical settings and clinical teaching models known to promote both skill development and integration into a health care team for nursing students. There are, however, few studies comparing clinical teaching models. This study compares two clinical teaching models (DEU, blended) to a traditional teaching model.

Background and Significance of the Study

The Institute of Medicine (2010) recommends the formation of clinical partnerships to expand clinical instruction opportunities. The DEU clinical teaching model is showing promise as one such innovative clinical partnership. The DEU clinical teaching model is lauded for enhancing nursing student clinical self-efficacy, an important precursor to clinical competence, and promoting teamwork, an important precursor to safe patient care (Edgecombe et al., 1999; Institute of Medicine, 2011; Lundberg, 2008).

Self-efficacy, also referred to as “confidence” or “self-confidence,” is critical to competent nursing student clinical practice (Perry, 2011; White, 2009). Perceptions of self-efficacy and competence are correlated in nursing practice (Lundberg, 2008). Competence requires not only a requisite skill set but also efficacy beliefs to use the skill set successfully. Students with low self-efficacy are reluctant to take action or use the skill set. In contrast, students with high self-efficacy are willing to use the skill set even in challenging situations (Bandura, 1997). Nursing student self-efficacy, therefore, is valuable to the acquisition, practice, and mastery of clinical skills (Lundberg, 2008; Zulkosky, 2009).

Health care is predominantly provided by teams of people (Kohn, Corrigan, & Donaldson, 2000). According to the Institute of Medicine, patient safety is enhanced when health care teams communicate and function effectively (Kohn et al., 2000). To support effective team functioning, the Institute of Medicine recommends the implementation of team training programs to provide opportunities for health care team members to learn alongside each other (Kohn et al., 2000). The DEU clinical teaching model provides opportunities for nursing students and nursing staff to develop trust and cultivate collegial relationships. Both students and staff report the trusting relationship allows nursing students to function as members of the health care team (Gonda, Wotton, Edgecombe, & Mason, 1999). In addition, blended clinical teaching models support a sense of belonging among nursing students, which may positively influence team process (Didion, Kozy, Koffel, & Oneail, 2013; Hegge et al., 2009; Jeffries et al., 2013).

Statement of the Problem

Since the time of Florence Nightingale, clinical education has been pivotal to the development of nursing students. Clinical experiences provide opportunities for nursing students to apply classroom knowledge to direct patient care, practice therapeutic communication, refine technical skills, practice caring behaviors, explore ethical issues, and experience nursing roles (O'Connor, 2006). The new health care arena, however, demands new skills. Two skills that are critical for safe patient care are clinical self-efficacy and the ability to function as a member of a health care team.

The quality of clinical learning experiences and opportunities, which are paramount in developing these new skills, vary by program, teaching model, and setting (Benner et al., 2010). Though all three clinical teaching models (DEU, traditional, blended) focus on improving self-efficacy and introducing students to working in teams, the DEU is emerging as a novel and

effective clinical teaching model suitable for multiple care settings (Moscato, Nishioka, & Coe, 2013). The DEU has shown promise in oncology acute care (Dean et al., 2013), adult medical-surgical acute care (Delunas & Rooda, 2009), veterans' medical acute care (Freundl et al., 2012), and long term care (LTC) (Mullenbach & Burggraf, 2012; O'Lynn, 2013). Preliminary evaluations of blended models also show promise (Didion et al., 2013; Jeffries et al., 2013; Teel, MacIntyre, Murray, & Rock, 2011). While there is anecdotal evidence indicating an increase in nursing student clinical self-efficacy related to skill practice in the DEU clinical model and students' integration into the interprofessional team related to the welcoming environment of the DEU and blended teaching models, there are no studies that measure or compare nursing student clinical self-efficacy and integration as a team member over time and across clinical teaching models.

Purpose

With the increasing complexity of health care, nursing student clinical experiences are critical to skill development, professional growth, clinical self-efficacy, and integration as a team member. Since there are no comparative studies to evaluate the influence of clinical teaching models (DEU, traditional, blended) on nursing student skill development, it is vital to identify which model is most efficacious. Therefore, this study explores how each of three clinical teaching models (DEU, traditional, blended) affects clinical self-efficacy and attitude toward team process.

Variables

The dependent variables in the study are perceived clinical self-efficacy and attitude toward team process. The independent variables in this study are three clinical teaching models (DEU, traditional, blended).

Definition of Terms

The following terms are conceptually defined for use in this study:

Perceived self-efficacy “is a judgment of one’s ability to organize and execute given types of performances” (Bandura, 1997, p. 21). Clinical self-efficacy pertains to a nursing student’s beliefs regarding personal mastery of newly learned skills.

Attitude toward team process is the student’s beliefs regarding the cognitive, verbal, and behavioral activity that occurs when individuals are working together (i.e., team structure, leadership, situation monitoring, mutual support, and communication) (Guimond, Sole, & Salos, 2009).

A *nursing program* is a baccalaureate degree course of study offered by a Commission on Collegiate Nursing Education (CCNE) accredited college or school of nursing in the United States (U.S.).

A *nursing student* is a person who is enrolled in the second term of a CCNE accredited, entry-level baccalaureate nursing program.

Clinical is a teaching/learning environment wherein nursing students “work directly with patients and the health care team” to provide necessary patient care (Benner et al., 2010, p. 12). For the purposes of this study, clinical was limited to medical/surgical acute care hospital units. Medical/surgical acute care settings provide opportunities for nursing students to demonstrate nursing content, including caring behaviors and the practice of cognitive, psychomotor, and communication skills (Stokes & Kost, 2009).

A *clinical instructor* is an experienced registered nurse with a master’s degree who is a nurse educator performing any of the following duties: staff nurse instruction, student instruction, student supervision, and liaison communication between the clinical unit and the

nursing program. Clinical instructors have a role in two of the clinical models of interest. On the DEU, the clinical instructor supports the clinical dedicated instructors who directly supervise the students. In the traditional model, the clinical instructor provides instruction and direct supervision to nursing students.

A *clinical coordinator* is an experienced registered nurse with a master's degree who is a nurse educator who provides support for both onsite staff nurse and students, as well as liaison communication between the clinical unit and the nursing program.

A *clinical dedicated instructor (CDI)* is an experienced baccalaureate prepared staff nurse who directly supervises nursing students during clinical learning on a DEU. To prepare for this role, a clinical dedicated instructor receives instruction on nursing program curriculum and student supervision methods from nursing program faculty.

A *clinical teaching assistant (CTA)* is an adjunct faculty who is an experienced nurse with a baccalaureate or master's degree who provides instruction and direct supervision during traditional or blended clinical experiences as a part time employee of the nursing program.

In a *traditional clinical teaching model*, each clinical instructor or clinical teaching assistant (CTA) supervises eight nursing students during clinical. Nursing staff do not participate in supervision of nursing students. However, nursing students interact with the nursing staff to varying degrees from shift to shift.

In the *blended clinical teaching model*, similar to the DEU clinical teaching model, a single nursing program utilizes a hospital unit for clinical. Similar to the traditional clinical teaching model, each clinical instructor or CTA supervises eight nursing students during clinical. Nursing staff participate in supervision of one or two nursing students as time and patient acuity allow. Unlike the DEU, however, nursing students work with different staff registered nurses

from shift to shift, and the clinical instructor or CTA retains responsibility for oversight and evaluation. A clinical coordinator is available during the clinical shift to assist the clinical instructor or CTA and nursing staff.

Dedicated education units (DEU) “are existing health care units that are further developed through strategic collaboration between nurse-clinicians and academics. They are designed to provide an optimal clinical learning environment for nursing students by utilizing well proven teaching learning strategies and drawing on the expertise of both clinicians and academics” (Edgecombe et al., 1999, p. 166). In the DEU clinical teaching model, each clinical dedicated instructor (CDI) directly supervises two nursing students during clinical. The two nursing students work with the same CDI throughout the DEU clinical experience. CDIs are assigned fewer patients than non-CDIs when supervising students. Additionally, a nursing program clinical instructor is onsite and available to assist the CDIs during the entire clinical.

Research Questions

The following research questions were used to guide the conduct of this study:

1. Do significant differences exist in self-report perceived clinical self-efficacy after participation in a clinical experience compared to baseline?
2. Do significant differences exist in self-report perceived clinical self-efficacy after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline?
3. Do significant differences exist in self-report attitude toward team process after participation in a clinical experience compared to baseline?

4. Do significant differences exist in self-report attitude toward team process after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline?

Chapter 2

Review of the Literature

The purpose of the review of literature is to present studies relevant to the research questions of this study. This chapter begins with a discussion of clinical teaching models (DEU, traditional, blended). Following is a discussion of literature which examines team process and self-efficacy outcomes in the DEU, traditional, and blended clinical teaching model settings.

Clinical Teaching Models

Faculty in nursing education have used many classroom strategies and clinical settings for the transfer of knowledge, moving from the bedside of the 19th century soldier to the classroom of the 20th century. As hospital-based nursing education transitioned to the higher education arena in the 1950s, instruction in the clinical setting continued to support nursing student education (Benner et al., 2010; O'Connor, 2006; Stokes & Kost, 2009). The physical separation of academic and clinical learning, however, produced inconsistent and incongruent expectations for students, educators, and clinical staff. For example, nursing students and educators are regarded as visitors in clinical settings, while clinical staff are unfamiliar with changing nursing curricula (Benner et al., 2010; Levett-Jones, Lathlean, Higgins, & McMillan, 2009). An absence of collaborative understanding among nursing educators and clinical agency staff results in students' inability to integrate classroom knowledge and clinical experiences. In addition, graduates often lack confidence in their preparation for clinical practice and ability to function as a member of the health care team (Benner et al., 2010; Wotton & Gonda, 2004).

The structure, benefits, and challenges of the traditional clinical model are known and documented (Benner et al., 2010; O'Connor, 2006). However, as an alternative to the traditional clinical teaching model, some nurse educators and clinical agency representatives are

collaborating to establish clinical partnerships. One such partnership is the DEU clinical teaching model. Another popular alternative to the traditional clinical teaching model is a clinical partnership model that includes some, but not all, of the features of a DEU. These blended clinical models, known by a variety of names, are also mentioned in the literature as effective clinical teaching models (Budgen & Gamroth, 2008; Delunas & Rooda, 2009; Didion et al., 2013; Finkelman & Kenner, 2008; Hegge et al., 2009; Jeffries et al., 2013; Teel et al., 2011). As previously noted, this type of clinical teaching model is referred to as the blended clinical teaching model for the purposes of this study. Refer to Table 1 for a comparative illustration of the distinguishing features of the DEU, traditional, and blended clinical teaching models of interest to this study.

DEU. The DEU clinical teaching model was developed in the late 1990s by an Australian school of nursing as the result of institutional collaboration and a mutual commitment to the student learning experience (Edgecombe et al., 1999). The foundational philosophy of the DEU is “to develop sound relationships between clinicians and academics, to respect and value their contributions toward establishing the optimal learning environment for nursing students, and to value those students’ opinions about the environment’s quality” (Edgecombe & Bowden, 2009, p. 92). A hallmark of the DEU model is a health care agency’s dedication of one clinical unit to a single nursing program. In turn, the nursing program commits to providing support for agency nursing staff development and education (Moscato, Miller, Logsdon, Weinberg, & Chorpenning, 2007). Initial nursing staff education is designed to support the staff RN in the new role of clinician instructor and may include an introduction to the DEU clinical teaching model, student learning outcomes, evidence-based teaching strategies, and education resources available to the clinician instructors (Moscato et al., 2013).

Table 1

Clinical Teaching Model Distinguishing Features

Feature	DEU	Traditional	Blended
Clinical unit is dedicated to a single nursing program	Yes	No	Yes
Nursing program commits to teaching staff nurses	Yes	No	Varies
Staff nurses commit to sharing in teaching	Yes	No	Yes
Students paired with baccalaureate prepared RN with three year minimum experience	Yes	N/A	No
Students paired with staff nurses (RN ratio: student)	Yes (1:2)	No	Yes (1:1 Or 2)
Students work with the same staff nurse each clinical shift	Yes	No	No
Staff nurse patient load reduced when students on unit	Yes	No	No
Staff nurses participate in student evaluation	Yes	No	No
Students may be assigned to care for two patients	Yes	No	No
A single unit is used for all term 2 student clinical experiences	No	No	Yes
Students require faculty presence for clinical skills	No	Yes	No

U.S. nursing programs have developed the DEU clinical teaching model in many health care settings, including emergency, home care, hospice, intensive care, LTC, maternity, mental health, neurology, oncology, pediatrics, and school-based settings (Moscatto et al., 2013). During a DEU clinical rotation, two nursing students are assigned to work with a single staff RN clinician who is identified as a clinical expert. This close working relationship promotes one-on-one instruction, increases opportunities for nursing skill practice, supports collegiality, and

embraces students as members of the health care team (Moscato et al., 2013; Nishioka, Coe, Hanita, & Moscato, 2014).

DEU partnerships are recognized for increasing student clinical self-efficacy (Harmer, Huffman, & Johnson, 2011; Harmon, 2013; Ranse & Grealish, 2007), as well as promoting student participation in the working health care team (Glazer, Erickson, Mylott, Mulready-Shick, & Banister, 2011; Grealish, Bail, & Ranse, 2010; McKown, McKeon, & Webb, 2011; Ryan, Shabo, & Tatum, 2011). Students on the DEU identify with the nursing profession (Budgen & Gamroth, 2008; Glazer et al., 2011) and report improved student-staff relationships. In addition, the DEU clinical teaching model increases unit capacity for students and promotes nurse, student, and faculty satisfaction (Moscato et al., 2007; Nishioka et al., 2013). Nurse educators and health care agency administrators value the increased student capacity of the DEU (Bentin, Betony, Moore, & Yarwood, 2013; Miller 2005; O'Lynn, 2013) and superior learning opportunities available to students (Beal et al., 2011).

Budgen and Gamroth (2008), however, identified increased student workload as a drawback of the DEU clinical teaching model. Students on the DEU struggle to balance the expectations of nursing instructors and unit nursing staff (Budgen & Gamroth, 2008). Additionally, Dapremont and Lee (2013) identified increased nursing staff workload as a drawback of the DEU clinical teaching model. Nursing staff reported dissatisfaction with the time required to grade weekly student assignments, and delays in grading subsequently resulted in student dissatisfaction (Dapremont & Lee, 2013).

Despite the challenges of the DEU, and encouraged by the successes and the recommendation of the Institute of Medicine (2011) to transform nursing education, U.S. nursing programs and health care agencies are establishing collaborative agreements to develop clinical

DEUs based on the Australian model (Glazer et al., 2011; Parker & Smith, 2012; Warner & Burton, 2009).

Traditional. The traditional clinical teaching model consists of a faculty-supervised clinical practicum. This is the most common clinical teaching model in nursing education and is generally used in all but the final semester in most nursing programs. In the final semester, most students participate in a preceptorship model (Benner et al., 2010; Budgen & Gamroth, 2008). O'Connor (2006) stresses that the clinical instructor "remains a guest in the facility and must remain aware of that fact" (p. 28). Traditional clinical instructors regularly supervise groups of eight to ten student nurses in a single clinical setting (O'Connor, 2006). According to O'Connor, clinical instructors in the traditional model are responsible for student learning, assignment of patients to students for care, and for the safe care of these assigned patients. O'Connor describes these responsibilities as potentially "overwhelming" (p. 67).

It is common for nursing students to rotate through a variety of clinical settings, clinical units, and health care facilities during their educational experience (Benner et al., 2010). During each clinical rotation, students are assigned to patients. This results in students working with different nurses throughout the rotation. Benner et al. (2010) note this type of clinical site rotation can be anxiety provoking for students. Students report anxiety in the traditional clinical teaching model in response to frequent setting changes, inconsistent staff expectations, shifting unit cultures, and variable equipment and technology. Anxiety in the clinical setting is a barrier to learning, clinical self-efficacy, and participation in team behaviors.

Blended. In an analysis of clinical teaching models, Budgen and Gamroth (2008) use the term *blended* to describe the practice of combining features of different clinical teaching models to meet specific organizational needs. Budgen and Gamroth describe a collaborative learning

unit (CLU) as a blend of traditional and DEU clinical teaching models. In the CLU model, students remain on a single nursing unit for a two to three month practicum. Similar to the DEU clinical teaching model, the unit nursing staff commits to sharing in the responsibility for student learning. During this time, students self-select patient assignments and work with nursing staff. Though students work with different members of the nursing staff throughout the practicum, they remain with the same nurse during the nurse's shift. A nursing program faculty member visits the unit periodically to evaluate students, address student needs, and respond to nursing staff concerns (Budgen & Gamroth, 2008).

In the educational resource unit model, described by Didion et al. (2013), students remain on a single nursing unit for two consecutive semesters and work with a variety of staff nurses. Similar to the DEU clinical teaching model, the unit nursing staff commits to supporting the education of nursing students and developing a mentor relationship with the nursing students. Clinical instructors, however, maintain a teaching role and are responsible for educational outcomes (Didion et al., 2013).

To meet the challenge of a faculty shortage, a partnership model utilizes jointly appointed nursing staff as clinical instructors. Each clinical instructor works directly with a clinical group of eight to 10 nursing students, while a full-time faculty member provides on-site oversight for two clinical groups (Delunas & Rooda, 2009). The result is three clinical instructors on-site, two of whom are paid by the hospital employer and one of whom is paid by the university. The partnership model is similar to a traditional clinical teaching model in all other ways; it is not limited to a single unit, nor is there a unit commitment to increased involvement or education by the nursing staff (Delunas & Rooda, 2009).

Hegge et al. (2009) describe a clinical academic partner (CAP) teaching-learning model. In the CAP model, staff nurses receive education to support them in the role of student supervisor. Each staff nurse CAP is assigned two students, who are, in turn, assigned up to two patients. Similar to the DEU clinical teaching model, the students provide patient care under the direct supervision of the CAP; they also work with the same CAP throughout the clinical experience. A clinical instructor is available on the unit, throughout the entire experience, to mentor the staff nurse in the CAP role and to support student learning. The implementation of the CAP model requires a commitment from unit management and the volunteer CAPs. This commitment, however, may or may not transcend to the entire unit staff (Hegge, 2009).

Based on the DEU clinical teaching model, the clinical academic practice partnership (CAPP) unit utilizes staff nurse preceptors to supervise nursing students and support nursing student learning (Jeffries et al., 2013). Each staff nurse preceptor is assigned two students, who are, in turn, responsible for patient care and report directly to the nurse preceptor. Similar to the DEU clinical teaching model, the entire unit commits to the goals of the CAPP unit, and the university provides curriculum workshops. Unlike the DEU clinical teaching model, a clinical instructor is available at all times, rounding throughout the CAPP unit to assist the preceptors (Jeffries et al., 2013).

Teel et al. (2011) describe two different clinical teaching models. In both models, clinical faculty perform periodic on-site visits to support the staff nurses in their teaching role of preceptor. The clinical collaborative (CC) program assigns students to a single clinical agency for most clinical rotations. Similar to the DEU clinical teaching model, nursing students work with the same staff nurse preceptor during each clinical unit rotation. As students change units, new preceptors are assigned. Staff nurse preceptors receive education in the instruction,

coaching, and evaluation of nursing students. The workforce increases in nurses and nursing faculty excellence in resource collaboration (WINNER) project uses multiple clinical sites, but assigns nursing students to the same nurse preceptor in each clinical unit rotation. Unlike the DEU clinical teaching model, the WINNER project is a metropolitan-wide system of precepted experiences that serves nursing students from 12 nursing programs and offers precepted experiences in 39 hospitals (Teel et al., 2011).

Many of the previous blended clinical teaching models include aspects of the DEU clinical model that meet specific organizational needs. These needs include clinical faculty shortages and enhanced clinical learning. The increased supervision and one-to-one learning in the blended clinical teaching models are conducive to increased opportunities for nursing skills practice, growth in clinical self-efficacy, and participation in team process. For the purposes of this study, the blended clinical teaching model includes the features as outlined previously in the definition of terms. Refer to Table 1 for a comparative illustration of the distinguishing features of the DEU, traditional, and blended clinical teaching models of interest in this study.

Self-Efficacy

According to O'Connor (2006), nursing students regard clinical learning as an opportunity to attain "confidence in their ability to become competent caregivers" (p. 69). Students also value opportunities for skill repetition as a means to achieve clinical confidence (O'Connor, 2006). The first reports of increased opportunity for students to perform procedures came from the original, single-unit Australian medical center DEU (Edgecombe et al., 1999). In a later study of 12 second-degree baccalaureate nursing students, during a 10-week clinical experience, McKown et al. (2011) found students spent less time waiting to perform skills and more time practicing assessments and learning safe nursing procedures.

Baccalaureate nursing students ($N = 24$) participating in a pilot pediatric DEU reported less time spent waiting to perform nursing procedures, increased opportunities for clinical procedures, and increased satisfaction as compared to the traditional clinical teaching model (Ryan et al., 2011). In a qualitative study of a DEU, Ranse and Grealish (2007) identified themes of acceptance, learning and reciprocity, and accountability in focus group discussions with 25 second and third year baccalaureate nursing students. In particular, as in previous studies, students reported increased confidence (Ranse & Grealish, 2007).

Mullenbach and Burggraf (2012) found student journal entries indicated increased opportunities to practice procedures, improved communication skills, advanced understanding of the LTC environment, and increased interest in LTC employment. A pretest/posttest survey of participating nursing students indicated improved student perception of ability to perform clinical skills, execute a history/assessment, and identify and write about a critical incident, all in the LTC setting (all significant at $p < .05$) (Mullenbach & Burggraf, 2012).

Harmer et al. (2011) found the DEU clinical teaching model conducive to baccalaureate nursing student clinical peer mentoring. In the DEU clinical setting, senior baccalaureate nursing students mentored sophomore baccalaureate nursing students. All nine of the novice (sophomore) students and 12 of the 14 mentor (senior) students reported an increased self-confidence related to their experience on the DEU.

In a rural setting, Harmon (2013) implemented a DEU to increase nursing student confidence and proficiency. After the first year of the rural DEU pilot, the four participating students reported increased autonomy, confidence, and nursing procedure proficiency. In addition, during skill competency evaluations, college faculty found the DEU students required

fewer prompts, appeared more confident, and answered more clinical reasoning questions than the non-DEU students (Harmon, 2013).

Across settings, nursing students report enhancement in a number of learning areas, including autonomy, understanding of population-specific care settings (community, rural, VA, LTC), interprofessional communication, employment opportunities, student-staff relationships, professional identity, overall clinical knowledge, and clinical skill practice (Mullenbach & Burggraf, 2012).

One-on-one instruction is a valued feature of the DEU clinical teaching model. In the previous studies, students on the DEU report experiencing less wait time and more opportunity for nursing procedures and nursing assessments. With these increased opportunities, nursing students report an increase in clinical self-efficacy.

Team Process

In the traditional clinical teaching model, nursing students are often regarded as guests or visitors (Budgen & Gamroth, 2008; Dean et al., 2013; Edgecombe et al., 1999; Wotton & Gonda, 2004). The DEU clinical teaching model, from its inception, promoted an environment of collegiality wherein students were allowed to participate as health care team members (Gonda et al., 1999). McKown et al. (2011) found the DEU clinical teaching model supportive of the Quality and Safety Education for Nurses (QSEN) teamwork and collaboration competency. Students reported multiple (177) interprofessional (physicians, nurses, social workers, physical therapists, case managers, clinical specialists, and speech therapists) exchanges during the clinical experience (McKown et al., 2011). Likewise, Mulready-Shick, Kafel, Banister, and Mylott (2009) found students participated in coordination of patient care and felt more responsible to the patient care team. Moscato et al. (2007) found that students believed they were

better equipped to work with physicians and interdisciplinary teams after participating in a medical-surgical DEU because students were treated as responsible members of the health care team. Students participating in acute care DEUs repeatedly cite “becoming part of the patient care team” as one of the benefits of their experience (Glazer et al., 2011, p. 405). Ryan et al. (2011) identified team membership as one theme of the pediatric DEU experience described by baccalaureate students.

After a DEU clinical teaching model was implemented in an aged care facility, nursing and care staff members ($N = 24$) observed the nursing students became part of the working team as their knowledge and ability grew over time (Grealish et al., 2010). Anecdotal reports from simulation faculty indicated improved communication and collaboration among junior nursing students who participated in an LTC DEU versus students who participated in a hospital DEU (O'Lynn, 2013). O'Lynn (2013) speculated that student exposure to the long-term care team model may have influenced student communication and collaboration. In a comparative study of baccalaureate nursing student perceptions ($N = 61$) of nurse-to-nurse collaboration by unit type (DEU, traditional), students rated nurse-to-nurse collaboration in the DEUs higher than in the traditional units ($p = .01$) (Moore & Nahigian, 2013).

In the previous studies, nursing students identify opportunities for interprofessional communication and collaboration as a valued feature of the DEU clinical teaching model. Students on the DEU report more actively participating in the coordination of care. These nursing students also report being members of the interprofessional care team.

Summary

Central to clinical education are the attributes of nursing student self-efficacy and interprofessional teamwork. In an effort to prepare nursing students to provide increasingly

complex care, nursing academe and health care agencies are implementing creative partnerships, such as the DEU clinical teaching model or blended clinical teaching models. The review of literature reveals a number of small studies and anecdotal reports indicating the DEU clinical teaching model promotes skill development, clinical self-efficacy, and team integration. Similarly, anecdotal reports indicate blended teaching models promote team integration, skill practice, and self-efficacy. While there are a few studies that compare two clinical models (Dapremont & Lee, 2013; Nishioka et al., 2014; Ryan et al., 2011; Walker et al., 2012), there are no studies that measure or compare nursing student clinical self-efficacy, skill development, and professional growth and integration as a team member over time and across clinical teaching models.

Chapter 3

Conceptual Framework

The purpose of this chapter is to explain the theoretical framework for this study. Albert Bandura's social learning theory is introduced, and the independent variables (self-efficacy, team process) and their suitability for study within the framework of social learning theory is explained. In conclusion, a model is presented to illustrate the relationship and variables of interest in this study.

Conceptual Framework

Albert Bandura's social learning theory provided the conceptual framework to guide this study. According to Bandura (1977), social learning encompasses a triadic interaction of persons (personal factors), behavior, and situations (external environment). The triadic interaction of social learning is apparent in nursing education as it occurs in the clinical setting. In the clinical setting, nursing students (a) become aware of personal strengths and refine professional behaviors (personal factors); (b) learn and practice basic nursing skills and apply theoretical nursing knowledge (behavior); and (c) respond to and influence the clinical environment through patient care (external environment) (Benner, 1984/2001).

Bandura (1977) further explains that learning and subsequent actions are regulated by thoughts, integrated feedback, observation, modeling, and self-regulatory processes. Nursing, as an applied discipline, uses the clinical setting to optimize integration of these cognitive, affective, and psychomotor regulators (Benner, 1984/2001). To complete this learning process, Bandura (1977) discusses the influential effects of the external environment over persons and behavior, and the resulting effect on the development of behaviors and personal factors. The clinical setting is noted for both promoting and inhibiting the development of nursing student

self-confidence (Chesser-Smyth & Long, 2013) and feelings of belongingness (Levett-Jones et al., 2009).

The clinical setting and variables of interest in this study are well suited for exploration within the social learning triad of persons, behavior, and environment. As previously discussed, the DEU clinical teaching model provides a learning environment conducive to nursing skill performance, interaction with professional nurse role models, and observation of and participation in team process. Both DEU and blended environments promote the personal factor of clinical self-efficacy and encourage the behavior of team process. The traditional model does not provide the same quantity or quality of opportunities for nursing skill performance, professional interaction, or team participation.

Perceived Self-Efficacy

Self-efficacy is an important concept of social learning theory. It pertains to personal judgment of capability and is described as “a belief about what one can do under different sets of conditions with whatever skills one possesses” (Bandura, 1997, p. 37). Belief in one’s capabilities influences choice of action, level of effort expended during the action, time devoted to the action, resiliency during the action, ability to cope with stressors related to the action, and feelings of achievement (Bandura, 1997). Therefore, the greater the efficacy beliefs, the greater the effort and persistence with the activity (Bandura, 1977). Bandura (1997) considers efficacy beliefs vital to the development of human competence. The correlation between perceived self-efficacy and competence is acknowledged in nursing education, and the clinical experience provided in nursing education is vital to the development of clinical self-efficacy (Lundberg, 2008; Perry, 2011; White, 2009).

Individuals use information from a variety of sources to fashion efficacy beliefs. However, successful performance of a skill provides the most genuine and influential information. Self-efficacy increases with each successful execution of a skill. High self-efficacy during skill acquisition promotes positive visualization, the mental process of *seeing* oneself perform a skill set successfully. Positive visualization, in turn, results in more skillful execution of a skill (Bandura, 1997). The clinical setting provides opportunities for nursing students to master clinical skills through repetition and visualization. With each successful insertion of an indwelling urinary catheter, for example, nursing students gain confidence with the skill and are more likely to visualize success during subsequent attempts; thus further promoting success. Students on a DEU experience increased opportunities for skill performance, repetition, and positive visualization (McKown et al., 2011; Ryan et al., 2011). Unlike students learning under the DEU model, students learning under the traditional clinical model experience fewer opportunities for skill performance and repetition, since they must wait for instructor supervision.

Modeling and vicarious experiences provide another source of influential information. Students who perceive their own abilities as superior to those of their classmates will experience an increase in perceived self-efficacy. Additionally, the experience of observing the successful performance of a skill by a health care professional can increase efficacy beliefs of the student observer. Finally, models who demonstrate perseverance when facing challenges in skill performance instill greater self-efficacy and perseverance in the observer (Bandura, 1997). The DEU clinical teaching model optimizes the vicarious experience and increases student exposure to the modeling behaviors of nursing staff (Gonda et al., 1999). Students learning under the traditional clinical model must wait to perform skills under the supervision of their instructor;

this minimizes both the time they might spend with nursing staff and the modeling exposure from the instructor or nursing staff.

Team Process

The concept of teamwork in health care is described as “a dynamic process involving two or more healthcare [*sic*] professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care” (Xyrichis & Ream, 2008, p. 232). Because of the complexity of health care, nursing students must develop competence in teamwork and collaboration in order to provide safe, high quality, comprehensive care (Institute of Medicine, 2010).

According to Bandura (1977), behavior, persons, and situations are interconnected determinants of each other in social learning. The clinical setting connects this triadic interaction by offering direct and vicarious team learning experiences by way of practice and observation in a professional (social) setting. The more students experience these structured direct and vicarious learning opportunities, the greater the increase in learning (Bandura, 1977). Structured social learning interactions, experienced in the clinical setting, allow students to perform team behaviors and to observe professional nursing staff performing team behaviors, and this promotes team process. Nursing students directly experience the positive effects of teamwork when teamwork results in positive patient outcomes. In addition, students vicariously experience the positive effects of teamwork when they observe the health care team working together to promote positive patient outcomes. The DEU clinical environment, in particular, provides nursing students with more frequent and more structured social learning interactions to support team process in the clinical setting.

Reciprocal communication, observation, and collaboration promote team process behaviors on the DEU (Freundl et al., 2012; Glazer et al., 2011; Gonda et al., 1999; McKown et al., 2011; Moscato et al., 2007; Murray, MacIntyre, & Teel, 2011; Ryan et al., 2011). The potentially friendly, warm, and welcoming environment of the DEU further promotes student feelings of being *part of the team*. Additionally, teamwork and collaboration on the DEU support nursing student confidence in professional communication, prioritization, and delegation – important aspects of team process (Mulready-Shick et al., 2009; Murray, Crain, Meyer, McDonough, & Schweiss, 2010). The traditional and blended clinical models do not provide the same opportunities for students to become *part of the team*. Unlike students learning under the DEU model, students learning under the traditional and blended clinical models might work with a variety of staff nurses throughout each clinical rotation. This lack of continuity in team dynamics hinders professional team building.

Model

Social learning theory provides a strong theoretical framework for this study. The social learning triad of persons, behavior, and environment is a good fit for the triadic interaction of clinical self-efficacy (personal factor), team process (behavior), and the clinical teaching model (environment). For the purposes of this study, a one-way interaction was explored. This relationship is described in Figure 1. According to Bandura (1977), an event in the social learning triad can be regarded as a response, a motivator, or a reinforcement. As indicated in this model, team process and self-efficacy are responses to the clinical teaching model.

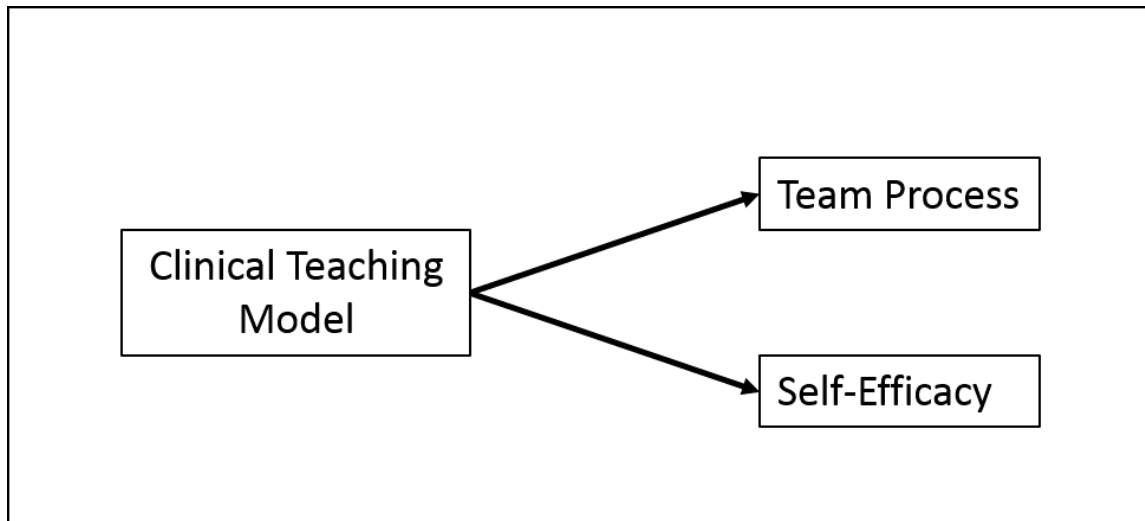


Figure 1. Relationship between clinical self-efficacy, team process, and clinical teaching model.

Summary

This chapter introduced Albert Bandura’s social learning theory as the framework for this study. Learning in the clinical setting reflects personal, behavioral, and situational interactions consistent with the triadic interactions of person, behavior, and environment as described by Bandura. Self-efficacy and participation in team process are desired outcomes of a clinical learning experience and are influenced by the interactions of persons, behavior, and the clinical environment. The clinical environment provides opportunities for skill performance, skill observation, direct and vicarious interaction with professional nurse role models, and direct and vicarious experience with members of the health care team. The chapter concluded with a model illustrating the expected influence of the clinical teaching model on clinical self-efficacy and team process within the framework of social learning theory.

Chapter 4

Methodology

This chapter begins with a description of the research design, research questions, sample, instruments, data collection procedures, data management procedures, and statistical analysis methods. This chapter concludes with a description of the ethical considerations associated with this study.

Research Design

A quasi-experimental design was used for this study. This design, which is commonly used in educational research, is fitting when it is impractical or impossible to randomly assign research participants to experimental and control groups. While such a design may lack strength of experimental random assignment, valuable information may still result from a well-designed quasi-experiment (Gall, Gall, & Borg, 2007).

Specifically, a nonequivalent control-group quasi-experimental design was utilized for this study. Distinguishing features of this design include, (a) nonrandom group assignment of study participants, (b) study of two or more groups, and (c) administration of a pretest and a posttest to all groups (Gall et al., 2007). Nonrandom group assignment was requisite in this study related to the complex nature of clinical scheduling. Nursing programs must consider scheduling constraints, student proximity to clinical sites, student preference, and group dynamics when forming clinical groups. This study used three comparison groups. Students attending a Midwestern state university participated in either a traditional or a blended clinical teaching model. Students attending a Southwestern state university participated in a DEU clinical teaching model. For this study, students participating in the traditional clinical teaching model were the control group. The two treatment groups were (a) students participating in the DEU clinical

teaching model and (b) students participating in the blended clinical teaching model. Data were collected from all three groups at two points in time using the same pretest and posttest survey.

Gall et al. (2007) emphasize internal validity of a nonequivalent control-group experiment is threatened by “the possibility that group differences on the posttest are due to preexisting group differences rather than a treatment effect” (p. 417). In an effort to minimize the effects of the nonequivalent groups, similar nursing programs were selected. Similarities between the nursing programs included state funded public research universities, entry-level baccalaureate nursing programs, CCNE accreditation, comparable National Council Licensure Examination (NCLEX)-RN pass rates, and similar class admission sizes. Demographic data and the pretest measurement of the two variables of interest, clinical self-efficacy and attitude toward team process, provided baseline data for group differences and subsequent analysis of homogeneity of variance. Internal validity is threatened by experimental mortality (Gall et al., 2007). However, experimental mortality was minimized in this study by including second term nursing students. The majority of nursing students (82%) who leave baccalaureate nursing education do so in the first semester of a nursing program (Peterson, 2009). In all, this study experienced a 3% mortality rate. Eight of the original 280 students were not available at time of posttest owing to either illness or withdrawal from the nursing program.

Additionally, Gall et al. (2007) discuss threats to the external validity of a pretest-posttest design related to interaction of the pretest and the treatment. Administration of a pretest may increase treatment effects. Pretest sensitization is also a threat to ecological validity and is more likely to occur in self-report measures of personality or attitude (Gall et al., 2007). To diminish threats to external and ecological validity, the exact same test was used for pretest and posttest testing of all three groups. The use of an alternate posttest will cast doubt on the analysis of an

intervention's effect. Any change in posttest results could be due to the change in testing format and not attributable to the intervention (Gall et al., 2007). To further diminish threats to validity, testing times were arranged, under advisement of course faculty, to avoid any stress or inconvenience to the students' schedules.

Research Questions

For the purpose of exploring the relationship between clinical teaching models (DEU, traditional, blended) and perceived clinical self-efficacy and attitude toward team process, four research questions and hypotheses were developed. These questions and hypotheses guided the conduct of this study:

Research question #1. Do significant differences exist in self-report perceived clinical self-efficacy after participation in a clinical experience compared to baseline?

Hypothesis #1. Students participating in a clinical experience will report an increase in perceived clinical self-efficacy at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.

Research question #2. Do significant differences exist in self-report perceived clinical self-efficacy after participation in a DEU or blended clinical teaching model versus participation in the traditional clinical teaching model compared to baseline?

Hypothesis #2. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in perceived clinical self-efficacy as compared to students participating in a traditional clinical teaching model.

Research question #3. Do significant differences exist in self-report attitude toward team process after participation in a clinical experience compared to baseline?

Hypothesis #3. Students participating in a clinical experience will report an increase in attitude toward team process at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.

Research question #4. Do significant differences exist in self-report attitude toward team process after participation in a DEU or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline?

Hypothesis #4. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward team process as compared to students participating in a traditional clinical teaching model.

Sample

The target population was nursing students enrolled in entry-level baccalaureate nursing programs in the United States. An accessible convenience sample of second term baccalaureate nursing students was recruited from two publicly funded, CCNE accredited, entry-level baccalaureate nursing programs. Inclusion criteria for nursing student participation in the study required (a) enrollment in the second term of an accredited, standard, entry-level baccalaureate nursing program and (b) participation in a clinical experience that used a DEU, traditional, or blended clinical teaching model. Exclusion criteria included (a) students who were licensed registered nurses, (b) students who were licensed vocational nurses, (c) students who were licensed practical nurses, or (d) students who were repeating the second term. All eligible second term nursing students were invited to participate in the study.

The Midwestern state university nursing program offers two clinical teaching models to second semester nursing students (traditional, blended). The traditional clinical teaching model has a maximum capacity of 64 students per term, and the blended clinical teaching model has a

maximum capacity 48 students per term. The Southwestern state university nursing program offers one clinical teaching model to second trimester nursing students (DEU). The DEU clinical teaching model has a maximum capacity of 48 students per term.

Data were collected over consecutive terms to achieve sample sizes greater than 50 for each clinical teaching model. For two-group comparisons, a minimum sample size of 50 was desired for each clinical teaching model group given an anticipated medium effect size ($d = .25$) and alpha of .10. By selecting an alpha of .10, the risk of making a Type II error was reduced (Hinkle, Wiersma, & Jurs, 2003). A Type II error, in this study, would result in the rejection of a clinical teaching model that improves nursing student perceived clinical self-efficacy and/or attitude toward team process. After accounting for attrition and exclusion criteria, this study had a sample size of 272 nursing students. The convenience sample of nursing students consisted of 84 students participating in the DEU clinical teaching model, 122 students participating in the traditional clinical teaching model, and 66 students participating in the blended clinical teaching model.

Instruments Used in the Study

The survey was a single-sided, multi-page document. The three areas of interest are described below. Refer to Appendix A for the survey.

Perceived clinical self-efficacy. Perceived clinical self-efficacy is a student's belief in his/her own ability to perform the expected tasks in the clinical setting. Perceived clinical self-efficacy is operationally defined as the scores obtained on the General Self-Efficacy (GSE) scale. The GSE scale was developed by Schwarzer and Jerusalem (1995) and is a general measure of self-efficacy. According to the developers, the scale is a general measure of self-efficacy that may be modified for specific behaviors with the addition of specific content references.

The original version of the GSE scale was developed in German by Jerusalem and Schwarzer. An English version of the scale was developed in 1995 (Schwarzer, 2012). The 10-item, self-report GSE scale uses a 4-point Likert-scale ranging from 1 (*not true at all*) to 4 (*exactly true*) with a score range of 10 to 40. High scores signify higher self-confidence. DeVellis (2012) notes that Likert scaling is well suited for the measurement of beliefs and attitudes.

Psychometric testing of the GSE scale demonstrates reliability across cultures and sample populations (Schwarzer, 2012; Leganger, Kraft, & Roysamb, 2000; Luszczynska, Scholz, & Schwarzer, 2005). Leganger et al. (2000) found the GSE reliable in a study of 1,576 18-year-olds (Cronbach's alpha = .88; Guttman split half reliability coefficient = .83; test-retest Pearson's $r = .82$). A validation study of 1,933 participants from Germany, Poland, and South Korea, resulted in Cronbach's alpha values ranging from .86 to .90 (Luszczynska et al., 2005).

The GSE scale has been used in studies of undergraduate college education (McCoy, 2010; Yusoff, 2012) and undergraduate nursing education (Kameg, Howard, Clochesy, Mitchell, & Suresky, 2010; Kwok, Lam, & Ho, 2011; Lauder et al., 2008). For example, Kameg et al. (2010) found the GSE scale reliable in a study of pre-licensure nursing student communication self-efficacy (Cronbach's alpha = .85). Likewise, McCoy (2010) found the GSE scale reliable in a study of the relationship between self-efficacy and technological proficiency in undergraduate college students (Cronbach's alpha = .88). This researcher assessed the reliability of the GSE using this study's data. Details are provided in Chapter 5. Refer to Appendix B for author permission to use and modify the GSE scale.

Attitude toward team process. Attitude toward team process is operationally defined as the scores obtained on the TeamSTEPPS® Teamwork Attitudes Questionnaire (T-TAQ). The T-

TAQ was developed to measure “individual attitudes toward team structure, leadership, mutual support, situation monitoring and communication” (Agency for Healthcare Research and Quality, 2014d). The 30-item, self-report T-TAQ uses a 5-point Likert-scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) with a score range of 30 to 150. The five teamwork constructs (team structure, leadership, mutual support, situation monitoring, and communication) may be scored individually or as an average teamwork score. According to the Agency for Healthcare Research and Quality (AHRQ) (2014d), the scale may be used independent of TeamSTEPPS® training to assess teamwork attitudes. However, the scale may not be modified. Cronbach’s alpha values ranged from .70 to .83 in a sample of 449 health care workers, 91.7% of whom delivered direct patient care. This researcher assessed the reliability of the T –TAQ using this study’s data. Details are provided in Chapter 5. The instrument is freely available for use in research studies. Refer to Appendix C for permission to use the T-TAQ.

Demographic data. An 18-item demographic questionnaire assessed sample characteristics. The questions pertained to age, gender, marital status, parental status, ethnicity, race, licensure status, employment status, health care experience, team experience, nursing program, and college experience.

Data Collection Procedure

Approval for this study was obtained from the Institutional Review Board (IRB) of the two participating nursing programs. Additionally, permission was obtained from nursing program administrators via email or telephone communication. Course instructors and/or course coordinators were contacted via email and telephone for permission to access second term nursing students and to identify minimally disruptive dates and times for survey administration at each campus site. Permission was also obtained to provide pizza and drink or cookie and drink,

per the study protocol. This researcher gained access to the eligible nursing students, prior to the first clinical day of the second term, to describe the research study purpose, procedure, and timeline. Students had the opportunity to ask questions and review and retain a copy of the informed consent letter. The posttest survey instrument was administered after the final scheduled day of second term clinical. Again, this researcher described the study purpose, procedure, and timeline. Students once more had the opportunity to ask questions and review and retain a copy of the informed consent letter. Due to the nature of convenience sampling, when attrition occurred, new participants were not recruited.

Data collection occurred between January and December 2015. This researcher accessed two cohorts of nursing students for each of the clinical teaching models of interest (DEU, traditional, blended). One cohort of nursing students, participating in the DEU clinical teaching model, was accessed in summer 2015, and a second DEU cohort was accessed in fall 2015. One cohort of nursing students participating in the traditional clinical teaching model was accessed in spring 2015, and a second traditional cohort was accessed in fall 2015. Similarly, one cohort of nursing students participating in the blended clinical teaching model was accessed in spring 2015, and a second blended cohort was accessed in fall 2015.

For each occurrence, the pretest survey instrument was administered prior to the first day of second term clinical, and the posttest survey instrument was administered after the final scheduled day of second term clinical. Testing occurred in a quiet classroom setting before, during, or after a regularly scheduled class period and was supervised by this researcher. During pretesting, participants received a survey document, a 3 x 5 card, and a blank envelope. Each survey document and 3 x 5 card pairing were pre-identified with a unique three-digit identification number. To avoid confusion, this researcher did not use any numbers which, after

being inverted, could appear as another new number. For example, when inverted, the number 108 appears to be the number 801. In addition, all numbers were underlined to assist with reading orientation. Students were instructed to print their full name on the outside of the envelope and place the 3 x 5 card, with unique identification number, inside the envelope. After students sealed the envelope, both the completed survey and envelope were collected by this researcher and securely stored.

During posttesting, after the final scheduled day of second term clinical, this researcher redistributed the envelopes (identified by student name) along with a new un-numbered posttest survey. Students were instructed to open their envelope and write the unique identification number on the first page of the posttest survey. Envelopes and 3 x 5 cards were collected and destroyed upon completion of the posttest surveys. The completed surveys were retained and securely stored.

Data Management Procedures

Survey responses were entered into IBM SPSS Statistics version 23 and securely stored in this researcher's locked office on a password protected computer. Data backup was secured using BOX®, a university network and password protected online data storage service. Data file destruction will occur in three years. For data entry, variable names were assigned to each survey question. Each unique three-digit identification number was entered as a nominal string variable. Non-numeric demographic data were assigned nominal values. Clinical teaching models (DEU, traditional, blended) were assigned nominal values and were also assigned a partition role. Partition variables partition or divide the data into separate samples. Pretest and posttest data were differentiated with a _1 suffix or _2 suffix, respectively. After all survey responses were entered, the data file was reviewed for accuracy by visually comparing original data to the

computerized data file and by reviewing descriptive statistics to confirm all values (i.e., frequencies, minimum values, maximum values) were within range. After accuracy of the data file was confirmed, items number 20, 21, 24, and 30 of the Pretest and Posttest T-TAQ were reverse coded. Next, Pretest and Posttest variables were computed and named. Finally, a combination of statistics was used to analyze missing data and detect outliers in the three related groups.

Statistical Analysis Methods

A mixed model analysis of covariance (MM ANCOVA) design was used to answer the research questions, (1) Do significant differences exist in self-report perceived clinical self-efficacy after participation in a clinical experience compared to baseline? and (2) Do significant differences exist in self-report perceived clinical self-efficacy after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline? A mixed model analysis of variance (MM ANOVA) design was used to answer the questions, (3) Do significant differences exist in self-report attitude toward team process after participation in a clinical experience compared to baseline? and (4) Do significant differences exist in self-report attitude toward team process after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline? Cronbach's alpha reliability coefficients were calculated to measure internal consistency of the two questionnaires at pretest and posttest. Descriptive statistics were conducted for the questionnaire scores and demographic characteristics data. Additional statistics were conducted to identify significant relationships between demographic characteristics and the dependent variables.

Analysis of variance. The equality of age distribution among the clinical teaching model groups was analyzed using analysis of variance (ANOVA). ANOVA is appropriate for continuous variables and analysis of more than two groups (Hinkle et al., 2003).

Pearson's product-moment. When the differences in age among the clinical teaching model groups were found to be statistically significant, a Pearson product-moment correlation coefficient was computed to assess the relationship between age and the dependent variables. Pearson's product-moment is appropriate when one variable is continuous, and the other variable is also continuous (Hinkle et al., 2003).

Chi-square. The equality of distribution of categorical demographic characteristics among the clinical teaching model groups was analyzed using chi-square test for homogeneity. Chi-square is appropriate for frequency counts and analysis of multiple groups (Gall et al., 2007). Chi-square contingency tables were used to test for equivalence of proportions between clinical teaching model groups. When the expected frequency for any group was less than 5, follow-up with Fisher's exact test was performed.

Fisher's exact test. When chi-square analysis resulted in one or more small (< 5) expected frequencies, a Fisher's exact test was used. Fisher's exact test calculates the exact probability of the contingency table of observed cell frequencies. Results of the Fisher's exact test are reported as a *p*-value.

Independent sample *t*-test. When differences in categorical demographic characteristics among the clinical teaching model groups were found to have statistical significance, an independent sample *t*-test was used to assess the relationship between the demographic characteristic and perceived clinical self-efficacy and attitude toward team process at Pretest and

Posttest. Independent sample *t*-test is appropriate when one variable is continuous, and the other variable is categorical (Hinkle et al., 2003).

Cronbach's coefficient alpha. Data from this study were used to calculate a Cronbach's coefficient alpha for the GSE scale (Pretest, Posttest), and the T-TAQ (Pretest, Posttest).

Cronbach's coefficient alpha is generally regarded as a conservative estimate of reliability, and it is routinely used as a measure of scale reliability (DeVillis, 2012).

Mixed model of analysis of covariance. MM ANCOVA is a combination of repeated measures ANCOVA and factorial ANCOVA. This method allows for comparison of factors both within-subjects and between-subjects after controlling for covariate (Tabachnick & Fidell, 2007). The student groups based on clinical teaching model (DEU, traditional, blended) served as the between-subjects factor, and time of test (Pretest, Posttest) served as the within-subjects factor. Perceived clinical self-efficacy served as the dependent variable in the analysis. Because the independent *t*-test comparisons of perceived clinical self-efficacy and the demographic characteristics of marital status, race/ethnicity, prior employment as nurse aide/assistant, and college degree were significant, these were included as control variables in main hypothesis testing of perceived clinical self-efficacy. In addition, because there was a positive correlation between age and perceived clinical self-efficacy, age was included as a control variable in main hypothesis testing of perceived clinical self-efficacy. It is appropriate to select covariates with the assistance of statistical analysis. The goal of ANCOVA is to adjust for the effect of a covariate on the dependent variable, thereby increasing sensitivity of the test of main effect or interaction. By eliminating predictable dependent variable variance, a *clearer* view of the treatment effect remains (Tabachnick & Fidell, 2007). Chapter 5 provides a complete description of the statistical analysis of the demographic characteristics.

Assumptions of both repeated measures ANCOVA and factorial ANCOVA needed to be considered. These included (a) independence of observations, (b) interval level repeated measure variables, (c) group defined (e.g., nominal) between-subjects factor, (d) no significant outliers in related groups, (e) normality for repeated measures in related groups, (f) linear relationship between covariate(s) and the dependent variable, (g) sphericity for within-subjects factor, (h) homogeneity of variance for between-subjects factor, (i) homogeneity of regression, and (j) reliability of covariates. In addition to the general ANCOVA assumptions, homogeneity of intercorrelations needed to be considered for MM ANCOVA (Tabachnick & Fidell, 2007).

No assumptions were violated. Level of measurement requirement and sample size requirement were satisfied. There were 266 cases available for the analysis. This was adequate since the number was greater than $10 +$ the number of levels in the repeated factor, the minimum total sample. In addition, the smallest cell in the analysis had 66, so the requirement of 5 or more cases per cell was also met. Assumption of normality was met for perceived clinical self-efficacy Pretest and Posttest. The skewness (.02 and -.04, respectively) and kurtosis (-.45 and -.71, respectively) of the distribution were between ± 1.0 . Assumption of homogeneity of variance was supported by Levene's test for equality of variances. For the perceived clinical self-efficacy at Pretest variable, the probability associated with Levene's test for equality of variances, $F(31, 234) = 1.11, p = .329$, was greater than the alpha for diagnostic tests (.01). The assumption of equal variances was satisfied. For the perceived clinical self-efficacy Posttest variable, the probability associated with Levene's test for equality of variances, $F(31, 234) = 1.46, p = .064$, was greater than the alpha for diagnostic tests (.01). The assumption of equality of variances was satisfied. Assumption of homogeneity of intercorrelations was supported by the Box's Test of Equality of Covariance Matrices. *Box's M* value (93.31) was associated with a *p*-value of .066,

which was interpreted as non-significant (i.e., $p > .05$). Homogeneity of regression statistics indicated the correlation between age and perceived clinical self-efficacy at Pretest was significantly different across the clinical teaching model groups (DEU, traditional, blended), $F(2, 262) = 5.35, p = .005$. Likewise, the correlation between college degree and perceived clinical self-efficacy was significantly different across the clinical teaching model groups (DEU, traditional, blended), at Posttest, $F(2, 263) = 3.29, p = .039$. There was no evidence of violation of homogeneity of regression assumption for the remaining covariates (all p -values $> .068$). Given this study had only two levels of repeated measure (Pretest and Posttest) analysis of sphericity was not applicable.

Mixed model analysis of variance. MM ANOVA is a combination of repeated measures ANOVA and factorial ANOVA. This method allows for comparison of factors both within-subjects and between-subjects (Tabachnick & Fidell, 2007). The student groups based on clinical teaching model (DEU, traditional, blended) served as the between-subjects factor, and time of test (Pretest, Posttest) served as the within-subjects factor. Attitude toward team process served as dependent variable in the MM ANOVA analysis. Because the independent t -test comparisons of attitude toward team process and the demographic characteristics of race/ethnicity, current employment in educational clinical setting, and participation in high school team sports were significant, these were included as control variables in main hypothesis testing of attitude toward team process.

Assumptions of both repeated measures ANOVA and factorial ANOVA needed to be considered. These included (a) independence of observations, (b) interval level repeated measure variables, (c) group defined (e.g., nominal) between-subjects factor, (d) no significant outliers in related groups, (e) normality for repeated measures in related groups, (f) sphericity for within-

subjects factor, and (g) homogeneity of variance for between-subjects factor. In addition to the general ANOVA assumptions, homogeneity of intercorrelations needed to be considered for MM ANOVA (Tabachnick & Fidell, 2007).

No assumptions were violated. Level of measurement requirement and sample size requirement were satisfied. There were 263 cases available for the analysis. This was adequate since the number was greater than 10 + the number of levels in the repeated factor, the minimum total sample. In addition, the smallest cell in the analysis had 62, so the requirement of 5 or more cases per cell was also met. Assumption of normality was met for perceived clinical self-efficacy Pretest and Posttest. The skewness (-.37 and -.54, respectively) and kurtosis (-.47 and -.39, respectively) of the distribution were between ± 1.0 . Assumption of homogeneity of variance was supported by Levene's test for equality of variances. For the perceived clinical self-efficacy at Pretest variable, the probability associated with Levene's test for equality of variances, $F(17, 245) = 1.47, p = .107$, was greater than the alpha for diagnostic tests (.01). The assumption of equal variances was satisfied. For the perceived clinical self-efficacy Posttest variable, the probability associated with Levene's test for equality of variances, $F(17, 245) = 1.46, p = .111$, was greater than the alpha for diagnostic tests (.01). The assumption of equality of variances was satisfied. Assumption of homogeneity of intercorrelations was supported by the Box's Test of Equality of Covariance Matrices. *Box's M* value (56.76) was associated with a *p*-value of .077, which was interpreted as non-significant (i.e., $p > .05$). There was no evidence of violation of homogeneity of regression assumption for the additional control variables (all *p*-values $> .389$). Given this study had only two levels of repeated measure (Pretest and Posttest), analysis of sphericity was not applicable.

Scheffe Method. When significant main effects were found, post hoc comparisons were performed using Scheffe Method. Scheffe method is appropriate for multiple-comparisons, for groups of unequal size, and is also the most conservative post hoc (Hinkle et al., 2003).

Ethical Considerations

Human subject rights were protected during data collection, analysis, and reporting. Participants were informed of the research study purpose, procedure, and timeline prior to giving consent to participate. Participants were also informed that participation in the study was voluntary, and nonparticipation would not result in adverse repercussions. There was minimal risk of psychological distress related to the completion of the GSE and T-TAQ instruments. Students were assured confidentiality would be maintained. Anonymity of student data was ensured through the use of unique participant identification numbers. Only this researcher had access to participant data during the study. All surveys were kept in a locked, secured cabinet. After the survey responses were entered into the statistical software, all survey documents were shredded.

Summary

This chapter described the nonequivalent control-group quasi-experimental design used for this study. In addition, the accessible convenience sample and sampling procedures were described. A description of the instruments, procedures for data collection, procedures for managing data, and statistical analysis methods was provided. This chapter concluded with a description of the ethical considerations associated with this study.

Chapter 5

Findings of the Study

The findings of the analyses of this study are presented here. This chapter begins with a description of statistics – including demographics, variables, and instrument reliability – and concludes with the findings of each research hypothesis test.

The following research hypotheses were tested:

1. Students participating in a clinical experience will report an increase in perceived clinical self-efficacy at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.
2. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in perceived clinical self-efficacy as compared to students participating in a traditional clinical teaching model.
3. Students participating in a clinical experience will report an increase in attitude toward team process at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.
4. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward team process as compared to students participating in a traditional clinical teaching model.

Descriptive Statistics

Demographic information. This study had a sample size of 272 nursing students. The convenience sample of nursing students consisted of 122 students (45%) participating in the traditional clinical teaching model control group, 84 (31%) students participating in the DEU clinical teaching model treatment group, and 66 (24%) students participating in the blended

clinical teaching model treatment group. Demographic characteristics were compared for students in the control group (traditional) and students in each of the treatment groups (DEU, blended). Statistically significant differences were found between groups for several demographic characteristics, including, age, gender, marital status, race/ethnicity, prior employment as nurse aide/assistant, and college degree. No significant differences were found between groups for current coaching/team sport participation. The students ($n = 4$) who identified themselves as coaches were combined with the students who identified themselves as participating in team sports, prior to analysis. Table 2 presents the frequencies of sample demographic characteristics.

A Pearson product-moment correlation coefficient was calculated to assess the relationship between student age and perceived clinical self-efficacy and attitude toward team process at Pretest and Posttest, respectively. Ten independent-sample *t*-tests were conducted to assess the relationship between each of the dichotomous, demographic characteristics and perceived clinical self-efficacy and attitude toward team process at Pretest and Posttest, respectively. A description of the relationship analyses follows. Table 3 presents a description of the relationship between the demographic characteristics and perceived clinical self-efficacy. Table 4 presents a description of the relationship between the demographic characteristics and attitude toward team process.

Table 2

Frequencies of Sample Demographic Characteristics

Characteristic	DEU (<i>n</i> = 84)	Traditional (<i>n</i> = 122)	Blended (<i>n</i> = 66)	<i>p</i>
Age	<i>M</i> = 25.75 <i>SD</i> = 7.14	<i>M</i> = 20.75 <i>SD</i> = 1.51	<i>M</i> = 24.24 <i>SD</i> = 5.96	< .001
Gender	<i>f</i>	<i>f</i>	<i>f</i>	.022
Male	19	13	6	
Female	65	109	60	
Marital Status				< .001
Single	61	116	53	
Married	20	6	11	
Separated	1			
Divorced			2	
Race/Ethnicity Combined				<.001
White, not Hispanic or Latino	36	116	59	
Other ^a	48	6	7	
Work as NA prior to admission	5	65	43	< .001
Current Employment				
Non-health care	25	55	17	.012
Health care	11	84	33	<.001
Nurse aide	3	78	28	<.001
In educational clinical setting	3	7	9	<.001, FET
Team Sports				
High school team	41	110	53	< .001
Current coach or team	4	19	9	.052
College degree	30	3	12	< .001

^aOther = any one or combination of the following, White; Hispanic or Latino; Black or African American; Asian; American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander. FET = Fisher's exact test.

Table 3

Relationship Between Demographic Characteristics and Perceived Clinical Self-Efficacy

Characteristic	GSE Pretest		GSE Posttest	
		<i>p</i>		<i>p</i>
Age	$r = .151$	.013	$r = .132$	.031
Gender (Male, Female)	$t = .804$ $df = 267$	.422	$t = .480$ $df = 268$	.632
Marital Status (Not married, Married)	$t = -3.184$ $df = 267$ $d = 0.572$	.002	$t = -2.695$ $df = 267$ $d = 0.467$	.007
Race/Ethnicity (White, Not Hispanic or Latino; Other)	$t = 2.261$ $df = 267$ $d = 0.322$	.025	$t = 1.379$ $df = 82.894$	.171
Work as NA prior to admission (Yes, No)	$t = 1.412$ $df = 267$	.159	$t = 2.687$ $df = 268$ $d = 0.175$	.008
Current non-health care employment (Yes, No)	$t = .664$ $df = 267$	.507	$t = -.486$ $df = 268$	.627
Current health care employment (Yes, No)	$t = .535$ $df = 267$	.593	$t = .586$ $df = 268$	.558
Current nurse aide employment (Yes, No)	$t = .422$ $df = 267$	.673	$t = -.234$ $p = 268$	.815
Current employment in educational clinical setting (Yes, No)	$t = -.576$ $df = 267$	.565	$t = 1.474$ $df = 268$	.636
High school team sport (Yes, No)	$t = 1.5661$ $df = 267$	.098	$t = 1.492$ $df = 268$	.137
College degree (Yes, No)	$t = 2.358$ $df = 267$ $d = 0.399$	.019	$t = 2.313$ $df = 268$ $d = 0.391$	.021

Table 4

Relationship Between Demographic Characteristics and Attitude Toward Team Process

Characteristic	TTAQ Pretest		TTAQ Posttest	
		<i>p</i>		<i>p</i>
Age	$r = -.024$	.702	$r = -.057$	.349
Gender (Male, Female)	$t = -1.173$ $df = 264$	.242	$t = -1.680$ $df = 266$	.094
Marital Status (Not married, Married)	$t = -.898$ $df = 264$	.370	$t = -1.265$ $df = 266$	.210
Race/Ethnicity (White, Not Hispanic or Latino; Other)	$t = 1.786$ $df = 264$	.075	$t = 2.982$ $df = 266$ $d = 0.426$	.003
Work as NA prior to admission (Yes, No)	$t = 1.593$ $df = 264$	.112	$t = 1.571$ $df = 266$	.117
Current non-health care employment (Yes, No)	$t = .815$ $df = 264$	.416	$t = .328$ $df = 266$	.743
Current health care employment (Yes, No)	$t = .810$ $df = 264$	.419	$t = 1.007$ $df = 266$	.315
Current nurse aide employment (Yes, No)	$t = .406$ $df = 264$	.685	$t = .892$ $df = 266$	.373
Current employment in educational clinical setting (Yes, No)	$t = -2.216$ $df = 264$ $d = 0.528$	.028	$t = .038$ $df = 266$	.970
High school team sport (Yes, No)	$t = 3.213$ $df = 264$ $d = 0.561$	.001	$t = 1.501$ $df = 266$	.135
College degree (Yes, No)	$t = -1.569$ $df = 264$	.118	$t = -.849$ $df = 266$	.396

Age. Students in the traditional group were younger ($M = 20.75, SD = 1.51$) as compared to students in both the DEU ($M = 25.75, SD = 7.14$) and blended groups ($M = 24.24, SD = 5.96$), $F(2, 268) = 26.62, p < .001$. Because there was a positive correlation between age and perceived clinical self-efficacy, age was included as a covariate in the analysis of perceived clinical self-efficacy. Scatterplots summarize the results (Figure 2 and Figure 3). Because there was no correlation between age and attitude toward team process, this characteristic was not included as a covariate in the analysis of attitude toward team process.

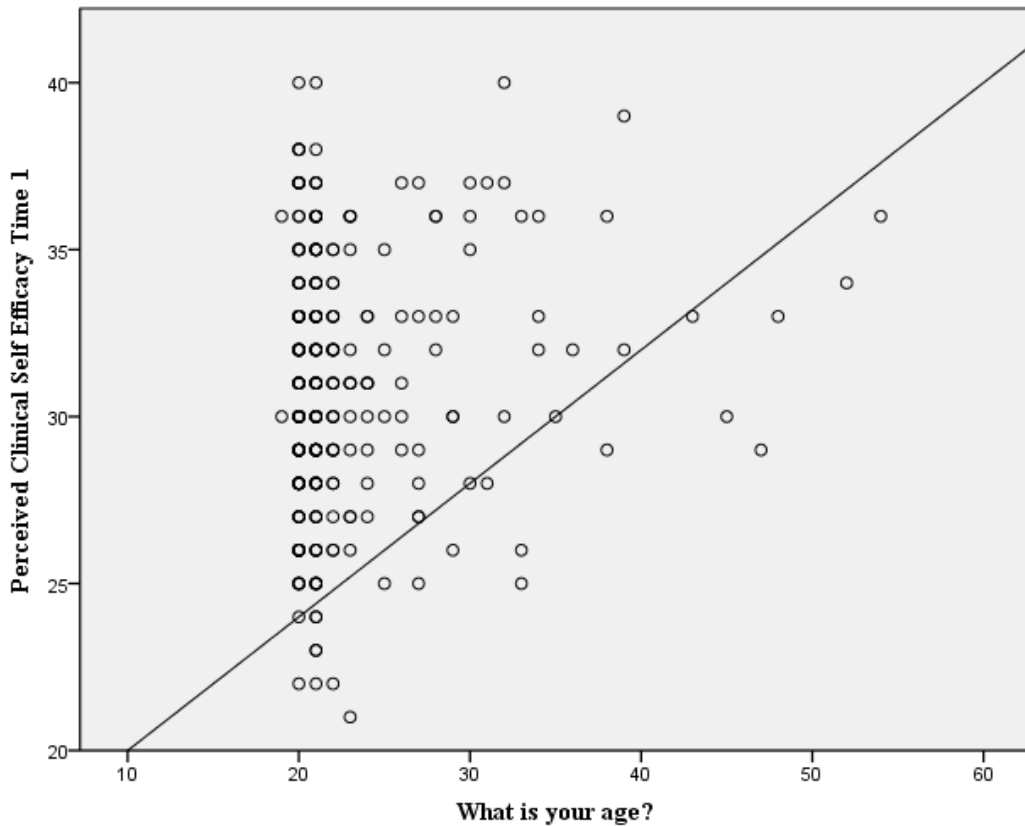


Figure 2. Correlation between age and perceived clinical self-efficacy at Pretest.

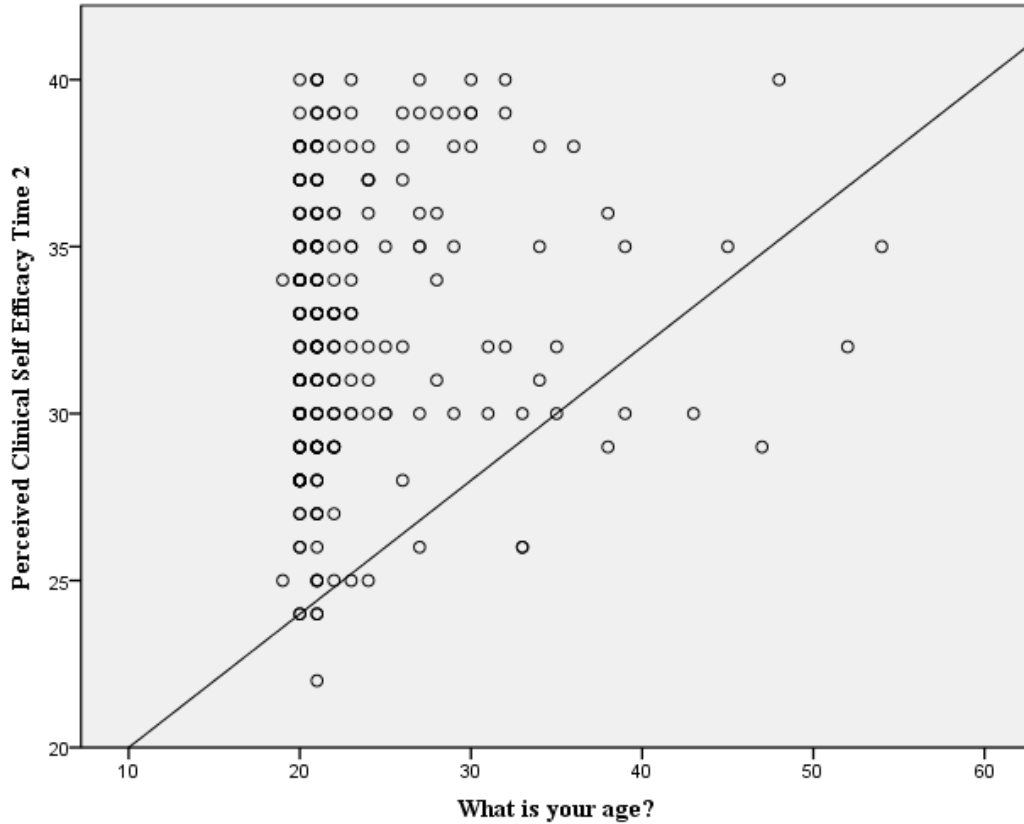


Figure 3. Correlation between age and perceived clinical self-efficacy at Posttest.

Gender. The traditional group had fewer men (11%) and more women (89%) as compared to the DEU group (23% male, 77% female), $\chi^2 = 7.65, df = 2, p = .022$. The ratio of men and women was similar for the traditional and blended (9% male, 91% female) groups. The independent *t*-test comparisons of perceived clinical self-efficacy and attitude toward team process were not significantly different for male students as compared to female students, GSE Pretest, $t(267) = .804, p = .422$; GSE Posttest, $t(268) = .480, p = .632$; T-TAQ Pretest, $t(264) = -1.173, p = .242$; T-TAQ Posttest, $t(266) = -1.680, p = .094$. Therefore, this characteristic was not included as a control variable in main hypothesis testing.

Marital status. For statistical analysis purposes, divorced students ($n = 2$) and the separated student ($n = 1$) were recoded to Not Married. The traditional group had more students

who were not married (95%) and fewer students who were married (5%) as compared to both the DEU (76% not married, 24% married) and blended (83% not married, 17% married) groups, $\chi^2 = 15.80$, $df = 2$, $p < .001$. Because the independent t -test comparisons of perceived clinical self-efficacy were significant at Pretest, $t(267) = -3.184$, $p = .002$, Cohen's $d = 0.572$, and Posttest, $t(267) = -2.695$, $p = .007$, Cohen's $d = 0.467$, marital status was included as a control variable in main hypothesis testing of perceived clinical self-efficacy. Because the independent t -test comparisons of attitude toward team process were not significant at Pretest, $t(264) = -.898$, $p = .370$, or Posttest, $t(266) = -1.265$, $p = .210$, this characteristic was not included as a control variable in main hypothesis testing of attitude toward team process.

Race/ethnicity. Due to the small number of students who identified themselves other than White/not Hispanic or Latino in the traditional group (5%) and the blended group (11%), a new, dichotomous, variable was created, White/not Hispanic or Latino and Other. Students who identified themselves as one or more of the following, White/Hispanic or Latino; Black or African American; Asian; American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander, were assigned the value of Other. The traditional group had more White/not Hispanic or Latino students (95%) and fewer students of other race/ethnicity (5%), as compared to the DEU group (43% White/not Hispanic or Latino, 57% other race/ethnicity), $\chi^2 = 84.99$, $df = 2$, $p < .001$. Because the independent t -test comparison of perceived clinical self-efficacy was significant at Pretest, $t(267) = 2.261$, $p = .025$, Cohen's $d = 0.322$, and attitude toward team process was significant at Posttest, $t(266) = 2.982$, $p = .003$, Cohen's $d = 0.426$, race/ethnicity was included as a control variable in main hypothesis testing of both perceived clinical self-efficacy and attitude toward team process.

Employment. The traditional group had more students currently employed in non-health care related settings (45%), as compared to both the DEU (30%) and blended (26%) groups, $\chi^2 = 8.82$, $df = 2$, $p = .012$. The independent t -test comparisons of perceived clinical self-efficacy and attitude toward team process were not significantly different for students currently employed in non-health care related settings as compared to students *not* currently employed in non-health care related settings, GSE Pretest, $t(267) = .664$, $p = .507$; GSE Posttest, $t(268) = -.486$, $p = .627$; T-TAQ Pretest, $t(264) = .815$, $p = .416$; T-TAQ Posttest, $t(266) = .328$, $p = .743$. Therefore, this characteristic was not included as a control variable in main hypothesis testing.

As compared to the DEU group (13% employed in health care, 4% employed as nurse aide/assistant), the traditional group had more students currently employed in health care (69%), $\chi^2 = 62.38$, $df = 2$, $p < .001$, and more students currently employed as a nurse aide/assistant (64%), $\chi^2 = 75.68$, $df = 2$, $p < .001$. The independent t -test comparisons of perceived clinical self-efficacy and attitude toward team process were not significantly different for students currently employed in health care related settings as compared to students *not* currently employed in health care related settings, GSE Pretest, $t(267) = .535$, $p = .593$; GSE Posttest, $t(268) = .586$, $p = .558$; T-TAQ Pretest, $t(264) = .810$, $p = .419$; T-TAQ Posttest, $t(266) = 1.007$, $p = .315$. Therefore, current employment in health care was not included as a control variable in main hypothesis testing. In addition, the independent t -test comparisons of perceived clinical self-efficacy and attitude toward team process were not significantly different for students currently employed as a nurse aide/assistant as compared to students *not* currently employed as a nurse aide/assistant, GSE Pretest, $t(267) = .422$, $p = .673$; GSE Posttest, $t(268) = -.234$, $p = .815$; T-TAQ Pretest, $t(264) = .406$, $p = .685$; T-TAQ Posttest, $t(266) = .892$, $p = .373$. Therefore, current employment as a nurse aide/assistant was not included as a control variable in main hypothesis testing.

With regard to prior employment as a nurse aide/assistant, the traditional group had more students (53%) as compared to the DEU group (6%), $\chi^2 = 65.88$, $df = 2$, $p < .001$. The independent t -test comparisons of perceived clinical self-efficacy were significant at Posttest, $t(268) = 2.687$, $p = .008$, Cohen's $d = 0.1749$. Therefore, prior employment as a nurse aide/assistant was included as a control variable in main hypothesis testing of perceived clinical self-efficacy. This characteristic was not included as a control variable in main hypothesis testing of attitude toward team process because the independent t -test comparisons of attitude toward team process were not significant at Pretest, $t(264) = 1.593$, $p = .112$, or Posttest, $t(266) = 1.571$, $p = .117$.

In addition, the traditional group had more students currently employed in the same clinical setting in which they participated in clinical education this term (6%) as compared to the DEU group (4%) and fewer students as compared to the blended group (14%) ($p < .001$, FET). Because the independent t -test comparisons of perceived clinical self-efficacy were not significant at Pretest, $t(267) = -.576$, $p = .565$, or Posttest, $t(268) = 1.474$, $p = .636$, this characteristic was not included as a control variable in main hypothesis testing of perceived clinical self-efficacy. The independent t -test comparisons of attitude toward team process, however, were significant at Pretest, $t(264) = -2.216$, $p = .028$, Cohen's $d = 0.528$. Therefore, current employment in the same clinical setting in which students participated in clinical education this term was included as a control variable in main hypothesis testing of attitude toward team process.

Sports. The traditional group had more students who participated in high school team sports (90%) as compared to the DEU group (49%), $\chi^2 = 46.68$, $df = 2$, $p < .001$. Because the independent t -test comparisons of perceived clinical self-efficacy were not significant at Pretest,

$t(267) = 1.5661, p = .098$, or Posttest, $t(268) = 1.492, p = .137$, this characteristic was not included as a control variable in main hypothesis testing of perceived clinical self-efficacy. The independent t -test comparisons of attitude toward team process, however, were significant at Pretest, $t(264) = 3.213, p = .001$, Cohen's $d = 0.561$. Therefore, participation in high school team sports was included as a control variable in main hypothesis testing of attitude toward team process.

College prior to admission. For statistical analysis purposes, responses for the characteristic of college prior to admission were recoded to dichotomous values (College Degree, No College Degree). The traditional group had fewer students with college degrees (2%), as compared to both the DEU (36%) and blended (18%) groups, $\chi^2 = 40.02, df = 2, p < .001$. The independent t -test comparisons of perceived clinical self-efficacy were significant at Pretest, $t(267) = 2.358, p = .019$, Cohen's $d = 0.399$, and Posttest, $t(268) = 2.313, p = .021$. Therefore, college experience was included as a control variable in main hypothesis testing of perceived clinical self-efficacy. Because the independent t -test comparisons of attitude toward team process were not significant at Pretest, $t(264) = -1.569, p = .118$, or Posttest, $t(266) = -.849, p = .396$, this characteristic was not included as a control variable in main hypothesis testing of attitude toward team process.

Variables

Perceived clinical self-efficacy. Data were screened for univariate outliers and revealed one outlier (z -score < -2.9). The normal Q-Q plots for the GSE Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the single lowest value outlier. The case, from the traditional group, had a GSE Posttest score 2-points below the next lowest

score. Values for the GSE Posttest outlier were removed. Follow-up boxplot analysis revealed no outliers. Appendix D presents the frequency of GSE Pretest responses recorded. Appendix E presents the frequency of GSE Posttest responses prior to removal of values.

Table 5

Descriptive Statistics of Perceived Clinical Self-Efficacy Sample Means

Perceived Clinical Self Efficacy	<i>M</i>	<i>SD</i>	Scoring Range	<i>N</i>
Pretest	30.91	3.813	21-40	269
Posttest	32.63	4.033	22-40	270

During analysis, missing data were excluded listwise. This removed all data from any subject that had incomplete data, thereby removing the subject data from comparison means. Listwise deletion is appropriate when only a small portion of the sample is removed (Schafer & Graham, 2002). Listwise deletion of GSE missing data resulted in the deletion of four subjects, 1.5% of the sample. Table 5 presents the means, standard deviations, scoring range, and sample size at Pretest and Posttest after outlier values were removed. Refer to Table 8 for descriptive statistics of perceived clinical self-efficacy (Pretest, Posttest) by group.

Attitude toward team process. Data were screened for univariate outliers and revealed two outliers (z -score < -2.9). The normal Q-Q plots for the T-TAQ Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the two lowest value outliers. The first case, from the DEU group, had a T-TAQ Pretest score 3-points below the next lowest score, and the second case, from the traditional group, had a T-TAQ Posttest score 6-points lower than the next lowest score. Values for these two outliers were removed from the appropriate dependent variables. Follow-up boxplot analysis revealed no outliers. Appendix F presents the

frequency of T-TAQ Pretest responses prior to reverse coding and before values were removed. Appendix G presents the frequency of T-TAQ Posttest responses prior to reverse coding and before values were removed.

During analysis, missing data were again excluded list wise. Listwise deletion of T-TAQ missing data resulted in the deletion of seven subjects, 2.6% of the sample. Table 6 presents the means, standard deviations, scoring range, and sample size at Pretest and Posttest after reverse items were recoded and outlier values were removed. Refer to Table 12 for descriptive statistics of attitude toward team process (Pretest, Posttest) by group.

Table 6

Descriptive Statistics of Attitude Toward Team Process Sample Means

Attitude Toward Team Process	<i>M</i>	<i>SD</i>	Scoring Range	<i>N</i>
Pretest	134.80	8.583	110-150	266
Posttest	136.35	8.784	112-150	268

Reliability of the Instruments

For this study, the General Self-Efficacy Scale had a Cronbach’s alpha coefficient of .83 for Pretest and .87 for Posttest, indicating very good internal consistency reliability for the scale and for this study sample. The TeamSTEPPS® Teamwork Attitudes Questionnaire had a Cronbach’s alpha coefficient of .86 for Pretest and .86 for Posttest indicating very good internal consistency reliability for the scale and for this study sample.

Findings of the Research Questions

Hypothesis #1. Students participating in a clinical experience will report an increase in perceived clinical self-efficacy at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.

Statistical analysis. A total perceived clinical self-efficacy score was calculated for each GSE scale. Possible scores ranged from 10 to 40. To test both hypothesis #1 and #2, the data were submitted to a mixed model analysis of covariance (ANCOVA), with clinical teaching model (DEU, traditional, blended) serving as the between-subjects factor and time of test (Pretest, Posttest) serving as the within-subjects factor. Perceived clinical self-efficacy served as the dependent variable. Age served as the covariate. Marital status, race/ethnicity, prior employment as nurse aide/assistant, and college degree served as additional control variables. Statistical analysis revealed no interaction between time, covariate (age) and the additional control variables. Table 7 presents the omnibus results of the ANCOVA.

Table 7

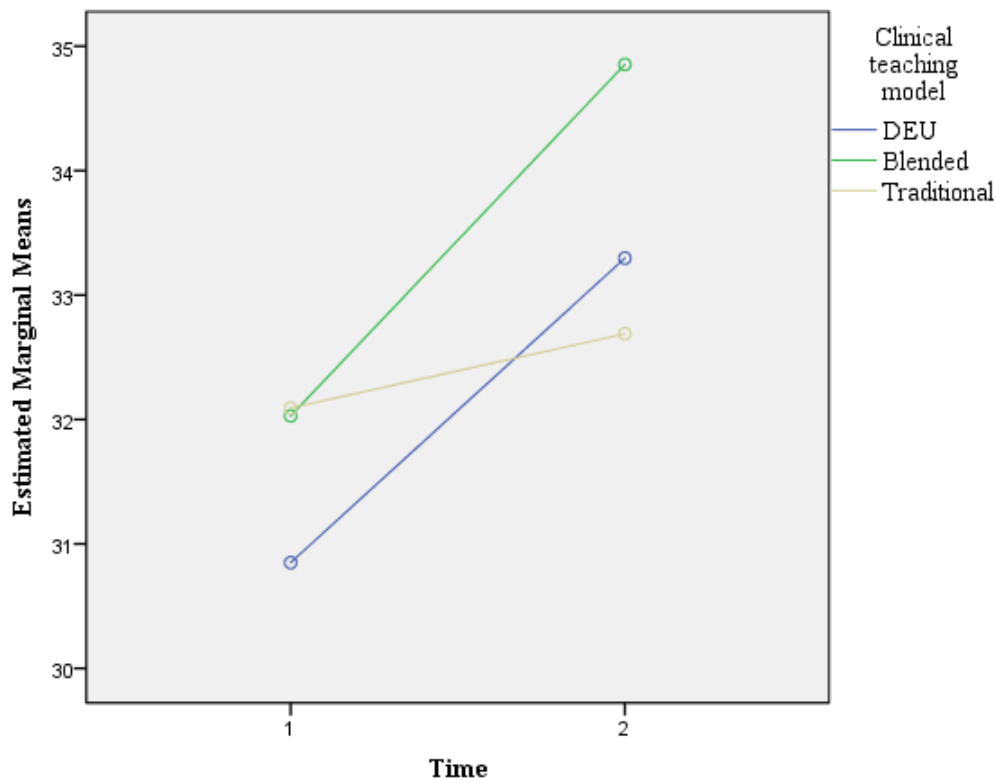
Analysis of Covariance Omnibus Results

Source	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	Partial Eta Squared
Time	30.09	1	30.09	4.28	.040	.016
Time*Model	105.84	2	52.87	7.52	.001	.055
Time*Marital Status	1.14	1	1.14	.16	.688	.001
Time* Race/Ethnicity	0.59	1	.059	.01	.927	.000
Time*Prior NA	22.00	1	22.00	3.12	.078	.012
Time*Degree	.01	1	.01	.002	.967	.000
Time*Age	8.20	1	8.20	1.17	.281	.004
Error (Time)	1815.19	258	7.04			

Results of the mixed-model ANCOVA with perceived clinical self-efficacy as the dependent variable demonstrated there was a significant main effect of time, $F(1, 258) = 4.28, p$

= .04, $\eta^2 = .016$, indicating a statistically significant change in perceived self-efficacy occurred across the entire sample, after controlling for age, regardless of clinical teaching model.

Therefore, students participating in all clinical experiences reported a significant increase in perceived clinical self-efficacy at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience. The plot of estimated marginal means summarizes the results (Figure 4). Table 8 presents the adjusted and unadjusted means, standard deviations, and group sizes at Pretest and Posttest.



Covariates appearing in the model are evaluated at the following values: What is your age? = 23.12

Figure 4. Perceived clinical self-efficacy means by group and time.

Table 8

Descriptive Statistics of Perceived Clinical Self-Efficacy (Pretest, Posttest) by Group

Group	Pretest				Posttest			
	<i>M^a</i>	<i>M^b</i>	<i>SD</i>	<i>N</i>	<i>M^a</i>	<i>M^b</i>	<i>SD</i>	<i>N</i>
DEU	30.85	30.31	4.22	83	33.30	32.23	4.47	84
Traditional	32.09	30.99	3.51	120	32.69	31.90	3.67	120
Blended	32.03	31.50	3.76	66	34.85	34.47	3.55	66

^aAdjusted Means; ^bUnadjusted Means

Hypothesis #2. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in perceived clinical self-efficacy as compared to students participating in a traditional clinical teaching model.

Statistical analysis. To test both hypothesis #1 and #2, the data were submitted to a mixed model analysis of covariance (ANCOVA), with clinical teaching model (DEU, traditional, blended) serving as the between-subjects factor and time of test (Pretest, Posttest) serving as the within-subjects factor. Perceived clinical self-efficacy served as the dependent variable. Age served as the covariate. Table 7 presents the omnibus results of the ANCOVA.

Results of the mixed-model ANCOVA with perceived clinical self-efficacy as the dependent variable demonstrated the clinical teaching model x time interaction was statistically significant after controlling for the effect of age, $F(2, 258) = 7.52, p = .001, \eta^2 = .055$, indicating the change in perceived clinical self-efficacy over time was not equivalent across the three groups (DEU, traditional, blended). In order to determine where the significant pairwise differences were, a univariate ANOVA with complex contrast was performed. First, an additional variable was computed, representing the perceived clinical self-efficacy change scores

from Pretest to Posttest. A complex contrasts analysis compared the treatment groups (DEU, blended) to the control group (traditional). Scheffe method contrasts revealed students who participated in the DEU clinical teaching model ($p = .016$) and students who participated in the blended clinical teaching model ($p < .001$) had significantly larger increases in perceived clinical self-efficacy as compared to students participating in the traditional clinical teaching model. Therefore, students participating in the DEU clinical teaching model and students participating in the blended clinical teaching model had significantly larger increases in perceived clinical self-efficacy as compared to students participating in the traditional clinical teaching model. Age, the covariate, was not significantly related to perceived clinical self-efficacy, $F(1, 258) = .19, p = .665$. Table 9 presents the adjusted and unadjusted mean gains, standard error, and group sizes.

Table 9

Descriptive Statistics of Gain in Perceived Clinical Self-Efficacy by Clinical Teaching Model

Clinical Teaching Model	M^a	M^b	SE	N
DEU	2.45	1.92	.582	82
Traditional	0.60	0.91	.671	118
Blended	2.83	2.97	.695	66

^aAdjusted Means, ^bUnadjusted Means

In addition, there was a significant main effect of marital status, $F(1, 258) = 4.55, p = .034$, indicating the change in perceived self-efficacy was different across unmarried and married students. To explore the pairwise differences in perceived clinical self-efficacy between unmarried and married students, a univariate ANOVA with simple contrast was performed. A simple contrasts analysis compared the unmarried students to the married students. Scheffe method contrast revealed no statistically significant difference in perceived clinical self-efficacy

between unmarried and married students, $F(1, 265) = .10, p = .756$. Table 10 presents the mean gains, standard error, and group sizes.

Table 10

Descriptive Statistics of Gain in Perceived Clinical Self-Efficacy by Marital Status

Marital Status	<i>M</i>	<i>SE</i>	<i>N</i>
Not Married	1.75	.25	203
Married	.63	1.02	37

Hypothesis #3. Students participating in a clinical experience will report an increase in attitude toward team process at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience.

Statistical analysis. A total attitude toward team process score was calculated for each T-TAQ questionnaire. Possible scores ranged from 30 to 150. To test both hypothesis #3 and #4, the data were submitted to a mixed model analysis of variance (ANOVA), with clinical teaching model (DEU, traditional, blended) serving as the between-subjects factor and time of test (Pretest, Posttest) serving as the within-subjects factor. Attitude toward team process served as the dependent variable. Race/ethnicity, current employment in educational clinical setting, and participation in high school team sports served as additional control variables in the analysis. Statistical analysis revealed no interaction between time and current employment in educational clinical setting and participation in high school team sports. There was, however, an interaction between time and race/ethnicity, $F(1, 27) = 6.54, p = .011$, indicating the change in attitude toward team process over time was different across race/ethnicity groups. Table 11 presents the omnibus results of the ANOVA.

Results of the mixed-model ANOVA, with attitude toward team process as the dependent variable, demonstrated there was a significant main effect of time, $F(1, 257) = 9.27, p = .003$, indicating a statistically significant change in attitude toward team process occurred across the entire sample, regardless of clinical teaching model. Therefore, students participating in all clinical experiences reported a significant increase in attitude toward team process at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience. The plot of estimated marginal means summarizes the results (Figure 5). Table 12 presents the means, standard deviations, and group sizes at Pretest and Posttest.

Table 11

Analysis of Variance Omnibus Results

Source	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	Partial Eta Squared
Time	274.35	1	274.35	9.27	.003	.035
Time*Model	119.48	2	59.74	2.02	.135	.015
Time* Race/Ethnicity	193.52	1	193.52	.011	.011	.025
Time*Employed in Education Clinical Setting	102.28	1	102.28	3.46	.064	.013
Time*High School Team Sports	113.76	1	113.76	3.85	.051	.015
Error (Time)	7604.72	257	29.59			

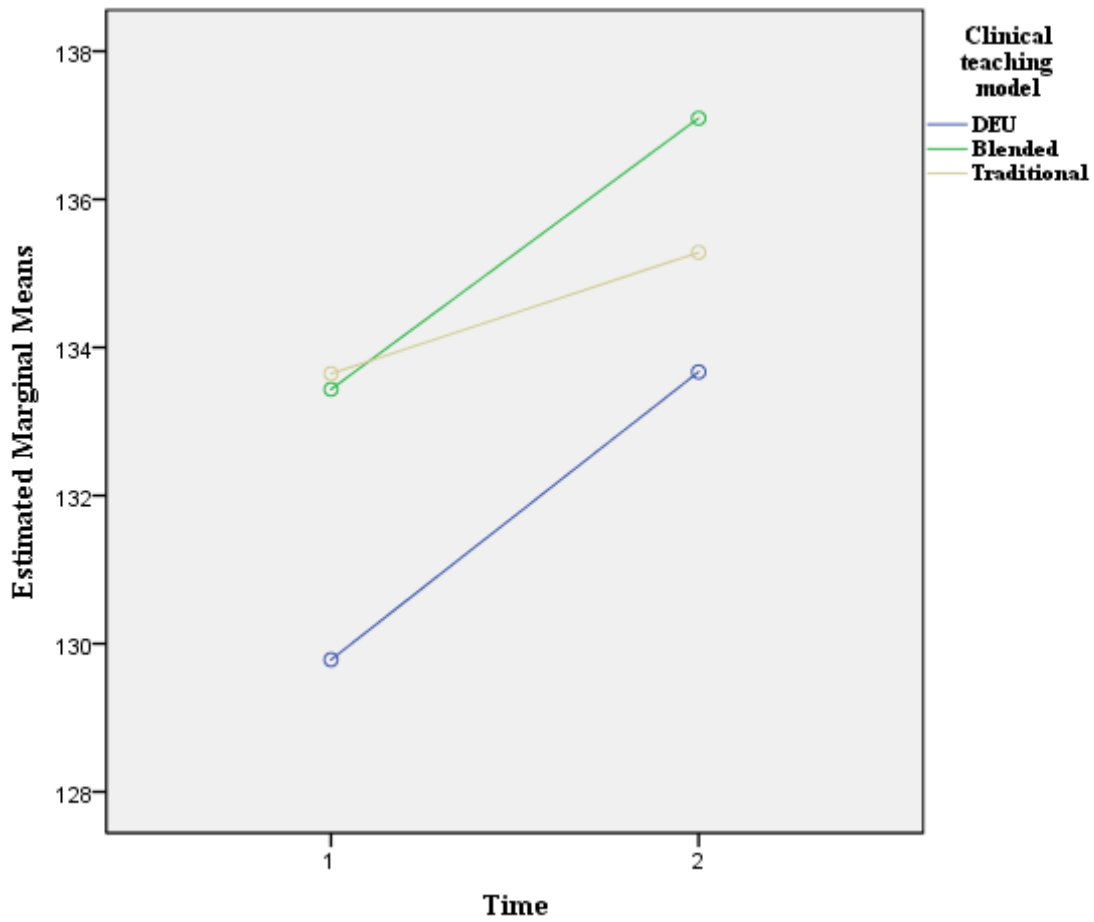


Figure 5. Attitude toward team process means by group and time.

Table 12

Descriptive Statistics of Attitude Toward Team Process (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	132.11	9.06	81	133.72	9.25	83
Traditional	136.19	7.85	122	136.98	8.24	121
Blended	135.59	8.64	63	138.56	8.46	64

Hypothesis #4. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward team process as compared to students participating in a traditional clinical teaching model.

Statistical analysis. To test both hypothesis #3 and #4, the data were submitted to a mixed model ANOVA, with clinical teaching model (DEU, traditional, blended) serving as the between-subjects factor and time of test (Pretest, Posttest) serving as the within-subjects factor. Attitude toward team process served as the dependent variable. Table 11 presents the omnibus results of the ANOVA.

Results of the mixed-model ANOVA with attitude toward team process as the dependent variable demonstrated there was a significant main effect for clinical teaching model, $F(2, 257) = 3.196, p = .043, \eta^2 = .024$, indicating the differences in attitude toward team process averaged across time within each group were statistically significant. The clinical teaching model x time interaction, however, was not statistically significant, $F(2, 257) = 2.02, p = .135, \eta^2 = .018$, indicating the change in attitude toward team process over time was equivalent across the three groups (DEU, traditional, blended). To confirm the absence of significant pairwise differences in attitude toward team process between groups, a univariate ANOVA with complex contrast was performed. Therefore, an additional variable was computed, representing the attitude toward team process change scores from Pretest to Posttest. A complex contrasts analysis compared the treatment groups (DEU, blended) to the control group (traditional). Scheffe method contrasts revealed neither students who participated in the DEU clinical teaching model ($p = .102$) nor students who participated in the blended clinical teaching model ($p = .098$) had significantly larger increases in attitude toward team process as compared to students participating in the traditional clinical teaching model. Therefore, students participating in the DEU or blended

clinical teaching model did not have a significantly larger increase in attitude toward team process as compared to students participating in the traditional clinical teaching model. Table 13 presents the mean gains, standard error, and group sizes.

Table 13

Descriptive Statistics of Gain in Attitude Toward Team Process by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	3.89	1.22	80
Traditional	1.64	1.29	121
Blended	3.66	1.32	62

To explore the pairwise differences in attitude toward team process between White/not Hispanic or Latino students and students of other race/ethnicity, a univariate ANOVA with simple contrast was performed. A simple contrasts analysis compared the White/not Hispanic or Latino students to the students of other race/ethnicity. Scheffe method contrast revealed no statistically significant difference in attitude toward team process between White/not Hispanic or Latino students and students of other race/ethnicity, $F(1, 261) = 2.21, p = .138$. Table 14 presents the mean gains, standard error, and group sizes.

Table 14

Descriptive Statistics of Gain in Attitude Toward Team Process by Race/Ethnicity

Race/Ethnicity	<i>M</i>	<i>SE</i>	<i>N</i>
White/not Hispanic or Latino	2.08	.55	204
Other	.36	1.02	59

Summary

This chapter presented the findings of the analyses of this study. The chapter began with a description of the demographic characteristics, independent and dependent variables, and reliability of the GSE scale and T-TAQ instrument. Finally, the findings of each of the four research questions were presented. Refer to chapter 6 for a summary of the research study and a discussion of the findings.

Chapter 6

Summary, Discussion, and Recommendation

The findings of this research study are considered here. This chapter begins with a summary and discussion of the research findings. Study limitations are discussed. Implications for nursing education are explored. Finally, recommendations for future research are presented.

Summary of the Research Study

Nursing student clinical experiences are integral to clinical skill acquisition and refinement, professional growth, clinical self-efficacy, and integration as a member of a health care team. Preliminary studies of the DEU clinical teaching model and blended clinical teaching models indicate these model types promote nursing student clinical self-efficacy and integration of the nursing student into the health care team. There are no studies, however, measuring or comparing nursing student clinical self-efficacy and integration as a team member over time or across clinical teaching models. This comparative study, therefore, adds to the body of knowledge by comparing the influence of three clinical teaching models (DEU, traditional, blended) on nursing student skill development. Specifically, the purpose of this study was to explore the relationship between the clinical teaching model (DEU, traditional, blended) and perceived clinical self-efficacy and attitude toward team process. A DEU clinical teaching model and a blended clinical teaching model were compared to a traditional clinical teaching model. The dependent variables in this study were perceived clinical self-efficacy and attitude toward team process. The independent variables in this study were three clinical teaching models (DEU, traditional, blended).

Albert Bandura's social learning theory provided the theoretical framework for this study. Bandura (1977) describes social learning as a triadic interaction of person (personal factors),

behavior, and situations (external environment). This triadic interaction is apparent in the clinical setting. In the clinical setting, nursing students (a) identify personal strengths and cultivate professional behaviors (personal factors); (b) learn and practice nursing skills (behavior); and (c) respond to, and interact with, clinical situations (external environment) (Benner, 1984/2001).

A nonequivalent control-group quasi-experimental design was used for this study. Three comparison groups were used. Students attending a Southwestern state university were participants in a DEU clinical teaching model. Students attending a Midwestern state university were participants in either a traditional or a blended clinical teaching model. Students participating in the traditional clinical teaching model were the control group. The two treatment groups were (a) students participating in the DEU clinical teaching model and (b) students participating in the blended clinical teaching model.

Pretest/posttest data were collected over two consecutive terms during one 12-month period. Two cohorts of nursing students were surveyed for each of the three clinical teaching models (DEU, blended, traditional). The convenience sample of 272 entry-level baccalaureate nursing students included 84 students participating in the DEU clinical teaching model, 122 students participating in the traditional clinical teaching model, and 66 students participating in the blended clinical teaching model. The survey consisted of two established instruments and an 18-item demographic questionnaire. The first dependent variable, perceived clinical self-efficacy, was evaluated by the pretest/posttest scores obtained on the General Self-Efficacy (GSE) scale (Schwarzer & Jerusalem, 1995). The second dependent variable, attitude toward team process, was evaluated by the pretest/posttest scores obtained on the TeamSTEPPS® T-TAQ (AHRQ, 2014d).

A mixed model analysis of covariance (MM ANCOVA) design was used to answer the research questions pertaining to perceived clinical self-efficacy. Students participating in all three clinical experiences reported a significant increase in clinical self-efficacy at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience, after controlling for age. This finding is consistent with the nursing education literature that identifies the clinical experience as instrumental to the development of clinical self-efficacy (Chesser-Smyth & Long, 2013; Lundberg, 2008; Perry, 2011; White, 2009). In addition, students participating in the DEU clinical teaching model and students participating in the blended clinical teaching model had significantly larger increases in clinical self-efficacy as compared to students participating in the traditional clinical teaching model. This finding is consistent with the nursing education literature that identifies the DEU clinical experience as supportive to student clinical self-efficacy (Harmer et al, 2011; Harmon, 2013; McKown et al., 2011; Mullenbach & Burggraf, 2012; Ranse & Grealish, 2007; Ryan et al., 2011).

A mixed model analysis of variance (MM ANOVA) design was used to answer the research questions pertaining to attitude toward team process. Students participating in all three clinical experiences reported a significant increase in attitude toward team process at completion of the clinical experience as compared to baseline perceptions at the beginning of the clinical experience. Students participating in the DEU or blended clinical teaching models did not, however, have a significantly larger increase in attitude toward team process as compared to students participating in the traditional clinical teaching model. This finding was not consistent with the nursing education literature that suggests the DEU clinical environment is more supportive of students as members of the health care team (Glazer et al., 201; Gonda et al., 1999; Grealish et al., 2010; McKown et al., 2011).

Discussion of the Findings

Clinical self-efficacy. Self-efficacy is a central concept of social learning theory. Self-efficacy, the personal judgment of one's own capabilities, is essential for the development of competence. Belief in one's abilities influences action choices, level of effort, persistence, resilience, stress coping, and feelings of achievement. The greater the efficacy beliefs, the greater the effort and persistence with the activity (Bandura, 1997). Nursing recognizes the correlation between self-efficacy and competence in nursing practice and, therefore, values the concept of clinical self-efficacy. The clinical experience is a primary source of clinical self-efficacy in nursing education, and the clinical environment offers opportunities for performance of nursing skills and interaction with professional nurse role models. Because the clinical experience plays a pivotal role in the development of nursing student clinical self-efficacy and subsequent clinical competence, it is important for nurse educators to optimize learning in the clinical setting.

As hypothesized in this study, students participating in all three clinical teaching models (DEU, traditional, blended) reported significant increases in clinical self-efficacy. Given that nursing education relies on the clinical experience to promote clinical self-efficacy, these results endorse the reliance on clinical experiences to promote clinical self-efficacy. Additionally, as hypothesized, the DEU clinical teaching model and the blended clinical teaching model were associated with significantly larger increases in clinical self-efficacy as compared to the traditional clinical teaching model.

While the DEU and blended clinical teaching models of interest to this study were not identical, there were three notable similarities in the structure of the models. Similarities between the DEU and blended clinical teaching models included (a) staff registered nurse commitment to sharing in teaching, (b) unit dedication to a single nursing program, and (c) permission for

students to perform skills without faculty presence, but under the guidance of a selected staff registered nurse. The three similarities between the DEU and blended clinical teaching models, conversely, are notably different from the traditional clinical teaching model. By contrast, the traditional clinical teaching model structure includes the following expectations, (a) clinical instructors are solely responsible for student learning, (b) more than one nursing program may use the unit for clinical, and (c) students require faculty presence for clinical skills. The features of the traditional clinical teaching model often relegate nursing students and clinical instructors to the roles of guest. Staff nurses are unsure or unaware of nursing program goals and hesitate to take on a teaching role. Moreover, staff nurse expectations may not align with clinical instructor expectations. Students are often limited in nursing skill practice because they must wait for their clinical instructor to be available. Therefore, the traditional clinical teaching model does not optimize the clinical education experience.

Conversely, the clinical partnerships of the DEU and blended clinical teaching models support collaborative understanding among nursing educators and clinical agency staff. Students work closely with staff nurses who are committed to providing learning experiences consistent with program goals. Staff nurses support the application of classroom knowledge within the clinical experience and supervise increased opportunities for students to practice nursing skill. This quasi-experimental study is the largest study to compare the effect of the DEU and blended clinical teaching models with the traditional model. The findings are consistent with the findings of smaller studies, and confirm earlier anecdotal reports, indicating both the DEU and blended clinical teaching models promote clinical self-efficacy more effectively than the traditional clinical teaching model.

Attitude toward team process. Competence in teamwork is essential to safe, quality care (Institute of Medicine, 2010). The clinical setting provides a professional (social) learning environment that exposes nursing students to professional nursing teamwork. Bandura (1977) describes the social learning environment as one in which students observe and participate in a desired learning activity. In the clinical setting, students observe team behaviors and may directly participate in team behaviors. The more students are exposed to the vicarious learning opportunities of observation and the direct learning opportunities of participation, the greater the increase in learning (Bandura, 1977). Therefore, both observation of and participation in team behaviors promote team process. Because the clinical experience provides valuable opportunities for observation and participation, it is important for nurse educators to optimize exposure to team process and team behaviors in the clinical setting.

As hypothesized in this study, students participating in all three clinical teaching models (DEU, traditional, blended) reported significant increases in attitude toward team process. Given that nursing education looks to the clinical experience to promote teamwork, these results are encouraging. Contrary to the final hypothesis, however, neither the DEU clinical teaching model nor the blended clinical teaching model was associated with significantly larger increases in attitude toward team process as compared to the traditional clinical teaching model.

Both the DEU and blended clinical teaching models are promoted for providing more direct and vicarious learning opportunities than the traditional clinical teaching model. In addition, earlier anecdotal reports and smaller studies are replete with student comments of (a) feeling more responsible to the patient care team (Mulready-Shick et al., 2009), (b) being treated as team members (Edgecombe et al., 1999; Moscato et al., 2007), (c) identifying as part of the team, and (d) observing collaboration and team process behaviors during DEU and blended

clinical experiences (Freundl et al., 2012; Glazer et al., 2011; Gonda et al., 1999; McKown et al., 2011; Moscato et al., 2007; Murray, MacIntyre, & Teel, 2011; Ryan et al., 2011). Therefore, it was hypothesized that students participating in a DEU or blended clinical teaching model would have a significantly larger increase in attitude toward team process as compared to students participating in a traditional clinical teaching model. This hypothesis, however, was rejected.

For this study, attitude toward team process was operationally defined as the scores obtained on the TeamSTEPPS® T-TAQ. The T-TAQ measures five teamwork constructs: team structure, leadership, situation monitoring, mutual support, and communication (AHRQ, 2014d). Team structure pertains to the “components of a multi-team system that must work together effectively to ensure patient safety” (AHRQ, 2014a). Communication pertains to a “process by which information is clearly and accurately exchanged among team members” (AHRQ, 2014a). Leadership pertains to “the ability to coordinate the activities of team members by ensuring team actions are understood, changes in information are shared, and team members have the necessary resources” (AHRQ, 2014a). Situation monitoring is a “process of actively scanning and assessing situational elements to gain information understanding, or to maintain awareness to support functioning of the team” (AHRQ, 2014a). Mutual support is “the ability to anticipate and support other team member’s needs through accurate knowledge about their responsibilities and workload” (AHRQ, 2014a).

While these five constructs are components of teamwork, they may not accurately reflect the self-described team experiences of the students who participate in the DEU or blended clinical teaching models. Most notably, students participating in the DEU or blended clinical teaching models generally refer to personal feelings of trust and belonging when describing the health care team and team process (Didion et al., 2013; Gonda et al., 1999; Hegge et al., 2009;

Jeffries et al., 2013). Feelings of trust, support, appreciation, and inclusion improve feelings of belongingness, support clinical learning, and sustain positive clinical learning experiences (Levett-Jones et al., 2009). These feelings, however, may not translate to attitudes of valuing team constructs. While feelings of trust and behaviors of mutual support are necessary for successful teamwork, they are not adequate to significantly affect nursing student attitude toward team process.

Given that teamwork is a complex construct and there was no significant difference between the gains in attitude toward team process for either the DEU model or the blended model as compared to the traditional model, it was decided to further analyze the five constructs of the T-TAQ data. One drawback of the study may have been that the T-TAQ was scored as an average attitude toward team process score. Analysis of each of the five teamwork constructs (team structure, leadership, situation monitoring, mutual support, and communication) may have revealed differences between the three groups. Therefore, a multivariate repeated measures analysis of variance (RM MANOVA) design was used to answer the following research question: Do significant differences exist in self-report understanding of team structure and attitude toward leadership, situation monitoring, mutual support, and communication after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline?

In order to further explore the five teamwork constructs, the following hypotheses were developed:

1. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in understanding of team structure as compared to students participating in a traditional clinical teaching model.

2. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward leadership as compared to students participating in a traditional clinical teaching model.
3. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward situation monitoring as compared to students participating in a traditional clinical teaching model.
4. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward mutual support as compared to students participating in a traditional clinical teaching model.
5. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward communication as compared to students participating in a traditional clinical teaching model.

To test these hypotheses, a total score was calculated for each of the five T-TAQ teamwork constructs (team structure, leadership, situation monitoring, mutual support, and communication). Possible scores ranged from 6 to 30. The data were submitted to a RM MANOVA analysis; the student groups based on clinical teaching model (DEU, traditional, blended) served as the between-subjects factor, and time of test (Pretest, Posttest) served as the within-subjects factor. T-TAQ teamwork constructs (team structure, leadership, situation monitoring, mutual support, and communication) served as dependent variables.

RM MANOVA allows for comparison of factors both within-subjects and between-subjects for several dependent variables (Tabachnick & Fidell, 2007). Assumptions of repeated measures MANOVA needed to be considered. These included (a) independence of observations, (b) interval level repeated measure variables, (c) group defined (e.g., nominal) between-subjects

factor, (d) absence of multivariate outliers, (e) normality for repeated measures in related groups, (f) sphericity for within-subjects factor, (g) homogeneity of variance for between-subjects factor, and (h) homogeneity of intercorrelations (Tabachnick & Fidell, 2007).

Level of measurement requirement and sample size requirement were satisfied. There were 247 cases available for the analysis. This was adequate since the number was greater than $10 +$ the number of levels in the repeated factor, the minimum total sample. In addition, the smallest cell in the analysis had 55, so the requirement of 5 or more cases per cell was also met. Assumption of homoscedasticity of intercorrelations was not supported by the Box's Test of Equality of Covariance Matrices. *Box's M* value (210.28) was associated with a p -value $< .001$, which was interpreted as significant. Therefore, Pillai's Trace criterion was used to evaluate multivariate significance. Pillai's Trace is more robust to violations of assumptions (Tabachnick & Fidell, 2007). Given this analysis had only two levels of repeated measure (Pretest and Posttest), analysis of sphericity was not applicable.

The omnibus results of the RM MANOVA with team structure, leadership, situation monitoring, mutual support, and communication as dependent variables indicated there was a significant between-subjects effect for clinical teaching model, Pillai's Trace = .23, $F(10, 482) = 6.29$, $p < .001$, $\eta^2 = .12$. Likewise, there was a significant within-subjects effect for time, Pillai's Trace = .18, $F(5, 240) = 10.44$, $p < .001$, $\eta^2 = .18$. The within-subjects clinical teaching model x time interaction, as expected, was not statistically significant, Pillai's Trace = .07, $F(10, 482) = 1.84$, $p = .051$, $\eta^2 = .04$, on the combined teamwork constructs.

Hypothesis #1. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in understanding of team structure as compared to students participating in a traditional clinical teaching model.

Statistical analysis. Data were screened for univariate outliers and revealed two outliers (z -score < -3). The normal Q-Q plots for team structure Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the two lowest value outliers. The first case, from the DEU group, had a team structure Pretest score 2-points below the next lowest score. The second case, from the traditional group, had a team structure Posttest score 1-point below the next lowest score. Values for these two outliers were removed from the appropriate dependent variables.

Assumption of normality was met for team structure Pretest and Posttest. The skewness (-.24 and -.56, respectively) and kurtosis (-.77 and -.58, respectively) of the distribution were between ± 1.0 . Assumption of homogeneity of variance was supported by Levene's test for equality of variances for team structure at Pretest, $F(2, 244) = 1.53, p = .220$, and Posttest, $F(2, 244) = .41, p = .664$.

Follow-up univariate analyses of variance indicated the interaction between time and clinical teaching model was not significant on team structure, $F(2, 244) = 2.33, p = .099$. The plot of estimated marginal means summarizes the results (Figure 6). Table 15 presents the means, standard deviations, and group sizes at Pretest and Posttest. Univariate between-group analyses indicated that, regardless of time point, team structure scores were not significantly different between groups, $F(2, 244) = .48, p = .622$. Simple effects were analyzed. Team structure scores increased at Posttest for the DEU group ($p < .001$), the blended group ($p = .001$) and the traditional group ($p = .003$). Therefore, while students participating in all clinical experiences reported a significant increase in understanding of team structure, students participating in the DEU or blended clinical teaching model did not have a significantly larger

increase in understanding of team structure as compared to students participating in the traditional clinical teaching model. Table 16 presents the mean gains, standard error, and group sizes.

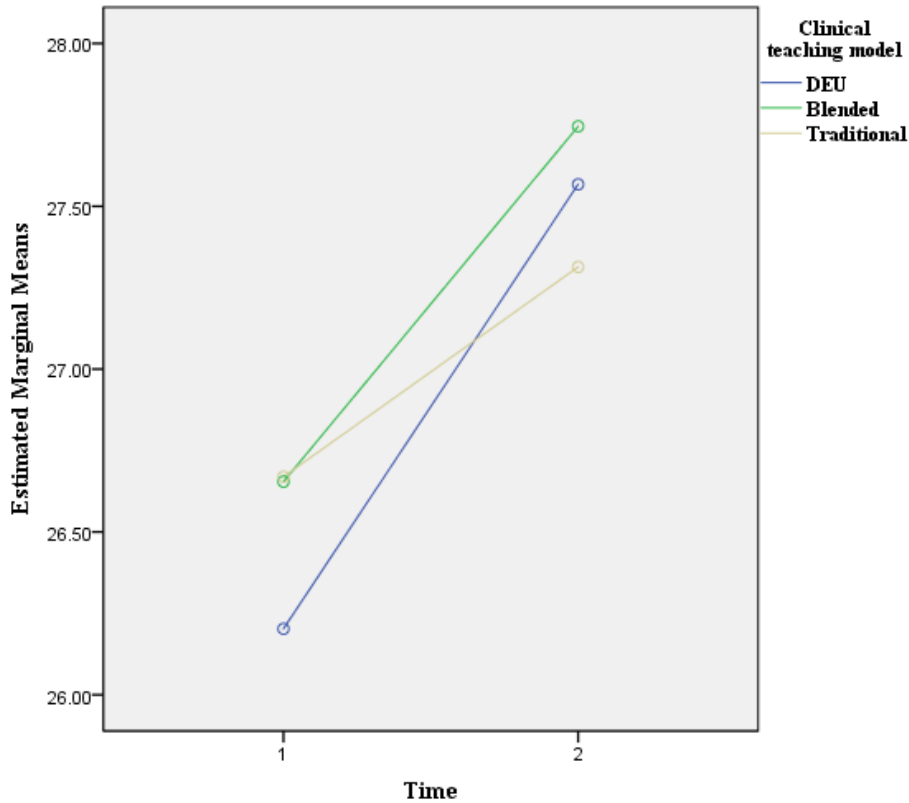


Figure 6. Team structure means by group and time.

Table 15

Descriptive Statistics of Team Structure Scores (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	26.20	2.28	74	27.57	2.15	74
Traditional	26.67	2.16	118	27.31	2.27	118
Blended	26.65	1.97	55	27.75	1.95	55

Table 16

Descriptive Statistics of Gain in Team Structure Scores by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	1.37	.27	74
Traditional	.64	.21	118
Blended	1.10	.31	55

Hypotheses #2. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward leadership as compared to students participating in a traditional clinical teaching model.

Statistical analysis. Data were screened for univariate outliers and revealed five outliers (z -score < -3). The normal Q-Q plots for leadership Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the five lowest value outliers. The first case, from the DEU group, had a leadership Pretest scores 1-point below the next lowest scores (the second and third outlier cases). The second and third cases, from the DEU and blended groups, respectively, had leadership Pretest scores 1-point below the next lowest score. The fourth case, from the traditional group, had a leadership Posttest score 2-points below the next lowest score (the fifth outlier case). The fifth case, from the blended group, had a leadership Posttest score 1-point below the next lowest score. Values for these five outliers were removed from the appropriate dependent variables. Follow-up boxplot analysis revealed no outliers.

Assumption of normality was met for leadership Pretest and Posttest. The skewness (-.73 and -1.10, respectively) and kurtosis (.57 and .18, respectively) of the distribution were between

± 1.1 . Levene's test of homogeneity of variance assumption was violated for leadership at Pretest, $F(2, 244) = 5.13, p = .007$, and Posttest, $F(2, 244) = 9.25, p < .001$. Therefore, as recommended by Tabachnick and Fidell (2007), a more conservative critical alpha level (.025) was used for determining significance for leadership in the univariate F -test.

Follow-up univariate analyses of variance indicated that the interaction between time and clinical teaching model was not significant on leadership, $F(2, 244) = 1.27, p = .284$. The plot of estimated marginal means summarizes the results (Figure 7). Table 17 presents the means, standard deviations, and group sizes at Pretest and Posttest. Univariate between-group analyses indicated that, regardless of time point, leadership scores were significantly different between groups, $F(2, 244) = 6.89, p = .001, \eta^2 = .05$. Simple effects were analyzed. Leadership scores did not significantly change at Posttest for the DEU group ($p = .058$), the blended group ($p = .053$), or the traditional group ($p = .681$). Therefore, while attitude toward leadership varied by group, leadership scores did not significantly increase in any of the groups, and students participating in the DEU or blended clinical teaching model did not have a significantly larger increase in attitude toward leadership as compared to students participating in the traditional clinical teaching model. Both the DEU and blended groups did, however, demonstrate trends toward increase in leadership from Pretest to Posttest, while the traditional group did not. Table 18 presents the mean gains, standard error, and group sizes.

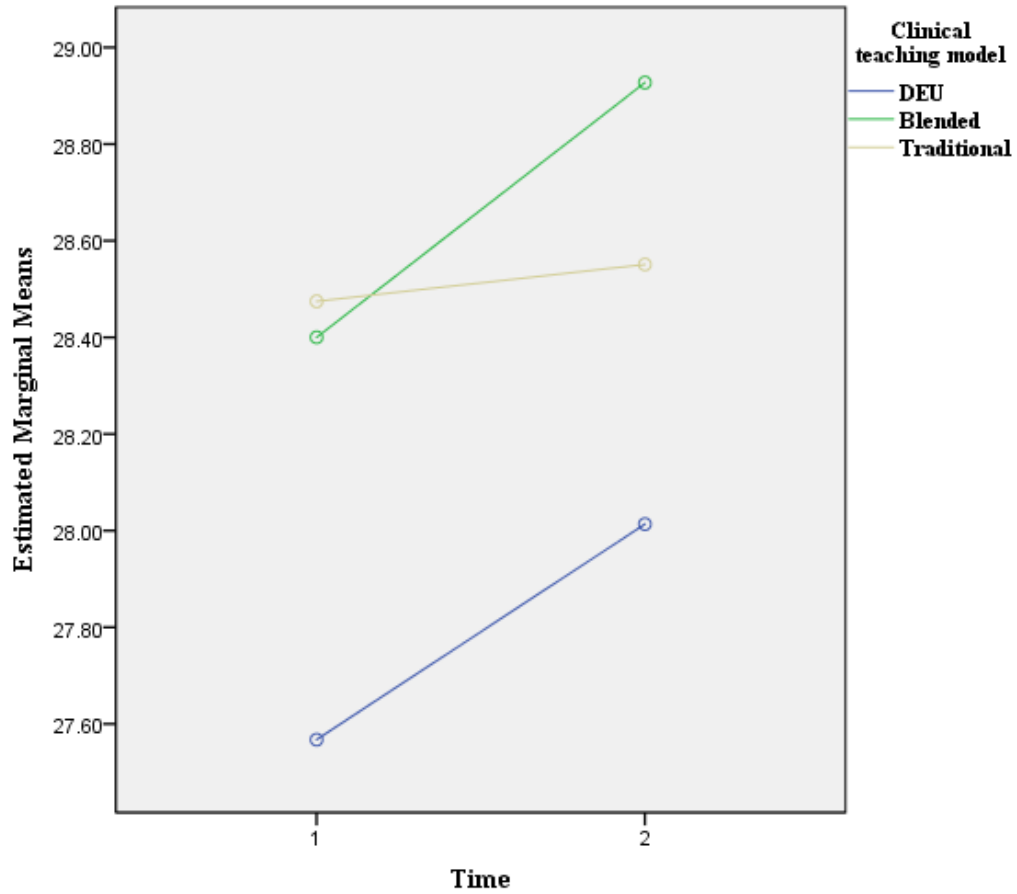


Figure 7. Leadership means by group and time.

Table 17

Descriptive Statistics of Leadership Scores (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	27.57	2.28	74	28.01	2.15	74
Traditional	28.47	2.16	118	28.55	2.27	118
Blended	28.40	1.97	55	28.93	1.95	55

Table 18

Descriptive Statistics of Gain in Leadership Scores by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	.44	.23	74
Traditional	.08	.19	118
Blended	.53	.27	55

Hypothesis #3. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward situation monitoring as compared to students participating in a traditional clinical teaching model.

Statistical analysis. Data were screened for univariate outliers and revealed two outliers (z -score < -3). The normal Q-Q plots for situation monitoring Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the two lowest value outliers. The first case, from the blended group, had a situation monitoring Posttest score 2-points below the next lowest score (the second outlier case). The second case, from the blended group, had a situation monitoring Posttest score 4-points below the next lowest score. Values for these two outliers were removed from the appropriate dependent variable. Follow-up boxplot analysis revealed no outliers.

Assumption of normality was met for situation monitoring Pretest and Posttest. The skewness (-.36 and -.50, respectively) and kurtosis (-.77 and 1.03, respectively) of the distribution were between ± 1.1 . Assumption of homogeneity of variance was supported by

Levene's test for equality of variances for situation monitoring support at Pretest, $F(2, 244) = .59, p = .556$, and Posttest, $F(2, 244) = .12, p = .884$.

Follow-up univariate analyses of variance indicated that the interaction between time and clinical teaching model was not significant on situation monitoring, $F(2, 244) = 2.48, p = .086$. The plot of estimated marginal means summarizes the results (Figure 8). Table 19 presents the means, standard deviations, and group sizes at Pretest and Posttest. Univariate between-group analyses indicated that, regardless of time point, situation monitoring scores were not significantly different between groups, $F(2, 244) = .35, p = .706$. Simple effects were analyzed. Situation monitoring scores significantly increased at Posttest for the DEU group ($p = .008$) and the blended group ($p = .003$). There was no significant change for the traditional group ($p = .410$). Therefore, while students participating in the DEU and blended clinical experiences reported a significant increase in attitude toward situation monitoring, students participating in the DEU or blended clinical teaching model did not have a significantly larger increase in attitude toward situation monitoring as compared to students participating in the traditional clinical teaching model. Table 20 presents the mean gains, standard error, and group sizes.

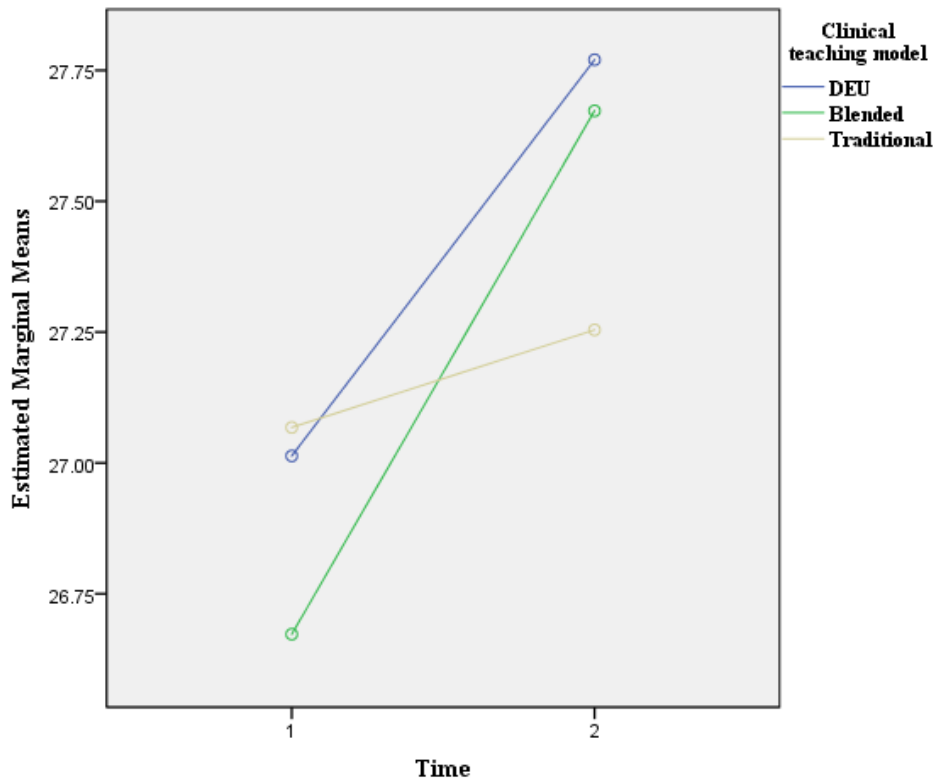


Figure 8. Situation monitoring means by group and time.

Table 19

Descriptive Statistics of Situation Monitoring Scores (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	27.01	2.27	74	27.77	2.40	74
Traditional	27.07	2.32	118	27.25	2.27	118
Blended	26.67	2.37	55	27.67	2.25	55

Table 20

Descriptive Statistics of Gain in Situation Monitoring Scores by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	.76	.29	74
Traditional	.18	.23	118
Blended	1.00	.33	55

Hypothesis #4. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward mutual support as compared to students participating in a traditional clinical teaching model.

Statistical analysis. Data were screened for univariate outliers and revealed three outliers (z -score < -3). The normal Q-Q plots for mutual support Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the three lowest value outliers. The first and second cases, from the blended group, had mutual support Pretest scores 2-points below the next lowest scores. The third case, from the DEU group, had a mutual support Posttest score 2-points below the next lowest score. Values for these three outliers were removed from the appropriate dependent variables.

Assumption of normality was met for mutual support Pretest and Posttest. The skewness (-.31 and -1.17, respectively) and kurtosis (.67 and .105, respectively) of the distribution were between ± 1.2 . Assumption of homogeneity of variance was supported by Levene’s test for equality of variances for mutual support at Pretest, $F(2, 244) = 1.76, p = .174$. However, Levene’s test of homogeneity of variance assumption was violated for mutual support at Posttest,

$F(2, 244) = 22.22, p < .001$. Therefore, as recommended by Tabachnick and Fidell (2007), a more conservative critical alpha level (.025) was used for determining significance for mutual support in the univariate F -test.

Univariate between-group analyses indicated that, regardless of time point, mutual support scores were significantly different between groups, $F(2, 244) = 17.87, p < .001, \eta^2 = .13$. The plot of estimated marginal means summarizes the results (Figure 9). Table 21 presents the means, standard deviations, and group sizes at Pretest and Posttest. Follow-up univariate analyses of variance indicated that the interaction between time and clinical teaching model was significant on mutual support, $F(2, 244) = 4.16, p = .017$. Simple effects were analyzed. Mutual support scores did not significantly change at Posttest for the DEU group ($p = .028$), the blended group ($p = .162$), or the traditional group ($p = .211$). Therefore, while attitude toward mutual support varied by group, mutual support scores did not significantly increase in any of the groups, and students participating in the DEU or blended clinical teaching model did not have a significantly larger increase in attitude toward mutual support as compared to students participating in the traditional clinical teaching model. The DEU group did, however, demonstrate a trend toward decrease in mutual support from Pretest to Posttest, while the blended and traditional groups did not. Table 22 presents the mean change, standard error, and group sizes.

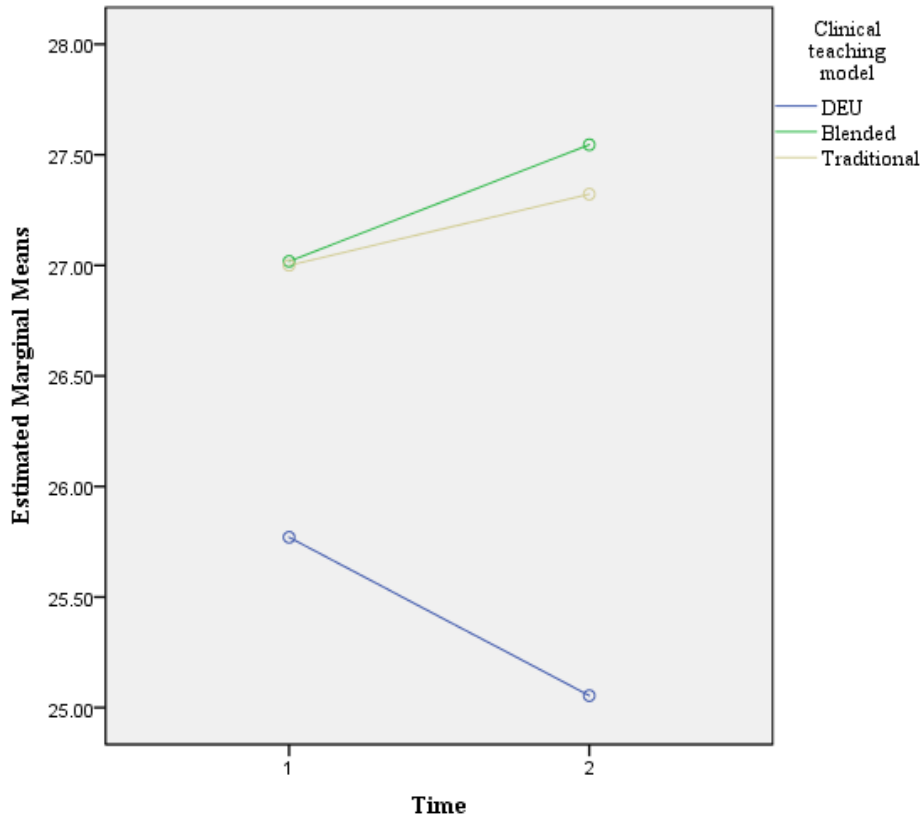


Figure 9. Mutual support means by group and time.

Table 21

Descriptive Statistics of Mutual Support Scores (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	25.77	2.27	74	25.05	3.88	74
Traditional	27.00	2.21	118	27.32	2.17	118
Blended	27.02	2.61	55	27.55	2.16	55

Table 22

Descriptive Statistics of Change in Mutual Support Scores by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	-.72	.32	74
Traditional	.32	.26	118
Blended	.53	.38	55

Hypothesis #5. Students participating in a DEU or blended clinical teaching model will have a significantly larger increase in attitude toward communication as compared to students participating in a traditional clinical teaching model.

Statistical analysis. Data were screened for univariate outliers and revealed four outliers (z -score < -3). The normal Q-Q plots for communication Pretest, Posttest dependent variables were mostly consistent with a normal distribution of values, with deviations appearing in the tails. Extreme value and boxplot analysis also identified the four lowest value outliers. The first case, from the blended group, had a communication Pretest score 1-point below the next lowest score (the second outlier case). The second case, from the DEU group, had a communication Pretest score 3-points below the next lowest score. The third case, from the DEU group, had a communication Posttest score 9-points below the next lowest score (the fourth outlier case). The fourth case, from the traditional group, had a communication Posttest score 2-points below the next lowest score. Values for these four outliers were removed from the appropriate dependent variables. Follow-up boxplot analysis revealed no outliers.

Assumption of normality was met for communication Pretest and Posttest. The skewness (-.36 and -.35, respectively) and kurtosis (-.52 and -.83, respectively) of the distribution were

between ± 1.0 . Levene's test of homogeneity of variance assumption was violated for communication at Pretest, $F(2, 244) = 4.45, p = .013$. Therefore, as recommended by Tabachnick and Fidell (2007), a more conservative critical alpha level (.025) was used for determining significance for communication in the univariate F -test. Assumption of homogeneity of variance was supported by Levene's test for equality of variances for communication at Posttest, $F(2, 244) = .32, p = .724$.

Follow-up univariate analyses of variance indicated that the interaction between time and clinical teaching model was not significant on communication, $F(2, 244) = 1.42, p = .244$. The plot of estimated marginal means summarizes the results (Figure 10). Table 23 presents the means, standard deviations, and group sizes at Pretest and Posttest. Univariate between-group analyses indicated that, regardless of time point, communication scores were significantly different between groups, $F(2, 244) = 4.75, p = .009, \eta^2 = .04$. Simple effects were analyzed. Communication scores did not significantly change at Posttest for the DEU group ($p = .250$), the blended group ($p = .353$), or the traditional group ($p = .362$). Therefore, while attitude toward communication varied by group, communication scores did not significantly increase in any of the groups, and students participating in the DEU or blended clinical teaching model did not have a significantly larger increase in attitude toward communication as compared to students participating in the traditional clinical teaching model. Table 24 presents the mean change, standard error, and group sizes.

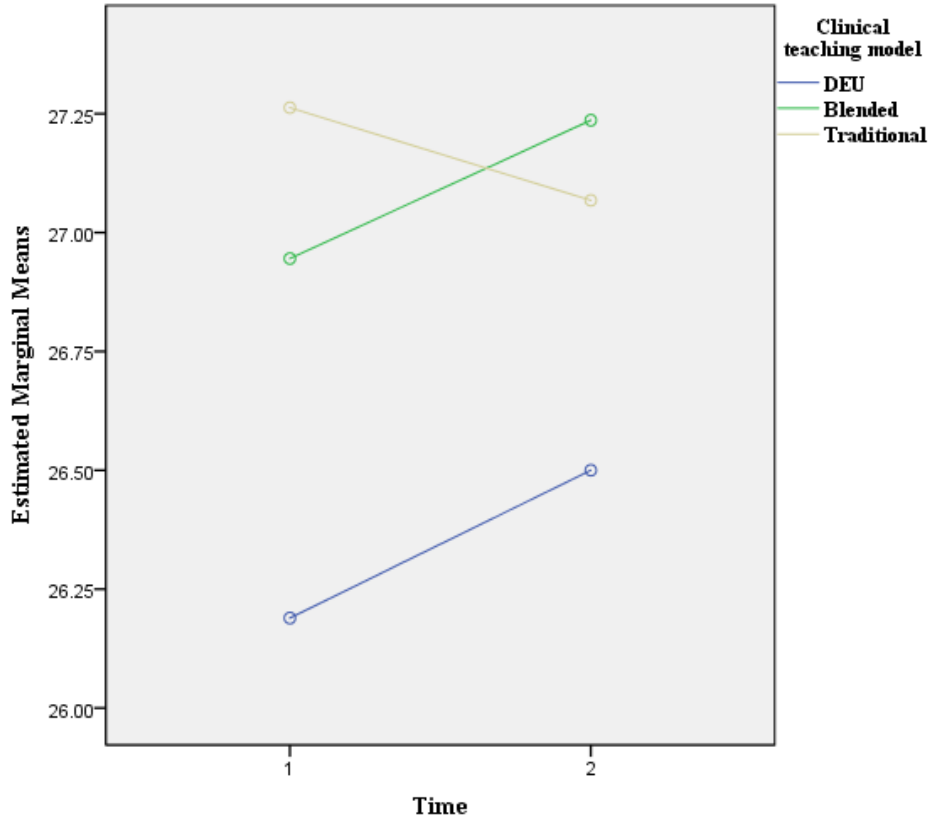


Figure 10. Communication means by group and time.

Table 23

Descriptive Statistics of Communication Scores (Pretest, Posttest) by Group

Group	Pretest			Posttest		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
DEU	26.19	2.35	74	26.50	2.33	74
Traditional	27.26	1.92	118	27.07	2.17	118
Blended	26.95	2.39	55	27.24	2.24	55

Table 24

Descriptive Statistics of Change in Communication Scores by Clinical Teaching Model

Clinical Teaching Model	<i>M</i>	<i>SE</i>	<i>N</i>
DEU	.31	.27	74
Traditional	-.20	.21	118
Blended	.29	.31	55

Summary. To explore the complex construct of teamwork, a fifth research question asked: Do significant differences exist in self-report understanding of team structure and attitude toward leadership, situation monitoring, mutual support, and communication after participation in a DEU clinical teaching model or blended clinical teaching model versus participation in a traditional clinical teaching model compared to baseline? Results of the RM MANOVA with team structure, leadership, situation monitoring, mutual support, and communication as dependent variables demonstrated that students participating in the DEU or blended clinical teaching model did not have significantly larger increases in any of the five teamwork constructs.

As noted previously, results of the mixed-model ANOVA, with attitude toward team process as the dependent variable, demonstrated there was a statistically significant change in attitude toward team process across the entire sample, regardless of clinical teaching model. Analysis of the five teamwork constructs demonstrated the increase in attitude toward team process scores was primarily influenced by an increase in two (team structure, situation monitoring) of the five teamwork constructs.

Students participating in all clinical experiences reported a significant increase in understanding of team structure. While team structure is included as a teamwork construct in the

T-TAQ, it is not regarded as a team competency by the AHRQ (2014b). The team structure construct measures understanding of team concepts related to patients as team members, structural attributes, and multi-team systems. An understanding of these concepts is important for the development of effective teams. There is, therefore, value in nursing students increasing their understanding of team structure in preparation for improving attitudes toward team process.

Students participating in the DEU and blended clinical experiences reported a significant increase in situation monitoring, while there was no significant change in situation monitoring for the traditional group. Situation monitoring is a teamwork construct that begins with an awareness of one's surroundings. Effective situation monitoring also requires the communication of changing or new information with the rest of the health care team (AHRQ, 2014c). Students participating in the DEU and blended clinical teaching models work more closely with staff registered nurses and may have more opportunities to observe and participate in situation monitoring and the sharing of situational information.

Study Limitations

There are three notable limitations to this study:

The first limitation is the lack of generalizability. Generalizability to the target population of all graduates of entry-level baccalaureate nursing programs in the United States is precluded for three reasons. First, this study used a convenience sample. Convenience samples draw from a limited, local, or regional area and are unlikely to represent the composition of the entire target population (Gall et al., 2007). For this study, a convenience sample was necessary due to the data collection requirements of this study. Nursing programs utilizing these three models, nevertheless, may find the results of this study relevant. Second, the convenience samples were derived from two different universities. The diversity of the universities' sizes, settings,

locations, and demographics provide potential confounding variables, unaccounted for in this study. Third, this study made use of a pretest/posttest design. In pretest/posttest design, the pretest may influence the results of the posttest. In particular, this effect is more common when the sample population is self-reporting attitude or personality measures. This pretest sensitization effect limits generalizability to any population that has not been exposed to the pretest (Gall et al., 2007).

The second limitation is this study's use of instruments that were not specific to nursing education. While well-established, the GSE is a measure of general perceived self-efficacy (Schwarzer & Jerusalem, 1995). At the time of this study, published nursing student self-efficacy questionnaires were either extensively domain specific or untested with American nursing students. They were, therefore, not appropriate for use in this study. Alternately, an author developed self-efficacy questionnaire would have been further hindered by unestablished psychometric properties. The TeamSTEPPS® T-TAQ, likewise, is well-established for use with health care workers, including registered nurses, but is less well-established for use with nursing students (AHRQ, 2014d). The use of both of these instruments in this study and the respective reliability scores, however, has the potential to increase the merit of their use in future nursing education research.

The third limitation is this study's analysis of the Likert scale data. Likert scale data were entered as interval data, rather than ordinal data, for statistical analysis. While this is common practice, it is a possible limitation. While ordinal scales convey increasing or decreasing levels of a particular attribute, the distance between each level is not equal. For example, the distance between *not true at all* and *hardly true* may not be the same as the distance between *hardly true* and *moderately true*. Interval scales, conversely, reflect an equal difference between each level

of the scale. For example, the distance between 25 and 26 is exactly the same as the distance between 26 and 27. When ordinal data are analyzed as interval data, an equality of distance is implied (Hinkle et al., 2003).

Implications for Nursing Education

Clinical self-efficacy and favorable attitude toward team process are desired outcomes of clinical experiences. It is helpful, therefore, to know whether or not, and to what extent, type of clinical teaching model accounts for positive variance in student clinical self-efficacy and team process attitude. The results of this study indicate all three clinical teaching models (DEU, traditional, blended) achieved the desired outcomes of increased self-efficacy and improved attitude toward team process. In addition, this study's findings indicate both the DEU and blended clinical teaching models promote clinical self-efficacy more effectively than the traditional clinical teaching model. These findings will assist nursing programs and clinical agencies to select the most appropriate clinical teaching model to achieve desired outcomes.

Recommendations for Future Research

Nurse educators and clinical agency representatives are collaborating to develop clinical partnerships. Small studies of these partnerships are showing promise in (a) increasing clinical self-efficacy, (b) welcoming nursing students into the health care team, and (c) improving student attitudes toward team process. Continued research is recommended to further define and compare measurable constructs. For example, multi-site or multi-state studies using the GSE scale (Schwarzer & Jerusalem, 1995) would provide more comparative and possibly generalizable findings regarding clinical models and clinical self-efficacy outcomes.

While this study did find a significant difference in attitude toward team process across clinical groups, as measured by the TeamSTEPPS® T-TAQ, there was no significant difference

in attitude toward team process between clinical teaching model groups (DEU, traditional, blended). In addition, the increase in attitude toward team process scores was primarily influenced by an increase in two (team structure, situation monitoring) of the five teamwork constructs. While the T-TAQ is appropriate for use as a stand-alone assessment tool (AHRQ, 2014d), it is recommended the TeamSTEPPS® curriculum be incorporated into staff and student, staff alone, or student alone education for various clinical teaching models to evaluate the indirect or direct effects of the curriculum on nursing student attitude toward teamwork. In a study of 21 undergraduate nursing students, Goliat, Sharpnack, Madigan, Baker, and Trosclair (2013) found the TeamSTEPPS® teambuilding module intervention resulted in a significant increase in attitude toward team process ($p < .001$).

Recommended research includes a comparative study of the effect on student attitude toward team process when the unit staff members, but not nursing students, participate in the TeamSTEPPS® curriculum as compared to when neither unit staff members nor nursing students participate in the TeamSTEPPS® curriculum. A study of this type could determine if Bandura's theory of modeling is supported by an increase in nursing student attitude toward team process after students are exposed to registered nurses who have participated in the TeamSTEPPS® curriculum. The TeamSTEPPS® curriculum presents five team constructs: team structure, communication, leading teams, situation monitoring, and mutual support. The four constructs of communication, leadership, situation monitoring, and mutual support have been identified as "teachable, learnable skills" critical to providing safe patient care (AHRQ, 2014a).

Summary

Entry-level baccalaureate nurse graduates must be prepared to confidently and competently function as full members of a health care team. Nurse educators, in collaboration

with clinical agencies, are transforming clinical education to better prepare nurse graduates to competently provide for complex health care needs. The DEU clinical teaching model is an innovative clinical partnership recognized for promoting nursing student skill development, clinical self-efficacy, and integration as a team member. Other partnerships blend features of traditional and DEU clinical teaching models. These blended clinical teaching models are also promoting nursing student clinical self-efficacy and integration as a team member.

This study explored the relationship between three clinical teaching models (DEU, traditional, blended) and perceived clinical self-efficacy and attitude toward team process. All three clinical teaching models resulted in significant increases in clinical self-efficacy and attitude toward team process. Students participating in the DEU clinical teaching model and students participating in the blended clinical teaching model had significantly larger increases in clinical self-efficacy as compared to students participating in the traditional clinical teaching model. These findings support the use of DEU and blended clinical partnerships as effective alternatives to the traditional clinical teaching model to promote clinical self-efficacy and team process among entry-level baccalaureate nursing students.

Appendix A

Survey



Dear Undergraduate Nursing Student,

You are invited to participate in a study entitled: *The Relationship Between Clinical Teaching Models and Perceived Clinical Self-Efficacy and Attitude Toward Team Process*

Purpose of the Research Study

The purpose of this study is to explore the relationship between different clinical teaching models (DEU, traditional, blended) and perceived clinical self-efficacy and attitude toward team process. The findings of this study will help nurse educators identify beneficial clinical teaching models.

Participants

You are being asked to participate in this study because you are (a) enrolled in the second term of an accredited, standard, entry-level baccalaureate nursing program and (b) you are participating in a clinical experience that uses a DEU, traditional, or blended clinical teaching model. If you are a nursing student who is (a) a licensed registered nurse, (b) a licensed vocational nurse, (c) a licensed practical nurse, or (d) repeating the second term, you are not eligible to participate in this study.

Procedures

If you volunteer to participate in this research study, you will be asked to complete the 58-item survey which includes 2 assessment tools (the *General Self-Efficacy Scale* and the *TeamSTEPPS® Teamwork Attitudes Questionnaire*) and a demographic questionnaire. It should take you about seven minutes to complete the entire survey.

Benefits of Participation

There may not be any direct benefits to you as a participant in this study except the satisfaction of knowing you were able to participate in research that affects nursing students. However, we hope to learn more about the effects of different clinical teaching models so that nurse educators can provide optimal clinical experiences.

*Deemed exempt by the ORI-HS and/or the UNLV IRB
Protocol 1412-5023 Exempt Date: 12-17-14
SDSU Approval #: IRB-1412005-EXM Date: 12-12-14*

Page 1 of 2

Risks of Participation

There are risks involved in all research studies. This study may include only minimal risks such as you may be uncomfortable when answering some questions on the assessment tools.

Cost/Compensation

There will be no financial cost to you for participating in this study. You will not be compensated for your time. The completion of the survey will take about seven minutes of your time.

Contact Information

If you have any questions or concerns about the study, you may contact the Principal Investigator, Dr. Michele Clark at 702.895.5978 or the Student Investigator, Christina Plemmons at 605.394.5390. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which this research study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 702.895.2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.**

Voluntary Participation

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. Your agreement to participate or not participate in the study will have no effect on your progress or success in any of the nursing courses in which you are currently enrolled. You may choose not to answer an item and may withdraw at any time without prejudice to your relations with the university. You are encouraged to ask questions about this research study any time during the study.

Confidentiality

All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. Only the principal investigator and student investigator will have access to the data. All data will be reported as grouped data. All records will be stored in a locked cabinet in a locked facility for 3 years after completion of the study. The data will be saved to a password-protected computer. After the data is analyzed the data will be deleted from the software used for analysis.

Participant Consent

You have read the above information and agree to participate in this study. You are at least 18 years of age. You understand you may ask questions about the study before, during or after you complete the survey. You may keep this letter for your records. By completing the assessment tools and questionnaire, you indicate that you have read the above information and agree to participate in the study.

Thank you for your time and participation.

Please go to the next page to begin the survey.

*Deemed exempt by the ORI-HS and/or the UNLV IRB
Protocol 1412-5023 Exempt Date: 12-17-14
SDSU Approval #: IRB-1412005-EXM Date: 12-12-14*

Page 2 of 2

General Self-Efficacy Scale

Instructions: Below is a list of statements dealing with your general sense of perceived self-efficacy. The aim in mind is to predict coping with hassles as well as adaptation after experiencing all kinds of stressful events in the clinical setting. If you feel the statement is

not true at all – circle 1
hardly true – circle 2
moderately true – circle 3
exactly true – circle 4

In the clinical setting:	not true			exactly true
1. I can always manage to solve difficult problems if I try hard enough.	1	2	3	4
2. If someone opposes me, I can find the means and ways to get what I want.	1	2	3	4
3. It is easy for me to stick to my aims and accomplish my goals.	1	2	3	4
4. I am confident that I could deal efficiently with unexpected events.	1	2	3	4
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	1	2	3	4
6. I can solve most problems if I invest the necessary effort.	1	2	3	4
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	1	2	3	4
8. When I am confronted with a problem, I can usually find several solutions.	1	2	3	4
9. If I am in trouble, I can usually think of a solution.	1	2	3	4
10. I can usually handle whatever comes my way.	1	2	3	4

Reproduced and modified with permission from Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: nferNelson.

Available online: Schwarzer, R. (2012). *General self-efficacy scale (GSE)*. Retrieved from <http://userpage.fu-berlin.de/health/selfscal.htm>

Teamwork Attitudes Questionnaire (T-TAQ)

Instructions: Please respond to the questions below by placing a check mark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

Team Structure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is important to ask patients and their families for feedback regarding patient care.					
2. Patients are a critical component of the care team.					
3. This facility's administration influences the success of direct care teams.					
4. A team's mission is of greater value than the goals of individual team members.					
5. Effective team members can anticipate the needs of other team members.					
6. High performing teams in health care share common characteristics with high performing teams in other industries.					

Leadership	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. It is important for leaders to share information with team members.					
8. Leaders should create informal opportunities for team members to share information.					
9. Effective leaders view honest mistakes as meaningful learning opportunities.					
10. It is a leader's responsibility to model appropriate team behavior.					
11. It is important for leaders to take time to discuss with their team members plans for each patient.					
12. Team leaders should ensure that team members help each other out when necessary.					

Situation Monitoring	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
13. Individuals can be taught how to scan the environment for important situational cues.					
14. Monitoring patients provides an important contribution to effective team performance.					
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16. It is important to monitor the emotional and physical status of other team members.					
17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18. Team members who monitor their emotional and physical status on the job are more effective.					

Mutual Support	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
19. To be effective, team members should understand the work of their fellow team members.					
20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21. Providing assistance to team members is a sign that an individual does not have enough work to do.					
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24. Personal conflicts between team members do not affect patient safety.					

Communication	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25. Teams that do not communicate effectively significantly increase their risk of committing errors.					
26. Poor communication is the most common cause of reported errors.					
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28. I prefer to work with team members who ask questions about information I provide.					
29. It is important to have a standardized method for sharing information when handing off patients.					
30. It is nearly impossible to train individuals how to be better communicators.					

TeamSTEPPS® T-TAQ is used with permission of the Agency for Healthcare Research and Quality; Rockville, Maryland.

Demographic Information

This information will be used for research purposes only. Please answer all questions. Circle the most appropriate answer choice or write in your responses where indicated.

1. What is your age? _____
2. What is your gender? Male Female
3. Are you? Single Married Separated Divorced
4. How many children do you have? _____
5. If you have children, how old are they? _____
6. What is your ethnicity? (circle only one)

 Hispanic or Latino

 Not Hispanic or Latino
7. What is your race? (circle one or more races to indicate what you consider yourself to be)

 White

 Black or African American

 Asian

 American Indian or Alaska Native

 Native Hawaiian or Other Pacific Islander
8. Are you currently licensed as an LPN, LVN, or RN? **Yes** **No**
9. Are you currently employed in a **non**-health care related setting? **Yes** **No**
10. Are you currently employed in a health care related setting? **Yes** **No**
11. Prior to your admission to the nursing program, did you work as a nursing assistant/nurses aid? **Yes** **No**
12. Do you currently work as a nursing assistant/nurses aid? **Yes** **No**

13. Are you currently employed in the same clinical setting in which you will participate in clinical education this term? **Yes No**

14. Did you participate in team sports in high school? **Yes No**

15. Are you currently participating in team sports? **Yes No**

16. Are you a coach for a team sport? **Yes No**

17. What is the format of your nursing program?

Summers off, 2 semester per academic year _____

Year round, 3 trimesters per academic year _____

18. How much college experience did you have before beginning the nursing program?

1 semester/trimester _____

2 semesters/trimesters _____

3 semesters/trimesters _____

4 semesters/trimesters _____

More than 4 semesters/trimesters _____

I completed a college degree before starting my nursing program _____

Appendix B

Permission for General Self-Efficacy Scale



Freie Universität Berlin, Gesundheitspsychologie (PF 10),
Habelschwerdter Allee 45, 14195 Berlin, Germany

Fachbereich Erziehungs-
wissenschaft und Psychologie
- Gesundheitspsychologie -

Professor Dr. Ralf Schwarzer
Habelschwerdter Allee 45
14195 Berlin, Germany

Fax +49 30 838 55634
health@zedat.fu-berlin.de
www.fu-berlin.de/gesund

Permission granted

to use the General Self-Efficacy Scale for non-commercial research and development purposes. The scale may be shortened and/or modified to meet the particular requirements of the research context.

<http://userpage.fu-berlin.de/~health/selfscal.htm>

You may print an unlimited number of copies on paper for distribution to research participants. Or the scale may be used in online survey research if the user group is limited to certified users who enter the website with a password.

There is no permission to publish the scale in the Internet, or to print it in publications (except 1 sample item).

The source needs to be cited, the URL mentioned above as well as the book publication:

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp.35-37). Windsor, UK: NFER-NELSON.

Professor Dr. Ralf Schwarzer
www.ralfschwarzer.de

Appendix C

Permission for TeamSTEPPS® T-TAQ

RE: Re Permission to use TeamSTEPPS(R) T-TAQ

Plemmons, Christina

Mon 9/15/2014 6:36 PM

Sent Items

To: Lewin, David (AHRQ) <David.Lewin@ahrq.hhs.gov>;

Hello David Lewin,

Thank you for the quick reply and permission to use the TeamSTEPPS T-TAQ. I will take care to note the source, as requested.

I apologize for the confusion regarding my email address. I am enrolled at UNLV and I am employed as a full-time instructor with SDSU. I will be collecting student data from both UNLV and SDSU nursing students.

For your records, my UNLV student email address is plemmons@unlv.nevada.edu

Sincerely,

Christina

Christina H. Plemmons, MS, RN-BC, CNE

Instructor

College of Nursing, South Dakota State University

1011 11th Street

Rapid City SD 57701

605.348.5390

christina.plemmons@sdstate.edu

From: Lewin, David (AHRQ) <David.Lewin@ahrq.hhs.gov>

Sent: Monday, September 15, 2014 9:04 AM

To: Plemmons, Christina

Cc: Siegel, Randie A. (AHRQ); Cummings, Sandra K. (AHRQ); Englert, Farah (AHRQ)

Subject: Re Permission to use TeamSTEPPS(R) T-TAQ

Dear Ms. Plemmons:

Thank you for your request. I am responding on behalf of Ms. Randie Siegel, Associate Director, Office of Communications and Knowledge Transfer, Publishing and Electronic Dissemination. I handle the majority of permissions requests for the Agency for Ms. Siegel.

Given the information you provided in your email, AHRQ grants you permission to use the TeamSTEPPS® T-TAQ tool in your doctoral research. However, we do ask that you note the source briefly on the surveys and in full where appropriate in your thesis and any subsequent professional papers arising from the study.

On the survey forms, indicate:

TeamSTEPPS® T-TAQ is used with permission of the Agency for Healthcare Research and Quality; Rockville, Maryland.

For your thesis references/bibliography the suggested citation is:

Teamwork Attitudes Questionnaire (T-TAQ): TeamSTEPPS® Instructor Manual. March 2014.

Agency for Healthcare Research and Quality, Rockville, MD.

<http://www.ahrq.gov/professionals/education/curriculum->

[tools/teamstepps/instructor/reference/teamattitude.html](http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/reference/teamattitude.html). If you reprint the .pdf version, use <http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/reference/teamattitude.pdf>.

One question: Are you enrolled for a doctorate at University of Las Vegas, but doing the work at South Dakota State University? The difference in email address between where you are seeking your doctorate and where you want mail sent, made me wonder about your situation.

Please contact me with any further questions.

Sincerely,

David I. Lewin, M.Phil.

Health Communications Specialist/Manager of Copyrights & Permissions

Office of Communications and Knowledge Transfer

Agency for Healthcare Research and Quality

540 Gaither Road

Rockville, MD 20850

+1 301-427-1895 phone

+1 301-427-1873 fax

david.lewin@ahrq.hhs.gov email

From: Plemmons, Christina [<mailto:Christina.Plemmons@sdstate.edu>]

Sent: Sunday, September 07, 2014 6:19 PM

To: Siegel, Randie A. (AHRQ)

Cc: Plemmons, Christina

Subject: Permission to use TeamSTEPPS T-TAQ

Randie Siegel

Associate Director

Office of Communications and Knowledge Transfer

Agency for Healthcare Research and Quality

Randie.siegel@ahrq.hhs.gov

Re: Permission to use TeamSTEPPS T-TAQ

Dear Ms. Siegel,

I am a doctoral student in the department of nursing at the University of Nevada, Las Vegas (UNLV). My dissertation is entitled "Exploring the Relationship Between Clinical Teaching Models and Perceived Clinical Self-Efficacy and Attitude Toward Team Process." One of the variables of my study is second semester nursing student attitude toward team process. I am seeking permission to use the TeamSTEPPS T-TAQ available at http://teamstepps.ahrq.gov/taq_index.htm. I will use the entire instrument as a stand-alone measure to assess attitudes toward the core components of teamwork. I will not modify the instrument in any way.

If you need any additional information, please let me know. If the use of the TeamSTEPPS T-TAQ meets with your approval, please indicate permission granted in a reply to this email.

Sincerely,

Christina Plemmons

1011 11th Street

Rapid City, SD 57701

christina.plemmons@sdstate.edu

Appendix D

Frequency of Responses for the GSE Scale Pretest

Question In the clinical setting:	N	Not true at all	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try had enough.	271	1	28	186	56
2. If someone opposes me, I can find the means and ways to get what I want.	271	17	118	124	12
3. It is easy for me to stick to my aims and accomplish my goals.	271	2	19	144	106
4. I am confident that I could deal efficiently with unexpected events.	271	1	45	169	56
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	269	1	62	165	41
6. I can solve most problems if I invest the necessary effort.	271	0	4	135	132
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	271	1	44	148	78
8. When I am confronted with a problem, I can usually find several solutions.	270	0	40	174	56
9. If I am in trouble, I can usually think of a solution.	270	0	19	173	78
10. I can usually handle whatever comes my way.	271	0	25	169	77

Appendix E

Frequency of Responses for the GSE Scale Posttest

Question In the clinical setting:	N	Not true at all	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try had enough.	272	1	12	188	71
2. If someone opposes me, I can find the means and ways to get what I want.	272	5	92	150	25
3. It is easy for me to stick to my aims and accomplish my goals.	271	1	18	130	122
4. I am confident that I could deal efficiently with unexpected events.	272	0	23	146	103
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	272	1	25	169	77
6. I can solve most problems if I invest the necessary effort.	272	0	7	108	157
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	271	3	26	134	109
8. When I am confronted with a problem, I can usually find several solutions.	272	0	21	148	103
9. If I am in trouble, I can usually think of a solution.	272	1	17	143	111
10. I can usually handle whatever comes my way.	272	1	20	146	105

Appendix F

Frequency of Responses for the T-TAQ Pretest

Question	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is important to ask patients and their families for feedback regarding patient care.	271	0	0	7	55	209
2. Patients are a critical component of the care team.	271	0	0	2	34	235
3. This facility's administration influences the success of direct care teams.	270	0	0	23	112	135
4. A team's mission is of greater value than the goals of individual team members.	270	4	14	58	100	94
5. Effective team members can anticipate the needs of other team members.	271	0	4	21	135	111
6. High performing teams in health care share common characteristics with high performing teams in other industries.	271	0	10	40	118	103
7. It is important for leaders to share information with team members.	272	0	0	1	39	232
8. Leaders should create informal opportunities for team members to share information.	271	0	2	20	95	154
9. Effective leaders view honest mistakes as meaningful learning opportunities.	272	0	0	3	86	183

10. It is a leader's responsibility to model appropriate team behavior.	272	0	2	5	47	218
11. It is important for leaders to take time to discuss with their team members plans for each patient.	272	1	2	10	70	189
12. Team leaders should ensure that team members help each other out when necessary.	272	1	1	3	69	198
13. Individuals can be taught how to scan the environment for important situational cues.	272	0	1	10	139	122
14. Monitoring patients provides an important contribution to effective team performance.	272	0	1	5	97	169
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.	272	0	1	28	106	137
16. It is important to monitor the emotional and physical status of other team members.	272	0	0	17	109	146
17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.	272	1	0	17	108	146
18. Team members who monitor their emotional and physical status on the job are more effective.	272	1	0	12	86	173
19. To be effective, team members should understand	272	1	3	12	136	120

the work of their fellow team members.

*20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.	272	143	115	5	3	6
*21. Providing assistance to team members is a sign that an individual does not have enough work to do.	272	143	119	4	2	4
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.	272	0	7	21	111	133
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.	272	0	4	15	103	150
*24. Personal conflicts between team members do not affect patient safety.	271	144	106	13	1	7
25. Teams that do not communicate effectively significantly increase their risk of committing errors.	272	3	0	1	56	212
26. Poor communication is the most common cause of reported errors.	272	2	1	18	80	171
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.	272	0	0	11	119	142
28. I prefer to work with team members who ask questions about information I provide.	272	0	1	57	124	90

29. It is important to have a standardized method for sharing information when handing off patients.	272	0	0	5	86	181
*30. It is nearly impossible to train individuals how to be better communicators.	272	107	137	16	5	7

*Items were reverse coded prior to analysis

Appendix G

Frequency of Responses for the T-TAQ Posttest

Question	N	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is important to ask patients and their families for feedback regarding patient care.	272	0	0	4	50	218
2. Patients are a critical component of the care team.	272	0	0	0	25	247
3. This facility's administration influences the success of direct care teams.	272	0	1	18	97	156
4. A team's mission is of greater value than the goals of individual team members.	272	1	18	38	75	140
5. Effective team members can anticipate the needs of other team members.	272	0	0	15	110	147
6. High performing teams in health care share common characteristics with high performing teams in other industries.	272	0	1	15	107	149
7. It is important for leaders to share information with team members.	272	0	0	3	41	228
8. Leaders should create informal opportunities for team members to share information.	272	1	1	10	91	169
9. Effective leaders view honest mistakes as meaningful learning opportunities.	272	0	2	6	61	203

10. It is a leader's responsibility to model appropriate team behavior.	272	0	0	3	47	222
11. It is important for leaders to take time to discuss with their team members plans for each patient.	272	0	4	6	71	191
12. Team leaders should ensure that team members help each other out when necessary.	272	0	0	5	59	208
13. Individuals can be taught how to scan the environment for important situational cues.	272	0	1	13	123	135
14. Monitoring patients provides an important contribution to effective team performance.	272	1	1	3	95	172
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.	272	2	1	15	95	159
16. It is important to monitor the emotional and physical status of other team members.	272	0	0	9	99	164
17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.	272	0	0	12	97	163
18. Team members who monitor their emotional and physical status on the job are more effective.	272	1	0	11	72	188
19. To be effective, team members should understand	272	0	3	8	105	156

the work of their fellow team members.

*20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.	272	153	91	2	9	17
*21. Providing assistance to team members is a sign that an individual does not have enough work to do.	272	154	94	3	5	16
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.	272	0	5	17	104	146
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.	271	0	0	11	111	149
*24. Personal conflicts between team members do not affect patient safety.	270	153	90	4	9	14
25. Teams that do not communicate effectively significantly increase their risk of committing errors.	272	3	1	2	84	182
26. Poor communication is the most common cause of reported errors.	272	1	1	7	70	193
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.	272	1	1	8	108	154
28. I prefer to work with team members who ask questions about information I provide.	272	0	5	45	117	105

29. It is important to have a standardized method for sharing information when handing off patients.	272	1	0	8	76	187
*30. It is nearly impossible to train individuals how to be better communicators.	272	106	121	16	8	21

*Items were reverse coded prior to analysis

References

- American Association of Colleges of Nursing. (2008). *The essentials of baccalaureate education for professional nursing practice*. Retrieved from <http://www.aacn.nche.edu/Education/pdf/BaccEssentials08.pdf>
- Agency for Healthcare Research and Quality. (2014a). TeamSTEPPS® Essentials Course. Rockville, MD: Author. Retrieved from <http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/essentials/igessentials.html>
- Agency for Healthcare Research and Quality. (2014b). *TeamSTEPPS Fundamentals Course: Module 2. Team Structure*. Rockville, MD: Author. Retrieved from <http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/fundamentals/module2/igteamstruct.html>
- Agency for Healthcare Research and Quality. (2014c). *TeamSTEPPS Fundamentals Course: Module 5. Situation Monitoring*. Rockville, MD: Author. Retrieved from <http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/fundamentals/module5/igsitmonitor.html>
- Agency for Healthcare Research and Quality. (2014d). *Teamwork Attitudes Questionnaire (T-TAQ)*. TeamSTEPPS® Instructor Manual. Rockville, MD: Author. Retrieved from <http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/reference/teamattitude.html>
- Bandura, A. (1977). *Social learning theory*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.

- Beal, J. A., Breslin, E., Austin, T., Brower, L., Bullard, K., Light, K., . . . Ray, N. (2011). Hallmarks of best practice in academic-service partnerships in nursing: Lessons learned from San Antonio. *Journal of Professional Nursing, 27*(6), e90-e95.
doi:10.1016/j.profnurs.2011.07.006
- Benner, P. (2001). *From novice to expert: Excellence and power in clinical nursing practice*. Upper Saddle River, NJ: Prentice Hall. (Original work published 1984)
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Bentin, J., Betony, K., Moore, L., & Yarwood, J. (2013). Community DEU empowers students and staff. *Kai Tiaki Nursing New Zealand, 19*(1), 18-19.
- Budgen, C., & Gamroth, L. (2008). An overview of practice education models. *Nurse Education Today, 28*(3), 273-283. <http://dx.doi.org/10.1016/j.nedt.2007.05.005>
- Chesser-Smyth, P. A., & Long, T. (2013). Understanding the influences on self-confidence among first-year undergraduate nursing students in Ireland. *Journal of Advanced Nursing, 69*(1), 145-157. doi:10.1111/j.1365-2648.2012.06001.x
- Dapremont, J., & Lee, S. (2013). Partnering to educate: Dedicated education units. *Nurse Education in Practice, 13*, 335-337. <http://dx.doi.org/10/1016/j.nepr.2013.02.015>
- Dean, G. E., Reishtein, J. L., McVey, J., Ambrose, M., Burke, S. M., Haskins, M., & Jones, J. (2013). Implementing a dedicated education unit: A practice partnership with oncology nurses. *Clinical Journal of Oncology Nursing, 17*(2), 208-210.
doi:10.1188/13.CJON.208-210
- Delunas, L. R., & Rooda, L. A. (2009). A new model for the clinical instruction of undergraduate nursing students. *Nursing Education Perspectives, 30*(6), 377-380.

- DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed.). Thousand Oaks, CA: Sage.
- Didion, J., Kozy, M. A., Koffel, C., & Oneail, K. (2013). Academic/clinical partnership and collaboration in quality and safety education for nurses education. *Journal of Professional Nursing*, 29(2), 88-94. <http://dx.doi.org/10.1016/j.profnurs.2012.12.004>
- Edgecombe, K., & Bowden, M. (2009). The ongoing search for best practice in clinical teaching and learning: A model of nursing students' evolution to proficient novice registered nurses. *Nurse Education in Practice*, 9, 91-101. doi:10.1016/j.nepr.2008.10.006
- Edgecombe, K., Wotton, K., Gonda, J., & Mason, P. (1999). Dedicated education units: 1 a new concept for clinical teaching and learning. *Contemporary Nurse*, 8, 166-171.
- Finkelman, A., & Kenner, C. (2008). Educational and service partnerships: An example of global flattening. *Journal of Professional Nursing*, 24(1), 59-65.
<http://dx.doi.org/10.1016/j.profnurs.2007.02.002>
- Freundl, M., Anthony, M., Johnson, B., Harmer, B. M., Carter, J. M., Boudiab, L. D., & Nelson, V. (2012). A dedicated education unit VA medical centers and baccalaureate nursing programs partnership model. *Journal of Professional Nursing*, 28(6), 344.
doi:10.1016/j.profnurs.2012.05.008
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). Boston, MA: Allyn and Bacon.
- Glazer, G., Erickson, J. I., Mylott, L., Mulready-Shick, J., & Banister, G. (2011). Partnering and leadership core requirements for developing a dedicated education unit. *The Journal of Nursing Administration*, 41(10), 401-406. doi:10.1097/NNA.0b013e31822edd79

- Goliat, L., Sharpnack, P.A., Madigan, E., Baker, J., & Trosclair, M. 2013. Using TeamSTEPPS® resources to enhance teamwork attitudes in baccalaureate nursing students. *Western Journal of Nursing Research*, 35(9), 1239-1240. doi:10.1177/0193945913487682
- Gonda, J., Wotton, K., Edgecombe, K., & Mason, P. (1999). Dedicated education units: 2 an evaluation. *Contemporary Nurse*, 8, 172-176.
- Grealish, L., Bail, K., & Ranse, K. (2010). 'Investing in the future': Residential aged care staff experiences of working with nursing students in a 'community of practice'. *Journal of Clinical Nursing*, 19(15/16), 2291-2299. doi:10.1111/j.1365-2702.2009.03133.x
- Guimond, M. E., Sole, M. L., & Salos, E. (2009). TeamSTEPPS. *American Journal of Nursing*, 109(11), 66-68.
- Harmer, B. M., Huffman, J., & Johnson, B. (2011). Clinical peer mentoring: Partnering BSN seniors and sophomores on a dedicated education unit. *Nurse Educator*, 36(5), 197-202. doi:10.1097/NNE.0b013e3182297d17
- Harmon, L. M. (2013). Rural model dedicated education unit: Partnership between college and hospital. *Journal of Continuing Education in Nursing*, 44(2), 89-96. doi:10.3928/00220124-20121217-62
- Hegge, M., Bunkers, S., Letcher, D., Craig, G., Klawiter, R., Olson, R., . . . Winterboer, V. (2009). Clinical academic partnership. *Nurse Educator*, 35(2), 61-65.
- Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences*. Boston, MA: Houghton Mifflin Company.
- Institute of Medicine. (2010). *The future of nursing: Focus on education*. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2010/The-Future-of-Nursing/Nursing%20Education%202010%20Brief.pdf>

- Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*. Retrieved from http://www.nap.edu/catalog.php?record_id=12956
- Jeffries, P. R., Rose, L., Belcher, A. E., Dang, D., Hochuli, F., Fleischmann, D., . . . Walrath, J. M. (2013). A clinical academic practice partnership: A clinical education redesign. *Journal of Professional Nursing, 29*(3), 128-136. <http://dx.doi.org/10.1016/j.profnurs.2012.04.013>
- Kameg, K., Howard, V. M., Clochesy, J., Mitchell, A. M., & Suresky, J. M. (2010). The impact of high fidelity human simulation on self-efficacy of communication skills. *Issues in Mental Health Nursing, 31*(5), 315-323. doi:10.3109/01612840903420331
- Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To err is human: Building a safer health system*. Washington, D.C.: National Academy Press.
- Kwok, T., Lam, K., & Ho, F. (2011). Knowledge of dementia among undergraduates in the health and social care professions in Hong Kong. *Social Work in Mental Health, 9*, 287-301. doi:10.1080/15332985.2011.572696
- Lauder, W., Holland, K., Roxburgh, M., Topping, K., Watson, R., Johnson, M., . . . Behr, A. (2008). Measuring competence, self-reported competence and self-efficacy in pre-registration students. *Nursing Standard, 22*(20), 35-43.
- Leganger, A., Kraft, P., & Roysamb, E. (2000). Perceived self-efficacy in health behaviour research: Conceptualisation, measurement and correlates. *Psychology and Health, 15*(1), 51-69.
- Levett-Jones, T., Lathlean, J., Higgins, I., & McMillan, M. (2009). Staff-student relationships and their impact on nursing students' belongingness and learning. *Journal of Advanced Nursing, 65*(2), 316-324. doi:10.1111/j.1365-2648.2008.04865.x

- Lundberg, K. M. (2008). Promoting self-confidence in clinical nursing students. *Nurse Educator*, 33(2), 86-89.
- Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The General Self-Efficacy Scale: Multicultural validation studies. *Journal of Psychology*, 139(5), 439-457.
- McCoy, C. (2010). Perceived self-efficacy and technology proficiency in undergraduate college students. *Computers & Education*, 55(4), 1614-1617.
- McKown, T., McKeon, L., & Webb, S. (2011). Using quality and safety education for nurses to guide clinical teaching on a new dedicated education unit. *Journal of Nursing Education*, 50(12), 706-710. doi:10.3928/01484834-20111017-03
- Miller, T. W. (2005). The dedicated education unit: A practice and education partnership. *Nursing Leadership Forum*, 9(4), 169-173.
- Moore, J., & Nahigian, E. (2013). Nursing student perceptions of nurse-to-nurse collaboration in dedicated education units and in traditional clinical instruction units. *Journal of Nursing Education*, 52(6), 346-350. doi:10.3928/01484834-20130509-01
- Moscato, S. R., Miller, J., Logsdon, K., Weinberg, S., & Chorpenning, L. (2007). Dedicated education unit: An innovative clinical partner education model. *Nursing Outlook*, 55(1), 31-37. doi:10.1016/j.outlook.2006.11.001
- Moscato, S. R., Nishioka, V. M., & Coe, M. T. (2013). Dedicated education unit: Implementing innovation in replication sites. *Journal of Nursing Education*, 52(5), 259-267. doi:10.3928/01484834-20130328-01
- Mullenbach, K. F., & Burggraf, V. (2012). A dedicated learning unit in long-term care: A clinical immersion for student nurses. *Geriatric Nursing*, 33(1), 63-67. doi:10.1016/j.gerinurse.2011.11.008

- Mulready-Shick, J., Kafel, K. W., Banister, G., & Mylott, L. (2009). Enhancing quality and safety competency development at the unit level: An initial evaluation of student learning and clinical teaching on dedicated education units. *Journal of Nursing Education, 48*(12), 716-719. doi:10.3928/01484834-20091113-11
- Murray, T. A., Crain, C., Meyer, G. A., McDonough, M. E., & Schweiss, D. M. (2010). Building bridges: An innovative academic-service partnership. *Nursing Outlook, 58*(5), 252-260. <http://dx.doi.org/10.1016/j.outlook.2010.07.004>
- Murray, T. A., MacIntyre, R. C., & Teel, C. S. (2011). An analysis of partnership performance: The St. Johns Mercy Medical Center-Saint Louis University School of Nursing dedicated education unit project. *Journal of Professional Nursing, 27*(6), e58-63. doi:10.1016/j.profnurs.2011.08.005
- Nishioka, V. M., Coe, M. T., Hanita, M., & Moscato, S. R. (2014). Dedicated education unit: Student perspectives. *Nursing Education Perspectives, 35*(5), 301-307. doi:10.5480/14-1380
- O'Connor, A. B. (2006). *Clinical instruction and evaluation: A teaching resource* (2nd ed.). Sudbury, MA: Jones and Bartlett.
- O'Lynn, C. (2013). Comparison between the Portland model dedicated education unit in acute care and long-term care settings in meeting medical-surgical nursing course outcomes: A pilot study. *Geriatric Nursing, 34*(3). <http://dx.doi.org/10.1016/j.gerinurse.2013.01.001>
- Parker, K. M., & Smith, C. M. (2012). Assessment and planning for a dedicated education unit. *Journal of Nurses in Staff Development, 28*(3), E1-6. doi:10.1097/NND.0b013e31825515da
- Perry, P. (2011). Concept analysis: Confidence/self-confidence. *Nursing Forum, 46*(4), 218-230.

- Peterson, V. M. (2009). Predictors of academic success in first semester baccalaureate nursing students. *Social Behavior and Personality: An International Journal*, 37(3), 411-417.
doi:10.2224/sbp.2009.37.3.411
- Ranse, K., & Grealish, L. (2007). Nursing students' perceptions of learning in the clinical setting of the dedicated education unit. *Journal of Advanced Nursing*, 58(2), 171-179.
doi:10.1111/j.1365-2648.2007.04220.x
- Rhodes, M. L., Meyers, C. C., & Underhill, M. L. (2012). Evaluation outcomes of a dedicated education unit in a baccalaureate nursing program. *Journal of Professional Nursing*, 28(4), 223-230. doi:10.1016/j.profnurs.2011.11.019
- Ryan, C., Shabo, B., & Tatum, K. (2011). Using experienced clinicians to facilitate clinical education. *Nurse Educator*, 36(4), 165-170. doi:10.1097/NNE.0b013e31821fdbb2
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7(2), 147-177. doi:10.1037//1082-989X.7.2.147
- Schwarzer, R. (2012). *General self-efficacy scale (GSE)*. Retrieved from <http://userpage.fu-berlin.de/health/selfscal.htm>
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFERNELSON.
- Stokes, L. G., & Kost, G. C. (2009). Teaching in the clinical setting. In D. M. Billings & J. A. Halstead (Eds.), *Teaching in nursing: A guide for faculty* (3rd ed.) (pp. 283-299). St. Louis, MO: Elsevier Saunders.

- Springer, P. J., Johnson, P., Lind, B., Walker, E., Clavelle, J., & Jensen, N. (2012). The Idaho dedicated education unit model: Cost-effective, high-quality education. *Nurse Educator*, 37(6), 262-367. doi:10.1097/NNE.0b013e31826f2c4e
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson.
- Tanner, C. A. (2010). Editorial: From mother duck to mother lode: Clinical education for deep learning. *Journal of Nursing Education*, 49(1), 3-4. doi:10.3928/01484834-20091216-01
- Teel, C. S., MacIntyre, R. C., Murray, T. A., & Rock, K. Z. (2011). Common themes in clinical education partnerships. *Journal of Nursing Education*, 50(7), 365-372. doi:10.3928/01484834-20110429-01
- Walker, E., Springer, P. J., Lazare, P., Jensen, N., Clavelle, J. T., Johnson, P. L., & Lind, B. K. (2012). The ABCs of DEUs. *Nursing Management*, 43(12), 38-44. doi:10.1097/01.NuMA.0000419446.58986.f8
- Warner, J. R., & Burton, D. A. (2009). The policy and politics of emerging academic-service partnerships. *Journal of Professional Nursing*, 25(6), 329-334. doi:10.1016/j.profnurs.2009.10.006
- White, K. A. (2009). Self-confidence: A concept analysis. *Nursing Forum*, 44(2), 103-114.
- Wotton, K., & Gonda, J. (2004). Clinician and student evaluation of a collaborative clinical teaching model. *Nurse Education in Practice*, 4(2), 120-127. doi:10.1016/s1471-5953(03)00033-7
- Xyrichis, A., & Ream, E. (2008). Teamwork: A concept analysis. *Journal of Advanced Nursing*, 61(2), 232-241. doi:10.1111/j.1365-2648.2007.04496.x

Yusoff, Y. M. (2012). Self-efficacy, perceived social support, and psychological adjustment in international undergraduate students in a public higher education institution in Malaysia.

Journal of Studies in International Education, 16(4), 353-371.

doi:10.1177/1028315311408914

Zulkosky, K. (2009). Self-efficacy: A concept analysis. *Nursing Forum*, 44(2), 93-102.

Curriculum Vitae

Christina Helene Plemmons

E-mail address: plemmons@unlv.nevada.edu

Education:

Gonzaga University, Spokane, Washington
B.A. International Business 1985

South Dakota State University
B. S. Nursing 2002
M. S. Nursing Education 2008

Certification:

Certified Medical-Surgical Nurse, American Nurses Credentialing Center 2005-2020
Certified Nurse Educator, National League for Nursing 2011-2016

Special Honors and Awards:

South Dakota Nurses Association Rookie of the Year Award 2005
South Dakota Nurses Association/Nursing Education Deans & Directors Nurse Educator Award
2015

Dissertation Title: The Relationship Between Clinical Teaching Models and Perceived Clinical
Self-Efficacy and Attitude Toward Team Process