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Nurse Educators' Transition to Flipped Classroom: An Interpretive Description Study

A dissertation
presented to
the faculty of the College of Nursing
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Doctor of Philosophy in Nursing

by
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December 2015

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Keywords: Flipped Classroom Model, Interpretive Description

ABSTRACT

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by

Jean Shepherd Bernard

To meet learning needs of current undergraduate nursing students, and respond to mandates for bettered prepared graduates, nurse educators must restructure curricula and teaching strategies. One strategy garnering increased attention is the flipped classroom model (FCM). This form of instruction requires students to have access to and be accountable for lecture material on their own time, and then use face-to-face classroom time for interactive learning that can include discussion, case study analysis, or application of pre-class lecture content. Although the FCM has gained popularity, few researchers have fully studied this strategy or considered experiences of faculty who implement the model. Nurse educators, in particular, do not have enough evidence-based information to support use of the FCM. The purpose of this study was to explore and describe undergraduate nurse educators' experiences associated with the FCM and to elucidate factors which enhance and hinder its implementation. With the analytical approach of interpretive description (ID), the researcher sought to highlight what it is like for educators to teach undergraduate nursing students using the FCM and to offer interpretation of what occurs with transition from traditional lecture to this strategy. Three overarching themes emerged from the data: 1) What We Are Doing Is Not Working: "There's a Big Disconnect", 2) Charting a Different Course: Experimenting with the FCM, and 3) Reflections of the Journey thus Far. These themes revealed participants' motivation for transition to the FCM, their patterns of thinking as they restructured coursework, roles and relationships, and considerations regarding

use of this model. Results from this study offer implications for future research and provide undergraduate educators footing for continued evidence-based teaching practice.

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DEDICATION

This work is dedicated to the memory of my mom and dad who loved me unconditionally and through their example, led me to a trusting relationship in Jesus Christ. Their love of family, work ethic, and kindness to others continue to serve as sweet and important reminders that still influence my day to day decisions. I am so grateful to have been their daughter.

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TABLE OF CONTENTS

	Page
ABSTRACT.....	2
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
Chapter	
1. INTRODUCTION	14
The Flipped Classroom.....	16
History of Flipped Classroom	17
Problem Statement.....	19
Significance of Problem	20
Purpose	21
Research Questions.....	22
2. LITERATURE REVIEW	23
Views of the FCM	23
A Conceptualization of the FCM	25
Flipped Classroom: A Learner-Centered Model.....	27
FCM: Surface versus Deep Learning	28
FCM: Accommodating Diverse Learners	29
FCM: Appeal to Millennials	30

Theoretical Frameworks Supporting the FCM	31
Table 1 <i>Summary of Theoretical Frameworks and Associated FCM Class Activities</i>	31
Cognitive and Social Constructivism	33
Learner-Centered Theories	35
Diffusion of Innovation Theory	36
Outcome Measures of the Flipped Classroom	37
Student Test Scores and Quality of Work	37
Student test results in science, technology, engineering and mathematics (STEM).	38
FCM and knowledge retention over time.	40
FCM student outcomes in healthcare.	41
How Students Perceive the FCM	43
Degree of satisfaction.	43
Identified benefits.	44
How Educators View the FCM	46
Requirements of FCM teaching.	46
Identified benefits.	47
Perceived challenges.	48
Implications for Future Research and Nursing Pedagogy	50
3. METHODOLOGY	53
Design	53

Philosophical Underpinnings	54
Bhaskar's critical realism.....	55
Ontological assertions.....	56
Epistemological assertions.....	58
Methodological assertions.	60
Sample Selection and Recruitment	61
Instrumentation.....	62
Establishing Trust.....	62
Data Collection.....	63
Data Management and Analysis	64
Criteria to Ensure Rigor	65
Credibility.	66
Transferability.....	66
Dependability and confirmability.	67
Consideration of Human Rights	67
Summary.....	68
4. DATA PRESENTATION AND ANALYSIS	69
Participants and Data Generation	69
Findings	70
What We Are Doing Is Not Working: "There's a Big Disconnect"	70

Passive learning in the classroom.	71
Little carryover to clinical practice: “They’re not great thinkers.”.....	72
“Today’s students are different.”	72
Charting a Different Course: Experimenting with the FCM.....	75
Going out on a limb: “All by ourselves”.	75
Preparation: Integrating and making connections, but no script.....	76
Rethinking the course framework.	80
<i>Pre-class assignments: In pursuit of the basics</i>	80
<i>In-class activities: Transforming how they think.</i>	83
Rethinking roles and relationships.....	87
<i>Faculty role: Facilitating and coaching.</i>	87
<i>Student Role: From passive to active.</i>	90
<i>Increasing the dialogue: “It is us working together.”</i>	92
Reflections of the Journey Thus Far	96
Benefits: Making better connections.	96
<i>“A much needed structure.”</i>	96
<i>“These students are putting together the pieces.”</i>	99
Challenges: “Becoming comfortable with the uncomfortable.”	102
<i>Student resistance: “You’re gonna get pushback!”</i>	102
<i>The FCM: “In many ways it’s harder.”</i>	104

<i>Relinquishing control: Getting comfortable with chaos.....</i>	106
The FCM: Does it fit in undergraduate nursing education?	108
Tweaking: “It’s still a work in progress.”	111
Summary.....	112
5. DISCUSSION	114
Discussion of Results.....	114
What We Are Doing Is Not Working: “There’s a Big Disconnect”	114
Charting a Different Course: Experimenting with the FCM.....	116
Pre-class assignments: In pursuit of the basics.	118
In-class activities: Transforming how they think.....	119
Table 2 Summary of Flipped Classroom Pre and In-Class Activities	121
Rethinking Roles and Relationships	123
Student role change and resistance: “You’re gonna get pushback.”	124
“These students are putting together the pieces.”	125
Faculty role change: “Becoming comfortable with the uncomfortable.”	126
Implications	130
Education.....	130
Research	131
Study Rigor and Quality Criteria.....	133
Disciplinary Relevance and Transferability	134

Study Concept Map: The Flipped Classroom in Undergraduate Nursing Education.....	135
Personal Reflection.....	137
REFERENCES	140
APPENDICES	158
APPENDIX A IRB Approved Letter of Invitation to Participants	158
APPENDIX B Informed Consent Document	159
APPENDIX C Interview Demographics and Guiding Questions	161
APPENDIX D Requisites for Flipped Classroom Implementation.....	162
VITA	174

CHAPTER 1

INTRODUCTION

Today's nurse educators face challenges to teach in new ways and expand their knowledge of pedagogy. Mandates for radical transformation in undergraduate nursing education require redesign of learning experiences that will bridge the chasm between proficient nursing practice and academic preparation of graduate nurses (Benner, Sutphen, Leonard, & Day, 2010). Specifically, dictates from the Institute of Medicine (2011) and the American Association of Colleges of Nursing (2008) call for nursing faculty to provide instruction that centers on patient-care delivery, integrates problem-solving strategies, and offers meaningful learning encounters. Crookes, Crookes, and Walsh (2013) echoed these dictates in a critical review of contemporary literature, and reported a worldwide call for theoretical teaching strategies "that are more discernibly connected to practical application" (p.240).

Such theory-practice connection begs for learner-centered teaching practices where students participate in meaningful activities and then have opportunities to reflect on what has been learned (Hagler & Morris, 2015; Tremel, 2004). Crookes et al. (2013) identified seven current teaching techniques that nurse educators use to establish more direct links between classroom theory and clinical application. The techniques include use of: technology, simulation, gaming, narratives, art, reflection, and problem-based learning. These findings, and those of other experts, underscore need for greater integration of active teaching strategies with traditional lectures so that students can construct a knowledge base, develop needed skillsets, and practice effectively the concepts they have learned (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010; Hagler & Morris, 2015).

In addition to national imperatives that call for change in undergraduate nursing education, directives also emphasize evidence based practice not only in the clinical arena, but also in classrooms (American Association of Colleges of Nursing, 2008; IOM, 2011; National League for Nursing, 2010). Valiga (2006) coined the acronym EBTP (evidence- based teaching practice) and argued that nurse educators must move beyond the dissemination of facts, and instead, use teaching strategies supported by qualitative and quantitative research findings. The incorporation of such findings strengthens student learning experiences, encourages further exploration, and represents the hallmark of teaching scholarship (Buskist & Groccia, 2011). Interestingly, nurse educators have documented need for EBTP for almost 30 years and produced numerous reviews that focus on topics such as critical thinking, clinical judgment, and simulation-based learning (Cant & Cooper, 2010; Levett-Jones et al., 2010; Yuan, Williams, & Fan, 2008). Despite these efforts, the discipline has made little progress to identify and use evidence upon which to base current teaching methodologies.

In a descriptive study, Patterson and Klein (2012) conducted a national online survey of 295 nurse educators from 86 programs. These authors discovered that while 94 percent of participants reported use of empirical research to guide teaching practices, most also viewed student feedback, course evaluations, and conference information as evidence. Of greater concern, only 14 participants reported use of research data from Educational Resources Information Center (ERIC), a database explicitly focused on educational studies. The majority (66%) viewed Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost and MEDLINE as the most valued databases for pedagogical investigation. In addition, 14 percent of participants reported use of randomized controlled trials (RCTs) to guide

their teaching practices when, in fact, RCTs are designed for subjects other than pedagogical methods.

Patterson and Klein (2012) also solicited qualitative data to ascertain barriers to EBTP. One participant reported receipt of advice from a tenured colleague to “leave the active learning and creative stuff for graduate classes and stick to the basics with undergraduates” (p.243). This participant concluded, “Change can be very hard for those who have been entrenched in their faculty role for too long!” (p.243). Similarly, Clavon (2014) investigated teaching styles of nurse educators across the northern and southern regions of the US and discovered that although 105 nursing faculty advocated learner-centered teaching strategies, the majority conducted classes based on teacher-centered models.

These findings indicate that while nurse educators possess strong clinical-based knowledge, they seem to lack a much needed understanding of educational theory and research. Furthermore, nurse educators must resist the temptation to jump on bandwagons laden with the latest, most appealing instructional practice, and instead, test and apply pedagogical methods derived from valid research findings. The time to focus efforts on evidence based teaching practice is now. It is important, then, to investigate not only the effectiveness of new teaching strategies, but also faculty experiences and the perceived barriers and facilitators associated with implementation.

The Flipped Classroom

One instructional method gaining increased interest is the flipped classroom model (FCM). This teaching strategy calls for students to have access to and be accountable for lecture material outside of the classroom and then, engage in interactive learning exercises during class (Bergmann & Sams, 2012; Berrett, 2012; Hamdan, McKnight, McKnight, & Arfstrom, 2013).

In-class activities include intentional dialogue with faculty and peers, examination of unfolding case studies, and practice of skills based on concepts introduced in pre-class lectures and assignments. Flipped classroom instruction allows for greater student-faculty interaction and encourages active participation as students increase ownership for their knowledge acquisition (McDonald & Smith, 2013; Schwartz, 2014). At the same time, educators assume a more facilitative role as they transfer lectures to the outside-of-class learning space and devote class time to Socratic dialogue (Lambright, 1995). In this way, lectures serve to introduce content, but do not constitute the only vehicle for learning (Frydenberg, 2013; Gernstein, 2013). The combination of previewed lectures with strategic and correlated in-class activities steer students toward deeper levels of learning and promote greater application, analysis, evaluation and creation (Anderson et al., 2000).

History of Flipped Classroom

This flipped classroom, also referred to as the inverted classroom, took root in the 1990s in elementary and secondary education settings (Mazur, 1997), and by 2000, Baker began referring to the strategy as the “classroom flip” (p.9). He gained recognition for identifying the teacher’s role as the “guide on the side” rather than the “sage on the stage” (p.9). Within the same timeframe, Lage, Platt, and Treglia (2000) claimed to be the first to implement the FCM in the undergraduate university setting. These researchers used the model because they believed that traditional lecture failed to accommodate students’ multiple learning styles. In redesign of an introductory economics course, students gained first exposure to course content via voice-over PowerPoint presentations, lecture videos and textbook reading assignments. To promote in-class preparation, these researchers assigned worksheets which correlated with online lecture presentations. The worksheets were randomly collected and graded periodically. Class time

involved practice of economic experiments within small groups, and mini-lectures that addressed specific student questions. Lage et al. (2000) found that the majority of students perceived greater learning in the flipped classroom than with lecture-only classes. In addition, female students had significantly higher ratings ($p = 0.05$) for the in-class experiments than males. This finding may indicate that females benefit more from the interactive aspects of the FCM than their male counterparts.

Crouch and Mazur (2001) investigated a modified version of the flipped classroom and chose to refer to it as peer instruction (PI). These investigators required introductory physics students to also preview course content via video recorded lectures, but used class time to present conceptual questions and evaluate understanding based on student responses via personal handheld clickers. If large numbers of students provided incorrect answers to posed questions, students then formed small groups and discussed responses while faculty circulated the classroom and facilitated further problem resolution. After group discussions, students attempted to answer similar but related questions. This cycle repeated throughout the class with each additional topic. Crouch and Mazur reported data from ten years of teaching with the PI model and noted significant gains in problem solving and conceptual reasoning.

In 2007, two Colorado high school chemistry teachers stumbled upon the power of the flipped classroom and through their work, this pedagogical strategy moved to the forefront in both secondary and higher education arenas (Bergmann & Sams, 2012). In an effort to keep student athletes who missed class abreast with course material, these inventive teachers created inexpensive podcasts that summarized key content areas. Athletes could view in-class course material on their own time outside of class. To the surprise of Bergmann and Sams (2012), other students viewed the podcasts and came to class primed and excited to discuss issues pertinent to

assigned content. In addition, the podcasts seemed to address students' diverse learning needs and allowed more class time for further in-depth exploration of topics. The teachers interacted with students more on a one-to-one basis and students had time for more interactive group work as well. When these authors published their subjective experiences, the flipped classroom model gained popularity (Bergmann & Sams, 2012; Sams & Bergmann, 2013). Educators in secondary settings and across disciplines in higher education began to document anecdotal accounts of the effectiveness of the FCM (Hamdan et al., 2013). Still, researchers need to conduct studies that will further support this strategy.

Problem Statement

Although the FCM has gained increasing popularity in higher education (Berrett, 2012; Hamden et al., 2013; Roscorla, 2011), few researchers, including those in nursing, have fully studied this teaching methodology or explored experiences of faculty who have used the model. Nurse educators, in particular, do not have enough evidence-based information to support use of the FCM, nor do they fully understand benefits and challenges related to its implementation. Most published research has used descriptive (Critz & Knight, 2013; Enfield, 2013; Schwartz, 2014; Toto & Nguyen, 2009) or quasi-experimental design (Day & Foley, 2006; McLaughlin et al., 2014; Missildine, Fountain, Summers, & Gosselin, 2013; Tune, Sturek, & Basile, 2013), employed small, non-randomized samples, and assessed FCM efficacy via teacher-constructed exams and/or student evaluation surveys (Foertsch, Moses, Strikwerda & Litzkow, 2002; Traphagan, Kuscsera, & Kishi, 2010; Zappe, Leicht, Messner, Litzinger, & Lee, 2009). Only two qualitative studies were located that focused exploration on the experiences of instructors who adopted FCM teaching methods (Brown, 2012; Ivala, Thiart & Gachago, 2013).

Such a narrow range of FCM inquiry may help to explain why some educators struggle to fully operationalize this teaching methodology in complex higher education settings. Before nurse educators can determine if the FCM will work in undergraduate nursing, a thorough exploration of faculty experiences associated with its practice should take place.

Significance of Problem

In order to meet increased demands for competently prepared professionals who require less orientation time upon entry into practice, nurse educators need to find better and more effective ways to educate nurses. Directives from government, accrediting bodies, and administration charge nursing faculty to admit, retain, and graduate individuals who are proficient and prepared to function in a complex healthcare environment (Benner et al., 2010; Casey et al., 2011). Although the extent of nursing shortages wax and wane over time, most experts caution that the need for nurses will become increasingly critical (Buerhaus, Auerbach & Stalger, 2009). Efforts, therefore, to correct high student nurse attrition indirectly impact nursing shortages and thus, are central to nurse educators. Likewise, accreditation boards such as the Commission on Collegiate Nursing Education (2009) and the National League for Nursing (2010) delineate specific learning outcomes that give evidence of graduate nurses' ability to identify, formulate, and solve problems, to communicate effectively, and to collaborate professionally on a multidisciplinary level.

Undergraduate nursing education has changed dramatically within the last decade. Increased enrollments, diverse classrooms, students' reliance on technology, and preference for participatory learning all compel those who teach nursing to transition from traditional to more innovative methodologies (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009; Revell & McCurry, 2010). Still, many nurse educators, though experts within the discipline, struggle to

provide effective instruction to their students and continue to “teach the way they were taught” (Bruffee, 1999, p.xiii). Most continue to offer teacher-led lectures while students sit passively, take notes, and memorize content in order to pass quizzes and exams. Although the call for radical transformation in nursing education is clear (Benner et al., 2010), the typical college student listens quietly to instructor presentations while in class, and engages in independent study or practice outside of class (Brown, 2012). Further, as college tuition rates on traditional campuses continue to rise, scrutiny of college educators and the teaching methods they employ increases. The challenge to maximize student-teacher interaction and promote more conceptual integration with practical application is greater than ever before (Bishop, 2013).

All of these factors make exploration of the flipped classroom and faculty perceptions related to its implementation a timely and important topic for study. An interpretive descriptive approach to explore, describe and interpret how nurse educators experience the FCM and view its fit to undergraduate nursing education is significant and essential. The discovery of key themes related to these experiences as well as the pros and cons of this model can inform teaching practices and potentially promote more effective preparation of undergraduate nurses.

Purpose

The purpose of this qualitative study is to explore and describe experiences of nurse educators who have used the FCM in undergraduate nursing settings, and to elucidate factors which enhance and hinder implementation of the model. Through a qualitative descriptive approach, the researcher will develop an in-depth understanding of currently hidden, under-the-surface truths that impact this learner-centered pedagogy and add to an empirical understanding of this teaching method.

Research Questions

Research questions that will allow a flexible and in-depth exploration of flipped classroom implementation among undergraduate nurse educators are broad and comprise a central question followed by guiding questions (Creswell, 2009b). The central question is: As a nurse educator, what has it been like to teach undergraduates using the FCM? Guiding questions narrow and bring focus to the research problem. Examples of guiding questions include:

1. What do you see as benefits associated with use of the FCM?
2. What do you see as challenges associated with use of the FCM?
3. How do you view the student-teacher relationship in the FCM?
4. What do you perceive the student's view of learning to be with the FCM?
5. How you determine what activities to present online and what activities to use in class?

With continued data collection and constant comparative analysis, further questions will emerge to elucidate continued inquiry until categories and connections emerge to generate a set of themes (Thorne, 2008).

CHAPTER 2

LITERATURE REVIEW

A systematic study and analysis of the literature revealed empirical and theoretical findings which resulted in a summary of the current state of the FCM in higher education. Primary sources included non-predatory, peer-reviewed journals, integrative reviews, and dissertations. To study the broad range of experiences with this model, the researcher conducted a computer-assisted search using Google Scholar and the databases of EBSCO Host, OmniFile Full Text Mega (H.W.Wilson), ERIC, CINAHL, PubMed, PsycINFO, ProQuest, and ProQuest Dissertation. Entry of the key terms flipped classroom and inverted classroom along with secondary terms of higher education and nursing students launched the initial search process. With retrieval of database articles, an ancestral review of included references allowed identification and location of additional relevant sources. Given the increased attention of higher education faculty to the flipped classroom, a further search of websites and blogs also revealed pertinent anecdotal information. The results of this search and review of the literature, therefore, provided basis for an analysis of the flipped classroom's definition, the model's hallmark features, theoretical perspectives, and evaluative outcomes of student performance as well as student and faculty perceptions. A discussion of how authors and experts view the FCM follows.

Views of the FCM

Across the literature, most authors readily cited benefits of the FCM and addressed its facility to enhance analytical skills, promote student engagement, and increase one's ownership for learning. Still, most experts could not settle on a precise operational definition of the model, nor could they outline a detailed methodology for its execution. In 2000, Lage et al. referred to the FCM as the "inverted classroom" and described this method as one in which students

preview some form of a video lecture during their own time in order to prepare for more integrative, analytical, and application activities in future class sessions. In contrast to traditional teacher-centered instruction, the student's in-depth engagement with newly learned material occurs in the classroom with benefit of faculty who facilitate the processes of problem-solving, practice, and application. Jarvis (1985) suggested that the instructor's facilitative role gives greater focus to the needs of learners and allows students to actively participate in discovery and understanding of new knowledge. The instructor guides the learning process instead of merely delivering information.

Lage et al. (2000) offered a word of caution, however, and warned educators to view the FCM as a much more comprehensive strategy that calls for greater time, effort, and thought. These authors argued that the model involves far more than an exchange of "events that have traditionally taken place inside the classroom...to outside the classroom and vice versa" (p.32). In no way did they view online video lectures as a substitute to the work of the educator. In fact, Lage et al., along with other experts, found the faculty role more strategic, and portrayed the FCM as an essential bridge that carefully linked independent, at-home instruction with related and meaningful, face-to-face, classroom learning encounters (Bishop & Verleger, 2013; Foertsch et al., 2002; Phillips & Trainor, 2014; Toto & Nguyen, 2009; & Zappe et al., 2009). With the FCM, many authors emphasized students' active participation and saw this component as requisite to the development of higher-order thinking processes and life-long learning (Foertsch et al., 2002; Tan & Pearce, 2011).

Several researchers within the review documented students' progression through Bloom's taxonomy of cognition (Anderson et al., 2000), and also emphasized the students' need to regard outside homework equally as important as in-class experiences (Love, Hodge, Grandgenett &

Swift, 2014; McLaughlin et al., 2014; Tune et al., 2013). That is, if students do not view prerecorded online lectures and complete pre-class assignments, they lack the needed foundation for active participation in exercises, and discussions.

A Conceptualization of the FCM

Educators have created various forms of the flipped classroom and many label their adaptations as “hybrid” further validating a lack of clarity for operational definition and implementation of this model (Bland, 2006; Galway, Corbett, Takaro, Tairyan, & Frank, 2014; Talley & Scherer, 2013, p. 340). Members of the Flipped Learning Network (FLN) offered a conceptual model of flipped teaching and brought greater clarity to its definition as they identified key components (Hamdan et al., 2013). Through use of the acronym, “F-L-I-P”, “four pillars” represent hallmark features of the FCM (p.5). *Flexible Environments* address the dynamic interplay between students, fellow classmates, and the teacher who all engage in meaningful learning activities. The *Learning Culture* calls for use of learner-centered strategies that increase student accountability and allows for integration of key concepts. This culture departs from traditional methods where the teacher plans, directs, and disseminates information to a passive student audience. *Intentional Content* refers to the well delineated concepts that educators introduce to students for independent learning, as well as the strategic, in-class exercises that promote analytical and problem-solving skills. *Professional Educators* adopt the role of facilitator, and no longer direct the learning process or spoon-feed facts via Power Point presentation. Although these themes provide a conceptual structure to flipped classroom teaching, findings within the literature indicate that educators have not yet fully adopted them.

In fact, conclusions from research remain limited because educators have used the FCM in such varied ways. Many flipped classroom investigators assigned online video lectures as pre-

class work, and used face-to-face class time for group work that included problem-solving exercises, case study examination, role play, and discussion (Davies, Dean & Ball, 2013; Enfield, 2013; Gannod, Burge, & Helmick, 2008; Missildine et al., 2013; Pierce & Fox, 2012). Several claimed to test the FCM and did not include online videos, but instead, relied on assigned readings and offered incentives such as quizzes and bonus points to encourage completion (Bates & Galloway, 2012; Deslauriers, Schlelew, & Wieman, 2011). Bishop (2013) admonished educators, however, to carefully construct a definition for the flipped classroom, and to strongly refute those who assert that the model can simply entail assigned homework readings followed by in-class discussions. In another variation, investigators offered “mini-lectures” along with the in-class participatory exercises (Bland, 2006, p. 6; Frydenberg, 2013; Geist, Larimore, Rawizer, & Al Sager, 2015; Lage et al., 2000; McLaughlin et al., 2014; Moravec, Williams, Aguilar-Roca, & O’Dowd, 2010). Given that some researchers used only reading assignments for pre-class work and inserted lectures during their in-class activities indicates a continued fuzzy operational definition of the FCM.

From this discussion, questions remain surrounding the experience of teaching with the FCM. Educators do not fully understand what constitutes meaningful, at-home instruction or well-designed, in-class, interactive exercises. Many wonder if the FCM allows some integration of in-class lecture, or if all class time must be devoted to application and problem-solving. Lastly, educators do not know how to facilitate strategic face-to-face class time effectively such that students engage in higher order thinking. If the nursing discipline is to use the flipped classroom effectively, more research is needed to fully define the model and clearly explicate its pros and cons in the context of undergraduate nursing.

Flipped Classroom: A Learner-Centered Model

Although educators continue work to fully conceptualize or operationalize the flipped classroom, the model reflects features of well-established pedagogical approaches (Prince, 2004). For example, direct links between the FCM and learner-centered teaching become evident with careful examination of Weimer's (2013) hallmark criteria. She contended that the *role of the teacher* must become one of facilitator and that a shared *balance of power* transpire between student and teacher in the learning process. She also recommended practices that promote student *responsibility for learning* and admonished teachers to set high standards, maintain consistency, allow logical consequences, and exhibit a commitment to learning. In her fourth criterion, Weimer proposed a two-fold purpose for the *function of content*: to provide foundational principles within a particular subject area, and to serve as a vehicle that allows students "to do the work like that done in the discipline" (p.124). Her final feature of learner-centered teaching addressed the *purpose and process of evaluation*. Beyond end-of-unit and semester testing, she recommended continual assessment of learning characterized by frequent student self-reflection, peer-evaluation, and student-teacher interaction.

The FCM exemplifies Weimer's five aspects for learner-centered teaching. Although instructors initially impart basic information in a traditional manner via online lecture, their role changes dramatically in the classroom as they take more time to propose questions, clarify, and summarize key take-home messages (Milman, 2012; Traphagan et al., 2010). Through participation in well-designed class activities, students assume greater ownership for learning as they engage with topic-related issues, collaborate, and problem-solve. In addition, they learn quickly the need to view lectures on their own time in order to acquire requisite information for subsequent classwork, and this serves to hone self-directed learning skills (Schwartz, 2014).

Instructors do not merely cover content, but focus instead on use of concepts in real-world applications.

Further, the FCM's different use of in-class time offers greater opportunity for formative evaluation as students and faculty together identify and remedy areas of misunderstanding (Milman, 2012; Roehl, Reddy & Shannon, 2013). In two different meta-analyses, provision of such real-time feedback reveals one of the highest effect sizes (0.73-0.76) of any instructional praxis (Beesley & Apthorp, 2010; Hattie, 2008). Although summative assessment may provide a snapshot of knowledge acquisition, it often comes too late to do anything but inform the student of error. Ongoing formative evaluation enables students to correct misconceptions and arrive at the end of the course with a better grasp of concepts and of how to apply them correctly (Milman, 2012).

FCM: Surface versus Deep Learning

Although not fully validated in their studies, several authors contend that the FCM promotes integration and application of knowledge as opposed to bare retention of factual information (Day & Foley, 2006; Missildine et al., 2013; Moravec et al., 2010). In pivotal research, Marton and Saljo (1976) addressed this distinction when they identified “deep” learning as a reflective process in which students discover conceptual connections and relate new findings with existing knowledge frameworks. In contrast, these researchers identified “surface” learning as rote memorization of discrete and apparently disparate elements (p.125). Schwartz and Bransford (1998) built upon these distinctions and suggested that deep learning occurs when teachers rely not only on lecture (telling) but also incorporate application exercises (discovery). In their study, they attributed greater knowledge transfer and improved learning to the combined elements of telling and discovery. Similarly, the flipped classroom's use of online lectures with

well-appointed in-class activities follows this design and allows students to make distinctions, draw conclusions, and increase both retention and understanding (Day & Foley, 2006).

FCM: Accommodating Diverse Learners

Limited findings suggest that the FCM benefits a diverse range of learners. For example, low achieving students (Owston, Lupshenyuk, & Wideman, 2011) and those for whom English is a second language (Marshall & DeCapua, 2013) prefer courses with online lectures because they can pause, rewind, and review taped sessions as needed, and this contributes to mastery of important concepts. As students achieve objectives within the lower levels of Bloom's taxonomy (Anderson et al., 2000) outside of class and at their own pace, their increased understanding and recall better prepares them for analysis and application in class.

Findings from US Department of Education meta-analyses have revealed that in-class instruction combined with online learning enhanced student performance and educational outcomes with significantly higher average effect size (0.31) than direct instruction via computer application (Jaggars & Bailey, 2010; Office of Planning, Evaluation, and Policy Development, 2010). Additionally, in-class collaboration with peers serves to build confidence in language use and further improves proficiency (Marshall & DeCapua, 2013).

Other authors echoed these findings and documented need for more effective instructional methods in order to increase enrollment and reduce attrition of more diverse student populations (Talley & Scherer, 2013; Tune et al., 2013). In fact, Lage et al. (2000) argued that the traditional lecture classroom "appealed to a relatively narrow and homogenous subset of students" (p. 41). The FCM, therefore, may offer a means to better prepare at risk students for course completion and thereby decrease attrition and improve graduation rates for this group of students.

FCM: Appeal to Millennials

According to Howe and Strauss (2003), millennials present as intelligent, ambitious, and multi-tasking students who prefer interactive and engaging learning experiences. Other researchers described these students as self-absorbed with little interest in altruistic, civic service or group cohesion (Twenge, Campbell, & Freeman, 2012). Nevertheless, these students, who entered higher education in 2000, represent America's largest generation with an expected population of greater than 100 million. Of interest to nurse educators, 85% of baccalaureate and 56% of associate degree nursing students fit into the millennial category (Pettigrew, 2015). Given this generation's 24/7 reliance on technology and their focus on self, educators must reconsider the traditional teaching models that may prove no longer effective (Prensky, 2010; Skiba & Barton, 2006). Prior research has established that most students do not read assigned material in preparation for class, experience a steady decline in attention after the first ten minutes of most lectures, and remember only 20% of presented content (Hartley & Davies, 1978; Moravec et al., 2010; Sappington, Kinsey & Munsayac, 2002; Stuart & Rutherford, 1978). Authors suggested, therefore, that learning environments for millennials should include opportunities for real-time student-teacher feedback, and coursework that blends face-to-face instruction with web-based interactions (Foreman, 2003; Prensky, 2010; Skiba & Barton, 2006).

In line with these recommendations are findings which indicated that interactive video presentations better convey information and maintain attention (effect size = 0.5) than do in-person lectures (McNeil & Nelson, 1991; Zhang, Zhou, Briggs, & Nunamaker, 2006). What is not known, however, is the impact of online video instruction on long-term knowledge gains or to what extent they develop critical thinking skills. Furthermore, students viewing an online lecture does not guarantee grasp of concepts, nor is teacher presence available to make

assessment or offer clarification. Nevertheless, in light of cited findings and recommendations, the flipped classroom by design appears to represent a fitting model that may accommodate the learning needs of millennials.

Theoretical Frameworks Supporting the FCM

Researchers of the flipped classroom identified several theoretical underpinnings as they proposed various class activities in implementation of the model (Table 1). Most gave reference to theories derived from constructivism. Hawks (2014), however, argued that both behavioral and constructivist learning theories support use of the FCM. As instructors present introductory concepts via online lectures prior to class, they maintain a teacher-centered and teacher-controlled approach with focus on delivery of key content in order to lay a foundation for the higher level cognitive activities during class; thus, they ascribe initially to tenets of behaviorism (Handwerker, 2012). Only two research groups cited this important observation (Bishop & Verleger, 2013; Hawks, 2014).

Table 1.

Summary of Theoretical Frameworks and Associated FCM Class Activities

<u>Identified Theory/Model</u>	<u>Author</u>	<u>Identified Class Activities</u>
Constructivism: Active learning/PBL/ Collaborative Learning/ POGIL	Bates & Galloway (2012); Butt (2014); Critz & Knight(2013); Davies et al., (2013); Day & Foley (2006); Deslauriers et al., (2011); Enfield (2013); Franciskowicz (2008);	small group discussion, group problem solving, case studies, role play, group projects, review of homework quiz questions, demonstrations

Table 1. (continued)

<u>Identified Theory/Model</u>	<u>Author</u>	<u>Identified Class Activities</u>
	Foertsch et al., (2002); Freed, Bertram, & McLaughlin, 2014; Frydenberg (2012); Gannod et al., (2008); Jump (2013); Kadry & El Hami (2014); Pierce & Fox (2012); Schwartz (2014); Toto & Nguyen (2009); Tan & Pearce (2011); Tune et al., (2013); Wilson (2013); Zappe et al. (2009)	
Mezirow's theory of transformative adult learning (Mezirow, 1991) *	Galway et al. (2014)	mini-lectures to clarify misconceptions, problem- solving, case study, debate
Kolb's experiential learning theory and learning styles theory (Kolb, 2001)**	Lage et al., (2000)	mini-lectures, experiment demonstration, group discussion, problem-solving
Learning styles theory of Felder and Silverman (1988)***	Toto & Nguyen (2009)	problem-solving activities

*Researchers designed a public health course using this theory because they viewed the concept of reflection as an essential component to learning and as a form of knowledge.

**The learning experience comprises a concrete experience followed by observation and active experimentation which then leads to abstract conceptualization, critical reflection, and testing of new knowledge in different contexts. Based on how students retrieve and process information, they may fall into four categories: assimilators and convergers learn best through abstract conceptualization, while divergers and accommodators learn through concrete experiences.

Optimal knowledge gain occurs when teaching and student learning styles match. (Kolb, 1981)

***This engineering model resulted in development of the Felder-Solomon *Learning Styles Index* in which students can classify themselves on a spectrum of four dimensions each with two extremes: active/reflective, sensing/intuitive, visual/verbal, sequential/global. Findings revealed that engineering students are typically inductive thinkers who describe their learning as active, sensing, visual, and global, while their professors use methods that are passive, intuitive, verbal, and sequential.

Lack of clear conceptualization and educator confusion surrounding details of FCM implementation require careful evaluation of existing theories that support key features of this strategy. Constructivism, Diffusion of Innovation Theory, and Learner-centered theories, therefore, provide a fitting foundation for exploration of the FCM.

Cognitive and Social Constructivism

Many flipped classroom researchers framed their work within constructivist theory as they defended use of class time for learner-centered endeavors. Piaget (1971) proposed cognitive constructivism with the explanation that individuals develop conceptual understanding (schema)

as they test assumptions in relation to their surrounding environments. When observations or assumptions do not align with their existing schema, they either add new knowledge through assimilation, or create new understandings through accommodation. Through well designed class activities, the FCM offers students opportunity to challenge previous ideas, identify conceptual relationships, and apply newly discovered principles to different situations.

Vygotsky (1978) expanded the realm of constructivist learning as he emphasized the role of social interaction, which in his view gives meaning and context to language. He based his theory of social constructivism on the premise that learning occurs best when more informed peers or teachers provide the scaffolding for knowledge construction. Through collaborative and peer-assisted activities the opportunity for demonstration, questioning, and correction can take place, which then allows learners to narrow the gap between what they can accomplish with the assistance of others and what they can do independently. This gap, according to Vygotsky, is the Zone of Proximal Development (ZPD). The work of teaching involves strategically engaging students within this zone such that learning becomes student-focused rather than teacher-centered. As students make progress in learning and become more competent, the zones reposition and a teacher's role changes. Eventually, the student transitions from a dependent pupil to a more independent learner (Young & Paterson, 2007).

In active learning environments student peers have a reciprocal relationship of interdependence, and as they work together, they develop important skills of collaboration, communication, and teamwork that will serve them well in future work environments and life situations (Bruffee, 1999). Further, active hands-on experiences combined with collaborative opportunities support higher-order thinking and deep learning (Palloff & Pratt, 2007). Therefore, social constructivism serves as a suitable overarching theory, and provides the underpinning

for well-known pedagogical models including collaborative learning, active learning, peer-assisted learning, and problem-based learning (Fink, 2003).

Learner-Centered Theories

From both cognitive and social constructivism, a number of related learner-centered theoretical frameworks emerge, many of which are identified in the flipped classroom literature. Researchers frequently cited active learning theory defined by Prince (2004) as “any instructional method that engages students in the learning process” (p.1). Prince viewed active participation and reflection as requisite to the development of metacognition and knowledge transfer to various contexts. Concept mapping, case study analysis, collaborative writing, role-playing, and simulation are examples of active learning methods that promote higher level thinking skills (Grabinger & Dunlap, 1995), appeal to millennial learners (Prensky, 2010), and often appear in flipped classrooms. It is worth noting, however, that Prince’s definition is broad enough to encompass traditional lectures as long as students engage with the teacher, ask questions, and reflect on what transpires; thus, active learning is not unique to the FCM (Bishop & Verleger, 2013).

Active learning encompasses several frameworks, including problem-based learning (PBL), process-oriented guided inquiry (POGIL), peer-assisted learning, and collaborative learning. With each of these, teachers facilitate students who typically work in small groups to support one another in solving problem-based scenarios or examining data. Often, a presented problem serves as the stimulus for development of critical thinking skills that leads to increased understanding (Barrows & Tamblyn, 1980). Interestingly, researchers have discovered that while students gain greater knowledge more quickly through traditional instruction, those who

participate in PBL have greater knowledge retention over an extended period of time (Prince & Felder, 2006).

Clearly, research gives evidence for effectiveness of active learning and its associated frameworks (Hake, 1998; Michael, 2006; Prince, 2004). Even in the nursing discipline, authors have documented positive learning gains with their use (Everly, 2013; Missildine et al., 2013; Roehl et al., 2013; Smith & Cardaciotto, 2011). Further, these theoretical underpinnings prove strategic to the execution of in-class activities of the FCM and represent key components that may well determine its success or failure (Bishop & Verleger, 2013). Given that the FCM employs active learning theory and its various subset frameworks, it warrants further investigation for its potential as a sound instructional method.

Diffusion of Innovation Theory

As educators consider use of FCM, they recognize the need for changing traditional teaching methods. Flipped teaching requires new patterns of educating students both in and outside the classroom; and also requires integration of relatively new technological methods such as podcasting. The diffusion of innovation theory, therefore, becomes relevant to the proposed study in light of how and to what degree educators might embrace or transition to the FCM. Rogers (1962) identified five categories for individuals who encounter a form of invention: Innovators are those who create or produce the innovation. Early adopters are those who readily accept the innovation and then become forerunners to introduce and share opinions to the community at large. The early majority, on the other hand, form a substantial group of individuals who, more skeptical, require some understanding of the innovation's value and benefit before they make use of it. Late majority adopters also comprise a large group, are even more skeptical, and typically wait to adopt the innovation until they see that the larger

community has fully embraced it. A smaller group, called laggards, resists change and does not accept the innovation, even in the face of a larger community that has moved forward for a significant period of time.

In addition to these categories, Rogers (1962) also discussed five factors that often influence the diffusion of an innovation within a community. They include: (a) compatibility with values and needs of the adopters; (b) benefit in relation to resources; (c) the extent of difficulty or complexity in adopting the innovation; (d) degree of observability of results of adoption; and (e) the extent to which a potential adopter may experiment with innovation before committing to it. Use of this theory provides a basis for examining and understanding the characteristics, attitudes, and values of nursing faculty who contemplate use of the FCM in undergraduate settings.

Outcome Measures of the Flipped Classroom

Most research studies reported the effectiveness of the FCM based on student performance via test scores and student satisfaction per self-report surveys. On the other hand, limited research addressed the experiences of educators who implemented the flipped classroom. These evaluative outcomes, therefore, comprise the topics of discussion for this section.

Student Test Scores and Quality of Work

An initial review of student outcome data seems promising, given that researchers in most studies revealed superior performance of FCM students compared to those in traditional classrooms. Only two research groups, however, measured knowledge gains with standardized tests, and many did not indicate significant effect size. Still, in 15 studies, researchers documented statistical significance, but only 12 research groups studied flipped classroom effect on test scores across a full semester. Thus, these limited findings indicate need for continued

investigation before academicians can consider the flipped classroom as an evidence-based teaching practice.

Student test results in science, technology, engineering and mathematics (STEM).

Researchers in STEM courses have documented their flipped classroom experiences broadly throughout the literature. Two frequently cited reports merit attention because the researchers examined results longitudinally from large student samples, controlled for extraneous variables, and studied knowledge gains with valid and reliable test measures (Bates & Galloway, 2012; Deslauriers et al., 2011). To evaluate effectiveness of the FCM to traditional teaching methods, Deslauriers et al. (2011) compared student test scores using the Quantum Mechanics Concept Survey (QMCS), a gold standard measure (McKagan & Wieman, 2006). One student group (N=267) participated in a traditional classroom where a well-respected faculty member, with consistently positive student evaluations provided lecture. This student group achieved 67% on the QMCS while students in the flipped classroom (N=271) scored 85%. Interestingly, the flipped classroom students received instruction from two instructors who had no prior teaching experience. Such an unpredicted finding may accentuate the faculty member's facilitative function in the FCM as opposed to the traditional role hallmarked by content delivery.

Bates and Galloway (2012) used the Force Concept Inventory (FCI), a benchmark measure, to evaluate the flipped classroom knowledge gains in beginning level physics students (N=199). Normalized gains via the FCI provide effective measure of conceptual understanding and can also evaluate usefulness of various teaching methodologies. Previous researchers have documented in their studies that students who engage in interactive in-class problem-solving with fellow classmates and faculty, typically average a normalized gain of 0.3; that is, they increase scores by 30% of their maximum potential gain. Bates and Galloway discovered that

their FCM class attained a normalized gain of .54, and viewed this finding as significant when compared to controlled data of the prior six years. In addition, FCM students realized a modal post-test score of 100% with cohort average of 85.4%, an assessment that is deemed “above the threshold for ‘Newtonian mastery’ of the force concept” (para. 3.3).

It is important to note that in this review of the literature, no authors or research groups offered specific information related to traditional classroom teaching strategies; a well-organized and presented lecture, combined with meaningful learning activities may well parallel findings of an effective flipped classroom. This type of traditional classroom implementation bears a stark contrast to one in which the teacher moves from one PowerPoint slide to another with little student engagement. Finally, in both of the cited research groups, neither one assigned students to view pre-class video lectures; rather both gave out-of-class textbook readings for homework and used quizzes as carrots for completion. Both also used in-class interactive problem-solving exercises. These researchers’ different view of the FCM, as evidenced by their exclusion of pre-class video lectures, provides an additional example of this method’s variation and ill-defined state.

Through use of teacher-made tests, two other research groups evaluated the FCM’s effectiveness in large entry level STEM coursework (Moravec et al., 2010; Stelzer, Brookes, Gladding & Mestre, 2010). Both groups assigned online video lectures for pre-class work and used in-class work sessions to practice problem-solving. Moravec et al. used the FCM in three biology units across the semester, compared unit respective grades from those of past years (N=500), and reported a significant increase of 21% ($p<.001$) in the specific unit scores. On the other hand, Stelzer et al. used the FCM for an entire semester in their introductory physics classes (N=795), and in all exam scores, documented a significant gain of 3% ($p<.01$)

with small effect size (.2). Although Moravec et al. limited use of the FCM in piecemeal fashion, and Stelzer et al.'s application yielded a small effect, both groups attested to effective flipped classroom implementation in courses of large enrollments and multiple sections. Further, Moravec et al. revealed that instructors can apply the FCM for some, but not all course content, and still derive positive results. These researchers confirmed student learning gains even when they did not flip an entire course. Stelzer et al.'s research group also generated significant benefits, although they did not offer the full number of video lectures as planned. These findings indicated that in FCM implementation, partial effort and modification can yield substantial outcomes.

FCM and knowledge retention over time. Deslauriers et al. (2011) also reported that knowledge retention of their traditional and FCM students remained consistent when retested with the QMCS. Even so, students in the flipped classrooms, who had exhibited better conceptual understanding, retained proportionally greater knowledge over an extended period than did their traditional counterparts. Likewise, Ruddick (2012) suggested that knowledge gains with flipped teaching may yield positive influence on subsequent coursework. In his research, he compared course grades of two flipped classroom sections in a first level chemistry course to those of traditional classroom students. By semester's end, only 48.4% of traditional students achieved a grade of C or above, while 73.7% of the flipped classroom students performed at this level or greater. Ruddick offered that the meaningful learning via flipped classroom teaching may boost students' self- confidence, and conceptual understanding that, in turn, leads to success in subsequent coursework. This point, if validated in other contexts, would result in greater endorsement of the FCM.

Two other research groups documented increased advantage of the FCM across time (Ferrerri & O'Connor, 2013; Love et al., 2014). In a study of mathematics students, Love et al. discovered that flipped classroom students (N=27) made significantly better grades on their second test ($p < 0.034$) than did traditional lecture classmates (N=28). Similarly, traditional lecture students scored significantly lower ($p < 0.012$) in first to third test score averages than the FCM students. Ferrerri and O'Connor also compared students' final pharmacology course grades in the initial two years of FCM instruction to grades of prior classes taught by traditional lecture. For example, in a traditional lecture class of 146 students, 21 earned an A (14.4%). In the first year of flipped classroom, 32 students in a class of 152 received A's (21.2%), a significant improvement ($p < 0.002$) over achievement in the previous traditional class. In the second year of using the FCM, 52 students of 151 made A's (34.4%) with a significance of $p < 0.001$ and a 138% rise over traditional lecture student grades. Of importance, these researchers used the same grading procedures and evaluators, but they did not control for student variation between the traditional and flipped classrooms. The authors conceded that flipped classroom students may have received higher course grades because of increased work effort, not the model's integration of pre-class and face-to-face learning exercises.

FCM student outcomes in healthcare. Educators in healthcare disciplines also explored FCM use and four research groups reported significant findings (Geist et al., 2015; McLaughlin et al., 2014; Missildine et al., 2013; Pierce & Fox, 2012). In the area of pharmacology, McLaughlin et al., used independent *t*-tests to demonstrate a statistically significant improvement ($p = 0.001$) in final examination scores among flipped classroom students in relation to a traditional lecture cohort. Similarly, Pierce and Fox (2012) determined by paired *t*-test analyses

for pre and post-test significance that FCM students outperformed their traditional classroom peers on a final examination ($p < 0.001$).

Geist et al. (2015) improved statistical investigation and used standardized scores from Health Education Systems, Inc. (HESI) exams as a covariate for control of differences between two nursing student cohorts ($N=86$). One group received instruction via traditional lecture ($N=40$), and the other participated in the FCM ($N=46$). For each cohort, the researchers analyzed data from three module tests and a final exam. The FCM students significantly outperformed the traditional cohort for test 1, ($p = 0.001$), test 2 ($p = 0.001$), and test 3 ($p = 0.001$), but on the final exam, students' scores revealed no significant difference. Although Geist et al. could not confirm the FCM's influence on long-term knowledge retention, they submitted that students' inclination to prepare for a final examination may mask the effects of this particular pedagogical strategy.

In a comparable study, Missildine et al. (2013) adopted the FCM for an adult health nursing course. The educators produced teacher-made lectures for students to view at home and also developed correlated case studies for in-class examination and discussion. A comparison of the flipped classroom students' test scores to similar unit grades of previous traditional lecture students revealed significant differences. Although Missildine et al. did not control for cohort differences, they discovered that flipped classroom students' mean score was 81.89 compared to their traditional counterparts, who achieved a mean score of 79.79. These findings resulted in a small but significant difference at $p < 0.001$. The researchers also submitted that through FCM pedagogy, nursing retention rates may increase, given that 47 more students completed the coursework successfully with this model.

How Students Perceive the FCM

Most research in the FCM literature reflected students' assessment of this instructional method. Student evaluation via surveys represented the majority of data, but some researchers reported findings gathered from focus groups (Freed, Bertram, & McLaughlin, 2014). Jump (2013) analyzed data from students' written reflections and Strayer (2012) used the College and University Classroom Environment Inventory in his study. The following sections address how satisfied students were with FCM and the elements they found most beneficial.

Degree of satisfaction. Students revealed a generally favorable impression of flipped classroom teaching and found that it encouraged self-regulation, independence, and self-confidence (Critz & Knight, 2013; Day & Foley, 2006; Foertsch et al., 2002; Pierce & Fox, 2012; Schwartz, 2014). Alternatively, Strayer (2012) discovered a greater degree of discomfort in students who were used to more passive and traditional classrooms. These students objected to the active participation that required them to continually reconfigure and modify long held learning practices. Similarly, researchers in the nursing discipline observed that while use of the FCM increased test scores and produced better learning outcomes, it did not always yield high student satisfaction ratings (Missildine et al., 2013). This group of researchers contended that students often assumed passive roles in their learning, and therefore find learner-centered strategies uncomfortable and challenging. In other words, many students prefer the familiarity of traditional classrooms where they can count on teachers to tell them what and how to learn.

Other investigators found that students expressed considerable displeasure at the beginning of a flipped classroom experience, but, as coursework progressed, the model became a preferred learning strategy (Day & Foley, 2006; Schwartz, 2014). In addition, Jump (2013) and Tune et al. (2013) observed that students initially found the required pre-class assignments

overwhelming, and that the intense, in-class work left little time to resolve all of their questions. Still, in the face of these criticisms, students reported increased confidence in their problem-solving abilities, improved strategies for investigation, and better application of concepts related to their continued education and professional endeavors. They also gained greater pride in their work and experienced a comradery with peers as they collaborated in workgroups. Like Missildine et al. (2013), Jump reported that students who disliked the flipped classroom still received higher test scores than their traditional classroom counterparts. This researcher offered that the increased toil of analytical thinking which results in perceived flipped classroom displeasure, also promotes increased work effort and, often, greater achievement. These findings seem to indicate that faculty need not shy away from certain teaching strategies (or models) just because they receive less than glowing evaluations.

Other researchers observed that an inclination toward traditional lecture models waned over the course of a flipped classroom semester. In one study, the percentage of students that rated the course as difficult decreased from 78% to 43% under flipped classroom instruction (McLaughlin et al., 2014). Similarly, Stelzer et al. (2010) reported 72% of students in a pre-course survey preferred traditional classrooms, but in their post-course summation, only 15.4% conveyed this preference. These results and those from previously discussed studies imply that students and faculty must adjust to an inevitable learning curve when they convert to flipped classroom pedagogy.

Identified benefits. Collaborative group-work in the flipped classroom represented one of the model's most beneficial features according to students. Many favored interactive learning exercises over passive note-taking during hours of traditional PowerPoint presentations (Frydenberg, 2012; Papadopoulos, Santiago-Roman, & Portela, 2010). Dialogue among students

and faculty allowed for greater exchange of ideas and often proved more insightful and rewarding (Tan & Pearce, 2011). Enfield (2013) added that students perceived pre-class assignments as complementary to in-class exercises, and the pair kept students on task. Similarly, Critz and Knight (2013) noted increased enthusiasm and participation among graduate nursing students during case study analyses derived from patients cared for in previous clinical encounters. They suggested that such collaboration increased focus, provided a needed structure, and promoted continued study. In addition, Crews and Butterfield (2014) documented in their study that females in the flipped classroom rated the in-class encounters significantly higher ($p < .05$) than their male counterparts. Kadry and El Hami (2014) also discovered higher test scores for females in the FCM cohort. These findings may indicate that the FCM is a suitable alternative for nursing education as females continue to comprise the greatest percent of nursing students.

Most students found the pre-recorded lectures advantageous for completion of in-class activities and considered the continual access beneficial because they could pause and rewind the tapes as needed (Critz & Knight, 2013; Enfield, 2013; Love et al., 2014; Prunuske, Batzli, Howell, & Miller, 2012). In essence, students could self-pace their learning and review concepts as often as needed (Franciszkowicz, 2008). In contrast, other students described the assigned lectures as unnecessary busy work (Foertsch et al., 2002; Toto & Nguyen, 2009). Even so, most found the online videos to provide baseline knowledge of key concepts that proved helpful for the interactive learning exercises encountered in class. Prunuske et al. observed that students who previewed lectures prior to class outperformed their peers on clicker questions that assessed baseline knowledge; however, these researchers documented similar scores in both groups when questions addressed higher-order concepts. These researchers surmised that online assignments

enhance basic knowledge and comprehension while in-class activities develop deeper thinking and analytical ability.

How Educators View the FCM

In this literature review, the majority of educators found flipped classroom teaching a positive experience for both their students and themselves. In this section, discussion centers on faculty perceptions related to requisites for FCM implementation, identified benefits, and perceived challenges.

Requirements of FCM teaching. For effective execution of a flipped classroom, educators and researchers documented a unique set of requirements. For example, Bates and Galloway (2012) recommended a change of paradigm and encouraged faculty to rethink the educator role. These experts emphasized teaching students how to acquire and use conceptual knowledge, rather than merely delivering facts via lecture. Researchers also viewed knowledge of group dynamics and facilitative skills as important as the educator's knowledge of course content (Critz & Knight, 2013; Schwartz, 2014). In fact, Pierce and Fox (2012) viewed the in-class interactions among students and faculty as strategic to a dynamic and creative learning environment. Ivala et al. (2013) added that the work of facilitation in the FCM provided increased incentive to students for continued inquiry and problem-solving, and one student's excitement for learning often proved contagious to others. These educators found their students' new enthusiasm extremely satisfying and such experiences countered the increased faculty workload associated with flipped classroom teaching.

Others identified need for technological proficiency in order to create well-designed online lectures, and for some educators, this prerequisite resulted in increased apprehension (Brown, 2012; Freed et al., 2014). Several faculty members worried that their limited computer

abilities would distract students and give a perception of incompetence. Still others observed that computer management sidetracked them from the work of teaching. Brown noted, however, that some faculty perceived themselves as early adopters based on Rogers' (1962) Innovation Theory. These educators found creation of online video instruction combined with design of meaningful classroom exercises energizing, and viewed such endeavors as part of the adventure associated with cutting-edge teaching practice.

For most educators, the enterprise and application of a flipped course involved a major time and energy commitment (Bates & Galloway, 2012; Butt, 2014; Geist et al., 2015). Enfield (2013) found that design of a new class called for roughly 50 hours of preliminary groundwork. On the other hand, Day and Foley (2006) observed that compared to traditional lecture preparation, faculty required about one half the time for creation of equivalent flipped classroom content. Researchers generally agreed that upfront expenditures of time and effort decreased with repeated flipped classroom teaching, and many found subsequent course modifications and updates much less burdensome. In other research, FCM experts recommended that to maintain student focus, online lectures should last somewhere between 20 to 45 minutes (Critz & Knight, 2013; Day & Foley, 2006; Frydenberg, 2012; Toto & Nguyen, 2009). Correlating written assignments also seemed to improve focus as students viewed pre-class lectures, and the promise of quizzes prior to in-class discussion served as an additional stimulus for completing pre-class coursework (Enfield, 2013; Frydenburg, 2012; Moravec et al., 2010; Tune et al., 2013).

Identified benefits. Educators across disciplines identified distinct advantages associated with flipped classroom teaching. Several observed that students became less passive and assumed increased accountability for both pre- and in-class work (Gannod et al., 2008; Jump, 2013; Wilson, 2013). Over time, dialogue among faculty, students, and their peers prompted

further interaction, collaboration, and development of critical thinking skills (Frydenberg, 2013; Gaughn, 2014; Tan & Pierce, 2012; Wilson, 2014). In addition, the online lectures, related pre-class assignments, and generative classroom exercises all provided students an organized structure for learning, and a multi-faceted approach that served to reinforce key principles and concepts (Pierce & Fox, 2012; Schwartz, 2014). These modalities also catered to a diverse student population with a wide spectrum of learning aptitudes (Talley & Scherer, 2013). Several faculty found that continued access to pre-recorded lectures allowed students to self-pace the learning process and lessened demand for remedial coaching (Franciszkowicz, 2008; Love et al., 2014; Prunuske et al., 2012). Finally, researchers reported that faculty experienced greater satisfaction with the FCM because the increased student interaction challenged their thinking and re-energized their teaching practice (Bates & Galloway, 2012; Critz & Knight, 2013; Gannod et al., 2008).

Perceived challenges. Researchers documented that some faculty expressed a degree of uneasiness related to FCM implementation. Some believed that use of this method would discourage students from attending class, and that online lectures might eventually replace in-class teaching altogether (Enfield, 2013; Freed et al., 2014). Others feared that students would not prepare for class, and thus could not benefit from the analytical problem-solving and application exercises during face-to-face class sessions (McLaughlin et al., 2014). Interestingly, researchers also discovered those who disputed these concerns. Holbrook and Dupont (2011), and Traphagan et al. (2009) for example, found no difference in student attendance when they compared traditional teaching methods to flipped classroom instruction. Freed et al. observed that many faculty viewed their work as more strategic because of the ongoing need for facilitation and interaction with students in the FCM. Further, as McLaughlin et al. continued use

of the model, they instituted pre-class quizzes which, overall, improved students' pre-class preparation.

Faculty also feared that students' initial resistance to flipped classroom instruction would result in negative instructor assessments and thereby jeopardize opportunities for faculty tenure or promotion (Freed et al., 2014). Two experts addressed this concern and offered complementary recommendations. Berrett (2012) suggested that prior to implementation of the flipped classroom, faculty should have conversations with administrators, establish mutual goals to improve analytical skills among students, and then establish support for this paradigm shift. Similarly, Strayer (2012) suggested that administration, faculty, and students prepare for a period of adjustment with transition to the model, and recognize that a degree of perseverance would likely result in positive outcomes. Finally, some educators reported fears that they would not be able to adequately cover all required course content with use of the FCM; however, researchers concluded that this strategy permitted exposure to at least as much as, if not more, content than traditional lecture because it offered pre- and in-class learning opportunities with the added advantage of multiple perspectives, increased questioning, and student-faculty interaction that yielded better grasp of critical principles (Bates & Galloway, 2012; Freed et al., 2014; Schwartz, 2014).

The large majority of faculty were positive regarding the FCM and its impact on both their professional development and students' ability to engage in higher-ordered thinking. Many found this strategy to create an excitement for learning, increased student engagement, and the tangible benefit of improved student test scores. While these educators cited the burdens of an increased workload and time investment, they also appreciated how the model permitted students greater opportunity for analysis, problem-solving, and collaboration with peers and faculty.

Implications for Future Research and Nursing Pedagogy

An examination of the literature revealed present findings of flipped classroom instruction across disciplines and settings within higher education. Results provided information related to how the FCM is defined, its hallmark features, and associated theoretical underpinnings. The review also highlighted outcome measures of student performance, as well as student and faculty views of this teaching strategy. To date, relatively few studies exist to validate the FCM; and a number of researchers have not used rigorous methodology, large or randomized samples, nor implemented controls for confounding variables. In addition, the limited number of longitudinal investigations prevents educators from drawing solid conclusions related to flipped classroom efficacy. Most research that addresses student outcomes highlights examination scores, which may not indicate anything about students' ability to think analytically, make critical decisions, or apply learned concepts to other contexts. To fully appraise the FCM's usefulness, researchers need to create and use measures that will bring to light these important components. Further, most of flipped classroom research surveys students' perceived benefit of the model, and few studies speak to long-term knowledge retention. Even less inquiry has explored faculty perspectives when they convert from traditional teaching methods to the FCM. Clearly these unexplored avenues call for further investigation, and nursing faculty in particular need to engage in such endeavors if they are to determine this model's fit with undergraduate education.

As educators and researchers continue their struggle to operationalize the FCM, its use will yield multiple interpretations and thereby promote ambiguity. Although many researchers have steered their investigations in a manner that positions flipped classroom instruction in a positive light, they also may have erroneously implied that traditional lecture no longer has a

place in higher education. According to Bligh (1998), lecture serves as an effective means for delivery of information, but educators who use this method predominantly do not elicit higher order thinking in students to the degree achieved by faculty who use interactive strategies. It is important, however, that educators recognize lecture as one of the essential components of flipped classroom instruction. Indeed, it provides students the requisite basic knowledge that will permit them to participate in the higher-ordered thinking exercises during class. It is the combination of lecture and the analytical in-class exercises that make the FCM a comprehensive and integrative approach.

Most researchers used teacher-made exams to reveal students' knowledge gains in the FCM. Only a few research groups utilized standardized measures with documented reliability and validity. Most of these, however, indicated positive results. Still, further investigation must take place with valid instruments before educators can fully endorse the model. In addition, the impact of the FCM on knowledge gain over time remains unknown, and to date, the influence of this teaching method on critical thinking or important contextual, problem-solving abilities has yet to be determined. Confirmed measures that address these valuable analytical processes, so needed for 21st century professional practice, will further establish the FCM's viability.

A large body of flipped classroom research centered on student perception of the model; however, most investigators employed self-report surveys. Students initially expressed discomfort with the FCM because they found the required work, independent learning, and self-regulation an unsettling challenge (Strayer, 2012). Over time, though, the structure of pre-class assignments, combined with interactive in-class exercises, proved beneficial as they established team-building skills, increased their decision-making abilities, and developed greater confidence. Most students, therefore, rated the model more positively as their coursework progressed.

Continued inquiry must further examine the balance between the level of unease that promotes engaged learning and the degree of angst that proves detrimental.

Finally, very limited research in the flipped classroom arena speaks to faculty perspectives surrounding transition to and use of this model. Although most see its potential as a means to boost student ownership for learning and increase critical thinking, gaps in the research make implementation an ongoing challenge. Faculty continue to search for meaningful, integrated assignments in both the pre- and in-class learning spaces, and their placement of lecture remains varied. Without clear operational definition, or a blueprint for implementation, faculty continue to question which learning environments, content areas, and student populations will best fit with flipped classroom instruction. Clearly, these concerns call for continued investigation and require in-depth study if the FCM is to thrive.

Given the present evidence surrounding the FCM, nurse educators must examine carefully how this teaching strategy might fit in undergraduate curricula. As they experiment with the model, they need to closely monitor outcomes and use valid measures that yield precise indicators of analytical growth and conceptual synthesis. In addition, they must disseminate their findings and observations. Finally, the nursing discipline would benefit from research that explores the experience of transition to flipped classroom instruction. Currently, nurse researchers have not pursued this avenue of inquiry, and an understanding of the benefits and challenges associated with FCM implementation in undergraduate nursing would prove useful.

CHAPTER 3

METHODOLOGY

An increased understanding of nurse educators' first-hand experiences with flipped classroom teaching calls for multifaceted and experiential inquiry that allows for exploration of interdependent factors. This chapter addresses the study's methodology, philosophical underpinnings, and procedures for sample selection, data collection, and analysis. Discussion of criteria to maintain rigor and ethical considerations concludes the chapter.

Design

Nursing academia and practice represent a discipline associated with various social phenomena that lend themselves to naturalistic inquiry. Within this context, the researcher and participants work together to increase understanding that can result in positive change (Greenwood, 1984; Lincoln & Guba, 1985; Sandelowski, 2000). Likewise, interpretive description (ID) aligns well with nursing inquiry because it allows exploration of complex [clinical] phenomena in a holistic manner and leads to formation of conceptual connections that can influence practice and thus, broaden the discipline's knowledge base (Thorne, Kirkham & O'Flynn-Magee, 2004). For this study, ID is the methodology of choice because it allows not only a description of faculty experiences related to flipped classroom use in undergraduate nursing education, but also interpretation of what occurs when nurse educators shift from traditional teaching to this particular model. Interpretive description moves beyond pure description to reveal "associations, relationships and patterns" related to the phenomenon under study (Thorne, 2008, p.50). This combination of description and interpretation in regards to the FCM has potential to contribute to future evidence-based teaching practice within nursing academia. According to Thorne (2008), the inductive analytical approach of ID examines

thoroughly individuals' experiences and behavioral patterns surrounding a phenomenon of interest, and gives rise to new understandings that can guide further exploration and provide grounds for improved practice.

Interpretive description builds on theoretical understandings, current state of the science surrounding the phenomenon of interest, and the researcher's knowledge and experience (Thorne et al., 2004). Such preliminary knowledge provides the researcher with an "analytic framework" or scaffolding that informs decisions for sampling, data collection and initial analysis (Thorne, 2008, p.54). As a nurse educator, the researcher of this study began flipped classroom exploration based on a desire to move from teacher-led to learner-centered strategies. Further inquiry revealed variations in conceptualization and implementation of the FCM (Bland, 2006; Galway et al., 2014; Talley & Scherer 2013). The lack of understanding and limited research within nursing literature prompted this investigation.

For this study, the flipped classroom was considered to be the transfer of foundational course content from the synchronous classroom to an asynchronous online setting in order to provide more time for interactive and application experiences in class. The author remained cognizant of personal knowledge and familiarities related to the FCM in an effort to portray clearly the participants' unique and self-reflected experiences.

Philosophical Underpinnings

The researcher must establish an approach to inquiry with ontological and epistemological assumptions that fit the selected methodology. Such congruence is of utmost importance when one considers the disturbing gap between current nursing education practice and the preparation of competent graduates. A well thought out philosophical point of view, therefore, provides a solid foundation for the development of sound research in nursing

science. Without this important underpinning, the researcher engages in inquiry and establishes a design and methodology lacking in rigor and merit. Weaver and Olson (2006) spoke of philosophical paradigms as “patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames, and processes through which investigation is accomplished” (p.459). If nursing is to continue its quest as a respected, independent discipline and under-gird its professional practice with a strong, well developed knowledge base, it must structure its inquiry and select methodology based on well suited philosophical assumptions. This will ensure a long-term and stronger impact on the profession’s research, education, and practice.

Initially, nursing pursued research and inquiry based on tenets seated within the positivist domain. The rigorous approach and objective methodology of this paradigm served to validate nursing’s status as a science and growing discipline. By the 1980s, however, the profession ushered in a different philosophical point of view resulting in a paradigm debate that proposed a need for investigation surrounding humanistic and qualitative aspects related to patient care. Since then, an ongoing “time-warped” dualism between the positivist-quantitative view and the relativist-qualitative perspective has marked the nursing discipline in relation to philosophical foundations (Wainwright, 1997, p.1262).

Bhaskar’s critical realism. Philosopher Roy Bhaskar (2008) took issue with these competing philosophical foundations, and contended that neither view provides a comprehensive account for the full range of scientific pursuit. As a human science that embodies both social and natural phenomena, nursing faces a similar dilemma. Positivism cannot account for the holistic dimension surrounding occurrences in nursing education, practice, and research; while relativism tends to lose the often needed objectivity and generalizability within these areas. Bhaskar,

developer of the theory of critical realism, took on a different view of science offering a comprehensive model of reality that begins with a conception of what is (ontology) and then moves to an analysis of how one knows about that reality (epistemology) (Sayer, 2000).

As a middle path, critical realism offers a wider conception of scientific investigation, accommodating *both* positivistic-quantitative and humanistic-qualitative methods of inquiry. Bhaskar's (2008) theory provides a way of avoiding a false dichotomy posed by these prominently held philosophical approaches (Sayer, 2000). "By simultaneously challenging common conceptions of both natural and social science, particularly as regards causation, critical realism proposes a way of combining a modified naturalism with a recognition of the necessity of interpretive understanding of meaning in social life" (Sayer, 2000, p.3). This contention provides major important implications for current nursing science. As a practicing discipline with a strong humanistic element, nursing and nursing education operate in both the realm of the tangible, quantifiable therapeutic outcome as well as in the more intangible, qualitative, and subjective domain of perception, belief, and motivation. Nursing has much to learn from both realms and knowledge gained through utilization of this philosophical underpinning will significantly impact future pedagogy and delivery of care.

Ontological assertions. Ontologically, critical realism presupposes "that the structures creating the world cannot be directly observed" but the fact that we cannot directly access objective reality does not leave us hopeless with respect to knowing things about it (Wainwright, 1997, p.1264). Indeed, critical realism identifies two dimensions of the world: the intransitive and the transitive (Wainwright, 1997). The physical and social causal entities of the world that exist comprise the intransitive dimension, whether we are aware of them or not. The human experience of the world, our beliefs and theories compose the transitive aspect. Although

theories and beliefs (the transitive) may change, the intransitive remains unaltered. This means the nature of the world and our understanding of it cannot be the same thing. Of chief importance, critical realism differs from the positivist's empirical realism whereby that which is real can only be identified with observed experience and testing. This classical positivism reduces the concept of causality to the perception of one event following another on the basis that one could not directly observe the activity of any mysterious, hidden "causal power." In contrast, critical realism argues that the only way researchers can make comprehensive sense of the world and rationally use the process of scientific investigation is if they presuppose that some unperceived causal power *does* exist and *is* acting as the basis for the event sequences they observe.

Critical realism also asserts ontologically that reality consists of three domains: the *real*, the *actual*, and the *empirical* (Bhaskar, 2008). The *real* consists of all existing structures and entities (whether or not we have knowledge of or experience them). The real domain includes both the *actual* and the *empirical*. Structures and entities represent not only physical objects, but also social structures or persons, and each of these has certain causal powers to change whereby they can interact with one another in specific ways. For the critical realist, the world consists of many things, often not directly perceived but only inferred, that affect one another causally. Such causal mechanisms reside hidden and under the surface. Many potential events and interactions exist in the *real* domain, but only some of these actually will occur. Thus, the *actual* domain represents these *actually occurring* events because of activation of causal interactions and structures within the *real* domain. These events and perceivable results of the *actual* are more likely to be observed. The *actual* includes the *empirical* realm marked by perceivable human

experience of both science and theory, but perceptions are fallible (Bergin, Wells, & Owens, 2008).

Epistemological assertions. Critical realism contends that the proper task of science is to understand the working of the underlying generative mechanisms that supply the events composing the experienced world. According to Bhaskar (2008), “Structures and events are real and distinct from the patterns of events that they generate; just as events are real and distinct from the experiences in which they are apprehended. Mechanisms, events, and experiences thus constitute three overlapping domains of reality...” (p.56). Clark, Lissel, and Davis (2008) provided a pertinent example of a bell ringing inside a vacuum chamber from which air has been withdrawn leading to the disappearance of sound. In the *actual* domain, the sound and movement of the bell occur. The observed changes that take place when the vacuum is created, point to an underlying, “hidden” causal mechanism of the movement of sound and light through air in the *real* domain. Finally, human perception and interpretation of both the *real* and *actual* realms represent the *empirical* domain.

Critical realism is said to combine a realist ontological perspective with a relativist epistemology (McEvoy & Richards, 2003). Because human perceptions offer fallible and incomplete interpretations of the real and actual domains, they bear inaccuracies, and thus must remain open to revision and improvement. Thus, the critical realist’s attitude toward epistemology parallels that of post-modern constructivists in that no theory can ever lay claim to being precise, absolute truth because all scientific theory and conclusions are contextual and susceptible to refinement and improvement over time (Thorne, 2008). The critical realist’s “epistemology is that appearances do not necessarily reveal the mechanisms which cause these appearances...” so that the focus lies in knowing and understanding how and why things occur

(Wainwright, 1997, p.1264). Knowing involves identifying the complex, hidden, under-the-surface, causal mechanisms of the real domain, and seeking to determine the “why” behind observations discovered through scientific method. This quest represents acquiring knowledge through both the physical-quantitative as well as the humanistic-qualitative realm. For nursing and nursing education, understanding of such mechanisms allows for development of new, stronger theories that explain human behavior and response, leading to the design of plans and interventions that will result in effective outcomes. Nurses must “go beyond the surface of observable factors (the actual) to explore what is happening underneath (the real)... [and further recognize that] potentially small changes in underlying factors could have significant and large effects on the nature or the possibility of a certain event arising in the actual domain” (Clark et al., 2008, p. E70). Although important to gain knowledge of relationships and pattern connections, one fares far better to know the complex origins of underlying phenomena surrounding nursing, education, and healthcare. Critical realism offers this epistemological advantage.

Through discovery of the causal mechanisms of the real domain, the nurse researcher gains knowledge scientifically, esthetically, morally and personally (Carper, 1978). This is supported by Bhaskar’s (2008) concept of stratified reality. Critical realism accepts the existence and differentiated domains of multiple levels of complexity within reality, and each level requires distinct methods for its study and understanding. For example, atoms combine to form molecules, the interaction of which creates a level of chemical activity, which in turn forms the basis of biological activity in living organisms, some of which are complex enough to display intelligence, and the joint activities of multiple intelligent beings form social patterns within a community. Each higher level finds roots in the activities of the levels below it, but displays

properties and capabilities that cannot be logically reduced to those of the lower level. Therefore, each new entity or level of complexity must legitimately be studied through a method appropriate to its nature. The specific methods appropriate to the study of atoms differ from the methods required to make sense of social interaction of human beings, but each set of methods can be equally legitimate and appropriate for its subject matter. Critical realism provides a theoretical foundation for rational study of both the simpler, more quantifiable physical as well as the more qualitative, complex humanistic realities.

Methodological assertions. As researchers acknowledge the complexity of the world of nursing education and its dynamic open systems, critical realism suggests that their methodology find root in the nature of the research questions and the ideas surrounding the phenomena under study (Clark et al., 2008). Such methodology involves the building of theory to address underlying causal mechanisms that produce events and experiences not readily observed (Wainwright, 1997). For example, the interpretative paradigm aligns well with critical realism, allowing dialogue between researcher and participant, and thus develops a deeper understanding of “what works for whom, when, and why” (Clark et al., 2008, p. E74). The complex nature of the world and its stratified reality opens the door for use of both qualitative and quantitative approaches to inquiry.

Interpretive description offered a substantial means for studying a particular part of the stratified reality and enabled this researcher to understand nurse educators’ perceptions related to the FCM, including what aided and hindered implementation of the model. Interpretive description also provided a means to discern, delineate, and analyze the many interrelated factors of flipped classroom use. It permitted the construction of a theoretical model for flipped

classroom teaching within undergraduate nursing and provided practical applicability that can advance the model's operationalization.

Sample Selection and Recruitment

For this study, the researcher employed purposive sampling (a form of nonprobability sampling). Inclusion criteria included nursing faculty who: spoke English; taught undergraduate nursing students; had two or more years of teaching experience; and had used both traditional lecture and flipped classroom models for one or more semesters. In addition, participants had to have used the FCM according to this study's definition; that is, they must have provided foundational course content via an asynchronous online setting and used face-to face class time for interactive and application experiences.

The initial sample of participants was selected because of their experience with the FCM, their willingness to reflect on their transition to use of the model, and their willingness to participate in the study (Morse & Richards, 2002). The qualitative researcher typically uses nonprobability sampling because individuals within a group or particular culture share experiences and roles that make them more attuned to the relevant issue of a study (Cutcliffe, 2000; Higginbottom, 2004). Each participant that belongs to a specific group, therefore, may be considered representative of the group in qualitative inquiry (Sandelowski, 1993). In nonprobability sampling, the researcher seeks to select participants who can provide accurate description, give meaning to, and best elucidate the phenomenon under investigation (Thorne, 2008).

After the researcher's proposed study was approved by the ETSU Institutional Review Board (IRB), emails were sent to deans and directors of nursing programs in order to identify faculty members who used the FCM. In this same timeframe, experts mentioned in flipped

classroom literature and authors of FCM articles were also emailed to determine if they were interested in participating. Finally, during an international conference, the researcher identified attendees interested in the flipped classroom, made them aware of the study, and provided contact information. Throughout the data collection process, additional participants were recruited through snowball sampling (Powers & Knapp, 2011). Nurse educators identified other faculty known to use the FCM, and provided the researcher contact information.

Instrumentation

In interpretive description, the researcher is the instrument and thus, to ensure dependability she must immerse herself in the data and engage in the back- and- forth steps of data analysis and conceptualization in order “to confirm, test, explore, and expand on the conceptualizations that begin to form...” (Thorne, 2008, p.99). Through use of field notes and memos the researcher engaged in data reflection and also met with the dissertation chair to dialogue and remain self-aware and centered throughout the course of investigation (Wolf, 2003).

Establishing Trust

Prior to the actual interview, the researcher shared her interest in the FCM and explained why she was conducting the study. This brief conversation allowed opportunity to establish rapport with the participants. Information about the interview process was then provided and consent to participate was obtained. Participants were informed that the conversation would be digitally recorded, they could refuse to answer any question or stop the interview at any point, and all identifiers would be removed from transcript data. All of these steps allowed the researcher to determine that participants had a good understanding of what would occur and why (King & Horrocks, 2010). During the interview, the researcher continued to maintain rapport and

trust by encouraging participants to share their experiences without fear of interruption or critique. In addition, she sought to keep in check dominant features of her own personality and preferences so as not to control or lead the conversations (Thorne, 2008). Following the interview, participants were informed that the recorded interview would be transcribed and analyzed for emerging concepts, categories, and ultimately, key themes. Participants were also made aware that all data and recordings would be kept confidential and locked in a file cabinet. In addition, transcribed data would be sent to them to check for accuracy as well as a copy of the results, if they so desired.

Data Collection

After IRB approval, an IRB approved letter of invitation (Appendix A) that explained details of the study was sent to potential participants. Those who indicated interest in sharing experiences of FCM transition emailed or personally contacted with investigator. If participants met established criteria and agreed to participate, a date and time was set for an interview. Informed consent (Appendix B) was obtained and participants received a copy of the informed consent document for their own personal file. Private interviews were conducted in person or by telephone. To ensure privacy, the face-to-face interview was scheduled in a quiet setting away from the participants' workplace. Participants interviewed via telephone chose the place and time of interview. Prior to beginning an interview, the researcher asked each participant to complete a set of demographic questions that included type of course and teaching setting, nursing program type, years in nursing education, time spent using the FCM, age and gender (Appendix C). The researcher informed participants that the session would be audiotaped via digital recorder. In addition, the purpose of the study was explained once again. Participants were informed that they

could ask questions at any time, refuse to answer any questions, or stop at any point during the interview.

Early in the interview, the researcher asked participants to describe what it had been like to teach undergraduates using the FCM. Other guiding questions such as “What has gone well?” and “What has been challenging?” allowed participants to express what they believed was important about their experiences (Appendix C). Such questions promoted reflective interpretation, prevented researcher bias or use of leading questions.

Data Management and Analysis

Following each interview, field notes and memos were documented immediately to allow for meaningful integration of thoughts, observations and identified concepts (Creswell, 2009a; Creswell, 2009b). In addition, these memos guided further data collection (Strauss & Corbin, 1998). Each interview was transcribed verbatim and the researcher compared written transcripts with original audiotapes to ensure accurate representation. All identifiers were removed from transcripts to ensure anonymity of participants. Field notes, memos, transcripts and audiotapes were maintained in a locked file cabinet and will be kept for a minimum of five years per ETSU IRB policy.

Interpretive description calls for data collection and analysis to occur simultaneously as one informs the other (Thorne et al., 2004). The goal was to use participants’ descriptions of their experiences to understand more fully the transition to flipped classroom implementation. The process of open coding began with line by line examination of participants’ transcripts. The researcher continually mulled over the data, went back and forth and compared participants’ comments, line by line, occurrence to occurrence, and concept to concept. First-level analysis involved identification of phenomena. Through examination and re-examination of data, distinct

concepts emerged (Thorne et al., 2004). The researcher conducted second-level analysis by grouping phenomena or concepts into more abstract categories. Lastly, connections or linkages between categories resulted in further conceptualization. The dynamic process of coding with ongoing refinement guided subsequent interviews until distinct themes became evident. Data was thus organized first into concepts, the foundational units of analysis. The concepts allowed behaviors and experiences to come to life and increased understanding of the participants' experience (Morse, Hupcey, Penrod, & Mitcham, 2002). Similar concepts were placed within categories and from these interrelated processes, themes emerged.

As themes emerged from data, some participants were contacted a second time based on need to theoretically sample for findings identified in initial interviews (Thorne, 2008).

Additional sampling of participants and other data sources occurred to refine emerging ideas as concepts and categories evolved. Such theoretical sampling continued until each category was conceptually saturated, thus sample size and type was based on theoretical completeness (Baker, Wuest, & Stern, 1992). Interviews also continued until no new data emerged (Lincoln & Guba, 1985), however, in the applied education discipline, faculty may report a wide range of experiences that still might not be captured at a given point of saturation (Thorne, 2008). With the understanding "that there would always be more to study," an interpretive descriptive study of smaller sample size, was thereby justified (Thorne, 2008, p.98).

Criteria to Ensure Rigor

Lincoln and Guba (1985) identified the four criteria of credibility, transferability, dependability and confirmability to indicate trustworthiness of qualitative inquiry. In certain ways, these features dovetail with criteria of interpretive description (Thorne, 2008) thus, an integrated discussion of both is presented.

Credibility. For this study, the researcher demonstrated representative credibility and interpretive authority through presentation of accurate and valid findings that reflected clearly the participants' perspectives and experiences (Thorne, 2008). This representation occurred as the researcher spent time with participants, gained their trust, and remained attentive to their message. Credibility was also established when participants recognized their experiences in the researcher's descriptions and acknowledged the appropriateness, verification and saturation of data (Lincoln & Guba, 1985; Sandelowski, 1993). In addition, transparent documentation of the investigator's actions and generation of an audit trail that marked steps of the research process revealed analytic logic (Thorne, 2008).

Thorne (2008) also suggested that credible research depends on clearly stated epistemological assumptions that fit with the question under investigation, the interpretation of data, and the strategies used in the interpretive process. It is important to note that for this study, the researcher acknowledged a realist position and followed assertions of Lomborg and Kirkevold (2003) who stated, "When we make theories about the world, we use the language and the concepts at our disposal, but this gives us no reason to abandon the claim that there is a reality that is independent of our descriptions" (p. 195). This statement is not in opposition to Sandelowski (1986) who submitted that truth in qualitative inquiry "generally resides in the discovery of human phenomena or experiences as they are lived and perceived by subjects, rather than in the verification of a priori conceptions of those experiences" (p.30). In other words, no contradiction exists between truth of one's experience and the existence of an underlying independent reality that may cause the experience.

Transferability. In qualitative research, the investigator provides a suitable database that others can use when making decisions applicable to other settings. Continual comparison of data,

with analysis, leads to concept identification, the emergence of categories and themes, and ultimately, “constructed truths” related to the phenomena of interest (Thorne et al., 2004, p.6). Therefore, emerged themes and truths related to nurse educators’ experiences with the FCM may readily transfer to other academic disciplines or situations in which professionals change their mode of teaching. Some experts will argue that in qualitative inquiry, transferability is impossible in light of small samples and research conducted within a singular context. Thorne (2008), however, noted that clear description of the research setting with articulation of contextual findings provides a clear path for further inquiry. She acknowledged, however, “that many supposed accepted realities will not easily withstand the test of time” (p.229).

Dependability and confirmability. Sandelowski (1993), referred to trustworthiness in light of the visible and auditable practices a researcher engages in throughout the process of inquiry. She contended that “...it is less a matter of claiming to be right about a phenomenon than of having practiced good science” (p. 2). An audit trail may consist of audio and video recordings, field notes, data analysis and reconstruction products, process and personal notes, and data collection schedules or interview formats (Halpern, 1983). In light of this perspective the researcher sought to maintain dependability and confirmability through careful record-keeping of all field notes, memos, emerging codes and categories. Confirmability was addressed through documentation of the researcher’s ongoing reflection and comparison of newfound data with findings in theoretical scaffolding from the literature.

Consideration of Human Rights

The proposal for this study was submitted to the ETSU IRB and evaluated to assure protection of human subjects. In addition, guidelines which speak to personal, professional and ethical conduct were followed. Sources for direction included the American Nurses Association

Human Rights Guidelines for Nurses in Clinical and Other Research (1985), the *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978), and the *Code of Federal Regulations*, 1981.

Summary

The proposed study employed interpretive description based on the work of Thorne (2008). Given that current literature reveals little about nursing faculty's experiences, perceptions and behaviors related to adoption and use of the flipped classroom model, this method served as an appropriate and timely means for increased understanding. Further, it provided explicit direction for sample selection, data collection and analysis, and the discovery of useful interpretive themes that can lead to practical and effective changes in undergraduate nursing education.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

This chapter offers a description of the study's participants, their related demographic information, the data collection method, and an analysis of the findings. The researcher used an interpretive descriptive approach (Thorne, 2008) to bring to light experiences of undergraduate nurse educators who implemented the FCM. An ongoing line by line comparison of one participant's experience to others provided means for inductive analysis and allowed descriptions of the participants' experiences to yield a better understanding of the processes involved in flipped classroom transition and instruction.

Participants and Data Generation

Sixteen undergraduate nurse educators offered informed consent and met the inclusion criteria to participate in the study. All were female and taught in either associate degree ($N = 4$) or baccalaureate ($N = 12$) nursing programs across the United States and Canada. Participants were 30 to 60+ years of age, with a median age of 50. They had taught from three to 35 years ($M = 11.5$), and had used the FCM for three to 10 years ($M = 4.06$). Courses in which participants used the model included: Pharmacology, Fundamentals of Nursing, Health Assessment, Adult Health Nursing, Care of the Childbearing Family, Pediatrics, Counseling, Research, and Leadership/Management.

Interviews took place between June and September, 2015. Except for one face-to-face interview, all participants shared their experiences with the researcher via telephone. Interviews lasted 45 minutes to 1.5 hours, were audiotaped, and transcribed verbatim. A semi-structured approach with use of guiding questions allowed for a flexible interview process. Initially, the researcher asked each participant to share what it had been like to teach undergraduates as they

transitioned to the FCM. Following their lead, subsequent questions allowed exploration of motivating factors, student and faculty roles, procedures for implementation, and the benefits and challenges associated with the flipped classroom. Upon completion of the interview, the researcher penned memos and field notes citing initial thoughts, observations, and identified concepts (Creswell, 2009a; Creswell, 2009b). After data analysis, the researcher conducted a member check and discussed with willing participants identified themes. All offered positive comments of the summarized findings and were in agreement with the generated themes.

Findings

First-level analysis involved open coding which allowed for identification of phenomena and the emergence of distinct concepts (Thorne et al., 2004). Through second-level analysis, the researcher grouped concepts into more abstract categories and in the final step, connections and relationships among the categories resulted in the emergence of three overarching themes: 1) What We Are Doing Is Not Working: “There’s a Big Disconnect”, 2) Charting a Different Course: Experimenting with the FCM, and 3) Reflections of the Journey thus Far. Subsequently, the themes provided a structural basis for discussion of the findings and participant interview excerpts gave evidence to the analytical logic and interpretive processes.

What We Are Doing Is Not Working: “There’s a Big Disconnect”

In the beginning of each interview, participants reflected upon factors which motivated them to consider use of the FCM. From the outset, all, in one way or another, identified disturbing “disconnect[s]” between what they believed nursing education should be and what they observed currently in nursing classrooms and clinical settings. Three categories derived from the data support this theme: 1) Passive learning in the classroom, 2) Little carryover to clinical practice: “They’re not great thinkers,” and 3) “Today’s students are different.”

Passive learning in the classroom. Participants observed that in most of their traditional lecture classrooms, they felt compelled to cover large amounts of material in a relatively short time span to groups of students who struggled to remain engaged. Most presented their information via PowerPoint slides and found this way of teaching to be less and less effective.

Two participants commented:

... [Students] were in classes where, you know, in one hour there would be a hundred and twenty-five slides to get through and the teacher is still talking at them as they're leaving the door for their next class, you know... it's the overload in content... (P4)

In most of our classes...in traditional [lecture], you spend the majority of time going over material... adding to that material, giving more information, but [students] are not applying that information or learning how to problem-solve; that's really not a good plan for teaching in my way of thinking. If you don't use information, you really don't retain it and [learn] how to implement what you have been told... (P3)

Another added:

[In the traditional classroom], ...we were giving the PowerPoints with pages and pages of notes...and they sat like, you know, decapitated simulators for four hours with the slides going by, half of them...asleep and nobody would respond when we would ask a question. (P16)

Although participants had learned of the efficacy of active learning during their graduate work, at educational conferences, or through review of the literature, they did not find such strategies commonly employed in the workplace. Instead, they observed that most undergraduate nurse educators relied heavily on lecture via PowerPoint presentations, and that students struggled to grasp and retain important concepts.

Little carryover to clinical practice: “They’re not great thinkers.” Of greater concern, participants discovered that students could not translate classroom instruction into quality clinical practice. In the words of one participant,

There’s a big disconnect: passive learning in the classroom with little carryover to clinical practice...there’s no dialogue really...no thinking on the part of the student...and no ability to critically think or clinically reason...I really feel like if we’re going to transform nursing education...it’s simply not good enough to keep pouring facts into their heads and then expect them to do those translations and transfer self-knowledge into the clinical setting. (P6)

Another participant’s comments revealed similar findings:

We always poll our hospitals where we do clinical and we ask the managers, ‘What is it that you see lacking in our new graduates?’...and so many of them said, ‘They’re not great thinkers,’ and so that made me ...think about ways to help students learn to, you know, to really think...so when I was introduced to the idea of the Flipped Classroom...it just resonated so with me that I wanted...to try it. (P 11)

In light of mandates from national accrediting agencies and directives from the healthcare arena, these participants seemed pressured to seek alternative and more effective teaching models. For them, the FCM offered a different approach and they were eager to examine its fit in undergraduate nursing education.

“Today’s students are different.” Participants also looked to the FCM because they perceived that traditional teaching practices no longer addressed needs and characteristics of current students. Prior to any discussion related to millennials, almost every participant spoke to the challenge of engaging today’s students. Comments revealed varied observations and all

pointed to a perceived need for re-thinking long held pedagogical strategies. Observations included:

Today's students are different...changing. The traditional model...it's not working... their study habits are a little bit weaker than in the past, so you're spending more time teaching [them] how to study than I've ever done with previous generations...how to time manage...[more] than I ever have. (P12)

They tend to have a short attention span... [and] need things to be relevant...students just say, 'Tell me what's on the test...Don't make me work too hard...think too hard'...they're playing on their phones or they're on their computer obviously doing things other than taking notes...I need to do something to help engage them...something that I can embrace technology rather than fight it. (P15)

They seem less intrinsically motivated, you know...they don't have that level of personal drive... there's a tendency...tendencies toward learner dependence versus independent problem-solving and critical thinking. (P9)

Most are kinesthetic learners, hands on; they like to be active and engaged in activities. (P5)

You know we think that millennials are really into technology, but I found that that's really not the case...they can Facebook and they can text better than we can of course, so they like technology in the aspect of social media... but to use it to find evidence-based practice, they don't particularly know how to do that very well. I think their focus on technology isn't necessarily what we think it means. (P12)

Collectively, these observations provoked within participants a pedagogical urgency to improve learning environments and instructional methods so that students might better translate

rote, factual knowledge into effectual practice of quality patient care. In addition, many participants referred to learner-centered theoretical frameworks as influential in the transformation of their teaching practices:

I believe in a constructivist approach to learning...building on what you already know, being self-directed and getting rid of just content delivery, but doing work with materials we've come prepared for... It's all about how we need to be doing less PowerPoint, more active learning, and changing the classroom. (P4)

I think students come to us...and I don't see them as a total clean slate...they know a lot more about nursing than they think...and I believe that you bring that out and build on those experiences... (P8)

I feel like that's where nursing education needs to be, that is, helping students take their knowledge and be able to apply it to different settings and different situations...as opposed to still imparting the knowledge that students can all read...they can all learn [facts], but what [students] don't understand is how [they apply] in different contexts, and I believe that really gets at why I went to the Flipped Classroom. (P12)

I believe we need to be aiming for those higher levels of learning...in Marzano and Kendall's Taxonomy, the highest levels are learning of the self and next to that is the meta-cognitive learning...we need to help students think about how to integrate new knowledge [with] their own values and think about how things affect them as persons, as a nurse...they should be looking at nursing in view of the...overall picture...seeing everything you're pulling from different courses or readings and how they all fit together...how learning applies to everything that you're doing." (P11)

Both observations of an educational system gone awry and influences of theoretical models in support of learner-centered teaching launched this group of innovative participants on a path of discovery as they transformed their teaching. They chose to adopt the FCM rather than to remain complacent and bound by long held traditional teaching methods; and, in concert with this decision, participants aimed to improve nursing practice through preparation of better qualified students.

Charting a Different Course: Experimenting with the FCM

As participants examined the FCM, they discovered the need to revamp completely their approach to teaching. They soon recognized that their work would involve plotting a very different path. From this theme, four categories emerged: 1) Going out on a limb: “All by ourselves,” 2) Preparation: Integrating, connecting, but no script, 3) Rethinking course frameworks, and 4) Rethinking roles and relationships.

Going out on a limb: “All by ourselves”. Few participants received encouragement or support to pursue the FCM from fellow nursing colleagues. Rather, most identified feelings of isolation and perceived an element of scrutiny as they implemented this teaching strategy:

We didn’t have [other] faculty that were doing the Flipped Classroom, we really felt isolated from the rest of the program...that everyone else was looking to us to either fall flat on our faces and...come back to the realization that ‘Yes, we can still do traditional’ because they really didn’t want to change the process...we kind of felt as though we were out on a limb all by ourselves... (P 6)

It was difficult because not only was I the only one using the Flipped Program, but I was also the newest faculty member to the school and so it was difficult because you know,

you're having that scrutiny...it was challenging...when it's not a culture of the program.
(P7)

We have a faculty of 40 and there's only three of us that are really invested in Flipped Classroom...it's not like the school has adopted it as a good teaching strategy...I'm in a teaching culture that is very traditional... 'Do it the way it has always been done'...there seems almost to be a sense of negativity when someone tries something different...the few of us that are doing this are seen as kind of just being wacky...people have said, 'Oh, they will go back to lecture. You watch and see. They'll never be able to maintain this...but it doesn't matter to me. I'm gonna do what I think is best for my students. (P13)

Clearly, exploration of the FCM involved elements of risk and courage. Participants did not consider use of this strategy merely because it was new or innovative. Instead, they forged this path, much like pioneers, and found their motivations to be complex, multifaceted, and interrelated.

Preparation: Integrating and making connections, but no script. Most participants prepared to implement the FCM through use of active learning strategies learned in their graduate degree programs. Nine individuals spoke of the use of research and the influence of findings in the literature, while four identified conferences as strategic to their implementation. Five relied on observation and expertise of faculty who had previously used the model, and two referred to guidance from Centers of Teaching Excellence within their respective institutions. Interestingly, three participants gathered tips from faculty in disciplines other than nursing. Through each of these venues, participants discovered the FCM to involve far more than a transfer of lecture to an out-of-class, online learning space and use of class time for increased activities. Rather, they viewed the model as a comprehensive approach marked by an intentional

and meaningful integration of pre- and in-class learning endeavors, as depicted by the comments of one participant:

Students learn the ‘what’ and the ‘where’ with their outside of class assignments, but come into the classroom and then focus on the ‘how’ and ‘why’...it is a comprehensive approach... you have to ask yourself, ‘What do you want your students... to take away from this class they will be able to use two years from now? Then, how am I going to check to see how they know that?...so you don’t start with the beginning...start with your final [outcome]...so you kind of work backwards instead of working forwards, you flip that too...you start at the end and work back to the beginning...so you’re doing activities and you’re doing things that are going to reflect what they need to know in the end...and sometimes...you have to look closely at what they already know and build on that...give them the rest of it...you work to get their hands on it, what do you want them to know and apply...and that’s what you really work on...focus on... you have to keep coming up with things that will capture students’ attention and keep them engaged, harness their energy and help them to put into action the things that they are learning...you constantly have to be asking, “What do I need for them to learn from this anyway? (P3)

Other participants comment supported or mirrored this thinking:

We have to solidify that information in [students’] heads to where they can make meaning of it. You know that’s the whole thing, we have to help them make that meaning or assign that meaning... They have to know ‘What is important? What’s not important and how is it prioritized?’...that’s really what the flipped classroom is all about, bringing the content to life...it’s just getting beyond the knowledge level and now getting to those

higher levels of...analysis and synthesis and evaluation...that's really where we want them to be. (P6)

We're making sure they can work through problems, problem solve and they really do have to take a part...they have to work through it with everything, listening, talking, simulation, clinical. It all needs to be all run into one ball (P8).

So it's all about bridging the learning in the classroom to the learning in the clinical area and if you can identify those common ways to learn and apply, they're not two separate environments. One feeds right into the other and it's a beautiful process to see that come to life. (P9)

Although participants articulated eloquently the aim and general premises of the FCM, most struggled to delineate detailed steps in the process of planning and implementation. This is not to say they did not engage in much careful thought and preparation prior to execution, but they could not clearly identify a formula or recipe for use of the model. In fact, several indicated experiences of teaching without a roadmap. Participants noted:

I really have to be knowledgeable in the flipped classroom because... nothing is scripted when you walk into that classroom. You need to know your students...how to facilitate them and you need to have knowledge of the class content and... be able to approach it from different angles so that you can teach the different students as you walk around the room...In the traditional classroom you have your props like your PowerPoints, your lecture notes...whereas in the flipped classroom, you have the points or theory that might need to be covered that day, but...you don't have a prescription for exactly what you're gonna do at what time and how you're gonna do it when you walk into the classroom. (P5)

I think the downside is that not much is written about it [the flipped classroom]...which activity or assignment is better? Which is less effective? I think there is the gap and that presents the challenge. I don't know what works best and what doesn't. I tested a technique, tried it out, and then three weeks later evaluated for retention and I was pretty surprised to see they had done pretty well...you cannot predict how the class is going to go when you are flipping it. With lecture, you know how it's going to go...it's my content and I learn pretty much that they will have the same questions. (P1)

You've got this list of things, your activities which are the best ones to teach those concepts you want to get across that day, but...there's just not enough of it [the flipped classroom] around to be able to find out from people what they did that worked...so when you start doing it by yourself, I think it's just absolutely terrifying...Sometimes you think that an activity's the best in the world and then it doesn't do well, and you go, 'Well, obviously, that was *not* the best activity' and sometimes, it is just trial and error for me, switching those activities around until I finally figure out 'Oh, this is one that works. (P 8)

These remarks reflected the fluidity and degree of variation with flipped classroom preparation and teaching. Findings also revealed a level of apprehension as these participants continued to experiment with the model. They in no way claimed a mastery of the flipped classroom, and their journey would be ongoing as they sought to determine what might work best in nursing curricula. These observations become even more evident with further discussion of participants' modifications as they tailored the FCM's fit to undergraduate nursing education.

Rethinking the course framework. Participants restructured their courses through modification of both pre-class assignments and in-class activities. These components emerged as the subcategories of: 1) Pre-class assignments: In pursuit of the basics and 2) In-class activities: Transforming how they think. Salient features for each subcategory became evident and are discussed in this section.

Pre-class assignments: In pursuit of the basics. All participants designed pre-class assignments to expose students to essential concepts for a particular content area. Through use of assigned readings, voice-over PowerPoint lectures, guided worksheets, and online quizzes, the educators sought to lay a foundation for higher level work in the classroom. Interestingly, no participant relied solely on pre-made online lectures, but instead created their own voice-over PowerPoints because they adamantly desired to tailor content to the exact needs of their students. Participants reflected on pre-class assignments in the following ways:

This is the time that [students] get that basic knowledge and comprehension, and to help with that, I assign readings-- and they have podcasts to go with them...I also make lecture PowerPoints which have a voice-over so they can listen to me. I try to make those in shorter segments where they can upload them into their smart phones...where they can take them with them. (P 8)

...they're expected to look at the material prior to coming to class. For example, 'Complete this online quiz before you come to class;' ...they are just very basic recall type questions, and it is part of a daily grade...another is to complete a concept map for a fictitious patient with a particular disease process, and come prepared to use the map in your group work...that is, you are going to be responsible to discuss your concept map with your group. (P9)

So everyone should have read the chapter... and also looked at the PowerPoint slides that are available in the learning management system. Now, the slides are not the exact same material... found in the textbook, [but] the high points, the essential points, because these beginning students always struggle...to discern the difference between need to know and nice to know, so the slides start to sort of train the mind's eye, 'OK these are the need to knows' and a lot of students like to print those and take some notes from the chapter on the slides. (P16)

The time investment outside of class that participants expected of their students averaged between two and three hours for every hour spent in class. The voice-over PowerPoints or online videos they created lasted anywhere from 20 to 45 minutes, and often students watched two or three each week, in addition to completing assigned readings and guided worksheets. For example, participants commented:

It typically is two video lectures and...readings...and we might also have them do a discussion question or adaptive testing, all aimed at knowledge and comprehension level...so it's a six to eight hour commitment of time between classes for a three credit hour class. (P6)

So for this class, health assessment, there are usually five different recordings, 20 minutes a piece...and there are five modules to prepare for one class, so about one hundred minutes of viewing plus their reading and completing the worksheet. I provide a fill-in-the-blank worksheet that is really an outline they can add notes to and it seems to provide focus as they watch the voice-over recording and read. In essence, I am helping learn to study on their own. (P14)

Although pre-class assignments provided foundational concepts for more analytical activities in the classroom, participants discovered that students frequently did not complete these important precursor tasks. As a result, lack of preparation undermined the effectiveness of the in-class work. Two participants reported:

...initially, I didn't do a very good job at... explaining to them [students] what the flipped classroom was... and why we were doing the flipped classroom...I just told them, 'You need to watch the videos...so some of them weren't doing it...some of them weren't getting it...and you really can't go to the next step of the taxonomy without baseline knowledge... (P3)

I'm attributing a lot to the flipped classroom and I really believe that we are helping them learn to be better critical thinkers...but the students have to put the time in. They have to come to class prepared and if they don't, the whole thing just falls apart. (P13)

To provide increased incentive to complete pre-class assignments, 14 of the 16 participants used either on-line or in-class quizzes prior to the beginning of class. One participant observed:

You have to give a lot of carrots and so before they come to class they always had an online quiz of ten to 20 questions and I gave them two hours to do it. They were allowed to use their book and their notes...they just couldn't use a friend, and the quiz ended when the class started, so they had to at least have that done so that they could have some basic knowledge about the class before they came...sometimes I also used discussion boards and gave them a grade for participation so that they could up their percentage a bit. We also implemented a ticket to enter...one page short assignments...a chart of fill-in-blanks...something that you had to actually complete as you watched to PowerPoint or

the video and I tried to make everything really meaningful so they could see that this is important to complete in order to be able to engage in whatever activities we were doing in class. (P11)

Another nurse educator reported:

Well, we start out the class with a check...on ‘Do you know that?’...it’s very brief...doesn’t count a lot toward the grade, but it is a quiz and once they get the idea that they are going to be checked to see if they have done the pre-class work, they’re not going to come to class many times unprepared because then, they are going to have to go off on the side and not really be able to participate...they’re going to have to go get that knowledge...I’m not going to stop and teach that because you chose not to learn it...so I take the ones that have prepared and move forward...so students begin to catch on...those who aren’t prepared, have to go somewhere else...the lab, and they have to read or look at the video they missed, and they don’t get to participate in the class activity that day...and I’ve only had to do that once or twice...from then on they come in prepared. (P3)

According to participants, pre-class work provided students a foundation and seemed strategic for the in-class, higher level thinking exercises. In addition, the homework assignments offered a much needed structure upon which to develop independent study skills. When students initially balked at completing the homework, participants discovered need for incentives or “carrots” to encourage class preparation.

In-class activities: Transforming how they think. For in-class work, participants planned activities that built upon the introductory principles students had learned through their pre-class assignments. Most described their in-class exercises as a means to develop skills of application,

analysis and synthesis. Some viewed the class activities as a vehicle to engage students in higher-order thinking. For example, one participant commented:

It's helping students to move from just knowledge and comprehension to analyzing things and we're not just doing busy work once they get into the classroom...we work through what we've learned at a higher level, either analysis since it's just the standard, but also valuing...if we're working through a problem or something that they need to learn about in nursing, often it's an attitude that we're working for. We're trying to transform their way of thinking about things. (P 8)

Another participant noted:

So it's really taking that knowledge that they've learned in the pre-class work and looking at it in clinical contexts, talking about variations, factors that elevate or decrease a blood pressure for example, how to keep patients safe with certain abnormalities, and discuss in more depth, the medications and treatments the patients might be receiving... and how all of that fits into a plan for care. (P 12)

Participants used a range of exercises that included unfolding case studies, patient scenarios with simulation, role play, group testing, and storytelling. Sometimes, these elements were combined. In many of the classes, students first participated in group work where they discussed assigned problems or aspects of care for a particular patient. Then, students presented learned concepts in one of the aforementioned venues. For example, one participant reported:

So in class, I use a lot of unfolding case studies. 'This is Perry: He's 4 years old. His parents are bringing him into the hospital with a diagnosis of pneumonia because he was having these symptoms' and I might give more [information] that identifies certain things about this child, and the first question might be 'Identify risk factors that might

have led to this diagnosis,’ and so students will work in pairs or groups of two, three, or four and have to list risk factors, and the next part of it might be... you go in to take care of this child and here’s your assessment... then I give them... assessment findings, lab and diagnostic data... have them identify what’s abnormal and I usually make sure the abnormal findings match the identifying clinical manifestations...and they’ll have to perform the assessment, think about the pathophysiology of the disorder and then tell me, ‘OK... that was expected or...that was unexpected. This was normal, but that wasn’t’... Then, rather than me standing up in front of a class and saying ‘Ok, the clinical manifestations for pneumonia are blah, blah, blah,’ students work through an entire assessment with classmates, observing and participating and they tell me what clinical manifestations are abnormal and validate this diagnosis. They begin to make connections to what’s expected for this diagnosis and the needed interventions... and the next part might be a surgical procedure, and another group of students might be assigned to take care of a post-operative patient with a certain complication: They work together to determine how the patient presents, his signs and symptoms, and answer questions like ‘What is your priority nursing intervention now?’ So, I take them through every aspect of that all the way through discharge teaching and evaluating parental understanding and whether or not the teaching was effective... every aspect of care from understanding that disorder all the way to health promotion. (P 12)

For a capstone class of 160 senior students, another participant described use of simulation and role play in the presentation of an unfolding case study:

We did an entire scenario to teach disaster preparedness and trauma... going into the field as a field nurse... dealing with transport as a flight nurse, to the ED, and then transfer to

the Burn ICU Unit. ...so we had 3 different scenarios set up at the front of the auditorium ... I had a field scenario with manikins and simulations, a scenario of a patient in the ED and then we had one of patients in the Burn ICU. I had audio taped me reading a story and it had music behind it to sort of set the stage... so it really got the students into the scenario and brought it to life... we set up the scene to intentionally incorporate their learning with their [pre-class] lecture...so we had injuries, abnormal lab values, patients with risk factors and comorbidities... we had psycho-social issues...environmental issues and death and dying. We had everything... all of the components that we had [addressed] in our lecture...it came to life in the scenario and as we progressed with the patients, we showed them how to do transfers and hand off important information, deal with conflicts between transfers, and then we did a debriefing because one of the patients was a child, and we wanted to teach how to deal with your own issues so that you can continue to be an effective nurse, so we were dealing with professional issues and ethics also... and we brought all of that together in this simulated scenario. (P6)

As an important aside, this participant noted that students who observed the simulations participated equally to those who assumed caregiver roles. As issues and questions arose, faculty members with microphones circulated throughout the classroom auditorium and provided opportunity for students in the audience to offer critique and/or suggestions.

Another participant initially believed “that there were some topics that you just absolutely could not utilize [the FCM] with.” She commented, “I had to challenge my own thinking when I decided to go all in on those topics.” (P14) She struggled to teach content related to death and grieving, and found issues related to living wills and power of attorney dry and factual. To link these important concepts to the caring practice required of her nursing students, she prepared a

pre-class online lecture, but in class, shared her own personal story of death and loss. This enabled her to build a rapport with the students and helped them to see the complex dynamics of death and grief. In light of having developed such an in-class exercise, the participant found the experience to be “powerful” for the students and expressed her conviction that “all [topics] can be taught in some way using an engaged model.”

P14’s experience gives evidence of the complexity and detailed thought required in FCM implementation. In addition, her expressed doubt of the model’s suitability for all content areas within undergraduate nursing curricula represents a negative case when compared to the experiences of most other participants. Creswell (2009b) defined negative cases as those that appear to contradict a theme, and argued that their exploration offers a richer analysis and understanding of a particular phenomenon. When brought to light, a negative case may strengthen that theme’s credibility, power, and validity. Although P14 eventually joined flipped classroom educators who believe the model accommodates most topics, her initial reaction and thus, the negative case warrants further examination of what content best fits with flipped classroom teaching. A more in depth discussion of this observation will follow in Chapter 5.

Rethinking roles and relationships. As the FCM called for a different course structure, participants also discovered changes in faculty and student roles. In turn, faculty-student relationships changed as did those among students. As participants examined the roles and relationships in their flipped classroom, the following subcategories came to light: 1) Faculty role: Facilitating and coaching, 2) Student role: From passive to active 3) Increasing the dialogue: “It is us working together.”

Faculty role: Facilitating and coaching. With transition to the FCM, 11 of the 16 participants referred to themselves as “facilitators” of learning. Five described their role as

“coach” and four of these used both terms. When asked to elaborate, participants explained that they no longer stood at the front of the classroom for an entire class period and dispensed facts. Instead, these nurse educators designed online lectures with pertinent intentional content and, for class, created relevant interactive exercises that promoted critical thinking and decision-making skills. Several spoke of the facilitator role in the following ways:

I don't like calling myself an instructor...but I'm helping them...I facilitate that learning so they will be able to apply it to what's gonna become their nursing practice...I'm standing on the sidelines and encouraging them as they make those first attempts at those skills or as they...start putting that process together. (P 14)

I'm walking around the classroom, answering questions, asking questions and ...the questions are like *'Tell me which of the lab findings support this patient's diagnosis'*...questions that require some thought and then, once everybody has had time, I'll have one person from the group stand up and talk about their answer and then we will, as a group, discuss it, and I'll say, 'Well, does somebody else have anything they want to add?' and I'll always have from my notes other things to talk about...just to solidify that information. (P11)

My role in all of this is to really give them...tools and teach them to use the tools...I'm teaching them how to think...how to use those pieces of information to make decisions and to do something...you are a disseminator of information, but you also have to teach them how to use that information...to say, 'Here are the facts. You go use 'em,' is as crazy as somebody that's trying to teach someone carpentry...handing them a hammer, nails, screwdriver...and saying, 'here are the tools...go build a house.' We don't do that,

so to look at nursing students and say ‘Here’s all the information, now go take care of patients’...it doesn’t work...you’ve got to show them how to use the information. (P10)

I’m there as a coach...I provide them with the tools and I’m there to support them, but I’m not there to go over everything that they should have done before they walked into the classroom...I’m circulating amongst the groups...asking them questions and clearing up misconceptions...and the big thing I have to be careful of is to try to stay as hands-off...as possible and let their natural dynamics move forward so that I don’t become the leader of their groups. (P5)

The role of the coach is to teach the basics to the team and to put them in, provide opportunities for them to practice those new skills and develop new thinking pathways...I’m overseeing and providing feedback, but at a point you are releasing and having a hand-off...they have to learn to how to make a decision, not for me to tell you what to think every time, but rather to talk you through it and have you develop the way to be successful. (P9)

All of these comments revealed that the participants sought to engage students through Socratic dialogue, and at times, remained silent as students reflected and problem-solved on their own. Interestingly, the participants considered their role as more strategic and involved than when they used traditional teaching methods. In addition, these nurse educators viewed themselves as experts in their respective content and practice areas, but with a rapidly expanding knowledge base, they found that even as specialists, they could not keep track of, much less convey, every current finding. One participant noted:

What guides my teaching more than anything else is I don’t need to tell them everything. I can’t tell them everything...There’s too much. The knowledge...it double’s every five

years, you can't keep up with that so you have to teach [students] how to go and learn things on their own, where the resources are...because if they can't learn how to do that they're not gonna be very good in practice...who's gonna tell them when they're out there practicing? (P 10)

Finally, participants acknowledged expertise in the planning and execution of meaningful learning activities, but they could not determine how each student best receives and processes information. For example, one educator commented:

I know how to build those activities, those generative strategies, but I'm not an expert in knowing how one individually wired brain has to massage the material to understand it.

Only [the students] know what they have to do to really grasp it. (P 16)

This response seems to clearly mark a point in the learning process where the educator's role culminates and the student's responsibility begins, and thus, provides a fitting segue to the next section. In addition, several of the comments typify the belief that learners are capable and will comprehend needed information. These nurse educators focus more on students' strengths' than their limitations.

Student Role: From passive to active. Participants discovered a marked difference in the students' role as they compared their traditional and flipped classrooms. When these educators relied solely on lecture, their students came to class often unprepared, passively took notes with minimal discussion, and used rote memorization to prepare for exams. In contrast, flipped classroom students, who watched pre-recorded lectures and completed their homework, arrived for class with a familiarity of content and could more readily participate in the interactive, analytical exercises. One participant made the following observation:

...in the flipped classroom, the room would get crazy noisy and... sometimes, they would raise their hands and say... 'What about this?' or 'Here's a place that seems to say two different things'...then we called time and we'd debrief...debug the incorrect thinking...and model the correct thinking to arrive at the best answer together. (P16)

Another nurse educator reflected on the student role when she described how classmates actively participated in learning about Maslow's Hierarchy of Needs:

I provided the [online] lecture with quiz questions imbedded, but in class, I asked groups to discuss if they believed it was really a hierarchy...could you move from one step to another in any sequence? As they discussed what goes on in each level...they found that some [levels] were clear-cut, but others a little blurry...for example, they looked at the diagnosis of anxiety in a patient and in determining how to help that patient, they had to think hard about what needs on the pyramid they were addressing...was it safety? Or an emotional need or did it involve a sense of security? And I was amazed to watch them lead our discussion...they just took off...and it was really powerful...they did the lecturing themselves...I loved it... it was just a good example of how they demonstrated what they had learned and applied it to the care of patient. (P3)

Other participants commented on the need for increased student accountability for learning and saw this as strategic to future nursing practice:

It's important that they be involved in their process of learning and not...be handed information, because the real world doesn't just hand you information... students tend to do better when they are co-creators of their learning...as a student, your part is to make sure you take hold of the information, make sure you take hold of all the pieces and components that work together. (P 7)

I would assign them different roles...one of you will be the patient, one of you, the nurse, the physician, or family member...whatever, and they would have to think about what their role would be...what questions or concerns they would have...and how everyone would have to work together to solve a particular patient problem...and they began to see that in the world of nursing...you *are* a part of the team whether or not you want to be...and the flipped classroom helps them learn how to work with people...how to problem-solve together. (P3)

Another participant concluded:

In the flipped classroom, when you demonstrate that best practice, [students] see how you handle it...they see, they hear what you say, they practice and put their hands on things, and their learning is exponential... getting them actively participating, whether it be physically, verbally, mentally...that is all part of that active learning, and it's no longer passive which is what we felt...the traditional method of nursing education is. It is active in clinical. It's active in simulations...but when it comes to the classroom ...it becomes so passive. (P 6)

As participants discussed the students' role in the flipped classroom, they observed increased levels of engagement and the use of higher-order thinking skills. Students seemed to have learned basic information from their pre-class work, and with the help of the participants, transformed the classroom into a meaningful learning environment. Discussion with the participants revealed groups of students who had become physically, cognitively, and emotionally involved in their learning as they questioned and discussed relevant concepts.

Increasing the dialogue: "It is us working together." Increased interaction between students and faculty, and among students, became evident to the participants as they

implemented the FCM. These nurse educators described their work with students as a collaborative endeavor and discovered that the increased interaction developed both richer relationships and problem-solving skills. For example, two participants commented:

You have a lot more opportunity for interaction...to build a deeper relationship...a more trusting relationship...because you get to know them better...you're talking to them more...spending time with them...you're helping them...you're empowering them instead of enabling them...so it's different...you're not talking at them...but having conversations with them. And they get to know you better, how you think, how you problem-solve...they learn if they can rely on your judgment...students get a truer version of who you are as a teacher. (P3)

...it is very much...a reciprocal thing. They expect from me to have things planned...to have those lectures up and ready to go a week in advance...and they expect for those activities to apply to what they've learned...and I expect them to come in prepared, to have listened to the lecture, read some of the readings and...be prepared to get up and talk and work and participate with every active thing...so there's both people doing a lot of work there. Sometimes they say, 'Well I'm having to teach myself...and I have said, 'Really, so what about all [that] I have done? If I take away the activities. If I take away the lecture...*then* that would be you learning on your own'...so they begin to realize it is *us* working together. (P8)

One participant observed that class size often determined the degree to which she knew her students, but she still found the FCM preferable in this aspect to traditional lecture:

In Health Assessment, that's only ten students, and I...have the chance to know everything about them. I know who's got kids, if their kids are sick...who's in the

hospital...it's a very close connection... In the [Pediatric] class, I've had up to 40 students in a class. I don't know them individually as well and...the relationships are a lot harder to establish...still, I think I know them a lot better and the relationship is a lot better with the flipped classroom [because] you're moving around, you're talking to them individually. (P13)

This same participant also noted that some students found the faculty-student interaction initially intimidating:

I will say some of the feedback has been that it's very threatening for them...when I'm standing right next to them, 'Well, what do you think about that?... How would you do that next time? What would the client do then?'...It's more threatening to them, but they get used to it over the semester... (P13)

To encourage another venue for interaction, some participants (P3, P8, P13, P14, and P15) used online discussion boards. As faculty and students explored class content via the Internet, this forum offered quiet, shy students an opportunity to voice their observations with less fear or embarrassment. As the semester progressed, and with faculty affirmation, these students gained greater confidence in sharing their perspectives. In addition, this public setting allowed students to see how others grappled with questions they too had difficulty with.

Participants also found that the FCM allowed students increased opportunity to dialogue with one another, and as one nurse educator observed, "you have a mixture of small group work and large group work so...everybody usually gets a voice somewhere along the line." (P5) More importantly, participants observed that peer interaction encouraged students' accountability in the learning process. Students recognized their peers were counting on them to complete assignments in order to contribute to group work and increase the overall understanding of a

particular concept. One participant remarked , “... the ones who do prepare, encourage and inspire others to be prepared...so there’s a lot of peer to peer accountability...they feel it from each other and...they elevate each other.” (P6) Another added,

If they don’t come prepared...they are a burden to their work group and their workgroup certainly comes and complains to the instructors...so we have...sort of charter agreements between group members...where we’re going to be accountable to each other and we have them sign a document to that effect...[it] is stronger than a verbal commitment...[and] we talk about professionalism...that they are going to be working in teams throughout their careers and people are going to rely on them,... if you come into the workplace unprepared, there are safety issues...team effectiveness issues...there can be real consequences for not being prepared, and not...learning how to learn. (P4)

A few participants (P3, P5, and P14) offered a different perspective of peer interaction as they described use of the jigsaw teaching strategy. As a form of collaborative learning, this method begins as students discuss a particular question or problem within assigned groups. After the group discussion and collaboration, students are reassigned to different groups with only one member representing a previous work unit. That member assumes responsibility to share findings of preceding group work with current group members. As a result, students develop increased incentive to pay attention, and make contributions to the group because they know they will assume responsibility for conveying the findings to others. In this one assignment, they problem-solve, develop team-building skills, and learn how to teach others. One participant concluded, “...they have learned some difficult concepts, but they just don’t realize how much learning has occurred for them [because] they’ve turned it into their language and they’re learning by their conversations and interactions with others.” (P5)

Consensus among participants revealed that increased interaction among faculty and students impacted learning in three important ways. Students assumed greater ownership for their learning, developed higher-order thinking skills, and engaged in multi-directional information sharing. This provided a stark contrast to traditional classrooms where they had passively received and memorized content presented selectively by the instructor.

Reflections of the Journey Thus Far

With their first implementation of the FCM, participants began to reflect on its effectiveness in undergraduate nursing classrooms, and their contemplation continued even in interviews with the researcher. Four categories emerged as participants evaluated their flipped classroom journey: 1) Benefits: Making better connections, 2) Challenges: “Being comfortable with the uncomfortable” and 3) The FCM: Does it fit in undergraduate nursing education? 4) Tweaking: “It’s Still a Work in Progress.”

Benefits: Making better connections. Participants found the FCM to benefit faculty as they provided instruction, and students as they learned. The model permitted a more effective transfer of key concepts from educator to student, and emphasized for students a stronger link between theory and clinical practice. One participant highlighted these benefits: “I see connections to all of these different things and...believe all of them lend themselves to that engaged student learning piece.” (P14) Her observation and similar reflections of others became more evident with the emergence of subcategories: 1) “A much needed structure” and 2) “These students are putting together the pieces.”

“A much needed structure.” The lack of time management, organization, and effective study skills among current students concerned participants greatly. They discovered, however,

that the FCM helped students to establish a routine and learn how to assimilate, integrate, and apply important principles. P12 observed:

I'm not sure why...if it's just my students here at this [college]...or the type of students that we're getting...but they really needed some help and now that they have it... [The flipped classroom] is so structured, they don't have to try to figure it out, you know...
“How do I study for this class?”

Participants discovered that the pre-class work of online lectures, combined with related written assignments and quizzes, forced students to prepare for classes in a manner unlike that of most other courses. Such groundwork introduced concepts prior to class, prepared students for in-class analytical activities, and provided a means for ongoing review and practice. P8 commented:

By the end of the semester, [students] really liked [the FCM] because then they were prepared for their finals. They weren't overwhelmed. They already knew these things because they had to learn it all along...by the time they got to the final, they knew the content so well they weren't even worried about studying...

Similarly, P12 observed that her students liked “... the fact that these classroom prep assignments [made] them stay on top of the content...especially [in] the six and seven week courses [where] they would get behind pretty easily, and once you're behind, you can't catch back up.”

The availability and access to online lectures also offered opportunity for students to self-pace their study. P15 explained, “Some students really need to hear [lectures] more than once and they really utilize that, the ability to repeat...that's a real positive to them.” P8 added:

They like it because they can print out the PowerPoint [and] make notes on it...they can

stop the recording... go look something up and then, come back...if they miss something or don't understand, they can go back and listen again until they understand or they can write down their questions and ask me in class...

Preparation and transfer of lectures to the online learning space provided faculty the benefit of a distinct structure as well. Participants indicated they could deliver video lectures in less time with fewer distractions, and remain focused on what they were teaching. For example, P3 suggested:

it is quicker to video a lecture than it is to give one in class because...you can just get across the content you want to get across...it's been my experience that in traditional lecture...if and when a student asks a question...it breaks your train of thought...and you try to address it, but you know that you have to keep going because you've got all this material to cover...and there's not a lot of time to make sure that student's needs have been met...really, the students' questions have disrupted you...meanwhile the student sits there stuck on his or her question...and can't necessarily move on with you and the lecture.

In the flipped classroom, she and other participants felt free to dialogue with students and engage in problem-solving activities:

If you're not lecturing [in class], you can address questions...bring in another perspective...in real time and have a much better discussion...back and forth dialogue...you can cover a lot more points and give much more depth and breadth to a topic because there is time for everybody to chime in and contribute their viewpoint...students have opportunity to bring their experiences to the table... I can be responsive right then to the need as they have it...instead of saying...well, wait to the end

of class and I will take questions at the end of lecture...we can take care of it right now and incorporate the question into the knowledge they are building right now... and that may be an integral piece to the process...it's much better to address it in the moment instead of later down the road... (P3)

The FCM created a time and space for students and faculty to engage in dialogue and higher-order thinking. P4 believed “deeper learning [took] place” among her students and “they learned how to learn” as well. Another participant felt that with traditional lecture, “I just kind of shovel it in them”, but with flipped classroom teaching, students:

...have to [get] into that material, pull those things together, make those little synaptic connections, talk with each other, opine about...what kind of problem this is? What kind of information might address this issue? ...They're thinking their way through that entire process themselves compared to the prior model wherein all that came up before them was something on a slide. (P16)

Participants also found the increased student interaction re-energized them and offered a new enthusiasm for their teaching. P14 represented the mindset of several when she commented, “It's fun to walk in and be present in the room when there's that hum of activity and discussion and excitement about the topic, whatever that might be...when I walk out of the flipped classroom, I feel energized.” P6 added that teaching with this model, “has allowed me to be a better educator...because I've been outside of my comfort zone and I continue to stay outside my comfort zone so that I can continue to grow.”

“These students are putting together the pieces.” To determine full benefit of the FCM, participants carefully evaluated students' analytical and decision-making skills as evidenced by test scores and clinical performance. Twelve of the 16 participants perceived flipped classroom

teaching to improve their students' testing abilities, particularly on application, analysis, and synthesis items. Most tracked data on teacher-made unit tests and final examinations; however, some also discussed noted improvement in standardized test and the National Council Licensure Examination (NCLEX) scores. The following commentaries reveal the degree of satisfaction these nurse educators experienced from this aspect of the FCM:

I gauge my teaching interventions...upon my student outcomes, and...consistently I have seen that with my active learning that I put into the classroom...the student scores, their outcomes are higher on that material during testing...so I have found that when I do flipped classroom...the test scores are higher than when I have done traditional lecture on that same content.(P9)

...so I basically went back to the data...to two semesters worth of data prior to going to the flipped model, and...I started comparing the current semester's for those items when they were used on an exam and...the scores were pretty much overwhelmingly always improved and fairly significantly...that was encouraging! (P14)

In the program where we totally flipped the classroom...My HESI scores went way up... as we were flipping, their scores got better and better. They were just better able to apply it and do those application questions a lot better. (P8)

We have... benchmark tests that benchmark against the NCLEX material...so our correlation prior to flipping the classroom was at a 0.7...meaning if the individual did poorly in the class, they would also do poorly on the [standardized] comprehensive exam, and if they did well in the course, then it would positively correlate with a higher score...so we had a .92 correlation with the flipped classroom. (P6)

...like a lot of places our board scores really dropped when the NCLEX test plans changed and we implemented the flipped classroom the first semester after that spring and we consistently saw improvement in our board scores, over four semesters)...so we feel like that had something to do with it as well. (P11)

Although many participants found the FCM valuable because of students' improved test results, the model's influence on clinical performance seemed equally beneficial. Several participants spoke with great enthusiasm as they described changes in their students' clinical practice:

...they were able to pick up on complications...subtle changes with labs...so it was very rewarding...these students are putting to together even in their first and second semester...pieces...and we have more moments of them critically thinking than what I had seen in the traditional program...you know that that is imprinted in them and, they will go forward with it...they are able to connect the dots... (P6)

You know, they weren't just interested in the task of giving a bath or putting in a Foley or doing a skill, but actually in understanding the disease processes and how to really care for a patient based on that. (P11)

...the student had the patient [who was] having some issues and the student...looked up the labs and found out there was a problem with his sodium...so she...told the nurse [that] she looked up all the patient's meds and knew that one of those meds caused hypernatremia. She said [to the nurse], 'I think that one of these meds might be causing this problem' and the nurse called the doctor and he said, 'Well, you need to take him off that medication...' I didn't see students picking things up like that in the first semester

before...now they're actually starting to think about why a patient might be having problems... (P8)

The benefits of the FCM, as depicted by this group of participants, included a means to improve students' study habits and maximize class time for deeper and more meaningful learning. As a result, participants observed an increase in critical thinking abilities as reflected in improved test scores and decision making skills in the clinical setting.

Challenges: “Becoming comfortable with the uncomfortable.” As with benefits, the participants also discovered that both students and faculty experienced challenges and a degree of discomfort with use of the FCM. Three subcategories emerged from the data as participants shared their experiences and observations: 1) Student resistance: “You’re gonna get pushback!” 2) The FCM: “In many ways it’s harder” 3) Relinquishing control: Getting “comfortable with chaos”

Student resistance: “You’re gonna get pushback!” Every participant acknowledged some measure of student resistance upon initial implementation of the FCM, and found that the required changes in study habits produced significant anxiety in their students. In traditional learning environments, students had grown accustomed to coming to class with little or no preparation, and could quietly take notes during a lecture without having to participate in discussion or learning exercises. The FCM required students to put forth more time and effort in their learning. As P6 explained, “some of them get very stressed over it...because they haven’t yet had that type of ownership in education.” P14 added that students complained because they felt:

they were having to teach themselves...they want me to tell them what they need to know for the test and not realizing that that’s actually going on during these activities or in the

pre-work,...they actually are getting that synopsis of what's most important to know...They just are not comfortable with things that are putting them in the driver's seat. They're used to being spoon fed information and the regurgitating that, and nursing is not like that...you have to be able to actually digest that information and come back and apply it and put it into a new context sometimes.

Such comments indicate that students not only find the FCM uncomfortable, but also may prefer to sit quietly in the classroom, take notes, and receive directives for every step in the learning process. Nurse educators must, therefore, anticipate resistance and take steps to prepare students for transition to the FCM. P7 admonished faculty new to this strategy: "you have to know that you're gonna get pushback. You have to be ok with the pushback...I would tell myself that...not everybody's going to like my lesson...not everybody's gonna like you as a teacher." P3 also added:

I learned how important it is to explain what you are doing at the beginning...and now I spend a good bit of time on the first day talking about how the class will go...what we are doing, why we are doing it this way...once they understand and get a grasp...how it really benefits them, they become much more positive...and according to my evaluations...they are looking forward to having class with me again.

Although students balked initially at the FCM, several participants observed a change of heart over time. P11 shared her experience illustrating this finding:

I guess what surprised me the most was the...anger of the students...they were just very much against any changes to start out with, but then...I just had to talk to them, 'You know, give it some time. Trust us a little bit,' so those very students that were angry decided they liked it and they did well, but they were angry for several weeks...We had

students go to the dean and say, ‘I pay a lot of money for this private college and they’re telling me that I can’t come to class if I don’t do whatever,’ and luckily our director supported us and by the second semester and third semester it was less of an issue...we found more students that actually came to us and said, ‘I’ve learned more in this course than I have in any of my other courses,’ and we got that every semester...as time went on.

Another participant (P16) who conducted FCM research, referred to the qualitative arm of her study. She, too, observed students’ gradual change in attitude:

Many of them said, ‘In the beginning, I didn’t like this, but I came to understand that I’m in charge of my learning and...I really got more out of this class than I’ve ever gotten out of a class.’ I think we interviewed about 14 out of the 40...and the plurality of those who were interviewed, after they made their negative comments...which they did, they went on to say that truth be told, they appreciated that they had learned how to study...they were proud of themselves and that they learned more than they had ever learned.

It is important to note that some students maintained their negative reactions. P11 found that “there were still students that complained even [in the] last semester.” She noted, however, “those were the students who... were consistently average to below average...when we... looked at their grades from the other semesters, they were many times, very borderline students... so it wasn’t surprising... that they didn’t ever really engage in learning.”

The FCM: “In many ways it’s harder.” Several participants underestimated the degree of work and time required for the transition to flipped classroom teaching. They discovered the preparation and in-class interactions called for considerable commitment and energy.

P8 reflected,

...you have to do all the preparation for your [online] lecture to get them in ahead of time and you have to...prepare again with all your activities so it's almost double time to start out with...I mean it's 24/7 that first semester trying to get it all done.

P4 mirrored this observation, but also added:

The flipped classroom is just more involved, more time consuming and more difficult...it looks like I am not doing much [to students], but there has been a lot of forethought and planning and investigations before coming in with a solid plan...to design things and work and interact with students and groups and respond to questions regarding application of material, that's a whole different level of teaching.

These participants emphasized the cognitive demands in the design required, but P13 spoke to the combined physical and mental requirements:

So it's real active on my part. I'm on my feet the whole time...encouraging, pointing out, ...I mean in many ways, it's harder. It's easier to just do a lecture...You, yourself have to be incredibly prepared because it's a lot more varied, and difficult questions come up...it just takes more mental energy to keep group activities going and going effectively than it is for you as one person to stand and deliver a lecture even though it's a great lecture.

Perhaps the experience of intense transition to FCM occurred because participants discovered the need to pare down or even rework old lectures while they designed correlating in-class exercises. They seemed to have experienced a complete shift in their thinking as they sought to deliver meaningful intentional content. It is no wonder participants found such cognitive work challenging and time consuming.

Relinquishing control: Getting comfortable with chaos. As participants transitioned to the FCM and adopted the facilitator role, they discovered the need to give up control of certain aspects of their teaching. For some, this revelation was unexpected. Several struggled to allow students to problem-solve independently for fear something might be overlooked. P9 described her apprehension in this way:

...what's been difficult for me is...not to say, 'Well, I told you that in class...look on the PowerPoint slides'... I have to make sure in my mind that it's covered and that they understand it and use it appropriately, but now...there's not always a PowerPoint slide for me to go back to and say, 'See this bullet point'...so it's still a work in progress...at the end of the class, I feel physically and mentally exhausted because I have given up a lot of control.

Other participants spoke of giving up the orderly classroom and a predicted chain of class events. For example P6 offered:

"you have to be somewhat comfortable with a little chaos... we had to be ok with a little bit of noise...I had to relinquish some of that control...and it's big...especially with nurses because we do like control...to...allow students to set somewhat of the pace is hard for most of us."

P12 mirrored this thinking by stating: "... you have to be prepared to go with the flow and some faculty don't particularly like that..." Still others realized a new vulnerability when students would ask thoughtful questions and the answers were no longer on a PowerPoint slide or in the lecture notes. P3 acknowledged:

You have to be willing at some point to admit that you don't know everything...you really stop being the sage on the stage...and that exposes you to risks...you don't have

that big wall between you for protection...to keep you from the students...you become someone with an area of expertise...but they see that you still are looking for answers too...

With a different perspective, P4 observed that in “traditional lecture I can go in and read my PowerPoints [so] that a student never has a chance to ask you a question that you won’t know the answer to...whereas [in the flipped classroom]...you expose yourself to be vulnerable...I mean students may ask you a question you are not prepared for...in which case you can demonstrate to them your thinking process or...that you might have to go and look things up, too...

Although these participants struggled to move from behind the podium into the classroom, several also found the experience invigorating. P3 aptly described this shift in perspective:

A lot of the fun comes from the unexpected and turn of events...and the challenge of using the unexpected to still get across what you intended...there are people who are willing to have an adventure, to try something new and a little different, do something exciting in the learning environment...to share something with students...then the flipped classroom is for them...there is always the potential for adventure...and you will most likely learn something you didn’t know...almost every time.

On the whole, participants grappled with the loss of control in their flipped classrooms. Still, many discovered what they viewed as a loss offered a corresponding gain that permitted greater opportunity for creative instruction and professional growth. With each of the described challenges, participants often realized parallel benefits. For example, while students initially resisted the work of the FCM, they improved analytical skills and test scores; and the participants’ investment of time and hard work resulted in the crafting of meaningful learning

opportunities and richer student-faculty relationships. Finally, discussion of the identified challenges highlights the complex, dynamic nature of the FCM and the required commitment necessary for its effective execution.

The FCM: Does it fit in undergraduate nursing education? Reflection of their flipped classroom journey forced participants to re-examine the model's fit in undergraduate nursing education. Fifteen found it to clearly align with the objectives of their respective nursing curricula because it promoted integration of theory with practice. They believed the pre-class knowledge and comprehension assignments, combined with the analytical and application work in class, resulted in students who could problem solve and make better decisions at bedside. P15 noted:

...you need to hear a concept several times...research talks about exceeding the action potential at least three times for it to be embedded as a memory, so in my opinion the flipped classroom provides that...they're watching the video...reading... and in the classroom seeing it in action...discussions, case studies...reinforcing the content.

Similarly, another participant added:

Being able to do patient teaching, that's a pretty complex thing. They have to know the concepts and principles, and to be able to convey that...in class they put that knowledge and comprehension piece into action...they synthesize, analyze, apply, and sometimes create...those higher level things...and if you look at how learning works, when you teach something, you remember 90% of what you teach. (P3)

Like many participants, P5 viewed the FCM as a "perfect fit" because it allowed assimilation of cognitive, psychological, emotional, and technical skills. In her words, "there's greater

integration” and “to turn student nurses into holistic practitioners...it has to be done in many, many ways and...the flipped classroom does that.”

One participant (P2) served as a negative case in this study because she considered the flipped model more suitable for the graduate classroom. P2 found that her undergraduate students could not engage in the in-class analytical exercises because they did not grasp an understanding of pre-class work. She acknowledged that while she used online-videos on occasion, she relied more heavily on reading assignments and argued that “it is an extreme challenge” for the undergraduate students to complete them. P2 added, “We have forgotten about nurses who come into the profession...Translating our knowledge so that they can understand [it]...that’s a big problem in nursing.” In addition, P2 described her students as concrete thinkers who often were unmotivated. She admitted, “I can’t spark them to do the readings.” As a result, her planned in-class analytical exercises proved frequently ineffective. P2’s more negative observations and responses raise interesting questions about the balance of pre-class lecture and reading assignments, and the characteristics of students and faculty who thrive in the FCM.

Participants expressed considerable variation as they determined when to introduce the FCM into nursing curricula. Some found this strategy well suited to advanced senior level students while others thought it equally appropriate for beginning students. For example, P9 suggested, the FCM “is definitely more applicable...as the students are progressing... At the very beginning, they really do not know anything... but, as they progress through the curriculum and have more of a base,” the FCM allows them “to stretch their learning experience.” For this participant, students required mastery on fundamental nursing concepts before they would derive benefit from the flipped classroom’s analytical, problem-solving exercises. In contrast, P6 argued the FCM is useful at even the earliest stages of nursing education. She reported, “One of the

biggest ‘Ah-ha’s!’ with this new program [was]... yes, you can do it for first semester students... [because they] do come with experiences that are valuable for a nursing case study [and] for nursing in general.”

Others added that when students use flipped classroom instruction from the beginning and throughout their program, the process of teaching and learning proves less challenging. P3 described senior level students as:

more jaded...and maybe more resistant to change...they learn to cut corners and think they don’t have to really do everything they are asked to do...you can just coast and still get by...it’s hard to get them on board with flipped classroom...freshmen and sophomores are pretty willing to do what they need to do to learn...they usually do the required pre-class work more readily.

Another participant went as far to say:

If you’re going to do a flipped classroom, it should be a school-wide decision that everyone does...in order for it to be successful, because the culture then changes and students have to come in with a mindset that this is what is expected. (P7)

This nurse educator found herself as the only faculty member using the FCM in her program. Despite her confidence in the model’s effectiveness, she questioned whether to continue. This example illustrates the value of collaboration and support for early adopters of this teaching method.

Finally, class size surfaced as a variable when participants addressed the fit of the FCM. While all participants agreed that smaller classes made content delivery, discussion, and interactions easier, several nurse educators used the model successfully in larger classrooms. Student rosters ranged from ten to 160 students.

Participants revealed differences in opinion on several aspects related to flipped classroom instruction. Even so, the majority found the strategy preferable to the traditional classrooms they had taught in before. This consensus and the analysis of data leads to the belief that the FCM provides a means for effective instruction in undergraduate nursing classrooms. It is noteworthy, however, that three participants who considered the model useful, also believed it was merely an optional addition to their teaching repertoire. They did not endorse it as an exclusive strategy.

Tweaking: “It’s still a work in progress.” This category emerged as participants re-examined pre-class assignments and in-class activities. Within a short time, these educators realized that the FCM would involve multiple iterations that required them to rethink class objectives, content delivery methods, and outcome measures. P6 recounted a time when she carefully planned to use a Jeopardy game for review of major concepts. Although the plan was well developed, she discovered after the fact, that the class size made this particular activity less effective. She observed:

We crashed and burned with...certain activities...some did not do well in big groups...such as Jeopardy. It was a mess...you had people talking over people and they weren’t hearing what you were saying...it was a mess, so we had to really curtail and rework [it]...we had to discuss how we were gonna handle it when there’s a teachable moment...it was just those details that on paper...you don’t see that and now you really feel it...

Others had similar experiences where they planned and implemented a learning exercise, but would often have to modify their approach. P8 remarked:

Sometimes you think that an activity's the best in the world and then it doesn't do well and you go, 'Well, obviously that was not the best activity...' Sometimes it is just trial and error for me, switching those activities around until I finally figure out, 'Oh, this is one that works.'

P14 added that just because a plan fails the first time, it should not be discarded. She offered:

I always take my activities and run through them...before I bring them to class, but much of it is trial and error. Don't be afraid to bring back those things that didn't go well the first time...try them again before you discard...tweak 'em and bring 'em back and try 'em again...you have to have patience with yourself...this is a process.

All of these participants recognized the variation embodied in flipped classroom teaching, and quickly realized no blueprint existed for its application. As P13 concluded, "It's still a work in progress. There's tons of opportunity, but it needs... refinement and we just need to keep working...to figure out what are the best strategies. I don't think we've mastered this thing at all yet."

Summary

This chapter presented descriptive accounts of the experiences shared by a purposeful sample of undergraduate nurse educators who transitioned from traditional lecture to flipped classroom instruction. Included were participants' demographic data, an account of the interview process, and an in depth exploration of the study's data. Through use of an inductive interpretive approach, three major themes emerged from the data. The theme, What We Are Doing Is Not Working, expressed participants' concerns of a currently dysfunctional nursing education system, and also addressed their motivations to adopt the FCM. Charting a Different Course represented the impressions and processes related to rethinking course structure, roles,

and relationships. Reflections of the Journey thus Far conveyed participants' perceived benefits and challenges of the FCM as well as their thoughts regarding the model's fit to undergraduate nursing education. Finally, participants reflected on the ongoing refinement they believed necessary in order to improve their students' flipped classroom experiences.

CHAPTER 5

DISCUSSION

Through Interpretive Description, the researcher sought to increase understanding and bring to light the first-hand experiences of undergraduate nurse educators who implemented the FCM. Sixteen women participated in semi-structured telephone interviews and shared their journey of transition from traditional teaching methods to this newer pedagogical strategy. This chapter summarizes findings from themes and categories and explores how they correlate with current literature. In addition, the researcher discusses implications for educational practice and future research.

Discussion of Results

Most participant experiences mirrored those of FCM educators and researchers from other disciplines; however, some differences became evident. Both similarities and differences will be addressed in light of themes derived from the data.

What We Are Doing Is Not Working: “There’s a Big Disconnect”

Participants turned to the FCM because they observed in their traditional classrooms a lack of student engagement. With this thought in mind, many launched into a discussion of the characteristics of current students, most of whom were millennials. This finding aligns with a current report that 85% of baccalaureate and 56% of associate degree nursing students belong to this specific generation (Pettigrew, 2015). Participants described their learners as multi-taskers, very social, yet lacking in skills of time management, organization, and teamwork. In addition, these same students demonstrated weak study habits, had a short attention span, and, at times, appeared unmotivated. Although hallmarked for their 24/7 reliance on technology, some of the students were found to lack computer skills associated with data and resource retrieval for

scholarly inquiry. Interestingly, participants realized that students' adeptness in social media did not necessarily translate to knowledge of information science. This finding differs from those often cited in the literature (Prensky, 2010; Skiba & Baron, 2006). For example, Somyurek and Coskun, (2013) indicated that both faculty and students have developed proficiency and subsequently, incorporate information technology into the learning environment more readily. Still, the observations of participants signal the need to further develop search and data retrieval skills in undergraduate nursing students.

The characteristics of millennials observed in this study present a mixed view of this generation as documented by others. Some described these individuals as intelligent and ambitious (Howe & Strauss, 2003), while others found them self-absorbed with little interest in altruistic service or group solidity (Twenge, Campbell, & Freeman, 2012). Participants also confirmed prior research findings when they observed that in the traditional classroom, most of their students did not complete reading assignments before coming to class and began to fall asleep within minutes after the start of lecture (Hartley & Davies, 1978; Moravec et al., 2010; Sappington et al., 2002; Stuart & Rutherford, 1978).

Students' inability to transfer key concepts from classroom to clinical practice also represented a major concern of participants. Like Benner et al. (2010), they saw an increased need to develop clinical reasoning skills in their students and teach concepts within the context of patient care. Participants believed students had to learn how to learn and how to discern a valid line of reasoning. Kereluik, Mishra, Fahnoe, and Terry (2013) identified such abilities as hallmarks of 21st century learners and also endorsed academic encounters that would promote independent problem-solving, communication, collaboration, and creativity. Participants

recognized that these processes reflected learner-centered principles in ways traditional teaching methods did not.

During participant interviews, thoughts and phrases surfaced that directly mirrored Weimer's (2013) criteria for learner-centered teaching. For example, these nurse educators referred to themselves often as facilitators which clearly aligned with Weimer's intended role *of the teacher*. In addition, they spoke of the need to remain consistent with learner expectations and strongly advocated for greater student *responsibility for learning*. This created a greater *balance of power* between student and teacher in the learning process. Participants also viewed the *function of content* in pre- and in-class work to result in greater integration of concepts so that students might "do the work like that done in [their] discipline" (p.124). Finally, these nurse educators extended the *purpose and process of evaluation* beyond unit and final tests, as they continually assessed understanding through student-teacher interactions and peer evaluation.

Given the characteristics of their current students, the gap between theoretical knowledge and practice in the clinical arena, and the desire to implement learner-centered teaching strategies, participants found the FCM an appealing alternative. As other authors suggested, these nurse educators believed that a blend of web-based instruction, combined with face-to-face class activity, would better meet the needs of their current student population and prepare students for practice in real world settings (Foreman, 2003; Prensky, 2010; Skiba & Barton, 2006).

Charting a Different Course: Experimenting with the FCM

As participants sought to revamp their classes, many identified flipped classroom instruction as a major paradigm shift. One referred to it as "a whole other ballgame" (P6). Similarly, others within the literature recommended a "mental shift" and stressed the

replacement of content-laden lectures with activities that boosted problem-solving skills (Bates & Galloway, 2012, sec.4, para.3; Deslauriers et al., 2011). Participants also identified a desire to engage more with students and, at the same time, encourage student ownership of learning. These desires mirrored the “four pillars” (Hamdan et al., 2013, p.5) of the flipped learning model developed by the Flipped Learning Network (FLN). Interview excerpts reflected participants’ efforts to develop *Flexible Environments* in classrooms that allowed free range of dialogue among faculty and students. The nurse educators also hoped to create a *Learning Culture* that moved away from instructor-centered lectures to activities where students applied and integrated content. Creation of *Intentional Content* proved time consuming and labor intensive as participants attempted to tailor well-designed in-class activities that would build upon the basic knowledge and comprehension gained in pre-class work. As *Professional Educators*, the participants assumed a more challenging facilitative role which required a balance of flexibility, structure, and sometimes chaos.

Most participants identified constructivist theory, either directly or indirectly, (Piaget, 1971) as the foundation for their application of the FCM. They followed the lead of many researchers and educators (Bates & Galloway, 2012; Critz & Knight, 2013; Davies et al, 2013; Deslauriers et al, 2011; Freed et al., 2014), but added that nursing students, even at beginning levels, draw upon previous experiences to enhance understanding and assimilation of new concepts. Although few identified Vygotsky (1978), they subscribed to his social interaction theory, and commented that through interdependent, collaborative group assignments, their students often achieved higher levels of learning than they would have independently.

Pre-class assignments: In pursuit of the basics. Participants targeted pre-class assignments to introduce concepts and establish a basic knowledge and comprehension of content. Assigned readings and pre-recorded online lectures, with accompanying guided worksheets or pre-class quizzes, were typical of most pre-class work. Participants found that related worksheets and quizzes provided students a needed focus as they viewed the video lectures. The pre-class work forced students to engage early with course material, take more ownership of their learning experience, and helped to eliminate passivity associated with traditional classrooms (Weimer, 2013). As documented in the literature, participants found that students came to class better prepared for more in-depth learning (Bates & Galloway, 2012; Critz & Knight, 2013; Deslauriers et al, 2011; Prunuske et al., 2012). Additionally, their students found that continual access to videos enhanced grasp of course content because they could pause or rewind lectures as needed. This feature is an oft-cited benefit in FCM literature (Enfield, 2013; Franciszkowicz, 2008; Love et al., 2014; Prunuske et al., 2012). Finally, participants viewed themselves less as spoon-feeders, discovered that delivery of online lecture took less time with fewer distractions, and freed themselves to engage with students during class time.

Throughout the interviews, participants emphasized that without completion of pre-class assignments, in-class exercises became irrelevant. Many researchers agreed and viewed students' foundational homework equally as important as in-class activities (McLaughlin et al., 2014; Love et al., 2014; Tune et al., 2013). Although flipped classroom experts suggested strategic use of incentives (quizzes and bonus points) to encourage students' participation in pre-class work (Bates & Galloway, 2012; Deslauriers et al., 2011; McLaughlin et al., 2014), all but one participant found it necessary to use this tactic consistently in undergraduate nursing classrooms. This observation seems to support an earlier finding whereby participants described

their students as unmotivated and unlikely to prepare for class. Several participants believed quizzes related to pre-class assignments contributed to success of their flipped classrooms. In addition, quizzes allowed the educators to identify quickly areas of misunderstanding, and then remediate, a finding also documented in literature (Bates & Galloway, 2012; Deslauriers et al., 2011; Moravec et al., 2010).

In-class activities: Transforming how they think. Participants aimed to strengthen students' analytical skills through a variety of in-class activities, but like Pierce and Fox (2012) and Ivala et al. (2013), they discovered the increased interactions energized both students and themselves. In addition, these nurse educators observed that students tended to motivate one another as they worked in teams to solve problems. This further reflects the underpinning hallmark of Vygotsky's (1978) social learning whereby students increase their understanding through the efforts of peers. The in-class activities required these educators to be knowledgeable of content, but also flexible; and, several mentioned the benefit of understanding group dynamics and facilitation. This skill set is supported in the literature (Critz & Knight, 2013; Schwartz, 2014).

The majority of participants used unfolding case studies most often. Typically, students completed the studies in workgroups and presented findings to the entire class. Sometimes, participants combined the case study analysis with role play and simulated patient scenarios in order to integrate multiple concepts and allow students active application of key principles learned during pre-class and group work. Participants provided a few examples of the case studies and became very enthused as they described the interactions among students and faculty during these sessions. One participant (P6) noted that these case studies and simulated scenarios served as a means for "bringing the content to life." Another viewed such activities as strategic

to “making the connection to what’s expected for [a particular] diagnosis [or]...a...procedure.” (P12) Still, another explained how even in a class of 160, students actively participated in three different case study analyses related to care of trauma victims. She, along with two other colleagues, circulated around the room and invited students to share observations via microphones. (P6) She emphasized that while some students played an active role in the case simulations, others were equally active because “they were in critique mode...they had to ensure that we were doing everything correctly.” Like many other participants, this nurse educator explained how the case studies and simulations, combined with principles of flipped classroom teaching, provided students much greater opportunity to explore not only pathophysiology, but also the ethical, cultural and spiritual components that surround patient care.

Even so, as these participants described their classroom exercises and methods of implementation, the degree of variation with use of the FCM became evident. In addition to use of unfolding case studies and simulated patient scenarios, participants also used group testing. Most often, the participants asked students to draft their own versions of multiple choice test items that required higher order thinking. The students then shared their questions in groups, and classmates discussed why certain distractors were correct and others, incorrect. Other in-class activities included storytelling, reflective journaling, report giving (hand-off communication). Participants also used role play in order to develop skills related to patient teaching.

Of interest, participants often paused for several minutes when asked to describe a typical in-class activity, and several spoke about their classroom teaching in general and global terms. It became evident to the researcher that design and implementation of the FCM is very much in its infancy, and that participants still grapple to find what activities best complement pre-class work. Table 2 provides a summary of the pre and in-class activities that participants of this study used.

Findings certainly concurred with those of Love et al., (2014) who noted, “There is no single model for implementing the flipped classroom approach, and... the literature indicates that the approach is still in a stage of innovation” (p. 319).

Table 2.

Summary of Flipped Classroom Pre and In-Class Activities

<u>Pre-Class Activities</u>	<u>In-Class Activities</u>
While viewing online, voice-over PowerPoint, complete fill-in-blank worksheet or answer related questions.	In work-groups, answer and discuss questions to assigned case study. Upon completion, present findings to class via report or through role play and simulation
In order to participate in in-class activity, complete the assigned 10 to 20 question online quiz. (Quizzes would be available for 1 to 2 hours and close 30 minutes to 1 hour prior to class. Successful completion, often 80% would result in accrual of course points). Completed quiz serves as ticket to class. Based on assigned readings and online lecture, identify three priority nursing diagnoses or key nursing interventions. Discuss these in an online discussion board.	In assigned work-group, discuss medication’s MOA, indication, adverse effects, etc. In 30 minutes, reassign groups (in jig-saw manner) such that each member of previous group prevents findings to a new group of classmates.
After reading assigned text and viewing online lecture, draft a report for a patient with the discussed	Based on pre-class assignment, design a case study, discuss with group and

Table 2. (continued)

<u>Pre-Class Activities</u>	<u>In-Class Activities</u>
disorder. Include, possible subjective complaints, assessment findings, risk factors, anticipated lab alterations, and expected medical and nursing interventions.	then swap studies with another group.
	Practice giving report to an oncoming nurse related to care of patients with disorder(s) discussed in pre-class lecture.
	Watch you-tube video of patient with particular disorder. Write a one page reflection paper of what it would be like to live with this disorder.
	Develop a teaching plan with work group members for patient discuss in online video

Like Milman (2012) and Roehl et al. (2013), participants found that face-to-face interaction during class allowed more time for ongoing formative evaluation. They particularly valued the opportunity to clarify points and correct misunderstandings on the spot. In traditional lecture, participants often found student questions a distracting interruption because of the

overriding need to cover content. As a result, they would take questions at the end of lecture, and many times, did not feel they adequately addressed student concerns. In essence, there was little to no opportunity for real-time feedback. One participant observed that with the FCM, faculty deal with questions immediately, and students no longer “sit there stuck but instead, move on with you.” (P3) Such findings fit those of two different meta-analyses which reported that students’ receipt of real-time feedback resulted in one of the highest effect sizes (0.73-0.76) of any teaching strategy (Beesley & Apthorp, 2010; Hattie, 2008). In addition, the participants noted that they often interrupted in-class exercises to clarify or elaborate on specific concepts. This is not unlike several authors who spoke of “mini-lectures” interspersed among classroom activities (Bland, 2006, p. 6; Geist et al., 2015; Lage et al., 2000; McLaughlin et al., 2014; Moravec et al., 2010). It is interesting that most educators described the flipped classroom as the exchange of in-class lecture for interactive group-work; however, in both this study and in the literature, some lecture continued to resurface in the classroom.

Finally, many of the participants spoke of the FCM’s increased opportunity for application of concepts, and often used terms such as “hands-on” practice. It is important to note that although application and practice of skills occur in the flipped classroom, participants also highlighted the value of assignments that call for analysis and synthesis. Bristol (2014), supported their assertion when he offered that the FCM “is not just about attaining competency; it is about learning how to learn for lasting success” (p.44).

Rethinking Roles and Relationships

Perhaps the greatest adjustment associated with flipped classroom teaching involved the changes in role and relationship for both students and participants. A discussion of these changes requires reflection of associated benefits and challenges. Given this overlap, several categories

will be addressed simultaneously. These nurse educators moved from behind their podiums, and students became active players in knowledge acquisition and learning how to learn. Both experienced a degree of anxiety and a gamut of mixed emotions. Strayer (2012) documented an “unsettledness” among flipped classroom students (p. 181), and Roehl et al. (2013) advised both faculty and students to expect an adjustment period during transition. Although documented in the literature, the degree of distress these participants and their students encountered was unexpected.

Student role change and resistance: “You’re gonna get pushback.” The FCM requires that students become accountable and complete regularly scheduled pre-class work in order to benefit from in-class interaction and activity. Participants in this study, encountered considerable “pushback” as their students discovered these requirements. (P7) Specifically, participants’ students did not like the increased required preparation, and many experienced extreme distress when the participants did not tell them exactly what they had to know for a test. Discussions of this point appeared frequently in the literature. For many students, the FCM not only represents a different way of learning, but it also necessitates a major change of habits and this contributes to the resistance (Aronson, Arfstrom, & Tam, 2013). Garver and Roberts (2013) documented that in traditional teaching methods, students learn how to successfully progress through coursework without inordinate effort and, therefore, often assume a more passive role. Such passivity breeds a dependency upon the educator and leads students to expect instruction through every step of their learning, even including what to know for a test (Aronson et al., 2013). When asked to explore information, draw conclusions, and develop a plan for application, students initially startle, and some rebel (Smith & Cardaciotto, 2011).

After their first FCM implementation, participants discovered the need to prepare students upfront for this type of learning strategy. Explicit explanations and expectations related to pre-class preparation, time management, and in-class participation made for easier transition in subsequent classes. Participants also discovered that students responded better when they realized the FCM served as a means to keep them on track, develop problem-solving ability, and build their self-confidence.

“These students are putting together the pieces.” Although student resistance to the FCM was a common observation, participants found that test, final exam, and standardized assessment scores improved. A few even witnessed better NCLEX results. The mismatch between satisfaction ratings and test scores occurred in several studies (Jump, 2013; Missildine et al., 2013; Tune et al., 2013). Jump reasoned that the same “cognitive strain” that produces dissatisfaction with FCM may serve to promote better test performance (para. 7), a conclusion that might encourage FCM faculty to persevere in their efforts. Improved test performance is common in the FCM literature, although few studies indicated statistical significance or documented substantial effect size. Few researchers have examined standardized test results or determined long term retention gains in flipped classroom students. Still, even in the few FCM nursing studies, flipped classroom students typically out performed traditional students (Geist et al, 2015; Missildine et al., 2013).

Evidence of FCM effectiveness via standard measurement is also encouraging. Two longitudinal studies with large sample sizes, control of extraneous variables, and use of reliable instruments revealed significant gains for flipped classroom students compared to their counterparts (Bates & Galloway, 2012; Deslauriers et al., 2011). Of significance, in the latter citation, traditional students received instruction from a long time, highly regarded faculty

member while two instructors with no previous teaching experience taught in the flipped classroom cohort. This observation seems to reflect the value of instructor facilitation over information dissemination. Additionally, Deslauriers et al., and Ruddick (2012) documented better long term knowledge retention in FCM students. Ruddick submitted that knowledge gain and adjunctive skills of self-regulation and collaboration contribute to success in future coursework.

Several authors emphasized that the FCM promotes integration and application of concepts in contrast to memorization of facts (Day & Foley, 2006; Missildine et al., 2013; Moravec et al., 2010). Participants observed this integration and application in their students during clinical experiences. Even first level students focused less on the practice of skills, and instead, began to correlate patients' laboratory data with clinical manifestations and identify adverse effects of medications based on assessments. Participants shared several examples of improved problem-solving and decision-making as flipped classroom students cared for patients. Subsequently, as students developed greater confidence in their abilities, and noted their achievements, they recognized the advantages of flipped classroom learning. Long term evaluations improved. One could argue that students resigned themselves to the FCM in order to survive their course and move on, but two significant studies documented that preference for traditional lecture decreased in post-course evaluations, along with perceived course difficulty (McLaughlin et al., 2014; Stelzer et al., 2010).

Faculty role change: “Becoming comfortable with the uncomfortable.” The transition to a facilitative role proved challenging as participants relinquished control of their classrooms. Some struggled to allow students to problem-solve independently, while others found the loss of an orderly and predictable class unsettling. Still others discovered an increased vulnerability

when students asked questions for which they did not have an immediate answer. These participants learned quickly that the familiar habits and practices associated with traditional teaching no longer had a place in the flipped classroom. They found that presentation of a lecture differs significantly from teaching in the moment. At present, few findings in the literature, if any, address such experiences. In a survey of current FCM research, Bishop and Verleger (2013) found that studies often documented student perceptions, but very few addressed educator transitional experience. In most articles, faculty perceptions focused only on their views related to students' responses to the FCM. Of a more global nature, however, Weimer (2013) identified anxiety, tension, and instructor opposition as common responses to execution of learner-centered strategies.

Participants identified other challenging aspects of FCM implementation that *do* appear in the literature. For example, these nurse educators found that the creation of complementary pre- and in-class learning assignments, in addition to interactive class activities, required a significant expenditure of mental energy, time, and work effort. Through use of Socratic dialogue (Lambright, 1995), the participants continually asked students questions, then used the responses as the basis for further questioning and, all the while, guided the students toward a more accurate understanding of the topic at hand. With this type of exchange, the educator's role becomes much more strategic and, therefore, requires extended effort (Freed et al., 2014). Preparation time, an understanding of the content, and the careful design of activities and conversations with students, all require extensive work well beyond planning a delivering a PowerPoint presentation.

A number of FCM researchers recounted their time investments and revealed much variation (Butt, 2014; Day & Foley, 2006; Enfield, 2013). Not surprising, the participants in this

study documented considerable expenditures of both time and effort. For this reason, most did not flip an entire course within a semester's time, and they suggested that educators new to the FCM, transition gradually. Herreid and Schiller (2013) added that creation of videos called for additional work while others identified mastery of technology skills as a source of "technostress" (Brown, 2012; Freed et al., 2014, p. 601; Ivala et al., 2013). Participants of this study, however, rarely mentioned this aspect of their work, nor did they seem to view it as a challenge. In fact, one participant referred to herself as an "early adopter" based on Rogers' (2003) Innovation Theory (Kaminski, 2011, p.2), while several described themselves as adventuresome or cutting-edge. Many participants found the development of online learning tools and correlating classroom applications fun and stimulating. Although a few spoke of the added benefit of an instructional technology department in their respective programs, most participants found the design and use of online materials relatively easy to master.

A closer look at Roger's (2003) characteristics of early adopters in comparison to those of the participants of this study revealed some distinct differences. Although these nurse educators served as "opinion leaders," they did not pursue the FCM because of "a natural desire to be trend setters" (Kaminski, 2011, p.2). Instead, most were driven to explore this model out of a desperate need to improve learning outcomes of their students. The focus for implementation was to move away from a teaching pedagogy that, in their view, had yielded less than effective results for today's students. With one exception, the participants found aspects of the FCM appealing and well-suited to the objectives of current nursing curricula. In addition, the question may surface as to whether these participants could be perceived as "role models within their social system" (Kaminski, p.2). Most felt they were under the scrutiny of fellow colleagues and some even felt ostracized for bucking the traditional methods of teaching undergraduate nurses.

This indicated a significant finding given that members of a culture must perceive advantage of an innovation and recognize its relevance to existing values, if the invention is to catch on or move forward (Rogers, 2003). Participants found the most effective way to win over their colleagues was to invite them to the flipped classrooms and provide data that revealed better learning outcomes. Throughout the interviews, these nurse educators presented themselves as adventuresome, persevering, and, perhaps most interesting, confident in their students' ability to achieve and excel in a challenging learning environment.

Finally, several participants experienced a degree of apprehension as they launched their flipped classrooms because they felt scrutinized by other colleagues. Weimer (2013) noted that when educators change teaching methodology, a collaborative environment with positive feedback leads to more effective implementation. Despite the lack of experienced support, these participants remained excited about the FCM. As they increased their interactions with students and developed more trusting relationships, the classroom environments allowed for greater student-faculty dialogue and that proved stimulating to the participants. They found their work interesting and rewarding, and often walked out of classrooms with new questions or a different perspective. The in-class activities required these educators to be knowledgeable of content, but also flexible. In addition, some needed to hone skills of facilitation and increase their understanding of group dynamics, a finding documented by Critz and Knight (2013) and Schwartz (2014). Ivala et al. (2013) observed that the facilitator role challenged educators, but also proved satisfying. As students became more active and developed an enthusiasm for their learning, educators discovered an increased passion for teaching.

Implications

In this Interpretive Description study, the researcher sought to better understand undergraduate nurse educators' experiences in their transition to flipped classroom teaching. The FCM, new to the nursing discipline, presents a major paradigm shift that forces instructors and students to turn from the passive and traditional methods toward a more learner-centered focus. Although researchers and authors have discussed the FCM, very little literature speaks to the preparation of faculty who hope to adopt this strategy. Findings from this study offer important implications for education practice and future research.

Education

An examination of participants' motivating factors to adopt the FCM underscore an imminent need for restructure of undergraduate nursing education. Participants readily discussed the challenge of teaching current students who lack strong study skills and struggle to maintain focus during class. These educators identified student's preoccupation with social media, and an over reliance on instructors who tell them what to know to pass a test as hallmark descriptors of many nursing classrooms. Participants clearly voiced that if nursing education is to develop creative undergraduates with strong critical thinking skills, then teaching practices need to include elements of student accountability and higher order thinking. Therefore, this group of educators chose to implement the FCM, not because it was a new fad in pedagogical practice, but because they hoped or believed it would develop these necessary components in their students. As the theme "What we are doing is not working" indicates, nurse educators who continue delivery of content-laden PowerPoint lectures no longer meet the needs of their students.

Participants emphasized that use of the FCM calls for a different skill-set. In essence, nursing faculty need to learn how to both teach and engage with students. As an important aside,

many educators well versed in a patient care specialty lack proficiency in learner-centered pedagogy. FCM implementation requires both an expertise in a particular content area and an adeptness in skills of facilitation. Although some of the participants received graduate degrees in education, they basically self-taught themselves how to implement this model. They described the design and use of pre- and in-class assignments as processes marked by much trial and error, and they found themselves left to explore and infer best FCM practices on their own.

Some participants received little support from colleagues and administration as they implemented the FCM, and several were one of a few faculty members in their respective programs to use this strategy. These educators even voiced negative reactions from fellow faculty and felt as if they were under scrutiny during transition. Implications for education, therefore, are three-fold: 1) The FCM literature focuses heavily on student outcomes and perceptions, but still provides little in the way of operationalizing the model. This lack of clear direction perpetuates confusion and variation in flipped classroom implementation. Further research and dissemination of effective practice must occur to fully flesh out this strategy. 2) Nursing faculty must have resources for professional development and the support of colleagues and administrators if they are to use the FCM effectively. 3) Methods such as the FCM call for a different teaching skill-set, therefore, educators must have access to continued learning opportunities and participate in professional learning communities in order to build knowledge of pedagogical practice.

Research

This study offered an account of 16 undergraduate nurse educators' subjective experiences surrounding their use of the FCM. Rich descriptions of patterns and relationships, derived from personal observations provided a view into the practice of this pedagogical strategy

in a manner undocumented by prior research. “Using multiple angles of vision”, certain commonalties surfaced that revealed causal effects of the operations involved in flipped classroom interpersonal dynamics (Clark et al., 2008, Thorne, 2008, p.78).

For educators new to the FCM, this study allowed a means to begin to operationalize this method as participants freely shared their understanding of “what works for whom, when, and why” (Clark et al., 2008, p. E74). Appendix D offers specific perceived requisites for effective FCM implementation in undergraduate nursing classrooms. The category, Going out on a limb: “All by ourselves” gave insight into how some educators launched their flipped classroom journey with little support or positive reinforcement. Student resistance: “You’re gonna get pushback” raised the awareness that implementation of the model is no easy feat. Most participants lacked collegial backing, experienced negative feedback from students and fellow faculty, and carried a much heavier workload, yet they emerged from flipped classroom transition intellectually stimulated, enthusiastic, and excited about the learning they shared with students. While they found traditional lecture enervating, the flipped classroom proved refreshing and rewarding.

Further qualitative and quantitative inquiry related to the FCM is needed to broaden the knowledge base surrounding this model. Clearly, if the nursing discipline is to confirm this strategy’s fit in undergraduate nursing, more research should occur. Based on results of this study, several areas for exploration arise. Participants presented themselves as enthusiastic, energetic individuals who were passionate to prepare competent nursing professionals. In addition, they seemed to thrive on the daily challenges encountered with use of the FCM. They often described themselves as persevering, flexible, creative, and “up for an adventure.” (P3) A study that explores traits of faculty who successfully implement the FCM would offer additional

insight. Similarly, the large majority of participants conveyed the conviction that learners are capable and will take ownership for their learning when provided a compelling structure like the FCM. These nurse educators seemed to emphasize students' strengths' over their limitations, and thus, embodied a strengths-based perspective (Saleebey, 2012). The impact of the educator's worldview or perspective on effective flipped classroom execution, therefore, raises another interesting and important question.

From a more practical standpoint, participants indicated continual "tweaking" (P8) as they searched for and experimented with effective FCM assignments. They also frequently noted that there is "no script" (P7). These emerging categories suggest a path for further research that could advance the operational definition of the FCM, delineate specific procedures for implementation, and simplify the construction of new flipped classrooms. For example, a comparison study of educators who fail to implement the FCM to others who succeed may elucidate determinants of success and provide directives for threshold requirements for effective implementation. Finally, the variation among participants regarding when and at what level in the nursing curriculum to use flipped classroom teaching suggests need for a correlational study that could clarify the FCM's suitable areas of application.

Study Rigor and Quality Criteria

The researcher aimed to follow and remain true to the interpretive description method of inquiry in order to maintain study rigor. To seek "probable truth" she entered the participants' world and engaged with the data to gain various viewpoints of the flipped classroom transition experience in undergraduate nursing education (Kikuchi & Simmons, 1996; Thorne, 2008, p. 229). Quality criteria to produce a rigorous study included epistemological integrity,

representative credibility, dependability, and confirmability (Lincoln & Guba, 1985; Thorne, 2008).

For epistemological integrity, the researcher acknowledged a realist perspective in which no contradiction occurs between truth of an individual's experience and the actuality of an underlying reality that may cause the experience. Assurance of representative credibility occurred through time spent with participants, gaining their trust, and remaining attentive to their stories. The researcher also established credibility and dependability through reflection and note-taking of observations, perceptions, and interactions. These not only captured ongoing insight during subsequent interviews, data transcription, and analysis, but also allowed development of analytic knowledge, and marked steps of the research process. This creation of an audit trail, can contribute to replication of this study by future researchers. Confirmation of "inherently constructed perceptions" took place through a comparison of participants' experiences with findings revealed in flipped classroom literature and through consultation with experts who shared their thoughts and opinions as they reviewed transcripts with the researcher (Thorne, 2008, p.224). Collectively, these strategies contributed to a form of triangulation of data sources. Finally, the researcher maintained credibility when participants recognized their experiences in the researcher's descriptions and verified appropriateness (Lincoln & Guba, 1985; Sandelowski, 1993).

Disciplinary Relevance and Transferability

As an additional layer of "competent inquiry," Thorne (2008) recommended that researchers "explain the relationship between their research and the disciplinary knowledge they seek to advance" (p. 227). A strength of this study is that it provides rich insight to the thoughts and processes of faculty who have grappled with the FCM. Before educators jump on a

pedagogical wagon or quickly dismiss a method as an innovative fad, a fair and careful examination of the strategy should take place. This study provides such an examination, as it offers the perspectives of 16 undergraduate nurse educators across the United States and Canada. Although their experiences are unique, the results of the study are likely to have meaning for other faculty who seek transition to the FCM. Lincoln and Guba (1985) denoted this as transferability. Participants bear strong similarities with other nurse educators who struggle to prepare graduate nurses who can function in a complex healthcare system. Given that participants practice their craft in a wide range of nursing education settings across a broad geographical region, transferability of results is enhanced. In addition, their experiences may also contribute to the knowledge base of educators in other disciplines and practice areas. For example, the participants' recommendations may serve to benefit those in healthcare staff development. Clearly, this FCM study offers insights to nurse educators who strive to create learner-centered environments and aspire to teach "for a sense of salience" (Benner et al., 2010, p.82)

Study Concept Map: The Flipped Classroom in Undergraduate Nursing Education

A concept map entitled, *The Flipped Classroom in Undergraduate Nursing Education*, took shape with the analysis of data and embodies the following narrative (Figure 1). The participants in this study began with a growing awareness of a "*big disconnect*" between their traditional teaching methods and their goal to matriculate competent nursing graduates into the current healthcare arena. They found current *traditional methods* ineffective, and sought an alternative, in which they discovered the FCM. Guided by mentors, seminars, or their own research, they revised their understandings of the roles of educator and student respectively. As educators, they believed that they could no longer dispense content via classroom lecture and

hope that students would understand, absorb, and make application. Instead, the participants adopted the dual roles of *facilitator* and coach, and discovered their mission to help students move *from passive to active learning*. To this end, the participants leveraged their time with students through creation of required *pre-class activities* and online lectures that would provide foundational concepts (*in pursuit of the basics*). This, in turn, freed them to use *in-class time* for generative activities that helped students understand, analyze, and apply the concepts to which they had been exposed prior to class.

The iterative, self-reinforcing cycle of pre-class preparation, followed by in-class practice and the guidance of attentive faculty, created an integrative learning experience that resulted in *a much needed structure*, and a *transformation of students' thinking*. When students and participants joined forces as 'us' *working together*, students began to *make better connections* between classroom theory and clinical practice. In turn, participants believed that their students emerged as stronger, more *competent nursing graduates* who could collaborate with healthteam members and make sound clinical judgments. Although certain pieces of the FCM puzzle seem to fit, still questions remain regarding aspects of implementation in undergraduate nursing settings. These "blank" puzzle pieces represent those features we have yet to discover, describe, and understand.

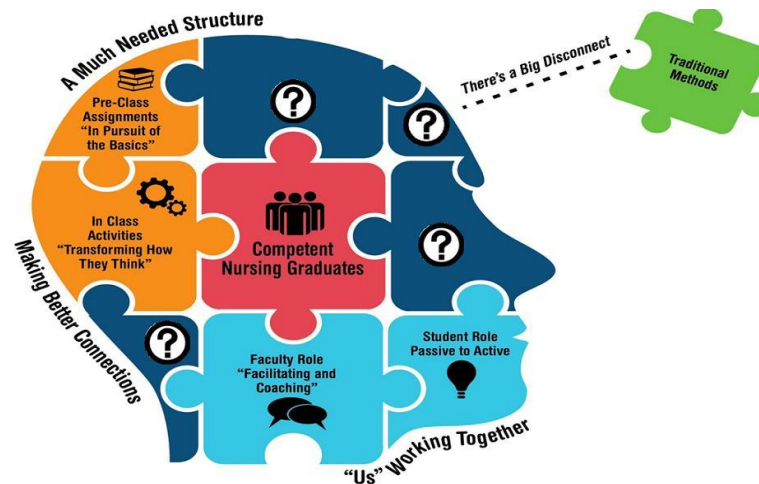


Figure 1. The Flipped Classroom in Undergraduate Nursing Education (Cruser, 2015)

Personal Reflection

As a nurse educator in an undergraduate baccalaureate program, the FCM is of particular interest to me. Although I subscribe to learner-centered strategies, I purposely chose not to transition to flipped classroom teaching while participating in this study. I wanted to enter the participants' world with fresh eyes, explore with them, and understand their experiences. I accepted the probability that my teaching experiences influenced this inquiry as "all knowledge is perspectival" but tried to fairly present data "external to [my] own bias or experience" (Thorne, 2008, p. 225). As a critical realist, I sought to discern the hidden causal mechanisms surrounding the real domain of the flipped classroom (McEvoy & Richards, 2003), and through an interpretive paradigm, dialogued with participants to arrive at a deeper understanding of "what works for whom, when and why" (Clark et al., 2008, p.E74). As a result, I was able to draw certain conclusions about the FCM's effectiveness in the realm of undergraduate nursing education jointly shared by students and educators alike.

Although participants freely shared their perceptions of flipped classroom teaching, at times they seemed hesitant to reveal particulars surrounding their design of pre- and in-class

activities. Although I asked for elaboration that would further illuminate their specific practices, participants often responded with long pauses. Due to the FCM's infancy, I believe nurse educators struggle to articulate and operationalize the model. Even when participants settled upon a particular activity that worked, it seemed as if they were unsure of its value, and this lack of certainty may have hindered their free expression. Due to the paucity of flipped classroom research, particularly in undergraduate nursing education, many participants implied a need for validation of their practice, and made clear their desire for collaboration with others using the model. Despite this challenge to obtain explicit details of flipped classroom implementation, most participants did convey an enthusiasm for the model. They suggested that its chief values rest in its ability to provide a more structured environment that calls for independent student learning, analytical thinking, and interactive exchange within the classroom. Such elements seem essential to the development of relevant knowledge and practical skills necessary for effective nursing practice.

Not only did these participants offer me rich data from which to make critical assessments, but I found their passion, energy, and belief in their students' ability to achieve contagious. While I do not view the FCM as the only means of effective teaching, I do believe it offers great promise at a time when nursing students struggle to organize their thought processes, draw valid conclusions, and learn to provide high quality patient care. From the experiences shared by these participants, I look forward to embarking upon my own flipped classroom journey. I believe the FCM offers a true path that effectively enables students to meet the growing demands of health care as they become competent and caring nurses embodying the ideals of our profession. To the extent effective pedagogy draws students in and can strengthen

nursing, this model is worth further investigation and pursuit. Clearly, I have benefited from the dialogue with these participants and am indebted to them for strengthening my educator role.

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APPENDICES

APPENDIX A

IRB Approved Letter of Invitation to Participants

May 5, 2015

Dear Colleague,

In partial fulfillment of requirements for a Doctorate of Philosophy in Nursing at East Tennessee State University, I plan to explore and describe experiences of undergraduate nurse educators who have used the flipped classroom model (FCM) and bring to light factors which enhance and hinder its implementation. For this study, the FCM is defined as a form of instruction that calls for students to have access to and be accountable for lecture material on their own time, and then uses face-to-face classroom time for interactive learning that can include discussion, analysis of case scenarios, or application of content acquired in pre-class work.

If you have had two or more years of teaching experience and have used the FCM for one or more semesters, I would like to invite you to participate in this IRB approved study and share your perspectives related to this teaching practice.

If you agree to participate, we will arrange a time convenient for you to meet in person or via telephone for an interview that will last about 1 hour. The interview will be audio taped so that I can accurately reflect on what is discussed. The audiotapes will only be reviewed by me, a transcriptionist, and my dissertation chair. The recording will then be destroyed. You will have opportunity to review the transcript for accuracy should you desire.

Your participation in this research will be completely voluntary and anonymous. You may feel uncomfortable answering some of the questions and you do not have to answer any questions that you do not wish to. All identifying information will be removed from transcripts before presentation or publication, and your identity will be kept in strict confidence. Study information will be kept in a secure location at East Tennessee State University.

Although you may not benefit directly from participation, findings of this study may benefit other educators who transition to use of the FCM. In this way, your participation may well contribute to the scholarship of undergraduate nursing education.

If you have questions or concerns about this study, I will be happy to address and answer them. Please feel free to contact me at my email address (jbernard@covhlth.com). Thank you for your consideration. I look forward to hearing from you.

Respectfully,

Jean S. Bernard, PhD(c), MSN, RN
Principle Investigator
East Tennessee State University
College of Nursing
865-719-0051
jbernard@covhlth.com

APPROVED
By the ETSU IRB
JUN 08 2015
By: Chair IRB Coordinator

DOCUMENT VERSION EXPIRES
JUN 07 2016
ETSU IRB

APPENDIX B

Informed Consent Document

PRINCIPAL INVESTIGATOR: Jean S. Bernard, PhD(c), MSN, RN

TITLE OF PROJECT: Undergraduate Nurse Educators' Experience with the Flipped Classroom: An Interpretive Description Study

**EAST TENNESSEE STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
INFORMED CONSENT DOCUMENT (ICD)
FOR PROSPECTIVE RESEARCH INTENDED FOR REVIEW**

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer.

PURPOSE: This study is sponsored by East Tennessee State University (ETSU), College of Nursing, Johnson City, TN 37614 and is being conducted by Jean S. Bernard, doctoral candidate, under the supervision of dissertation chair, Dr. Masoud Ghaffari. The study entitled "Undergraduate Nurse Educators' Experience with the Flipped Classroom: An Interpretive Description Study" aims to explore and describe experiences of undergraduate nurse educators who have used the flipped classroom and to bring to light factors which enhance and hinder implementation of the model. Findings from this study may benefit other educators who transition from traditional teaching practices to this form of instruction and thus, contribute to the scholarship of undergraduate nursing education. This study in no way involves an investigational and/or marketed drug or device.

DURATION: If you agree to participate in this study, you will be asked to participate in a one-on-one interview with the principle investigator that will last about one hour.

PROCEDURES: If you agree to participate in this study, you will be asked to participate in a one-on-one interview at a time mutually agreed upon between the principle investigator and you. During the interview, the principle investigator will ask a series of questions related to your flipped classroom teaching experiences. The researcher is investigating undergraduate nurse educators' perspectives related to the flipped classroom as well as perceived factors that aid and hinder successful use of this teaching practice. You understand that the principle investigator has the ability to and will audio record either the telephone or in-person interview. The principle investigator will also take notes. There will be no cost to you for participating in this study. In addition, as the principle investigator begins to examine study results, you will be asked to review the transcript of your interview and provide your opinion as to the accuracy of information and whether it describes your perceptions accurately.

ALTERNATIVE PROCEDURES/TREATMENTS: Participants have a choice on if they are interviewed in-person or by phone.

DIRECT BENEFITS: There are no direct benefits.

APPROVED
By the ETSU IRB

DOCUMENT VERSION EXPIRES

JUN 08 2015

JUN 07 2016

By
Chair/IRB Coordinator

ETSU IRB

Ver. MM____/DD____/YY____

Page 1 of 2

Subject Initials _____

PRINCIPAL INVESTIGATOR: Jean S. Bernard, PhD(c), MSN, RN

TITLE OF PROJECT: Undergraduate Nurse Educators' Experience with the Flipped Classroom: An Interpretive Description Study

POSSIBLE BENEFITS: The possible benefits of your participation are: the opportunity to share your thoughts and feelings about the topic of the flipped classroom and contribute to the scholarship of undergraduate nursing education.

POSSIBLE RISKS/DISCOMFORTS: The researcher is not aware of any know risks to you for participating in this study.

VOLUNTARY PARTICIPATION: Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. You may quit by calling Jean S. Bernard, whose phone number is (865) 719-0051. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

CONTACT FOR QUESTIONS: If you have any questions, problems or research-related injuries at any time, you may contact Jean S. Bernard at (865) 719-0051 or Dr. Masoud Ghaffari at (423) 439-4513. If you have any questions about your rights as a research participant you can contact the Chairman of the Institutional Review Board (IRB) at East Tennessee State University at (423) 439-6054. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439/6002.

CONFIDENTIALITY: Every attempt will be made to see that your study results are kept confidential. A copy of the records from this study will be stored in the Graduate Program's Department in College of Nursing, Roy Nicks Hall, Room 200 for at least 5 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a participant. Although your rights and privacy will be maintained, the ETSU IRB and DHHS have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

You have been given the chance to ask questions and to discuss your participation with the investigator. By freely and voluntarily choosing to be interviewed, you are giving consent to participate in this research project.

Version Date: May 13, 2015

APPROVED
By the ETSU IRB

DOCUMENT VERSION EXPIRES

JUN 08 2015

JUN 07 2016

By 
Chair/IRB Coordinator

ETSU IRB

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Page 2 of 2

Subject Initials _____

APPENDIX C

Interview Demographic and Guiding Questions

Demographic Questions

Please tell me:

1. the type of program you teach in.
2. the number of years you have taught.
3. the amount of time you have taught using the FCM.
4. the courses you have taught using the FCM.
5. if you are < 30 years of age, 30 to 40 years, 40 to 50 years, 50 to 60 years, or > 60

Examples of Guiding Questions

1. Please tell me about your experiences in nursing education: your motivations to teach, your beliefs about education, nursing education, your views of students, etc.
2. Please tell me about your transition to flipped classroom teaching.
3. Can you think of the first time you used the FCM? What was it like?
4. Can you give me an example of a pre-class assignment?
5. Can you talk to me about a typical in-class exercise with the FCM?
6. How would describe the student-teacher relationship with this model?
7. What would you say has changed most about your teaching practice?
8. What have been the greatest challenges teaching with the FCM?
9. What have been the chief benefits using this model? For students? For Faculty?
10. How did you prepare to use the FCM?
11. How do you the FCM's fit with undergraduate nursing education?
12. What would you say to a faculty member new to teaching with the FC M?

APPENDIX D

Requisites for Flipped Classroom Implementation

DISCOVERING REQUISITES FOR FCM IMPLEMENTATION	
1.Start with what you want students to know and work backwards	<p>What do you want your students to know two years from now...what do you want them to take away from this class that they will be able to use two years from now and you start with, “OK. Now that I know what I want them to know...how am I going to check to see how they know that...so you work with your final exam first...you don’t start with the beginning...first day of class...start with your final...what do you want them to know at the final...then you start with your learning activities...what can you do that’s going to help them get to that point...so that they know that on the final or two years from now...so you kind of work backwards instead of working forwards...you flip that too...you flip your syllabus...you start at the end and work back to the beginning...so you’re doing activities and you’re doing things that are going to reflect what they need to know in the end...and sometimes...you have to look closely at what they already know and build on that...give them the rest of it...and to make it interactive...you work to get their hands on it...what do you want them to know and apply...and that’s what you really work on...focus on... you have to keep coming up with things that will capture students’ attention and keep them engaged, harness their energy and help them to put into action the things that they are learning...you constantly have to be</p>

	asking, “What do I need for them to learn from this anyway?”
2. Plan pre-class assignments for basic knowledge and comprehension 3. Gear in-class activities toward application, synthesis, analysis 4. Link pre-class lecture to in-class activities: Aim for a unified education experience	<p>[try] to get away from traditional lecture... “This is pneumonia. This is what it looks like. These are the clinical manifestations. These are the diagnostics...try to take that content and put it in a clinical context... [focus on] what the disorder or illness looks like in a patient... how you would identify priorities of [care]... think about how the student might find the patient on initial assessment... give them a scenario...a patient with high respiratory rate...allow them to take that data and make determinations off that...begin to identify pertinent interventions...what is the first thing you need to do?... Instead of [telling] students that this patient has a pneumothorax, give them the symptoms of a pneumothorax and help them begin to recognize how a patient with a pneumothorax might present, then help them identify nursing priorities...you have to take the information that they’ve read or heard in the voice-over power points and you have to put that into an actual patient scenario.</p> <p>you have to prepare two things...you have to do the out of class portion and make sure it’s going to give them the information they need to know and then you have to design the in-class portion, which needs to be interactive</p>

	<p>...you have to really spend time designing your case studies or whatever your exercises are in class so that the students see them as important and vital and not busy work. I think you need to make sure that you template your class exercises on the class objectives and you also take your exam question from there, because I think it would be really easy to develop case studies and then really test on the lecture and that's not really what it's supposed to be. It's supposed to be a very unified education experience.</p>
<p>5. Know your content well, but be secure enough to also say "I don't know."</p>	<p>It takes a level of competence, meaning...you can't go in cold and you can't go in halfway... You have to go with in "I know this material frontwards, backwards and sideways," and then a level of confidence in what I do know. I feel the flipped classroom gets the faculty member out from behind that podium that I think is a crutch for many of them, and it sort of their protective wall and it really exposes them and causes the faculty to really either step up and really know their stuff and really engage or you know, it's just not for them.</p> <p>You do need to know your material and you do need to know what you don't know and have your resources... the longer you're teaching, the more you admit that you don't know it all. But I'm here to guide them in the basics and help you understand what a nurse at the bedside needs to know about that and where to get the answers to your questions; I think it is important for the students to understand that no one knows it</p>

	<p>all...[but you] need to be really comfortable with the information because the Flipped Classroom generates a lot of thought and discussion outside of that comfortable lecture format.</p> <p>I think you have to be pretty secure and confident in your own ability, but also to say “Wow, I have no idea you guys let’s Google it.</p> <p>Somebody get their phone out. Let’s look it up because I don’t have any idea,”... because the questions that come up in the Flipped Classroom are not the kind of questions that come up when you’re giving a lecture and sometimes you don’t know the answer so you have to do joint learning and students have to see that you don’t know but here’s how we find it out and that takes a certain kind of personality</p>
<p>6. Make expectations clear from the beginning</p>	<p>we have that crucial conversation with them to this is what the expectation is. Not only of this program but of nursing in general... it is the expectation of your future patients that you will be prepared when you come into the room to care for them...and the same when you come into the classroom</p> <p>initially, I didn’t do a very good job at the outset explaining to them what the flipped classroom was...and why we were doing the flipped classroom...you know, I just told them you need to watch the videos...so some of them weren’t doing it...some of them weren’t</p>

	<p>getting it...so then, I told them, “You have to watch the videos before you come because I am not going reteach this material”...and I also began to imbed quizzes and then they really began to watch the videos and when they came to lab we could really do more application and discussion. Once they got the idea, that they could use what they had learned and apply it...to do things...they liked it.</p> <p>they were like, “OK, nobody else is doing this...why are you making us do all this work?...Why do we have to this upfront and work so hard in class too?” So I learned how important it is to explain what you are doing at the beginning...and now I spend a good bit of time on the first day talking about how the class will go...what we are doing, why we are doing it this way...once they understand and get a grasp...how it really benefits them, they become much more positive... and according to my evaluations...they are looking forward to having class with me again...</p>
7. Give out a lot of carrots	<p>you have to give a lot of carrots and so... before they come to class... they always had a quiz to take...an online quiz [10 to 20 questions] and I gave them 2 hours to do it. They were allowed to use their book and their notes ...they just couldn't use a friend and the quiz ended online when the class started, so they had to at least have that done so that they could have some basic knowledge about the class before they</p>

came...sometimes I used discussion boards and gave them a grade for it so that they could up their percentage a bit. So I give a quiz as an incentive for them to watch the videos before they get to class... we also implemented a ticket to enter... it was one page of very short assignments... a chart and they would fill in certain blanks in the chart,... it would be something that you had to actually complete the at home as you watched either the PowerPoint or the video ... I tried to make everything really meaningful... this important to complete so that you will be able to engage in whatever activities we're doing in class They have to come to class prepared and if they don't, the whole thing just falls apart

Most people prepare once they realize what's going down, they prepare. They don't want to be the one that you know can't answer the question or sticks out like sore thumb but there's still, you know there's still a few

Well, we start out the class with a check...on "Do you know that?"...it's a very brief...doesn't count a lot toward the grade...but it is a quiz...and once they get the idea that they are going to be checked to see if they have done the pre-class work...they're not going to come to class many times unprepared because then they are going to have to go off on the side and not really be able to participate...they're going to have to go get that knowledge...I'm not going to stop and teach that

	<p>because you chose not to learn it...so I take the ones that have prepared and move forward...you really can't go to the next step of the taxonomy without baseline knowledge and I talk about that with the students...so they begin to catch on...those who aren't prepared, have to go somewhere else...I've sent them to the lab before... and they have to read or look at the video they missed...they don't get to participate in the class activity that day...and I've only had to do that once or twice...from then on they come in prepared...</p>
<p>8. Be flexible...and comfortable with the uncomfortable</p>	<p>so anything can happen, anybody can say anything, anybody can do anything...it may not go according to the way you thought it might go, so you have to be a little bit flexible...sometimes things you thought were going to take 30 minutes...only take 20 minutes...so then you are like... "OK...now what am I going to do?" or you think the activity will only take 15 minutes and it takes an hour...so it just depends on how it plays out and you have to be prepared to be really responsive to students, what they are saying, what they are doing, how they are thinking...what their questions are...</p> <p>It might go in a direction that you're not sure that you can steer it the way you want to. You've got this list of things ...your activities which are the best ones to teach those concepts you want to get across that</p>

day,[but]... it is frightening and there's just not enough of it [flipped classroom examples] around to be able to find out from people what they did that worked... so when you start doing it by yourself, I think it's just absolutely terrifying.... you feel like you have totally lost control. It's really frightening

you know on paper things may look great (laugh) but when you get to the execution stage or the implementation stage, it doesn't always work out as it is on paper... and then the last thing that I would say that I've talked with my faculty about is just um, a level of being comfortable with the uncomfortable. Um, I don't think, even after um, doing Flipped Classrooms for 5 years now, ah I can't say that I'm fully comfortable. I can say that I have learned a lot but with each time I do it, I learn a little...some some nugget comes through that I learn, that I might say "Oh, next time, next time I do this"...

if I'm doing a traditional lecture then I have my content already figured out. I know what's on the slides, you know the students sit there and let me talk through all of my content and then at the end I'm gonna ask if they have any questions. I have control over it. The students are passive in that experience versus this experience where they're active so you don't know where they're gonna go so for one, you have to be prepared to get em back on task like "Ok, let's come back to what we were

	<p>talking about,” you know also when you’re dealing them when you’re engaging them, you know making sure you’re being respectful and when somebody said something and it’s wrong, how do you address that. Ah, you know you just kind of have to be able to go with the way of the conversation and you can’t control the direction so you just have to be prepared for questions. How are you gonna handle if there’s something you don’t particularly know off the top of your head cause something they go in, you know weird areas that you may not have experience in or whatever, how you handle those types of situations.</p> <p>I remember having way too many activities the first couple of topics because I wanted to make sure that we didn’t have a void in time and since then, I’ve learned how to not only be prepared and plan but I’ve learned how to be flexible and you know every activity that I plan for on my lesson plan doesn’t have to be accomplished. I can pick the ones that are showing either the best student engagement or if they’re yielding the results over the topic area.</p>
9. Begin slowly...know that it takes time	<p>I implemented slowly only with a couple of topics since we topic teach and eventually, cause it’s a lot of work, you know anyone who says it’s not, they’re not telling the truth and it takes you actually more time in my opinion to prepare and deliver an engaged classroom setting versus</p>

	<p>just standing up and reading notes, so I did it slowly and then after I felt like I had it under my belt for both my Fall and Spring semester, then I went ahead and well full in and changed all of my topics over to a Flipped approach</p> <p>Start with a little bit of lecture [online], a little bit of active learning, a little bit of lecture, a little bit of active learning. Get used to doing both and then as you're more and more comfortable, I would start putting a few more lectures just a little bit online ahead of time for them to do things that they could do ahead of time before they come to class, so that you're moving toward just doing some activities in the classroom and just kind of move that way slowly. That's pretty much what I did actually</p> <p>Introduce it slowly just because it's so much work for the professor, you know. Like I imagine that next semester, I won't use it for every class period, because I'm not team teaching,... I want to do a good job of it and just the logistics of me preparing a semester's worth of lectures might just be too much, so I think it's fine to introduce the model slowly.</p>
10. Prepare for continual	<p>Educate yourself. I think that that's important because if you don't know what you're about to get into, you can get overwhelmed quickly,</p>

<p>tweaking and multiple iterations</p>	<p>then practice... I always take my activities and run through them myself before I bring them to class, but much of it is trial and error. Don't be afraid to bring back those things that didn't go well the first time...try them again before you discard... Tweak 'em and bring 'em back and try 'em again and then I think most of all, you have to have patience with yourself...this is a process.</p> <p>... we crashed and burned with... certain activities...[some] did not do well in big groups... such as Jeopardy. It was a mess... we didn't have adequate crowd control especially in those large rooms...and so you had people talking over people and they weren't hearing what you were saying... it was a mess, so we had to really curtail and really rework this game, if we were gonna use it... We had to discuss how are we gonna handle it when there's teachable moment... you know it was just those details that on paper when you were writing this up, you don't see that and, and now that you really feel it... You have to figure out how to be somewhat in control but still comfortable with a little chaos... it needs to be a controlled chaos.</p> <p>You know, it seems that I am always tweaking something, you know to enhance or make it more effective and then some of it, I had to just say, "It's ok," because not everybody is gonna like this style or method. Not everybody's gonna like.... lecturing so some of it, I had to just be ok</p>
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	<p>with... I have to look at what I'm doing in it's totality and think about what I can do to make better, what I can do to improve upon it, and just go from there.</p> <p>Sometimes you think that an activity's the best in the world and then it doesn't do well and you go "Well, obviously that was not the best activity ..." and sometimes it is just trial and error for me, switching those activities around until I finally figure out "Oh, this is one that works."</p> <p>it's still a work in progress. There's tons of opportunity but it needs a lot of refinement and we just need to keep working with it to figure out what are some of the best strategies. I don't think we've mastered this thing at all yet</p>
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VITA

JEAN S. BERNARD

Education: B.S. Nursing, University of North Carolina at Greensboro, 1977
M.S. Nursing, University of Tennessee, Knoxville, 1987
PhD Nursing, East Tennessee State University, Johnson City, 2015

Professional Experience Tennessee Wesleyan College-Fort Sanders Nursing Department
Director of Undergraduate Program, 2012–present

Tennessee Wesleyan College-Fort Sanders Nursing Department
Interim Director of Nursing Department, 2011-2012

Tennessee Wesleyan College-Fort Sanders Nursing Department
Associate Professor, 2009–present

Tennessee Wesleyan College-Fort Sanders Nursing Department
Assistant Professor, 2002-2008

Tennessee Wesleyan College-Fort Sanders Nursing Department
Instructor, 1999-2002

Fort Sanders School of Nursing, Knoxville, Tennessee
Course Coordinator, 1990-1999

St. Mary's Health System, Knoxville, Tennessee
Nurse Educator, Critical Care, 1988-1990

East Tennessee Baptist Hospital, Knoxville, Tennessee
Cardiovascular Nurse Clinician, 1986-1988

Fort Sanders Hemodialysis Center, Knoxville, Tennessee
Staff Nurse, 1982-1986

Duke University Medical Center, Durham, North Carolina
Staff Nurse, Acute Care, 1977-1982

Publications:

Bernard, J. (2015). Student engagement: A principle-based concept analysis, *International Journal of Nursing Education Scholarship*, 12(1). doi:10.1515/ijnes-2014-0058.

Bernard, J. (2015). The flipped classroom: Fertile ground for nursing education research, *International Journal of Nursing Education Scholarship*, 12(1) doi: 10.1515/ijnes-2015-0005.

Honors and Awards

Phi Kappa Phi, East Tennessee State University
Sigma Theta Tau International Honor Society of Nursing
Faculty Incentive Award, Tennessee Wesleyan College
Who's who among Executive and Professional Women in Nursing and Healthcare
Who's who among America's Teachers
Tenured, Tennessee Wesleyan College
Regional Cooperative for Registered Nurse Clinical Excellence