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**The Lived Experience of Nursing Faculty Teaching Nursing
Students to Manage Medications**

Brian Christopher Lorentz

THE LIVED EXPERIENCE OF NURSING FACULTY TEACHING
NURSING STUDENTS TO MANAGE MEDICATIONS

DISSERTATION

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Brian Christopher Lorentz

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NURSING STUDENTS TO MANAGE MEDICATIONS

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by

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ABSTRACT

Background: Since the Institute of Medicine's report *To Err is Human* (1999) identified medication errors as major contributor to morbidity and mortality in health care settings, many forces in the health care field have increased their effort to find ways to reduce that morbidity and mortality associated medication errors. This study sought to add to the body of knowledge related to reducing morbidity and mortality related to medication management.

Purpose: The purpose of this study was to gain an understanding of the lived experience of nursing faculty teaching nursing students to manage medications.

Philosophical Underpinning: This study was developed using the theoretical framework of phenomenology as described by Husserl.

Methods: Moustakas' methodology of engaging in investigational phenomenological research was used to operationalize the study.

Results: While analyzing the data, the themes of *Thinking*, *Practicing*, and *Evaluating* emerged as basic elements of the essence of the lived experience of nursing faculty teaching nursing students to manage medications. The findings are applicable for use in conjunction with the concepts of motor learning theory.

Conclusions: Nursing students may benefit from more practice that focuses on the cognitive and psychomotor aspects of medication management, in conjunction with equipment that more realistically represents the actual clinical setting.

ACKNOWLEDGMENTS

Alleluia the Lord is risen ...

DEDICATION

... the Lord is risen indeed, Alleluia!

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CHAPTER ONE

As the delivery of health care evolves, it is incumbent upon health care educators to ensure that the methods that they employ to teach new practitioners actually meet the needs of the modern workplace. A major issue in health care that would benefit from review is how nursing students are currently being taught to manage medications. Once there is a solid understanding of how students are currently being taught to manage medications, nursing educators can make evidence-based decisions on how to bridge identified gaps between the current educational process and the needs of the modern healthcare system. The purpose of this phenomenological study was to gain insight into the lived experience of nursing faculty teaching nursing students to manage medications.

Background of the Study

The effort to improve the safety of health care is an ongoing process. As major providers of health care, nurses are vital components of the health care safety puzzle. One of the major roles of nurses is medication management. Research is needed to determine the best ways to teach nurses and nursing students how to manage medications safely since effective medication management is necessary in achieving positive medication administration outcomes. This study provides evidence of what is currently being done to teach nursing students to manage medications. Information obtained from this inquiry can be used to identify gaps between what is currently being taught in nursing schools and how registered nurses are currently managing medications in the clinical setting.

Medication Safety

Medication management is a human endeavor and, as such, is prone to human error. People make mistakes. When the Institute of Medicine (IOM) (2000) published its report *To Err is Human*, claiming that as many as 94,000 Americans die each year due to preventable medication errors, people were shocked. If the number of deaths are accepted as true, medication errors would be the sixth leading cause of death in the United States in the year 2000 (Mokdad, Marks, Stroup, & Gerberding, 2004). Since then, health care organizations have been striving to reduce medication errors and thereby reduce morbidity and mortality from those errors. Developing ways to reduce medication errors is an ongoing effort by government agencies, hospitals, academic institutions, doctors, nurses, and the general public. Even with the increased emphasis on medication management safety, there is still limited literature regarding the best way to educate and evaluate nursing students with regard to safe medication management (Crimlisk, Johnstone, & Sanchez, 2009; Meechan, Jones, & Valler-Jones, 2011; Meechan, Mason, & Catling, 2011).

Responding to the call-to-arms that was sounded by the health care industry and the public at large by the release of *To Err is Human*, the IOM began publishing a series of reports addressing the need for improved quality in health care. The first of these reports was *Crossing the Quality Chasm: A New Health System for the 21st Century* (Institute of Medicine, 2001). In this report, the IOM identified six focus areas to improve healthcare quality. For health care to be of high quality, it must be safe, effective, patient centered, timely, efficient, and equitable. These goals served, and continue to serve, as the basis for ongoing efforts to improve quality in health care.

One of the follow-up reports in the quality chasm series, *Preventing Medication Errors* (Institute of Medicine, 2007), provides a sharper focus on the background of the original quality chasm report. In this report, the IOM estimated that there are over 1.5 million preventable adverse drug events in U.S. hospitals and long-term care facilities with an estimated average cost of \$8,750 event. The report identifies several areas for improvement to reduce medication errors and improve health care quality. The first area for improvement identified in the report was improving the patient-provider relationship by encouraging patients to take a more active role in their healthcare and providing more, better education for patients with regard to their medications. Improved technology for prescribing and dispensing medications was another focus area for medication error reduction. Improved labeling and packaging, along with improved funding for research about preventing medication errors, were two additional focus areas of this report. The focus areas identified in this report relate directly to the purpose of this study in that this study sought to illuminate the lived experience of nursing faculty teaching nursing students how to manage medications and to describe how those students are being taught to manage medications.

Medication Management

Apart from the simple nature of human error are the vastly complex systems of medication management. The interdisciplinary nature of medication management in hospitals illustrates this point. Physicians, physicians' assistants, and advanced registered nurse practitioners must make accurate diagnoses in order to prescribe the correct medications. These prescriptions must be correct when they are sent to the pharmacy to be filled. The pharmacy must then fill the prescription correctly and deliver the

medication to the appropriate patient's medication administration area. The person administering the medication, usually the registered nurse, must assure that he or she is indeed administering the correct medication to the correct patient, in the correct dose, via the correct route, at the correct time (Harding & Petrick, 2008; Krautscheid, Orton, Chorpenning, & Ryerson, 2011; Wolf, Hicks, & Serembus, 2006). In addition, the nurse must be able to utilize their clinical judgment regarding variations in the patient's condition at the time of administering the medication. Follow-up may be required after the medication administration to evaluate the effectiveness of the medication and to monitor the patient for adverse effects of the medication (Collins, Graves, Gullette, & Edwards, 2010; Koohestani & Baghcheghi, 2009).

Demands of Clinical Practice

Benner (2001) described five levels of proficiency of skill acquisition in nursing. These levels are novice, advanced beginner, competent, proficient, and expert. Benner also describes three key transitions in aspects of skilled nursing performance that occur as nurses' progress along this continuum from beginner to expert. As nurses progress from novice to expert, they move from basing their performance on abstract principles to basing their performance on their own concrete experiences. Nurses stop viewing all the aspects of a clinical situation as consisting of equally important bits of information and ultimately view situations as complex wholes and evaluate the varying relevancy of the information available. Thirdly, nurses move from the role of detached observers to the role of involved participant. Using Benner's novice to expert model, nursing students, having no experience in the nursing profession, begin their education at the novice level and hopefully, but not always, graduate at the advanced beginner level. Further

development into the competent, proficient, and expert levels will depend on the graduate nurses' experience and personal development post licensure.

Despite educators' best efforts, nursing administrators around the globe report that newly graduated nurses are unprepared to meet the demands of clinical practice immediately upon graduation and often require further training once hired (Saintsing, Gibson, & Pennington, 2011). It is incumbent upon educators to be good stewards of institutional and student resources as they engage these resources to meet educational objectives. Many academic institutions assume that their medication management curriculum is effective but have no objective data as to the effectiveness of that curriculum as it relates to actual medication management errors. This study provides some insight into existing medication management curriculum and an evidence-based rationale for the inclusion or exclusion of some medication management strategies within the nursing education curriculum.

Undergraduate nursing students lack the experience to be proficient at medication management by their nature of being students. That inexperience is compounded by many factors including outdated teaching methods (Harding & Petrick, 2008; Krautscheid et al., 2011), difficulty dealing with distractions in the clinical setting (Krautscheid et al., 2011; Wolf et al., 2006), non-adherence to the "rights" of medication administration (Harding & Petrick, 2008; Wolf et al., 2006), poor math skills (Koohestani & Baghcheghi, 2009; Wolf et al., 2006), lack of sufficient supervision in the clinical setting, and difficulty with critical thinking skills (Reid-Searl, Moxham, & Happell, 2010; Reid-Searl, Moxham, Walker, & Happell., 2008). Together, these factors make managing medications in the clinical setting a challenging activity for nursing students.

Considering the inexperience inherent in nursing students, it would seem like common sense, but current research supports the idea that direct supervision of nursing students managing medications in the clinical setting can help reduce the incidence of medication administration errors by nursing students (Reid-Searl et al., 2008; Reid-Searl et al., 2010).

Teaching and Learning

Continual advances in technology and evidence-based practice make it practically impossible for nursing education to keep up with current health care practice modalities (Benner, Sutphen, Leonard, & Day, 2010). These rapid, continuous advances can lead to gaps between what is being taught in nursing schools and the actual practice of nursing in the field. This study investigated the current state of nursing education as it relates to medication management and compared that to current nursing clinical medication management practices. Teaching medication management should include the complete, multi-step process from prescribing to patient monitoring. Simply teaching “the five rights of medication administration” is insufficient. Teaching methods involving problem-based learning should be included in teaching medication management (Finkelman & Kenner, 2012). Nursing faculty need to develop new educational strategies that reflect the realities of medication management in the modern health care environment (Collins et al., 2010; Harding & Petrick, 2008; Krautscheid et al., 2011). Medication management simulations with current technology and embedded distractions can help students learn how to safely manage medications in an environment that does not place any real patients at risk (Collins et al., 2010; Harding & Petrick, 2008; Krautscheid et al., 2011; Wolf et al., 2006). However, developing realistic simulations is

a resource-intensive undertaking that requires updating as situations in the clinical setting evolve (Brewer, 2011; Collins et al., 2010).

Statement of the Problem

The Institute of Medicine (IOM) (2000) claims that as many as 94,000 Americans die each year due to preventable medication errors. The IOM (2007) also estimates that there are over 1.5 million preventable adverse drug events in U.S. hospitals and long-term care facilities with an estimated average cost of \$8,750 per event. In light of these significant statistics regarding adverse patient outcomes from medication errors, the naiveté inherent in nursing students has the potential of contributing to these statistics and may place patients at greater risk of medication errors. Medication management is an important component of health care. Medication management errors are a worldwide problem resulting in much unnecessary suffering and death (Harding & Petrick, 2008; Institute of Medicine, 2000; Koohestani & Baghcheghi, 2009).

Purpose of the Study

The purposes of this transcendental phenomenological study, guided by Moustaka (1994) was to gain insight into the lived experience of nursing faculty teaching nursing students to manage medications; identify educational strategies, techniques, and activities that are being implemented by nursing faculty members to teach nursing students to manage medications; identify how these educational strategies, techniques, and activities are being evaluated; and their effectiveness at teaching nursing students to manage medications safely.

Research Question

The questions that served as the basis for this phenomenological investigation were:

1. What is the lived experience of nursing faculty teaching nursing students to manage medications?
2. What educational strategies, techniques, and activities are being implemented by nursing faculty members to teach nursing students to manage medications?
3. How are the educational strategies, techniques, and activities that are being implemented by nursing faculty members to teach nursing students to manage medications being evaluated?

Philosophical Underpinnings

Once a research problem is identified, the researcher must confront the idea of how to investigate that problem. This process begins with how the researcher chooses to develop knowledge. Two ontological paradigms that are frequently used in nursing research are the positivist paradigm and the constructivist paradigm (Polit & Beck, 2012). Each paradigm has a different set of assumptions as to how a researcher chooses to understand the world and develop knowledge. Researchers choosing to develop knowledge under the positivist paradigm generally use deductive reasoning and employ quantitative methods to determine statistical correlations that may lead to conclusions related to cause and effect. Researchers choosing to develop knowledge under the constructivist paradigm generally use inductive reasoning and employ qualitative methods to develop understanding of the subject under investigation. Since the subject

under investigation here was the lived experience of nursing faculty teaching nursing students to manage medications, the constructivist paradigm was most appropriate.

There are many assumptions regarding the development of scientific knowledge that are associated with the constructivist paradigm. The major philosophical assumptions of qualitative research concern ontological, epistemological, axiological, methodological, and rhetorical perspectives (Creswell, 2007; Polit & Beck, 2012). The first of those assumptions is that truth is not one absolute reality but a rather a social construction that can have an infinite number of variations. The subjective nature of truth in the constructivist paradigm is based on the interpretation of the observer based on their understanding of reality in that particular time and context. This position on the subjectivity of truth addresses the ontological assumptions. The epistemological assumption in qualitative research is that the researcher should provide an emic view of reality based on the research participants' understanding of reality as it viewed within the group being investigated. In that way, the researcher participates with the research participants in the field to elucidate the participants' understanding of reality. The axiological assumption concerns the values that the inquirer brings to the study. It speaks to the need for, and value of, the study as there would be no study if it is of no value. However, the inquirer must acknowledge and openly discuss his or her biases so that personal biases and values are not advertently or inadvertently imposed on the meaning or results of the study. By acknowledging the methodological assumption, the researcher believes that procurement of knowledge in qualitative research follows an inductive process. The rhetorical assumption exhorts the researcher to write and report the study in the language and style of a qualitative study; in this instance, the research's focus was on

understanding the nursing faculty's lived experience of teaching nursing students to manage medications. The design was emergent and sought to develop understanding of complex phenomena. The researcher was immersed in the data and meticulously conceptualized the details and context of the data.

Phenomenology

Phenomenology provides a theoretical perspective for knowledge development. Edmund Husserl is considered the pioneer in the phenomenological method (Moustakas, 1994). Husserl (1913/1970) disagreed with the accepted scientific paradigm that had prevailed until the beginning of the 20th century. Until that time, the only knowledge that was considered scientific was knowledge derived from the positivist paradigm that dictated scientific knowledge must be completely objective and confirmed through mathematical correlation (Crotty, 2005). Since the majority of the human experience cannot be distilled into quantifiable units that can be mathematically correlated, Husserl desired to develop knowledge of the human experience by investigating the various phenomena that make up that human experience. This type of knowledge development was revolutionary science for the time but, over the last century, has developed into the normal science of many socially and behaviorally based disciplines (Kuhn, 1996).

Husserl (1913/1970) proposed investigating phenomena from a naïve perspective and allowing the investigators' intuition and imagination to discover the essence of the phenomenon under investigation. To achieve this naïve perspective, Husserl describes a process he calls the *epoche* in which the investigator identifies all of his or her personal biases and preconceptions regarding the phenomena and consciously attempts to bracket those biases and preconceptions so as to allow the investigator to view the phenomenon

as if experiencing it for the first time. In this transcendental state of naïveté, the investigator then brings the phenomenon into his or her consciousness and reflects on the textural and structural elements that constitute the essences of the phenomenon. The structural elements are those constructs that define what constitutes the essence of the phenomenon. The textural elements are the context in which the phenomenon occurs. The result is a subjective understanding of what constitutes the essences of the phenomenon for that investigator. The transferability of this knowledge is limited due to its subjectivity and unique construction by the investigator. To make the knowledge developed through phenomenological methods applicable to a wider array of people, Husserl describes the abstraction of specific experiences of a phenomenon to the more general experience of that phenomenon by investigating the ways in which numerous individuals experience the phenomenon. By investigating how numerous individuals experience a phenomenon, it is possible to describe the textural and structural essence of the phenomenon in a manner that has greater meaning to a greater number of people. In this case, the transferability of the knowledge that has been constructed is still limited to similar people experiencing the phenomenon in similar situations, but this is far more generalized than the knowledge of one individual in one situation. Despite increasingly severe anti-Semitism associated with the rise of the National Socialist party in Germany in 1933, Husserl continued to write and publish but with diminishing support of former colleagues (Moran, 2001). While Husserl did describe the philosophical underpinnings of phenomenology, his death in 1938 assured that he would not explicate any methods to operationalize such an investigation.

Phenomenological research approaches can be separated into two main categories: descriptive phenomenology and interpretive phenomenology (Moustakas, 1994; Polit & Beck, 2012). Descriptive or empirical phenomenology focuses on the detailed description of the phenomenon as it is experienced by the person/people experiencing it. Interpretive phenomenology seeks to go beyond the detailed description and “to discover the practical wisdom, possibilities, and understanding” (Polit & Beck, 2012, p. 496) found in the lived experience of the research participants. Both of these perspectives on phenomenology seek to address four aspects of the lived experience. Those four aspects of the lived experience are lived space (spatiality), lived body (corporeality), lived time (temporality), and lived human relation (relationality) (Polit & Beck, 2012). The spatiality of the phenomenon under investigation surely varies from location to location but could include the classroom, laboratory, and clinical setting. Corporeality can be addressed from the perspective of the functioning of the individual teacher and student and from the perspective of the body of the nursing profession in general in that teaching nursing students to manage medications affects the nursing profession. The temporality of the phenomenon is of key concern considering the changing demands of the modern health care environment. It is key to understand what is happening now so plans for the future can be based on evidence and not on anecdote. The relationships between teacher, student, patient, and clinical staff should all have an impact on the lived experience of teaching nursing students to manage medications. In these ways, this research addresses these four aspects of the lived experience of nursing faculty teaching nursing students to manage medications.

Moustakas' (1994) transcendental phenomenology is a heuristic approach to interpretive phenomenology that is appropriate to gain a broader understanding of the essence of the lived experience of nursing faculty teaching nursing students how to manage medications. This approach to phenomenology allows for expansion of the research question to promote understanding and meaning. Therefore, it was appropriate to explore how nursing students are being taught to manage medications as part of the investigation into nursing faculty member's lived experience of teaching nursing students to manage medications. Explicating the essence of the lived experience of teaching nursing students to manage medications needed thick, rich descriptions of what exactly constitutes that phenomenon so others can see things in a different way that enhances their understanding of the phenomenon. That was partially achieved through hermeneutic interpretation of the transcribed words of the participants (Moustakas, 1994). However, a broader heuristic investigation of the phenomenon included examination of such things as the history, politics, technology, and educational materials associated with the phenomenon. In this way, meaning and understanding of the human experience was more fully expressed. Using Moustakas' approach to phenomenological research provided an understanding of the essence and meaning of the experience of nursing faculty teaching nursing students to manage medications that can be used to direct and support more empirical investigations into this phenomenon by explicating the "taken-for-grantedness" of this vitally important aspect of nursing education.

Significance of the Study

This study provides significant information related to nursing education, nursing practice, nursing research, and health care/public policy. Understanding how nursing

faculty are currently teaching students to manage medications can be used to help develop improved methods of teaching nursing students how to safely manage medications. Developing improved methods of teaching nursing students how to safely manage medications could lead to improved patient safety in health care practice settings as evidenced by a potential reduction in medication administration errors. Investigating how nursing faculty are teaching students to manage medications bolsters the research needed to make evidenced-based decisions regarding how best to educate nursing students to safely manage medications. If improved methods of teaching nursing students how to safely manage medications leads to improved patient safety, then it could logically follow that those improved methods of teaching medication management could be used to direct policy related to medication management education. The main significance of this study is its potential to help health care practitioners improve patient safety and, from that perspective, impact nursing research, education, practice, and policy. Knowledge gained from understanding the essence of this phenomenon advances the science of nursing.

Implications for Nursing Education

The nursing profession requires research to make evidence-based decisions regarding how to improve the profession. There is little evidence to support curricular decisions associated with medications management education in nursing. Investigating how nursing faculty are teaching students to manage medications helps provide a foundation that can be used to identify gaps between current medications management education and current medication management practices being utilized in the clinical setting.

Implications for Nursing Practice

Medication management is an evolving process. The increased emphasis on patient safety and increasing use of technology in medications management appears to be leading to gaps between how nursing students are being taught to manage medication and the way nurses are managing medications in the clinical setting. Before any differences between how nursing students are being taught and how nurses are actually practicing can be bridged, it is necessary to understand how those students are actually being taught. This study helps nurse educators better prepare nursing students for practice by providing educators with evidence to support implementing teaching strategies to prepare nursing students to manage medications in the modern health care setting.

Implications for Nursing Research

It is difficult for nurse educators to decide what direction nursing education should take to best prepare students for a future in nursing without understanding where that educational process is currently in relation to actual nursing practice. Investigating how nursing faculty are teaching students to manage medications adds to the foundational evidence that could be used to determine what nursing students are, and are not, being taught to enable them to manage medication in the clinical setting.

Implications for Health/Public Policy

Establishing differences between nursing education and nursing practice related to medication management could be used to inform policy related to best practices for teaching nursing students how to manage medications. Schools of nursing, hospital-based nursing education departments, and state boards of nursing can use the knowledge

generated from this study to help them create or amend policies for best practices to teach nursing students to manage medications.

Scope and Limitations of the Study

This scope of this study extends to the lived experience of nursing faculty teaching nursing students to manage medications in Florida. One limitation is the lack of generalizability related to the use of phenomenological research methods and small sample size. These limitations also relates to the transferability of study results to similar populations in similar circumstances. Demographic data were described in the study findings to further define the limitation of the transferability of the study findings. Another limitation was the fact the researcher himself was the research instrument. Human beings are not perfect instruments for research. The researcher attempted to mitigate this limitation by bracketing his biases and experience prior to beginning the research.

Chapter Summary

This chapter discussed the need to examine the lived experience of nursing faculty teaching nursing students to manage medications. Medication management errors are an ongoing concern for the health care industry. Best practices for teaching nursing students how to manage medications have yet to be determined. Understanding the lived experience of nursing faculty teaching nursing students to manage medications helps elucidate some of those best practices for teaching nursing students to manage medications. In addition, understanding the lived experience of nursing faculty teaching nursing students to manage medications identified gaps between current educational methods and actual medication management practices in the modern health care clinical setting. Improved medication

management education could lead to reduced medication management errors, improved patient safety, and improved patient outcomes.

CHAPTER TWO

REVIEW OF THE LITERATURE

The purpose of this study was to understand the lived experience of nursing faculty teaching nursing students to manage medications. A search of relevant literature across disciplines was conducted to explore the phenomenon of nursing faculty teaching nursing students to managing medications. Using the Barry University library website, the following computerized databases were used for this search: Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL Complete), and Academic Search Complete. The key words used in the search were nursing faculty, nursing student, medication management, medication administration, and error. Citations were limited by language to English and by subject to exploration of the concepts. Further limitations were imposed to find peer-reviewed literature published since 2003 that was available in full-text format. Seminal works older than ten years were also given priority as they were significant in their contributions to the theoretical foundations of nursing faculty teaching nursing students to manage medications. A focused selection process excluded the profusion of irrelevant theoretical references that were found. This literature review will include a discussion of historical context, and the two main content heading identified through this review include Nursing Students Managing Medications and Teaching Medication Management.

Historical Context

An increased emphasis on safety in health care should be evident to anyone who has been involved in health care as a patient or health care provider over the last 20 years. That is not to say that safety in health care is a new concept. Health care interventions

aimed at the prevention of illness and injuries are a good ways to prevent medical errors. If people can be kept well and not need to access health care resources, then those people will not be injured through medical errors. Unfortunately, millions of people in the United States utilize and interact with the health care system every day due to their illness and/or injury. During the 1990s, the desire to reduce morbidity and mortality from preventable medical errors and the sheer economic impact of healthcare spending spurred increased interest in patient safety from governmental and private sector health care providers. In 1997, then President Bill Clinton commissioned the President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry. The Commission identified six National Aims for Improvement: reducing the underlying causes of illness, injury, and disability; expanding research on new treatments and evidence of effectiveness; ensuring the appropriate use of health care services; reducing health care errors; increasing patients' participation in their care; and addressing oversupply and undersupply of health care resources. In addition, the commission developed A Consumer Bill of Rights and Responsibilities. This Consumer Bill of Rights laid out specific responsibilities for patients and health care providers and was widely adopted by hospitals and other healthcare providers (Agency for Healthcare Research and Quality, 1998).

The Institute of Medicine (IOM) answered the call of the President's Commission. When the IOM (2000) published its report *To Err is Human*, claiming that as many as 94,000 Americans die each year due to preventable medication errors, people were shocked. If the number of deaths reported are accepted as true, then medication errors are the sixth leading cause of death in the United States in the year 2000 (Mokdad

et al., 2004). Since then, health care organizations have been striving to reduce medication errors and thereby reduce morbidity and mortality from those errors. Developing ways to reduce medication errors is an ongoing effort by government agencies, hospitals, academic institutions, doctors, nurses, and the general public. Even with the increased emphasis on medication management safety, there is still limited literature regarding the best way to educate and evaluate nursing students with regard to safe medication management (Crimlisk et al., 2009; Meechan et al., 2011a; Meechan et al., 2011b).

Responding to the call-to-arms that was sounded by the healthcare industry and the public at large by the release of *To Err is Human*; the IOM began publishing a series of reports addressing the need for improved quality in health care. The first of these reports was *Crossing the Quality Chasm: A New Health System for the 21st Century* (Institute of Medicine, 2001). In this report the IOM identified six focus areas to improve health care quality. For health care to be of high quality, it must be safe, effective, patient centered, timely, efficient, and equitable. These goals served, and continue to serve, as the basis for ongoing efforts to improve quality in health care.

The Institute of Medicine (2003) identified 20 priority areas for quality improvement that they believed addressed health care quality in broad enough terms to impact the greatest number of people. One of those priority areas was medication management including preventing medication errors and overuse of antibiotics. Efforts to improve medication management through preventing medication errors are ongoing. In an effort help nursing faculty incorporate IOM standards and recommendations regarding medication management into nursing curricula, Finkelman and Kenner (2012)

recommend that medication management curricula address what medication errors are, their frequency, contributing factors, costs, and public perceptions of safety in health care. Problem-based methods of teaching medication management are recommended to facilitate learning. Understanding the lived experience of nursing faculty teaching nursing students to manage medication provides evidence of effective, and not-effective, strategies for teaching medication management.

One of the follow-up reports in the quality chasm series, *Preventing Medication Errors* (Institute of Medicine, 2007), provides a sharper focus on the background of this study. In this report, the IOM estimates that there are over 1.5 million preventable adverse drug events in U.S. hospitals and long-term care facilities with an estimated average cost of \$8,750 event. The report identifies several areas for improvement to reduce medication errors and improve health care quality. The first area for improvement identified in the report was improving the patient-provider relationship by encouraging patients to take a more active role in their health care and providing more and better education for patients with regard to their medications. Improved technology for prescribing and dispensing medications was another focus area for medication error reduction. Improved labeling and packaging, along with improved funding for research about preventing medication errors, are two additional focus areas of this report. The focus areas identified in this report relate directly to the purpose of this study in that this study sought to illuminate the lived experience of nursing faculty teaching nursing students how to manage medications and to describe how those students were being taught to manage medications.

Nursing Students Managing Medications

Wolf et al. (2006) used a descriptive retrospective design study to describe the characteristics of medication errors made by nursing students during the administration phase of the medication use process. A convenience sample was obtained from reports of student-made medication errors January 1, 1999 – December 31, 2003 from USP MEDMARX database ($N = 1,305$). The Medication Error Information Report electronically collected data on the acuity index, unit location, type of error, cause of error, contributing factors, care needed/rendered, action taken, and products involved. Descriptive statistics derived from the data give insight into student medication errors. The distribution of types of medication error was 32% procedure/protocol not followed, 26.5% knowledge deficit, 17% communication, 17% wrong time, 9.19% wrong patient, 3.6% wrong route. Inexperience and distractions were frequently cited as contributing factors in nursing students making medication errors. The authors recommend that medication administration education reflects the realities of medication administration in the clinical setting. They also suggest that high-fidelity simulation of medication administration may be helpful in teaching nursing students how to administer medication safely in the clinical setting.

Reid-Searl et al. (2010) used a grounded theory approach to explore the factors that influence the practice of medication administration for nursing students in the clinical setting. A total of 135 students in the final year of a bachelor of science in nursing program were invited to participate in the study. Twenty-eight students were chosen to participate ($N = 28$). Participants were chosen using a theoretical sampling approach that reflected diversity in age, gender, and previous nursing experience. Semi-

structured individual in-depth interviews were audiotaped to explore the participants' experiences and opinions of medication administration in the clinical setting. Transcripts were coded using open coding, axial coding, and selective coding and analyzed using the constant comparative method. Lack of supervision was identified as the central theme contributing to medication errors and "near misses." Near misses are often intercepted by clinical faculty so the error never reaches the patient. Distractions while administering medications were identified as a factor contributing making medication errors.

Krautscheid et al. (2011) conducted a phenomenological study to understand student nurse perceptions regarding academic teaching strategies and learning activities that prepare them to safely administer medications in the acute care clinical setting. Ten female and three male ($N = 13$) second-semester baccalaureate nursing students enrolled in a medical-surgical course at the University of Portland participated in the study. Three 90-minute focus groups were held, audio-recorded, and transcribed verbatim. The focus groups were conducted during the beginning of the student's medical-surgical acute care clinical experience. At that time, it had been approximately 6 weeks since the students had participated in medication administration in the laboratory. A researcher-developed interview protocol was used to systematically guide focus group conversations. Researchers reviewed transcripts individually and then discussed their findings, corroborated evidence, and developed themes.

The two broad themes that were identified were effective education and gaps in education. Effective education sub-themes were: learning how to, faculty role-modeling, and peer learning with practice. Gaps in education sub-themes were: teach me relevant technology and prepare me for the real world. Students perceived faculty role-modeling,

repetitive practice, peer feedback, and learning essential medication safety techniques in the academic lab as education that helped promote safe medication administration in the clinical setting. Students perceived outdated, non-technological medication administration systems in the academic lab as gaps in their education. This interfered with their ability to transfer their medication administration education into the clinical setting. Recommendations were made that medication administration education should use technology similar to that being used in the clinical setting. The authors also recommend investigating the clinical faculty's perception of the impact of students' educational preparation on their clinical performance.

Nursing students make medication errors for a variety of reasons (Reid-Searl et al., 2010; Wolf et al., 2006). Students at one school of nursing described their medication management education as effective in that they are taught how to manage medication, interact with faculty role-models, and learn through practicing with their peers (Krautscheid et al., 2011). However, they went on to describe their medication management education as not being consistent with their clinical experience and lacking exposure to current medication management technology (Krautscheid et al., 2011). These findings corroborated the experience of this researcher with teaching his nursing students about medication management and the medication management procedures his students are exposed to in the clinical setting. That being the case, one can wonder how nursing students in general are being taught to manage medication. It appears that it is possible that nursing education regarding medication management could be lagging behind the technological advances being implemented in the clinical setting. If that is indeed the case, then the best practices for teaching nursing students how to manage medication still

need to be determined. The intent of this study was to examine nursing faculty members' lived experience of teaching nursing students to manage medications. It was also possible to glean some understanding of differences between what and how nursing students were being taught in the classroom and clinical lab regarding medication management and what the students were experiencing in the clinical setting.

Teaching Medication Management

Sears, Goldsworthy, and Goodman (2010) conducted a randomized control group, posttest-only design study to investigate the effect of a simulation-based educational intervention on second-year Bachelor of Science in nursing students' ability to safely administer medications. The students were participating in medical/surgical and maternal child clinical assignments during the study. Fifty-four participants were randomly selected to control ($N = 30$) and treatment ($N = 24$) groups. The outcome variable was medication administration errors, real and potential, as observed and recorded by clinical faculty. The treatment variable was a simulation-based educational intervention used to replace part of the students' early clinical experience. The simulations were developed by obstetric and medical-surgical experts to focus on the same outcomes despite the difference in clinical settings. Those outcomes included typical assessments and interventions, including medications that would usually be encountered on each particular clinical unit and the most likely emergency situation that the student may encounter. All study participants were enrolled in a pharmacology course, and none of them could administer medications in the clinical setting until the seventh week of the semester, at which time the simulations had been completed. Therefore, all of the study participants had the same chance to demonstrate success.

Using a form developed by one of the authors, the unit the error occurred, which of the five rights of medication administration were violated, the actual or potential severity of the error, and the influence of contributing factors on the medication error were collected by clinical faculty for each incident of medication error. The data collection tool's face validity, content validity, and inter-rater reliability were all supported by the authors. The authors revealed that the treatment group made seven medication errors and the control group made 24 medication errors. Using a conventional chi-squared test to compare the error rates of the treatment and control groups reveals that the difference is highly significant with $p < 0.001$.

The authors concluded that simulation-based education can be effective in reducing the number of medication errors made by nursing students. Students expressed appreciation for being able to engage in the simulated clinical experience prior to actually going to the hospital. The authors do note that the simulation experience is a time- and resource-intensive exercise for the faculty, but there is little description of how the simulation experience was actually designed.

Meechan et al. (2011b) used a randomized control group, posttest-only design study to examine the efficacy of a 14-month integrated pharmacology and medicines management curriculum for undergraduate adult nursing students on the acquisition of applied drug/pharmacology knowledge. Two cohorts of Bachelor of Science in nursing students at one university were randomly assigned to a control group ($n = 60$) and a treatment group ($n = 60$). The outcome variables were scores on the 69-item Pharmacology Assessment Tool (PAT), the 42-item Pharmacokinetics On-line Test (POL), and the seven-item Self-Assessment Rating Score (SARS). The PAT measured

the students' knowledge of drug use, adverse effects, contra-indications, calculations, nursing assessment/management, interpretation of results, and patient education. The POL assessed the students' knowledge related to medication calculation, absorption, distribution, elimination, metabolism, therapeutic index, and half-life. The SARS rated the students' confidence in their pharmacology knowledge.

The treatment variable was the integrated pharmacology and medicines management curriculum. The control group received 1-hour lecture related to pharmacology, a workbook of pharmacological principles to complete, and a minimum of six ward-based clinical assessments for medication administration. Mentors, who were unaware of the study, met with members of the control group weekly for the 20 weeks of their clinical experience. The treatment group received 12 hours of applied pharmacology lectures and simulated medication administration practice during the first year of their nursing program. The simulations were designed to link drug calculations to clinical practice.

Data collection occurred when each cohort completed 14 months of the program, the control group in November 2007 and the treatment group in April 2008. One-way analysis of variance revealed that the treatment group performed significantly higher, $p < 0.001$, on six of the seven concepts assessed by the PAT. The only concept that the treatment group did not score significantly higher than the control group was patient education, $p < 0.198$. One-way analysis of variance revealed that the treatment group performed significantly higher, $p < 0.001$, on all seven of the seven concepts assessed by the POT. One-way analysis of variance revealed that the control group performed significantly higher, $p < 0.001$, on six of the seven concepts assessed by the SARS

indicating that even though the treatment group demonstrated significantly higher scores on the knowledge tests, the control group felt significantly more confident in its drug/pharmacology knowledge.

The authors concluded that this study supplies evidence that their structured approach to teaching nursing students about pharmacology and safe medication administration can lead to improved ability to apply drug/pharmacology knowledge in the clinical setting. Further investigation is needed to evaluate whether this educational strategy can be correlated to reductions in medication administration errors.

Meechan et al. (2011a) used a longitudinal comparative design study to examine the efficacy of the early introduction of a medicines management Objective Structured Clinical Examination (OSCE) into an undergraduate adult nursing students' program of education and to determine if the acquisition of applied drug/pharmacology knowledge and the administration of medicines had improved prior to qualification for licensure. The outcome variable was performance on the Drug Administration Simulation Activity (DASA) evaluation tool created by the authors. Three cohorts of Bachelor of Science in nursing students at one university were recruited for the study. Cohort 1 ($n = 30$) had been in the program for 8 months. Cohort 2 ($n = 30$) had been in the program for 20 months. Cohort 3 ($n = 30$) had been in the program for 30 months. All three groups received 12 hours of applied pharmacology lectures during the first year of their nursing program. Cohorts 1 and 2 participated in the simulated medicines management sessions that constituted the treatment variable. As part of their treatment, cohorts 1 and 2 also participated in OSCE to evaluate their medication administration competence. Cohort 3

had medicines management threaded through their clinical assignments and did not participate in any OSCE prior to data collection.

Study participants engaged in a Drug Administration Simulation Activity that was evaluated using the DASA evaluation tool. The DASA consisted of high-fidelity patient simulations focusing on medication administration with embedded medication errors. Each simulation lasted 45 minutes and was recorded for review. Thirty-five minutes of the time was spent in actual simulation with 10 minutes of debriefing at the end. Two researchers directly observed and scored each simulation using the DASA evaluation tool. Data were collected from 10 participants per day during nine prescheduled simulation days. Reliability and validity were reported for the DASA evaluation tool. The tool evaluates study participants on patient communication, medication preparation, medication dispensing, medication knowledge, and medication administration. One-way analysis of variance revealed that the treatment group performed significantly higher, $p < 0.001$, on six of the seven concepts assessed by the DASA evaluation tool. The only concept that the treatment group did not score significantly higher than the control group was medication dispensing, $p < 0.139$.

The authors concluded that medication management simulation can improve nursing students' medicines management knowledge and skills as measured using the DASA evaluation tool during Objective Structured Clinical Examinations. They go on to recommend that medication management be taught as a process involving clinical judgment of the patient's condition and history. This study adds to the body evidence supporting investigation into evidence-based best-practice models for teaching student nurses how to safely administer medications.

Engaging nursing students in medication management simulation provides an opportunity for students to learn medication management procedures without placing actual patients at risk of medication errors. Students who engaged in simulated medication management simulations demonstrated decreased medication administration errors (Meechan et al., 2011a; Sears et al., 2010). Including simulation as part of an integrated medications management curriculum helped improve students' knowledge of pharmacology and pharmacodynamics (Meechan et al., 2011b). Students also appreciated and enjoyed medication management simulations (Meechan et al., 2011a; Sears, et al., 2010). While these findings promote the inclusion of simulation as part of nursing students' medication management education, they also raise two important issues. One issue is the substantial monetary investment required to acquire, operate, and house the hardware and software necessary to deliver high-fidelity patient simulation. The second issue is the substantial investment of faculty time to develop and deliver the simulation experiences. This researcher was unable to find any research as to the prevalence of any particular type of simulation or the general prevalence of simulation being used in nursing education. Considering the benefits to be derived from simulation, this researcher wonders if medium-fidelity, computer-based medication management simulation can deliver similarly positive results and reduce the investment of money and faculty time required to achieve those results. The researcher also wonders if medium-fidelity medication management simulation can assist nursing students acquire to knowledge, skills, and attitudes to safely utilize the modern medication management technology that is becoming increasingly imbedded in the provision of healthcare.

Experiential Context

The transcendental epoche is an exercise to attempt to free the researcher of bias and prejudice. It is an exercise to identify, and bracket in the researcher's mind, anything that could interfere with the researcher understanding the essence of the phenomenon under investigation as it is experienced by the research participants (Moustakas, 1994). In the transcendental epoche of Moustakas (1994), the researcher is to transcend, or separate himself from the consciousness of those thoughts and experiences that have been, and continue to be, identified through an ongoing process of reflection by the researcher that may bias or prejudice the researcher with regard to understanding the lived experience of nursing faculty teaching nursing students to manage medications.

For this researcher, the transcendental epoche regarding the lived experience of nursing faculty teaching nursing students to manage medications began in the summer of 2013. That was the time that the researcher decided to pursue this particular topic for research and became aware of the need to bracket his experience to facilitate understanding the essences of the research phenomenon from the perspective of the research participants. Since that time, the researcher has been engaged in an ongoing reflective analysis of his experience and potential biases. This ongoing reflective process is necessary for qualitative researchers to enhance the quality of their research (Polit & Beck, 2012). This process continued through the duration of this investigation.

Through this reflective process, the researcher has become aware that all of his personal experience must surely frame the way in which he views the world, as this experiential lens is unique to him. To begin with, the researcher has 24 years of

experience managing medications as a licensed healthcare provider. Prior to becoming a registered nurse, the researcher had experience managing medications as an EMT/paramedic in Florida and as a United States Peace Corps volunteer involved in health education projects in Papua New Guinea. The last 20 of those years have included 1 year as a nursing student (accelerated BSN option) and 19 as a registered nurse. As a registered nurse, the researcher has experience managing medications in the role of hospital bedside nurse in emergency departments, progressive care units, and intensive care units, as well as in the role of assistant nurse manager in the emergency department. In at least one of these roles working in hospitals, the researcher had a personal experience mismanaging a patient medication. Indeed, if one proposes a definition of medication mismanagement that is broad enough, it may be possible to envision that almost all health care providers have mismanaged a medication in one way or another. This is not to diminish the importance of safe medication management. The researcher acknowledges that one of the ultimate goals of the health care industry is to reduce and hopefully eliminate human morbidity and mortality due to medication management errors.

Since January 2005, the researcher has been continuously employed as a full-time nursing faculty member. This experience adds another area for the researcher to bracket his personal experience and opinions. Upon appointment as a full-time nursing faculty member, the researcher had a background in curriculum design and teaching methodology. The researcher's educational background also includes an undergraduate degree in Health Science Education and a graduate certificate in Nursing and Allied Health Professional Education. The researcher has also taken educational design courses

as part of his doctoral studies. Having a background in educational design could potentially bias the researcher when it comes to studying the lived experience of nursing faculty teaching nursing students to manage medications.

Still closer inspection reveals that the researcher has been involved in teaching beginning nursing students to manage medications since 2007. In addition, the researcher has been concurrently involved with supervising nursing students managing medication in the clinical setting. It has been during these experiences that the researcher has become aware that the way students are being taught to manage medication in his university is not the same way they are being asked to manage medications in the clinical setting. The researcher has also found evidence of this experience in the nursing literature. Together, these findings have spurred this researcher to investigate this phenomenon in his geographic region.

Chapter Summary

This chapter discussed the historical context of the study, the synthesis of the literature that was performed, and the researcher's process for bracketing potential biases. The historical context focused on the increased emphasis on patient safety and improved quality in health care that has been one of the factors driving change in the health care industry over the last 20 years. The literature review demonstrated that nursing students do indeed make medication errors and they make them for a variety of reasons. In addition, the literature review highlighted some positive outcomes related to educational interventions designed to improve the safety and quality of medication management related patient care delivered by nursing students. Finally, the researcher discussed how he attempted to bracket his personal experience with nursing faculty teaching nursing

students to manage medications through the metacognitive exercise of the transcendental epoche. The epoche process adds to the credibility of the study by aiding the researcher in avoiding biases and prejudices. This chapter provided background information to support the need for a phenomenological investigation of the lived experience of nursing faculty teaching nursing students to manage medications.

CHAPTER THREE

METHODS

This chapter describes how the lived experience of nursing faculty teaching nursing students to manage medications was examined using Moustakas' (1994) transcendental phenomenology to approach this qualitative research subject. A detailed description of the transcendental phenomenological research design is presented. Descriptions of how and where research participants were recruited, inclusion and exclusion criteria, and ethical considerations are presented. Data collection and analysis procedures are described. Finally, the researcher offers a discussion of rigor in qualitative research and how that rigor was applied to this study.

Research Design

Recognizing that medication errors are a problem, this researcher wanted to take a fresh look at the lived experience of nursing faculty teaching nursing students to manage medications. Gaining an understanding of the essences of the lived experience of nursing faculty teaching nursing students to manage medications required a phenomenological research approach. Phenomenological research approaches can be separated into two main categories: descriptive phenomenology and interpretive phenomenology (Moustakas, 1994; Polit & Beck, 2012). Descriptive or empirical phenomenology focuses on the detailed description of the phenomenon as it is experienced by the person/people experiencing it. Interpretive phenomenology seeks to go beyond the detailed description and “to discover the practical wisdom, possibilities, and understanding” (Polit & Beck, 2012, p. 496) found in the lived experience of the research participants. Both of these perspectives on phenomenology seek to address four aspects

of the lived experience. Those four aspects of the lived experience are lived space (spatiality), lived body (corporeality), lived time (temporality), and lived human relation (relationality) (Polit & Beck, 2012). The spatiality of the phenomenon under investigation varied from location to location but included the classroom, laboratory, and clinical settings. Corporeality was addressed from the perspective of the functioning of the individual teacher and student and from the perspective of the body of the nursing profession in general in that teaching nursing students to manage medications affects the nursing profession. The temporality of the phenomenon was of key concern considering the changing demands of the modern health care environment. It was key to understand what was happening at the time of the study so plans for the future could be based on evidence and not on anecdote. The relationships between teacher, student, patient, and clinical staff all had an impact on the lived experience of teaching nursing students to manage medications. In these ways, this research addressed these four aspects of the lived experience of nursing faculty teaching nursing students to manage medications.

Transcendental Phenomenology

Moustakas' (1994) transcendental phenomenology is a heuristic approach to interpretive phenomenology that was appropriate to gain a broader understanding of the essence of the lived experience of nursing faculty teaching nursing students how to manage medications. This approach to phenomenology allowed for expansion of the research question to promote understanding and meaning. Therefore, it was appropriate to explore how nursing students were being taught to manage medications as part of the investigation into nursing faculty member's lived experience of teaching nursing students to manage medications. Explicating the essence of the lived experience of nursing

faculty teaching nursing students to manage medications required thick, rich descriptions of what exactly constitutes that phenomenon so others can see things from the research participants' perspective. The inclusion of quotes from the transcribed interviews helped demonstrate how the phenomenon was experienced by the research participant. This enhances the reader's understanding of the phenomenon. Understanding can be partially achieved through hermeneutic interpretation of the transcribed words of the participants (Moustakas, 1994). However, a broader heuristic investigation of the phenomenon included examination of such things as the history, politics, technology, and educational materials associated with the phenomenon under investigation. In this way, meaning and understanding of the human experience was more fully expressed. Using Moustakas' approach to phenomenological research provided an understanding of the essence and meaning of the experience of nursing faculty teaching nursing students to manage medications that can be used to direct and support more empirical investigations into this phenomenon by explicating the "taken-for-grantedness" of this vitally important aspect of nursing education. Figure 1 is this investigator's adaptation of Moustakas' approach to conducting research guided by his philosophy.

Epoche

(Bias and Prejudice excluded)

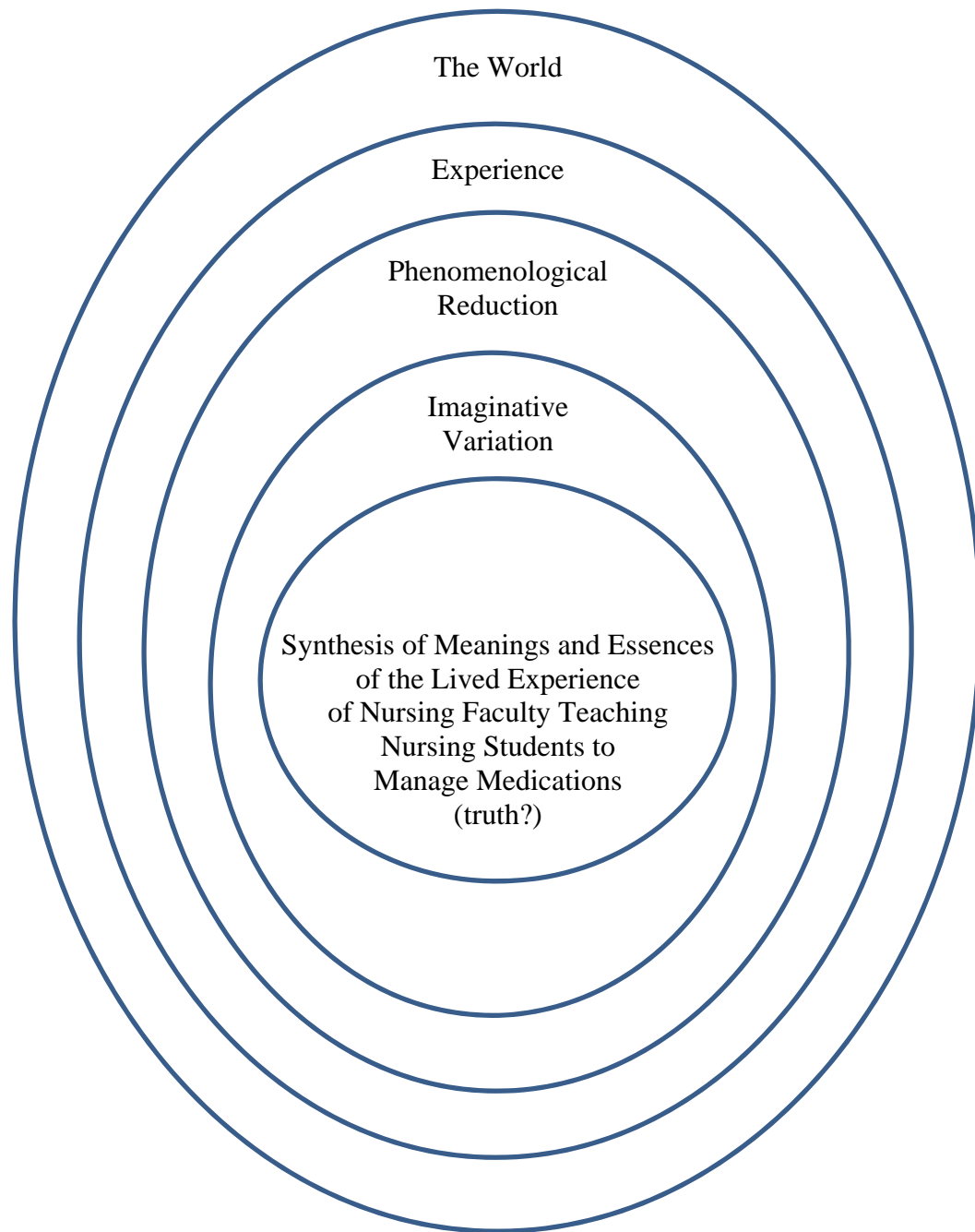


Figure 1. Lorentz's (2015) interpretation of Moustakas' (1994) transcendental phenomenology.

Operationalizing Moustakas' (1994) transcendental phenomenology began with identifying a phenomenon of interest. Then, the researcher embarked on the transcendental epoche where a conscious attempt was made to identify and bracket any biases or prejudices that the researcher may have had with regard to the phenomenon of interest so as to allow the researcher to experience the phenomenon as if experiencing it for the first time. Data were gathered from individuals having experience with the phenomenon in the form of interviews that were recorded and transcribed. In addition, the objects or "the things themselves" involved with the phenomenon were also investigated to enhance the understanding of the phenomenon.

The researcher then engaged in a reflective act of transcendental phenomenological reduction to describe the essence of the phenomenon just as it appeared. This act was transcendental in that the researcher had bracketed his personal biases and prejudices so he could view and reflect upon the phenomenon as if seeing it for the first time. This act was phenomenological in that it focuses on the particular phenomenon being investigated as it was experienced by the research participants, void of the researcher's preconceived thoughts and opinions. Viewing and reflecting upon the phenomenon from the research participants' perspective without preconception allowed the researcher to identify the textural components of the phenomenon that may not have been part of the researcher's personal experience. Textural components of the phenomenon were those things that described what the phenomenon consisted of for the research participants. The researcher could then identify horizons and potential components of the phenomenon and search for evidence to either include or exclude those horizons as part of the essence of the phenomenon.

Once the textural components of the phenomenon were described, the researcher then engaged in a process of imaginative variation to discover potential meaning of the structural elements of the phenomenon. Structural elements of the phenomenon were those things that described how the phenomenon was experienced by the research participants. The researcher used his imagination to explore how the textural descriptions were related. The process of imaginative variation involved:

1. Systematic varying of the possible structural meanings that underlie the textural meanings;
2. Recognizing the underlying themes or contexts that account for the emergence of the phenomenon;
3. Considering of the universal structures that precipitate feelings and thoughts with reference to the phenomenon, such as the structure of time, space, bodily concerns, materiality, causality, relation to self, or relation to others; and
4. Searching for exemplifications that vividly illustrate the invariant structural themes and facilitate the development of a structural description of the phenomenon. (Moustakas, 1994, p. 99)

The process also allowed the researcher to use his intuition to determine, out of the infinite possibilities, which relationships between the structural components of the phenomenon described the meaning and essence of the phenomenon as it was experienced by the research participants.

Finally, the researcher utilized his intuition to synthesize the essences and meanings of the textural and structural components of the phenomenon to derive the

essences and meanings of what was true about the phenomenon being investigated. The truth that was arrived at through this process was a relative truth. It was relative in that it represents truth from the researcher's perspective in that space and time. There could always be other perspectives of what is true regarding any phenomenon. By having investigated the phenomenon from the perspective of numerous research participants, the truth that was derived by the investigator does have greater trustworthiness than had the researcher simply investigated his own experience of the phenomenon. Further investigation by other investigators, in other places, at other times could yield other versions of truth for those people, in those places, at those times.

Sample and Setting

As the phenomenon under investigation was fairly specific and the population of individuals involved in that phenomenon was relatively small, a purposive sampling technique was used to recruit research participants. Purposive sampling allowed the researcher to focus recruitment efforts on potential participants that meet the inclusion criteria. The sample for this investigation consisted of nine nursing faculty members who are engaged in teaching nursing students to manage medications. Settings for interviewing research participants were determined through collaboration of the investigator and the research participants. Interview settings were in places convenient for the research participant. Settings for interview and other data collection included faculty offices, classroom, laboratory setting, and hospitals. Other settings could have been used if the investigator and research participants determined that greater understanding of the phenomenon could have been gained in other setting that the investigator and research participants felt may be useful.

Access and Recruitment of the Sample

Participants were recruited from schools of nursing in the Central Florida and South Florida regions by contacting the deans/chairpersons and/or key nursing faculty members at nursing schools in the regions and, after explaining the nature of the research, asking them to forward a request to participate in the study to their faculty members. A cover letter (Appendix C) explaining the nature of the study and a recruitment flyer (Appendix D) requesting faculty members' participation were supplied to the deans/chairpersons and/or key nursing faculty members for them to forward to their faculty members. Schools in closest proximity to the researcher were approached first, and schools at increasing distance from the researcher were approached until a number of participants sufficient to reach data saturation had been interviewed. It was possible for the researcher to become engaged in snowball sampling after the nursing education community received the invitation to participate in this research (Creswell, 2004; Polit & Beck, 2012).

Inclusion Criteria

To be considered for inclusion in this research study, the participants must have been nursing faculty members who were engaged in teaching nursing students to manage medications in a prelicensure registered nursing (RN) program. Nursing faculty members teaching in associate degree or baccalaureate degree programs were eligible to participate in the study. Research participants needed to speak English and be willing to share their experience with the investigator.

Exclusion Criteria

Anyone not specifically meeting the inclusion criteria was excluded from participating in the study. Nursing faculty members teaching solely in post-licensure BSN completion programs were excluded.

Ethical Considerations/Protection of Human Subjects

The study participants were protected from unethical interactions by having this study approved by the Barry University Institutional Review Board (Appendix A) and the researcher's adherence to the approved research protocol. This study was confidential. The informed consent (Appendix B) form was signed by each of the participant and was be kept separately from data collection records. All data collected was recorded without identifiers or links to identifiers. Participants were assured of confidentiality procedures during the process of obtaining informed consent. The data was locked in a file in the researcher's office only accessible to him. In addition, the researcher has completed the National Institutes of Health's (2011) web-based training course *Protecting Human Research Participants*.

Data Collection Procedure

After informed consent (Appendix B) had been obtained for each participant, the participant and the researcher engaged in a semi-structured interview of approximately 45 minutes to 1 hour in length. The interviews were audio-recorded. The researcher made handwritten notes immediately following the interviews. The recorded interview were then transcribed. The transcribed interview were reviewed for accuracy and then analyzed using the procedure described below. A member check lasting approximately 30 minutes was conducted with each research participant to have the research participant

confirm the accuracy of the transcribed interview and provide feedback on the researcher's insights regarding the interview.

Interview Questions

Examining the essence of the lived experience of nursing faculty teaching nursing students to manage medications required detailed, first-person accounts of that phenomenon. To elicit these detailed accounts from the research participants, the researcher asked open-ended questions (Appendix E) that allowed the research participants to explain how they have experienced the phenomenon. The semi-structured nature of the interviews required the researcher to adapt each interview to the particular responses provided by the research participant. However, each interview began with a "grand tour" question to open the discussion. The opening question for this investigation was: "How are you teaching nursing students to manage medication?" Follow-up questions were used to elicit further information and to explore horizons of the phenomenon that become apparent. The researcher utilized a set of predetermined questions to assure that each research participant had a similar opportunity to address the aspects of the phenomenon that may have been common to other research participants. The set of predetermined questions was subject to modification as data was gathered and analyzed and horizons of the essences of the phenomenon emerged.

Demographic Data

Demographic data (Appendix F) was collected using a researcher-designed questionnaire to document the demographic diversity of the research participants. Documenting and reporting the demographic diversity of the research participants allowed the reader to address the extent to which the research findings may be

transferable to other groups. The demographic data that was collected included the type of faculty position the research participant held (full-time/part-time, didactic/clinical), type of nursing program in which the participant taught, years teaching nursing, age, race, sex, and highest degree earned.

Data Analysis

The data were analyzed using Moustakas' (1994) method of analyzing phenomenological data, detailed below.

Using the complete transcription of each research participant:

1. *Listing and Preliminary Grouping*

List every expression relevant to the experience.

(Horizontalization)

2. *Reduction and Elimination: To Determine the Invariant*

Constituents:

Test each expression for two requirements:

- a. Does it contain a moment of the experience that is a necessary and sufficient constituent for understanding it?
- b. Is it possible to abstract and label it? If so, it is a horizon of the experience. Expressions not meeting the above requirements are eliminated or presented in more exact descriptive terms.

The horizons that remain are the invariant constituents of the experience.

3. *Clustering and Thematizing the Invariant Constituents:*

Cluster the invariant constituents of the experience that are related into a thematic label. The clustered and labeled constituents are the core themes of the experience.

4. Final Identification of the Invariant Constituents and Themes
by Application: Validation

Check the invariant constituents and their accompanying theme against the complete record of the research participant.

(A) Are they expressed explicitly in the complete transcription?

(B) Are they compatible if not explicitly expressed? (C) If they are not explicit or compatible, they are not relevant to the [co-]researcher's experience and should be deleted.

5. Using the relevant validated invariant constituents and themes, construct for each co-researcher an *Individual Textural Description* of the experience. Include verbatim examples from the transcribed interview.

6. Construct for each [co-]researcher an *Individual Structural Description* of the experience based on the Individual Textural Description and Imaginative Variation.

7. Construct for each research participant a *Textural-Structural Description* of the meanings and essences of the experience, incorporating the invariant constituents and themes.

From the Individual Textural-Structural Descriptions, develop a Composite Description of the meanings and essences of the

experience, representing the group as a whole. (Moustakas, 1994, pp. 120-121)

Research Rigor

Research rigor is a term commonly used in research rooted in positivist paradigms. Because of this, the word is frequently deemed inappropriate for use in qualitative research (Polit & Beck, 2012). Just as the constructivist paradigm in general posits that there are many ways to know things, there are many ways to establish the validity of qualitative research. Lincoln and Guba (1985) use the term trustworthiness as a standard for establishing the validity of qualitative research. For qualitative research to be trustworthy, it must be credible, transferable, dependable, confirmable, and authentic (Lincoln & Guba, 1985).

Credibility

Credibility was established through conducting the research using appropriate research methods and reporting the findings in a manner that demonstrates credibility to the reader. The reader should come away from reading the report with a feeling that the findings do represent what the data indicated. This study demonstrated credibility by adhering to the methodology of transcendental phenomenology proposed by Moustakas (1994) and reporting the findings accurately.

Dependability

Dependability is a function of the reproducibility of the study findings over time and is related to the study's credibility. By adhering to and reporting the methodological principles of transcendental phenomenology, this study should be able to be reproduced in the future, thus establishing its dependability.

Confirmability

Confirmability in qualitative research concerns the idea that people independent of the researcher can reach the same conclusions based on the data. Confirmability is achieved by reporting how the participants experienced the phenomena under investigation rather than the researcher's presuppositions and biases. In this study, confirmability was achieved by providing quotes from the research participants to describe the essence of the phenomenon for them. In addition, the researcher engaged in the transcendental epoche to acknowledge and bracket his presuppositions and biases in an effort to keep them out of the research findings.

Transferability

Transferability is the degree to which one could apply the research findings to other groups in other situations. This was established by providing sufficient description of the data and research participants for a reader to make their own decision about the applicability of the findings to their particular situation (Lincoln & Guba, 1985). This study demonstrated its transferability through thick, rich textural and structural descriptions of the phenomena and the research participants while maintaining the participant's confidentiality. In addition, the transferability of this study was enhanced by recruiting a diverse sample of participants.

Authenticity

Authenticity relates to the degree to which the research findings report the full spectrum of the experience under investigation. This study exhibited authenticity by collecting data until data saturation had been achieved and then reporting the full richness

of the experience using verbatim quotes of the research participants to exemplify the essence of the experience.

Chapter Summary

This chapter described how the lived experience of nursing faculty teaching nursing students to manage medications was examined using Moustakas' (1994) transcendental phenomenology to approach this qualitative research subject. A detailed description of the transcendental phenomenological research design was presented. Descriptions of how and where research participants were recruited, inclusion and exclusion criteria, and ethical considerations were presented. Data collection and analysis procedures were described. Finally, the researcher offered a discussion of rigor in qualitative research and how that rigor was applied to this study.

CHAPTER FOUR

The Institute of Medicine (IOM) (2000) claimed that as many as 94,000 Americans die each year due to preventable medication errors. The IOM (2007) also estimates that there are over 1.5 million preventable adverse drug events in U.S. hospitals and long-term care facilities with an estimated average cost of \$8,750 per event. In light of these significant statistics regarding adverse patient outcomes from medication errors, the naiveté inherent in nursing students has the potential of contributing to these statistics and may place patients at greater risk of medication errors. Medication management is an important component of health care. Medication management errors are a worldwide problem resulting in much unnecessary suffering and death (Harding & Petrick, 2008; Institute of Medicine, 2000; Koohestani & Baghcheghi, 2009). The purpose of this transcendental phenomenological study, guided by Moustaka (1994), was to gain insight into the lived experience of nursing faculty teaching nursing students to manage medications; identify educational strategies, techniques, and activities that were being implemented by nursing faculty members to teach nursing students to manage medications; identify how these educational strategies, techniques, and activities were being evaluated and their effectiveness at teaching nursing students to manage medications safely.

To investigate this problem, a phenomenological study to examine the lived experience of nursing faculty teaching nursing students to manage medication was undertaken. In this chapter, the research questions will be restated. The sample of research participant will be described. An exploration of the data to assure it is appropriate for this type of investigation will be followed by presentation of the results

related to the themes of *Thinking, Practicing, and Evaluating*. The research findings will also be discussed as they relate to Motor Learning Theory (MLT) (Braungart, Braungart, & Gramet, 2014).

Restatement of Research Questions

The questions that served as the basis for this phenomenological investigation were:

1. What is the lived experience of nursing faculty teaching nursing students to manage medications?
2. What educational strategies, techniques, and activities are being implemented by nursing faculty members to teach nursing students to manage medications?
3. How are the educational strategies, techniques, and activities that are being implemented by nursing faculty members to teach nursing students to manage medications being evaluated?

Sample Description

After receiving approval from Barry University's Institutional Review Board (Appendix A), research participants for this study were recruited by sending a letter explaining the purpose of the study along with a flyer describing the inclusion criteria and containing the researcher's contact information to deans and key contact people at nursing schools in the general vicinity of the researcher. Prior to interviewing faculty members from Adventist University of Health Sciences' Department of Nursing, the researcher was required to apply for and receive approval from that institution's Institutional Review Board (Appendix A). Participants who responded and met the inclusion criteria were selected to participate in the study. All of the participants read and

signed the informed consent form and completed the demographic questionnaire. Participants were offered the option to use a pseudonym for their interview. Five of them chose to use their initials as pseudonyms, and three stated that their first name was sufficient for identification. One chose a unique pseudonym. The participants were called: AB, Janet, Knight1, Lee, Louise, LT, SH, SJ, and WF. Face-to-face interviews were conducted with each participant. The interviews were conducted in places amenable to the participant. Five interviews were conducted in the researcher's work office. Three interviews were conducted in the participant's work office. One interview was conducted in the participant's home. All interviews were audio recorded with the participant's permission and subsequently transcribed and analyzed by the researcher. Member checks were undertaken where each transcription was reviewed by the participant and acknowledged as an accurate representation of the interview.

The sample of research participants for this investigation consisted of nine full-time nursing faculty members who were engaged in teaching undergraduate nursing students to manage medications. All of the themes were expressed by each research participant, so thematic saturation had occurred by the seventh interview and transcription. Two additional interviews were conducted to confirm thematic saturation. All of the participants taught in generic Bachelor of Science in Nursing (BSN) programs in either Central or South Florida. In addition to teaching in the generic BSN program, one participant also taught in an RN-BSN completion program, and another participant also taught an accelerated BSN program. All of the participants described teaching in both the classroom/didactic setting and the clinical/lab setting. The length of time the participants had been teaching undergraduate nursing students ranged from 2 years to 39

years with an average of 13.6 years. Three participants stated that they had experience with nursing students making medication management errors, and six participants denied having experience with nursing students making medication management errors. The ages of the participants by age range were: 36 – 45 = 2; 46 – 55 = 3; 56 – 65 = 2; >65 = 2. The self-reported racial composition of the participants was: White = 6; African-American = 1; Latina = 1; Asian = 1. The highest degree earned by the participants was: PhD = 1; MSN/MPH = 1; MSN = 6; MA = 1. Though all of the participants were female, the sample of participants represented a diversity of years of experience, ages, races, and highest degrees earned.

Results

The data were analyzed using Moustakas' (1994) method of analyzing phenomenological data. Using the complete transcription of each research participant, every expression relevant to the experience was listed. Repeating and similar expressions were reduced and eliminated. To be considered an invariant constituent of the experience, an expression must have contained a moment of the experience that was necessary and sufficient for understanding it. The expression must be possible to abstract and label. The invariant constituents of the experience that were related were clustered into a thematic labels. The clustered and labeled constituents are the core themes of the experience. Checking the invariant constituents and their accompanying themes against the complete record of each research participant revealed that the themes and invariant constituents of the experience were indeed either expressed explicitly or were compatible with the themes and invariant constituents. Individual structural and textural descriptions were created for each research participant. The composite structural and textural

description derived from the individual descriptions represents the lived experience of these nursing faculty teaching nursing students to manage medication and serves to represent the results of this investigation (Moustakas, 1994).

Out of this analysis emerged the themes of *Thinking*, *Practicing*, and *Evaluating*. This seems appropriate since the original research questions were directed toward the lived experience of nursing faculty teaching nursing students to manage medications, how it was done, and how it was evaluated. However, the structural and textural contexts with which these themes are expressed through the words of the individuals living these experiences adds value to the understanding of the essence of the experience from their perspective.

Each major theme had sub-themes as well. The theme *Thinking* has sub-themes of cognitive teaching and dosage calculation. Sub-themes for *Practicing* were focusing and improvising. Testing, dosage calculation, and clinical/simulation were sub-themes for *Evaluating*. Each theme and sub-theme was strongly supported by the participants' voices.

Thinking

Faculty descriptions of cognitive teaching approaches demonstrate the theme *Thinking* and the sub-theme cognitive teaching. Thinking is defined as an individual's active mental processing of perceptions, thoughts, and memories to structure information in one's mind (Braungart et al., 2014). Teachers engage in cognitive teaching when they utilize structured methods to assist learners in forming new insights or understandings. Thus, cognitive learning occurs when an individual is able to perceive and interpret new information to form new insights or understandings (Braungart et al., 2014).

Janet described some of her medication management teaching strategies this way:

... there is PowerPoint ... and there are lectures that we have on the web that they listen about the meds ... that's pretty much on their own and then when they come into class it's interactive so they also have case studies they have to do and these case studies that they present in class they have to know their medications uh the side effects and what medications you give for certain diagnoses. ... during clinical ... we talk about medications we talk about the side effects and if their patient is showing any side effects ... what kind of medications we give if there are side effects ... how we handle them ...

Knight 1 describe her medication management teaching as:

... for those individuals that are auditory learners they have the song and dance. For those who are visual they have the PowerPoint they have the book to back it up and later on in the program I have an outline form that I use and then my co-instructor has a more traditional PowerPoint presentation. My PowerPoint presentations are not traditional.

SJ described didactic teaching of medication management this way:

... all lecture. I sometimes bring in props. If I talk about start introducing oral medications and have to talk about gel caps and score tablets I'll bring them into the classroom and pass them around...when I talk about IV I have an IV, pole, and infusion pump. With a piggy back. Micro tubing vs. macro tubing. I'll have that and pass that around.

WF described part of her clinical teaching of medication management as:

I like them to include labs and the side effects of med and the interaction of meds. And why or why not this med should be administered ... several times we have caught mistakes and had the nurse call the physician and no knew the contraindication between those meds. So we were able to pick up on that.

Some of the more interactive learning activities commonly used by nursing faculty members include case studies and audience-polling systems. Louise describes how she incorporates case studies into her medication management teaching this way:

When I teach them or test them I give them scenarios. Here's your patient, the level at 6 a.m. was this, do you give the dose or not? What do you do? What is the most appropriate response so they have to make a decision? I find that students often have problem with that unless they have a lot of practice. So I do use very basic case studies and these case studies I have written myself because these students are in their second semester. They're taking med-surg 1 (medical-surgical 1) concurrently so they don't know a whole lot.

Audience-polling systems that allow nursing faculty to anonymously gauge aggregate learner understanding in a classroom are commonly referred to a "clickers" because some versions may utilize a separate answer pad called a clicker. Many audience-polling systems utilize web-based technology to turn any internet access device into a potential virtual clicker input device. SH said simply: "We have clickers where we get to poll the students and they get to answer. So clicker type questions... Audience polling, yes." Louise said it in more detail when she stated:

That's it, an audience polling system. But TurningPoint is the most common one used. And we use that...for example my lecture tomorrow is on the second group of cardiac medications. But the first portion of the lecture perhaps the first 30 minutes we are going to do turning point questions on discussion on what we did last week to try to keep that knowledge active in their heads. I use it as a review, exactly ... to try to keep that knowledge active because we take pharmacology here in 2nd semester of BSN. What we find is that students come from community colleges and all they know how to do is to memorize.

The second sub-theme, dosage calculation, further elucidates the *Thinking* theme.

Dosage calculation was an issue for all of the study participants. All study participants indicated their institution required all nursing students to pass dosage calculation exams at the beginning of each semester in order to progress in the program. However, not all of the institutions required the same level of success to progress in the program. AB describe the dosage calculation requirement at her institution this way:

Absolutely at the start of every semester the students have to take a dosage cal exam. They have to get a 10 out of 10. They have three attempts to achieve that 10 out of 10. They do not achieve 10 out of 10 or a 100 on the dosage cal, they will be asked to sit out for the semester and they come back next trimester and try it again. But during that time they are sitting they have to they are referred to ... the tutoring where they get tutoring and get extra questions for practice. And they have requirements as far as the tutorial in order to become back the following semester.

SJ described her institution's dosage calculation policy this way:

Yes, and they also have a high stakes test to pass meds in the hospital; it's not counted in with their grade average; it's just a test question on medication calculations, flow rates, drops per minute, and uh that's given before they can practice in the hospital. They have to pass that. They are given 3 chances at passing. ... If they don't pass it then they are out of the semester

So they have to get 100 on it? (researcher question)

No 90. They can miss 1.

The theme of *Thinking* was exemplified through the sub-themes of cognitive teaching and dosage calculation. In the preceding quotes, the research participants described many excellent examples of cognitive teaching strategies. Examples of these include lecturing, PowerPoint presentations, case studies, and audience polling. While dosage calculation was acknowledged as vitally important by all research participants, their own voices illuminated some of the differences in how the issue of dosage calculation was being addressed.

Practicing

The second major theme, **Practicing**, and its sub-themes, focusing and improvising, relate more to the clinical and laboratory experience of teaching nursing students to manage medications. To practice means to do something again and again in order to become better at it (Braungart et al., 2014). Therefore, in this context, practicing means repeatedly engaging in cognitive or psychomotor activities to achieve a prescribed level of mastery of medication management skills. The sub-theme of focusing pertains to

the main purpose or intent of medication management teaching and learning activities. The sub-theme of improvising means to make or create something by using whatever is available.

The research participants describe a need for more practice and making that practice more like medication management in the clinical setting. In fact, when it came to actual clinical practice, there were several faculty members who stated that students could not administer medications on their clinical unit. Janet said “We don’t allow them (students) to give meds on the unit. Just because mental health patients will not tell you the correct name lots of time, they refuse their medications ... they will not keep an armband on.” Knight 1 said “... under our contract we are not permitted to administer meds.” SH said, “Specifically we don’t administer medication in this course but they review it and they kind of adhere to the safety rights.” AB expressed another restriction on students’ managing intravenous medications: “The students in this program are not allowed to push medications but we do allow them to do saline flushes.”

A third of the nursing faculty members interviewed were not allowed to have their students administer medications in the clinical setting. That is not to say that the faculty members did not teach medication management in the absence of actual medication administration. Other cognitive methods were used in the clinical setting to teach the broader concepts of medication management, including medication administration. Janet said in the clinical setting “... we talk about medications we talk about the side effects and if their patient is showing any side effects ... what kind of medications we give if there are side effects ... how we handle them” Knight 1 describes teaching medication management in the clinical setting this way:

... we are not going to have a hour lunch break. We are going to have a working lunch. And so if they are with the patients, that's one thing. But if they're not, I sit with them while they're eating and I ask them questions meds are the roughest thing for the students to learn. So my questions predominately deal with meds. And so while they're eating whatever they are working on their meds.

SH described teaching medication management in the clinical setting as "... observation. In clinical, the students can discuss the meds that they see with the faculty. ..., we see it in their databases, simulation, observation ..."

As described by the research participants, the amount of practice in both the clinical setting and the simulation laboratory was insufficient to prepare students to manage medications safely and efficiently immediately upon graduation from nursing school. SJ stated the amount of simulation students at her school was "... we give one simulation, yeah per semester. ... Yeah, each semester they get a simulation." Lee described medication management with students in the clinical setting this way:

The clinical setting is student actually applies what they have learned. But faculties do not have enough time. I do not think we have enough time, per se. If you have eight students, each student it takes at least an hour to go over medication they have to be able to answer they have to be able to pull it out and they have to check certain stuff. So since they are not expert, they are students still learning it takes one hour. I'm not kidding you, in the morning, 1 hour each. Then you can have more than two or three a day in the morning. Otherwise, you will end up delaying

medication administration. So you have to do two or three a week. We usually have one day of clinical, nine to ten hours of clinical per week. So that they have to wait even if they have seven to nine clinical days they might have to medication administration one or two times...

LT described teaching medication management in the clinical setting this way:

... the clinical faculty really see or not their students are able to process whether they have the basics of knowing the process by which they should go through identification looking up the medications giving it in a timely manner and then the five rights and all the intricacies the psychomotor aspect of giving the medication within a certain period of time. If students have difficulty, faculty are certainly able to they have the ability to send the student back to the lab for additional practice. But it is an ongoing process that we expect that is going to take a long time initially and as the students move through different courses in the program that they should be able to decrease the time and increase the efficiency with which they are able to manage medications.

Louise said this of students' simulated clinical experiences:

... they lack dexterity ... When they are drawing things up they need a lot more practice and that's something that we have asked our instructors and simulation, faculty and simulation director, ... to please incorporate a lot more of that into your simulations. I want them to actually drawing up meds. Having to stand there and draw up morphine into a syringe....

The sub-themes of focusing and improvising that accompany the *Practicing* theme highlight potential areas of improvement in teaching nursing students to manage medications. Research participants frequently described medication management as a component of broader patient care scenarios. AB described the inclusion of medication management as a focus in her students' simulation this way "NO. NO. It's not based on what the topic is. For example, the hematology module mainly have to do with what blood products but we also incorporated the medication management." SJ described the lack of focus in medication management in clinical simulation by stating: "Yea just part of a ... med-surg (medical-surgical) patient but at the same time since they learned medication we want to incorporate that into the simulation too." WF described incorporating medication management into simulation this way: "It's a portion of a scenario. They have to assessments and interventions and part of the interventions are med administration."

Louise had this to say about focusing on medication management during clinical simulation:

It's a component. This is a patient care scenario ... but as I say it gets increasing difficult throughout the program. So you start out with just the basic stuff and as you get to the end of the program, you are expected to do everything from mixing to hanging drips to titrating them based on the human dynamics you see on the screen ... and drawing up medications. That's where I find that they struggle. They struggle because they want to turn around and ask someone else how to do it ... and they lack confidence so that something we are working on right now. How do we

how to do this better how to make them more confident as they go through?

In many simulated patient care scenarios, the means for performing medication management, as it is carried out in the clinical setting, were unavailable, so nursing faculty were forced to improvise many aspects of the simulated experience. Improvisation during clinical simulation afforded the participants the opportunity to exercise their own creativity. Improvising processes in the skills lab setting was commonly associated with managing medications in the clinical setting and was widely discussed by the research participants. In many instances, technology has advanced more rapidly in the clinical setting than in the skills lab setting. Electronic medication dispensing systems, commonly known by the brand name Pyxis, and the barcode tracking systems for both patients and medications were unavailable in any of the nursing skills labs. When asked if she incorporated barcode scanners or a Pyxis machine in her medication management teaching in the classroom or skills lab setting, Lee said: “I don’t think we have done it; I don’t think we have equipment for that.” Louise answered the same question with:

I wish I could tell you that we had one of those ... I’m lobbying our dean to get us a Pyxis ... a well-stocked Pyxis with a bar code scanner ... we’re in the process trying to get a donor for that right now because those things are expensive. But that is absolutely my goal to have a Pyxis.

WF improvises teaching medication management without a Pyxis by: “we don’t have a Pyxis in the simulation lab so I just create a table where the meds are on a card

and they have to go get the meds on the card and set them up on the table and pour them there.” SJ describes how the lack of technology requires improvising:

Uh, the only thing that I think is different is that in the lab we have a med box that they can go in the med box and pick out the medications that they need....to give it 9 o'clock say like it says in the MAR. We give a situation that you have to give these meds to this patient at 9:00 and pick out the medications that you need to give at 9:00. Whereas in the hospital, they have what they call it that Pyxis machine where the meds are ... where the drawer opens up for that patient and only the meds for 9:00 are exposed. So, they don't have to dig through other medications to find the medication they need for 9:00. It's just all together in one drawer for the 9:00 meds. And usually they don't take the meds out of the box; it's the nurse in charge of that patient on the floor and puts the meds in a baggie and gives it to the students and says these are the meds to be given at 9:00.

The voices of the research participants strongly support the theme of *Practicing*, along with the sub-themes of focusing and improvising.

Evaluating

The third theme of *Evaluating* and its sub-themes of testing, dosage calculation, and clinical/simulation are relatively straightforward in their descriptions. To evaluate means a systematic method for judging the value of something—in this case, healthcare education (Worrall, 2014). Evaluation can be either formative or summative. Formative evaluation refers to an ongoing process or steps taken during the educational process to improve the chances that student learning outcomes will be achieved (Worrall, 2014).

Summative evaluation is the determination of the ultimate effect of the educational process. Were the student learning outcomes achieved or not (Worral, 2014)? Testing is one means of evaluating medication management education. In this context, testing refers to written evaluation, either on paper or using a computer, of students' achievement of medication management learning outcomes. Evaluation of dosage calculation refers to the students' ability to correctly determine the amount of medication prescribed for a patient. Dosage calculation includes both theoretical and actual medication management scenarios. The sub-theme of clinical/simulation includes actual medication management of for real-life patients (clinical) and simulated patient care scenarios. Simulation is defined as attempting to "replicate some or nearly all of the essential aspects of a clinical situation so that the situation may be more readily understood and managed when it occurs for real in clinical practice" (Hovancsek, 2007, p. 3).

Many of the research participants described that medication management principles and dosage calculation were evaluated by exams that could include multiple choice, fill-in-the-blank, multiple-select, and other types of cognitive testing techniques. AB said: "we do quizzes often in Adult Health I ... we do also exams we have multiple unit modules or unit exams and the final exam." When asked how medication management was evaluated in her courses, Janet said: "Quizzes and exams." "What I found the exam is more traditional. It's multiple choice ... true and false, sometimes fill in the blank" was Knight 1's contribution to the exam discussion. SJ concurred: "our exams, uh in lectures we give lecture exams, multiple choice questions. And situation and occasionally we put in a fill in the blank." WF also mentioned exams: "For that we

do multiple choice. I'm sorry, Chris, Yes. Yes just the dosage calculations we have fill in the blanks ...”

Evaluation of student learning related to medication management in clinical/simulation environments is more subjective than evaluation by written exam. AB described evaluating student medication management in the clinical setting this way:

... They do well because we are right there beside them and not going to allow them to make an error to intentionally harm a patient so ... clinically it's just satisfactory or unsatisfactory. But if I am a clinical instructor for our class but how I know that they are prepared they need to of course tell me the what the medication is, the purpose of the medication and more specifically why your patient is on it. Any type of nursing interventions prior to me administering this. I need to know certain lab work or certain vital signs....some of the drug-drug or drug-food interactions, the side effects. They have to be able to be verbalize that to me. If they know it's there med day and they don't have this information they get sent home. They are not prepared to pass meds.

Lee described a formative type of evaluation of her students following simulation exercises:

Debriefing we do go over it again and I ask a question. This is the situation, how will you handle it, how will you do it now. What did you do that was correct, what did you do that wasn't correct, what do you think how it went? So I do a debriefing, I do ask them, a student asks me and they are totally off. But they think they did wonderful. Even that

evaluation if I feel they didn't do well or they missed the important concepts we reiterate.

Louise also described debriefing after simulation exercises rather than actual individual student evaluation:

... we have a director with the sim lab that is very, very experienced at simulation and she has a number of tools ... that she utilized along with her staff to ... evaluate the students and they have a very thorough debriefing afterwards. Sometimes she videos them as well as they are going through the scenario and they play the video afterwards and discuss every part of it. We also have our clinical faculty involved with in those simulation experiences so they can give a clinical perspective...to the students and help them with the debriefing and that works very well.

LT speaks of formative evaluations in the clinical setting:

... it's a lot of formative evaluation. Do you give this medication correctly today? ... rather than a summative it's a long process ... a number of the courses have medication component in the clinical evaluation did the student was the student able to do it. And it's basically a satisfactory unsatisfactory. There's no grade as such. If there has been an unsatisfactory the student is expected to do repeat the experience to be able to have a satisfactory before the end of that particular course.

SH describes written reports of the clinical experience to demonstrate student knowledge of medication management this way: "We evaluate their learning when we

take them to clinical, looking at their databases and their database documentation. We have a medication section ... that talks about the actual MAR administration record.”

The themes of *Thinking, Practicing, and Evaluating* emerged from this analysis. This seemed appropriate since the original research questions were directed toward the lived experience of nursing faculty teaching nursing students to manage medications, how it was done, and how it was evaluated. The structural and textural contexts with which these themes were expressed through the voices of the individuals living these experiences added value to the understanding of the essence of the experience from their perspective. Each major theme had sub-themes as well. The theme *Thinking* has sub-themes of cognitive teaching and dosage calculation. Sub-themes for *Practicing* were focusing and improvising. Testing, dosage calculation and clinical/simulation were sub-themes for *Evaluating*. Each theme and sub-theme was strongly supported by quotes from the research participants.

Connection to Theory

Undoubtedly, the axiom “practice makes perfect” does hold true in many instances. Operationalizing that axiom can be a little more challenging. One method of operationalizing it is through motor learning theory (MLT) (Braungart et al., 2014). MLT has been being used successfully since the late 1960s in a variety of learning environments including healthcare and nursing in particular (Oermann, 2011; Ozturk, Caliskan, Baykara, Karadag, & Karabulut, 2015; Wulf, Shea, & Lewthwaite, 2010). The classic model of MLT has three phases: cognitive, associative, and autonomous. In the cognitive phase, learners identify a problem and begin to understand the ideas related to the problem. As learners become familiar with the problem and how to handle it, they

transition into the associative phase. Eventually, the learner should be able to master the performance of an activity and become autonomous at it, needing no further instruction or supervision. There are many strategies for helping learners achieve their goals using MLT (Braungart et al., 2014).

Chapter Summary

This chapter began with a brief description of the problem under investigation, namely the lived experience of nursing faculty teaching nursing students to manage medications. The research questions were restated. Methods for recruiting research participants and demographic data describing the research participants were reported. The process of data analysis was reported and findings of the study related to the themes of *Thinking, Practicing, and Evaluating* were elucidated using quotes from the research participants. The phases of motor learning theory—cognitive, associative, and autonomous—were discussed as possibly being applicable to the study themes and will be further explored in Chapter Five.

CHAPTER FIVE

DISCUSSION AND CONCLUSION OF THE INQUIRY

The purpose of this transcendental phenomenological study was to gain insight into the lived experience of nursing faculty teaching nursing students to manage medications. More specifically, the purpose of the study was threefold. The first goal was to identify educational strategies, techniques, and activities that are being implemented by nursing faculty members to teach nursing students to manage medications. The second goal was to identify how these educational strategies, techniques, and activities are being evaluated. The third goal was to gauge the effectiveness of these teaching methods for teaching nursing students to manage medications safely.

Exploration of the Meaning of the Study

The lived experience of nursing faculty teaching nursing students to manage medications is an important aspect of the prevention of medication errors that is missing from the nursing literature. This gap in the nursing literature piqued the researcher's interest because he had been engaged teaching nursing students to manage medication and had witnessed differences in the way medication management was performed in the clinical setting and the ways it was being taught in his school of nursing. After engaging in a long, reflective process of bracketing his own experiences, thoughts, and feeling regarding teaching nursing students to manage medication, the current phenomenological investigation was undertaken. The participants' own words supported the themes derived by the researcher to represent the essence of the lived experience of teaching nursing students to manage medication as it was experienced by the study participants.

There were many assumptions regarding the development of the scientific knowledge generated by this study that were associated with the constructivist paradigm. The major philosophical assumptions of qualitative research underpinning this study concerned ontological, epistemological, axiological, methodological, and rhetorical perspectives (Creswell, 2007; Polit & Beck, 2012). The first of those assumptions was that truth is not one absolute reality but rather a social construction that can have an infinite number of variations. The subjective nature of truth in the constructivist paradigm is based on the interpretation of the observer based on their understanding of reality in that particular time and context. This position on the subjectivity of truth addressed the ontological assumptions. The epistemological assumption in this qualitative study was that the researcher provided an emic view of reality based on the research participants' understanding of reality as it was viewed within the group being investigated. In that way, the researcher participated with the research participants in the field to elucidate the participants' understanding of reality. The axiological assumption concerned the values that the inquirer brought to the study. It spoke to the need for, and value of, the study, as there would have been no study if it is of no value. However, the inquirer acknowledged and openly discussed his biases so that personal biases and values were not advertently or inadvertently imposed on the meaning or results of the study.

The research design was emergent and strove to develop understanding of a complex phenomenon. The researcher was immersed in the data and meticulously conceptualized the details and context of the data. The rhetorical assumption demanded that the researcher write and report the study in the language and style of a qualitative study; in this instance, the researcher's focus was on understanding the nursing faculty's

lived experience of teaching nursing students to manage medications. By acknowledging the methodological assumption, the researcher believed that procurement of knowledge in qualitative research followed an inductive process.

From this investigation, the themes of *Thinking*, *Practicing*, and *Evaluating* emerged. This seemed appropriate since the original research questions were directed toward the lived experience of nursing faculty teaching nursing students to manage medications, how it was done, and how it was evaluated. However, the structural and textural contexts with which these themes were expressed through the words of the individuals living these experiences adds value to the understanding of the essence of the experience from their perspective.

Each major theme had sub-themes as well. The theme *Thinking* has sub-themes of cognitive teaching and dosage calculation. Sub-themes for *Practicing* were focusing and improvising. Testing, dosage calculation, and clinical/simulation were sub-themes for *Evaluating*. Each theme and sub-theme were strongly supported by the participants' voices.

Just as the constructivist paradigm in general posits that there are many ways to know things, there are many ways to establish the credibility of qualitative research. Lincoln and Guba (1985) use the term trustworthiness as a standard for establishing the credibility of qualitative research. For this study to be trustworthy, it must be credible, dependable, confirmable, transferable, and authentic (Lincoln & Guba, 1985).

Credibility was established through conducting the research using appropriate research methods and reporting the findings in a manner that demonstrates credibility to the reader. The reader should come away from reading the report with a feeling that the

findings do represent what the data indicated. This study demonstrates credibility by adhering to the methodology of transcendental phenomenology proposed by Moustakas (1994) and reporting the findings accurately.

Dependability is a function of the reproducibility of the study findings over time and is related to the study's credibility. By adhering to and reporting the methodological principles of transcendental phenomenology, this study should be able to be reproduced in the future, thus establishing its dependability.

Confirmability in qualitative research concerns the idea that people independent of the researcher can reach the same conclusions based on the data. Confirmability was achieved by reporting how the participants experienced the phenomena under investigation rather than the researcher's presuppositions and biases. In this study, confirmability was achieved by providing quotes from the research participants to describe the essence of the phenomenon for them. In addition, the researcher engaged in the transcendental epoche to acknowledge and bracket his presuppositions and biases in an effort to keep them out of the research findings.

Transferability is the degree to which one could apply the research findings to other groups in other situations. This was established by providing sufficient description of the data and research participants for one to make their own decision about the applicability of the findings to their particular situation (Lincoln & Guba, 1985). This study demonstrates its transferability through thick, rich textural and structural descriptions of the phenomena and the research participants while maintaining the participants' confidentiality. In addition, the transferability of this study was enhanced by recruiting a diverse sample of participants.

Authenticity relates to the degree to which the research findings report the full spectrum of the experience under investigation. This study exhibits authenticity by having collected data until data saturation had been achieved and then reporting the full richness of the experience using verbatim quotes of the research participants to exemplify the essence of the experience.

Interpretive Analysis of the Findings

Thinking

Novice nursing students must learn about many new concepts and skills. It is no surprise that forming cognitive representations of concepts and skills is one of the first things nursing faculty do to teach students new material. In fact, it appears the nursing faculty who participated in this study do a good job of engaging students in the cognitive understanding of how to manage medications. One widely accepted model of cognitive teaching includes nine steps:

- Gain the learner's attention (reception).
- Inform the learner of the objectives and expectations (expectancy).
- Stimulate the learner's recall of prior learning (retrieval).
- Present information (selective perception).
- Provide guidance to facilitate the learner's understanding (semantic encoding).
- Have the learner demonstrate the information or skill (responding).
- Give feedback to the learner (reinforcement).
- Assess the learner's performance (retrieval).
- Work to enhance retention and transfer through application and varied

practice (generalization). (Braungart et al., 2014, p. 75)

Many varied teaching approaches were described as being used to meet the varying learning needs of nursing students. Faculty descriptions of these cognitive teaching approaches demonstrate the theme *Thinking* and the sub-theme cognitive teaching. A prime example of innovative cognitive teaching was using “clickers” to engage students to participate in classroom activities. Audience-polling systems that allow nursing faculty to anonymously gauge aggregate learner understanding in a classroom are commonly referred to a “clickers” because some versions may utilize a separate answer pad called a clicker. Many audience-polling systems utilize web-based technology to turn any Internet access device into a potential virtual clicker input device.

Dosage calculation was an issue for all of the study participants. All study participants indicated their institution required all nursing students to pass dosage calculation exams at the beginning of each semester in order to progress in the program. However, the expected level achievement for success on these dosage calculation exams was not consistent between the study participants or in the literature. During her interview with regards to dosage calculation AB said: “... (if) they do not achieve 10 out of 10 or a 100 on the dosage cal they will be asked to sit out for the semester ...”. Responding to a researcher question about the expected level achievement for success on these dosage calculation exams, SJ responded: “... No 90. They can miss 1.” Likewise, in the nursing literature, some authors cite 90% as being adequate to success on high-stakes dosage calculation exams (Harris, Pittiglio, Newton, & Moore, 2014; Koharchik, Hardy, King, & Garibo, 2014) while others cite 100% as being the goal for success (Bourbonnais & Caswell, 2014; Roykenes & Larsen, 2010).

To further complicate this matter of dosage calculation is the issue of rounding mathematical answers. The idea of rounding up from 0.5 and down from 0.49 is not in dispute; rather, the number of places after the decimal point to include in the answer varies from product to product and from person to person. While having all answers round to the tenths decimal place (one place after the decimal) can be an easy policy to uphold, it belies the simple concepts of fractions like $\frac{1}{3}$, $\frac{1}{4}$, & $\frac{3}{4}$. One-third does equal 0.33 but, rounded to one decimal, the correct answer would be 0.3. Likewise, one-quarter does equal 0.25 but, rounded to one decimal the correct answer would be 0.3. The logic that one-third equals one-quarter is not correct. In addition, rounding to one decimal for the mathematic answer of three-quarters would be 0.8, which is also mathematically incorrect. The researcher was unable to find any national standard or recommendations regarding best practices for high stakes dosage calculation in nursing school.

Practicing

The research participants in described a need for more practice and making that practice more like medication management in the clinical setting. In fact, when it came to actual clinical practice there were several faculty members who stated that students could not administer medications on their clinical unit. A third of the nursing faculty members interviewed were not allowed to have their students administer medications in the clinical setting. That is not to say that the faculty members did not teach medication management in the absence of actual medication administration. Other cognitive methods were used in the clinical setting to teach the broader concepts of medication management, including medication administration. As described by the research

participants, the amount of practice in both the clinical setting and the simulation laboratory was insufficient to prepare students to manage medications safely and efficiently immediately upon graduation from nursing school. Other research also indicates that regular practice improves students' basic nursing skills (Ozturk et al. , 2015).

The sub-themes of focusing and improvising that accompany the *Practicing* theme highlight potential areas of improvement in teaching nursing students to manage medications. Research participants frequently described medication management as a component of broader patient care scenarios. In many of these patient care scenarios, the means for performing medication management, as it is carried out in the clinical setting, were unavailable so nursing faculty were forced to improvise many aspects of the simulated experience. This breakdown in the realistic fidelity of the simulation may interfere with transferring medication management skills learned in the clinical laboratory to the skills necessary in the real-world clinical setting. Clinical instructors are instrumental in focusing students' thoughts and enabling students to perform medication management activities in the clinical setting (Valdez, de Guzman, & Escolar-Chua, 2013). Cummings (2015) also described the need incorporate more focused medication management practice into clinical simulation. More than half (54%) of the students who participated in an objective structured clinical examination simulation exercise committed medication management errors (Cummings, 2015).

Improvising processes in the skills lab setting was commonly associated with managing medications in the clinical setting and was widely discussed by the research participants. In many instances, technology has advanced more rapidly in the clinical

setting than in the skills lab setting. The ever-increasing use of technology in nurses' medication management practice has been shown to interfere with nursing students' ability to manage medication in the clinical setting (Orbaek, Gaard, Fabricius, Lefevre, & Moller, 2015). Automated medication-dispensing systems, commonly known by the brand name Pyxis, and the barcode tracking systems for both patients and medications were unavailable in any of the nursing skills labs. To have a better chance for nurses to be proficient, safe, and effective at managing medications when they complete nursing school, it appears that students may benefit from more practice that focuses on the cognitive and psychomotor aspects of medication management, in conjunction with equipment that more realistically represents the actual clinical setting (Bourbonnais & Caswell, 2014). Ferguson, Delaney, and Hardy (2014) found that implementing the use of an automated medication-dispensing system in their clinical simulations increased their students' confidence at medication administration and could contribute to decreasing medication management errors. Unfortunately, Ferguson et al. (2014) also identified the financial burden and large amount faculty time required to implement realistic simulations as barriers to improving simulation fidelity.

Evaluating

The research participants appeared to do an excellent job of evaluating the cognitive learning of nursing students related to medication management. Many of the research participants described that medication management principles and dosage calculation were evaluated by exams that could include multiple choice, fill-in-the-blank, multiple-select, and other types of cognitive testing techniques. Evaluation of student learning related to medication management in clinical/simulation environments was more

subjective than evaluation by written exam. The “subjective and idiosyncratic” nature of clinical evaluation based on the discretion of the clinical instructor has also been noted by Cummings (2015). Medication management is a complicated, multi-factorial process for experienced nurses. The complicated nature of managing medications requires that learning gains be evaluated relative to the learner’s knowledge and skills prior to engaging in the teaching/learning process. All learners do not necessarily learn the same things at the same time. Even still, many of the methods described by the research participants used to evaluate student knowledge of medication management in the clinical/simulation environment actually measured cognitive knowledge far more than psychomotor dexterity.

One way to evaluate students’ medication management skill is through the use of objective structured clinical examination (OSCE) (Cummings, 2015; Meechan et al., 2011a; Raurell-Torreda, et al., 2015). OSCE offers the opportunity to observe nursing students in a controlled environment on an individual basis. The students cannot rely on their classmates or instructors to identify and correct potential errors. Engaging students in individual OSCE could be used to identify knowledge and/or psychomotor deficits in the students’ nursing education. In addition, OSCE offers the opportunity for researchers to accurately measure students’ performance in predetermined clinical situations. In this way, OSCE could be extremely useful in determining the efficacy of various methods of teaching medication management.

Including realistic dosage calculation exercises as part of clinical simulation could help students develop improved dosage calculation skills (Harris et al., 2014; Koharchik et al., 2014; Weeks, Higginson, Clochesy, & Coben, 2012). Focusing on dosage

calculation during clinical simulation helps students make links to the cognitive knowledge they receive in other phases of their nursing education. These links may help students better understand the dosage calculation questions they are being asked on more cognitive exercises like exams and quizzes (Harris et al., 2014; Koharchik et al., 2014; Weeks et al., 2013). This idea blends nicely with the themes of *Thinking* and *Practicing*, as well as the sub-themes of focusing and dosage calculation that emerged from this study.

Motor Learning Theory

Undoubtedly, the axiom “practice makes perfect” does hold true in many instances. Operationalizing that axiom can be a little more challenging. One method of operationalizing it is through motor learning theory (MLT) (Braungart et al., 2014). MLT has been being used successfully since the late 1960s in a variety of learning environments including healthcare and nursing in particular (Oermann, 2011; Ozturk et al., 2015; Wulf et al., 2010). The classic model of MLT has three phases: cognitive, associative, and autonomous. In the cognitive phase, learners identify a problem and begin to understand the ideas related to the problem. As learners become familiar with the problem and how to handle it, they transition into the associative phase. Eventually, the learner should be able to master the performance of an activity and become autonomous at it, needing no further instruction or supervision. There are many strategies for helping learners achieve their goals using MLT (Braungart et al., 2014).

Almost by definition, novice learners do not know much about what it is they are trying to learn. The learner could be completely naïve of the situation or could have some knowledge of the situation in one learning domain and not another (Bastable & Alt,

2014). For instance, an individual could have an exceptional cognitive knowledge of the physics of the game of golf but lack the manual dexterity to deliver the golf shot he or she can conceptualize in the mind or with a computer. Affectively, this individual's feelings regarding the game of golf remain a mystery unless he or she chooses to reveal them.

Motor learning theory (MLT) can serve as a framework to engage the cognitive, psychomotor, and affective learning domains to help learners achieve their learning objectives (Braungart et al., 2014; Fitts & Posner, 1967). Many novel situations are associated with nurses managing medications that require the nurse to engage all three learning domains. These activities could include things like managing intravenous pumps, reconstituting powdered medications, withdrawing medications using a syringe, or administering crushed oral medications through a feeding tube (Oermann, 2011).

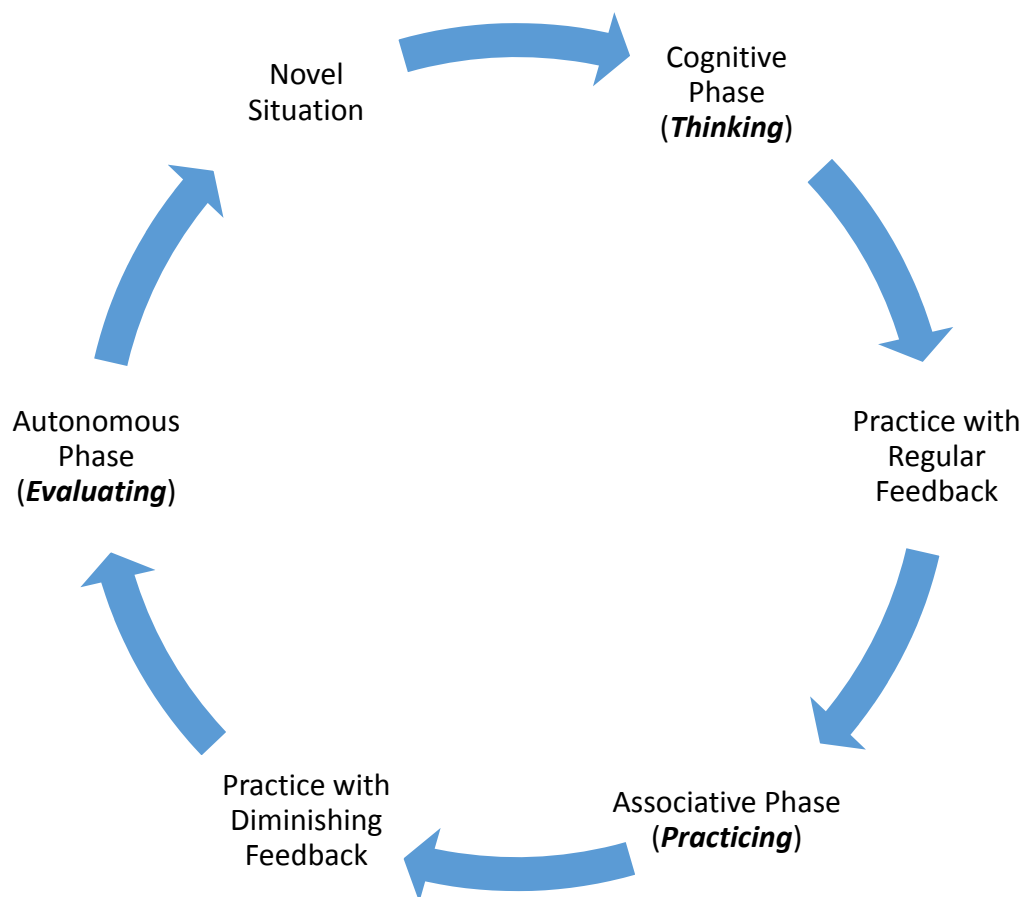


Figure 2. Lorentz (2015) adaptation of Fitts and Posner's (1967) motor learning theory.



Figure 3. The PDSA model of quality improvement (Copyright by The W. Edwards Deming Institute, 2015).

When viewed as an iterative cycle, MLT can easily be compared to Deming's Plan – Do – Study – Act (PDSA) model of quality improvement (The W. Edwards Deming Institute, 2015). The PDSA model is also similar to the scientific method and the nursing process in that one must formulate a plan (Plan), implement that plan (Do), evaluate the intervention (Study), and make changes based on the outcome of the previous endeavor (Act). By engaging in the process continually, quality improves continually. It stands to reason that if an individual continually engages in the stages of MLT, then his or her motor learning should continually improve.

In the cognitive phase of the MLT, the learner develops mental schema to begin to understand the problem at hand (Braungart et al., 2014). The cognitive phase of MLT fits nicely with the themes of *Thinking* and *Evaluating* described by the research participants. The cognitive teaching methods employed by the nursing faculty in the study to teach nursing students to manage medications were completely consistent with MLT. The research participants also evaluated these cognitive teaching strategies with written exams utilizing multiple types of question styles. Demonstrating cognitive knowledge of medication management is a crucial component of mastering the overall medication management process. The nursing faculty who participated in the research study appear to be doing an excellent job of teaching nursing students the cognitive components of medication management. Unfortunately, knowing about medication management is insufficient to practice medication management. It is in this practice during the associative phase of MLT where teaching medication management to nursing students gets bogged down.

Practice and feedback are integral to the associative phase of MLT (Braungart et al., 2014; Wulf et al., 2010). The research participants in this study describe practicing medication management in the simulation setting and the actual clinical setting. However the amount of time each individual student spent on the psychomotor aspects of medication management was limited to say the least. Part of the goal of MLT is for the learner to be able to perform different tasks simultaneously and in changeable environments (Braungart et al., 2014). The descriptions by the research participants related to progressive levels of difficulty in medication management seem to indicate that over the course of their programs their teaching of medication management begins to

address performing multiple tasks in changing environments. However, it never accomplishes the goal of getting students prepared at a level to be proficient, safe, and effective at managing medications upon graduation from nursing school. This claim is also supported by the common hospital practice of enculturating new graduate nurses with preceptors for varying lengths of time. As part of this enculturation, the preceptor provides whatever additional education and support, including related to medication management, that the new nurse needs to achieve what MLT would call autonomy.

In this study, students were given frequent, direct, immediate feedback from clinical faculty and staff preceptors when engaging in medication management activities. The level of supervision required for nursing students to manage medications in the clinical setting can be considered a double-edged sword. On one hand, considering the potential for adverse outcomes due to nursing students' naiveté at managing medications the supervision is vital for patient safety. On the other hand, part of the goal of autonomy as presented in MLT requires learners to be weaned from feedback for the goal to have been achieved (Braungart et al., 2014; Wulf et al., 2010).

This does not appear to be happening as described by the research participants. AB stated: "As far as clinicals, we don't not allow our students to pass medication without an instructor." Lee concurred that medication management in the clinical setting was supervised: "... the first time they have to do with it me. And if I feel comfortable they can do it with a preceptor. That's the process we have established." Louise agreed: "... they don't give any medications unless the instructor is with them and the instructor is giving the medications with the student nurse." SJ also agreed: "... in the hospital we have a clinical instructor that accompanies the student to give the medication ...". To

have a better chance for nurses to be proficient, safe, and effective at managing medications when they complete nursing school, it appears that students may benefit from more practice that focuses on the cognitive and psychomotor aspects of medication management, in conjunction with equipment that more realistically represents the actual clinical setting (Bourbonnais & Caswell, 2014; Cummings, 2015; Weeks et al., 2013). Students should be able to practice performing multiple tasks in changing environments with feedback diminishing as proficiency increases.

The goal for MLT is to facilitate learners to achieve some level of autonomy. In this sense, the learner must be able to perform different tasks simultaneously and in changeable environments (Braungart et al., 2014). The autonomous stage of motor learning allows the learner to engage in progressively more challenging activities, retaining the skills previously developed and learning new skills to address new needs. Autonomy in nursing can be somewhat of a misnomer. Rarely is a nurse, or a doctor, or other health care practitioner truly autonomous. Health care is a system with all of the inherent interconnectedness in what it means to be a global health care system in the 21st century. Perhaps for nurses managing medications a goal of interdependence could be more beneficial than true autonomy.

Implications/Significance of the Study for Nursing Knowledge

This study provides significant information related to nursing education, nursing practice, nursing research, and health care/public policy. Understanding how nursing faculty are currently teaching students to manage medications could be used to help develop improved methods of teaching nursing students how to safely manage medications. Developing improved methods of teaching nursing students how to safely

manage medications could lead to improved patient safety in health care practice settings as evidenced by a potential reduction in medication administration errors. Investigating how nursing faculty are teaching students to manage medications will bolster the research needed to make evidenced-based decisions regarding how best to educate nursing students to safely manage medications. If improved methods of teaching nursing students how to safely manage medications leads to improved patient safety, then it could logically follow that those improved methods of teaching medication management could be used to direct policy related to medication management education. The main significance of this study is its potential to help healthcare practitioners improve patient safety and, from that perspective, impact nursing research, education, practice, and policy. The knowledge gained from understanding the essence of the lived experience of nursing faculty teaching nursing students to manage medications advances the science of nursing overall and nursing education in particular.

Implications for Education

The nursing profession requires researchers to make evidence-based decisions regarding how to improve the profession. There is little evidence to support curricular decisions associated with medication management education in nursing. Investigating how nursing faculty are teaching students to manage medications helps provide a foundation that can be used to identify gaps between current medications management education and current medication management practices being utilized in the clinical setting. In this study, the use of technology in the clinical setting that has not yet been incorporated into the educational setting was identified as a limiting factor in preparing nursing students to be ready to safely manage medication upon graduation from nursing

schools. In addition, using more realistic teaching settings could also be used to reeducate practicing nurses to better utilize available technology to help prevent medication management errors.

Implication for Practice

Medication management is an evolving process. The increased emphasis on patient safety and increasing use of technology in medications management appears to have led to gaps between how nursing students are being taught to manage medication and the way nurses are managing medications in the clinical setting. Before any differences between how nursing students are being taught and how nurses are actually practicing can be bridged, it is necessary to understand how those students are actually being taught. This study could help nurse educators better prepare nursing students for practice by providing educators with evidence to support implementing teaching strategies to prepare nursing students to manage medications in the modern health care setting. The results of this study indicate that increased practice managing medications in more realistic laboratory settings could be improve nursing students' readiness to practice immediately upon graduation and help reduce the incidence of medication errors as they progress through their career.

Implications for Research

It is difficult for nurse educators to decide what direction nursing education should take to best prepare students for a future in nursing without understanding where that educational process is currently in relation to actual nursing practice. Investigating how nursing faculty are teaching students to manage medications adds to the foundational

evidence that could be used to determine what nursing students are, and are not, being taught to enable them to manage medication in the clinical setting.

Implications for Health/Public Policy

Establishing differences between nursing education and nursing practice related to medication management could be used to inform policy related to best practices for teaching nursing students how to manage medications. Schools of nursing, hospital-based nursing education departments, and state Boards of Nursing could use the knowledge generated from this study to help them create or amend policies for best practices to teach nursing students and practicing registered nurses how to manage medications.

The Florida Nurse Practice Act (2015) states that the nursing programs in Florida may provide up to 50% of their clinical experience through simulation. Programs utilizing 50% clinical simulation in lieu of traditional hospital clinical have been shown to be as effective as programs requiring 90% hospital clinical at meeting the end of program outcomes of passing the NCLEX licensure exam and preparing graduate nurse to be ready to practice (Hayden, Smiley, Alexander, Kardong-Edgren, & Jefferies, 2014). This increased emphasis on simulation will require close scrutiny as to how simulation is conducted to achieve the outcomes previously observed (Hayden et al., 2014). The best practice for teaching nursing students to manage medications is a crucial element that needs to be included in discussions related to increasing the utilization of clinical simulation. This study can contribute valuable information about incorporating medication management into clinical simulation.

Strengths and Limitations

The scope of this study extends to the lived experience of nursing faculty teaching nursing students to manage medications in Florida. One strength of this study can be found in its trustworthiness as describe by Lincoln and Guba (1985). Another strength is the use of the participants' voices to support the themes that emerged from the analysis of the data. A limitation of this study is the lack of generalizability related to the use of phenomenological research methods and small sample size. This limitation also relates to the transferability of study results to similar populations in similar circumstances. Though all of the participants were female, the sample of participants does represent a diversity of years of experience, ages, races, and highest degrees earned. Another limitation is the fact that the researcher himself was the research instrument. Human beings are not perfect instruments for research. The researcher attempted to mitigate this limitation by bracketing his biases and experience prior to beginning the research.

Recommendations for Future Study

More research is needed to better understand the efficacy of various methods of teaching nursing students to manage medications. High-fidelity human simulation appears to be effective at improving students' psychomotor skills (Lee & Oh, 2015). High-fidelity simulation has also been shown to be an effective tool for assessing students' clinical skills (Hayden et al., 2014; Rizzolo, Kardong-Edgren, Oermann, & Jeffries, 2015). However, the financial and human resources costs associated with it use can be prohibitive (Ferguson et al., 2014). A potential way to reduce those costs could be through the use of computer-based virtual simulations. The idea of mental practice has also been shown to improve students' psychomotor performance (Braungart et al., 2014;

Wulf et al., 2010). Virtual simulations can allow students to practice more frequently and on their own schedule. Using objective structured clinical examinations to evaluate the effectiveness of these various methods of teaching and comparing them to existing teaching methods could be useful in determining best practices for teaching nursing students to manage medications. OSCE has the added benefit of evaluating students' clinical skill in the psychomotor domain rather than the cognitive domain.

It is not enough for students to simply know about medication management; they must also be able to safely perform medication management skills. Studying how including realistic dosage calculation exercises in high-fidelity and virtual simulations could be beneficial in improving students' dosage calculation ability, but this too needs further investigation. The lack of continuity between nursing programs with regard to the level of success required to demonstrate dosage calculation proficiency combined with irregularities in rules for rounding fractions would benefit from more robust discussion on a national level to come to some sort of consensus and recommendations that can be implemented across all nursing programs to help standardize dosage calculation policies.

Conclusion

The nursing faculty members who participated in this study described how they do an effective job of teaching nursing students the cognitive aspects of medication management. From their interviews, there does appear to be a need for students to get more practice managing medications. This could be done in a clinic laboratory setting as long as that laboratory setting reflects the realities of the modern hospital clinical setting is as much as the incorporation of technology into medication management appears to be lacking in the academic setting. Incorporating realistic, case-based dosage calculation

exercises into students' medication management education could help bridge the gap between conceptual knowledge and actual hands-on application of that knowledge. Motor learning theory could serve as a framework to support students' transition from cognitive understanding of medication management to being able to safely and autonomously manage medications as registered nurses. Future research to evaluate the efficacy of various methods of teaching nursing students to manage medications could lead to evidence-based recommendations regarding best practices for teaching nursing students to manage medications.

REFERENCES

- Agency for Healthcare Research and Quality. (1998). *President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry*. Retrieved from <http://archive.ahrq.gov/hcqual/final/>
- Bastable, S. B., & Alt, M. F. (2014). Behavioral objectives. In S. B. Bastable (Ed.), *Nurse as educator: Principles for teaching and learning for nursing practice* (4th ed.) (pp. 423-468), Burlington, MA: Jones & Bartlett Learning.
- Benner, P. (2001). *From novice to expert: Excellence and power in clinical nursing practice*. Upper Saddle River, NJ: Prentice Hall Health.
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Bourbonnais, F. F., & Caswell, W. (2014). Teaching successful medication administration today: More than just knowing your "rights." *Nurse Education in Practice, 14*(4), 391-395. <http://dx.doi.org.resourc.adu.edu/10.1016/j.nepr.2014.03.003>
- Braungart, M. M., Braungart, R. G., & Gramet, P. R. (2014). Applying learning theories to healthcare practice. In S. B. Bastable (Ed.), *Nurse as educator: Principles for teaching and learning for nursing practice* (4th ed.) (pp. 63-110), Burlington, MA: Jones & Bartlett Learning.
- Brewer, E. P. (2011). Successful techniques for using human patient simulators in nursing education. *Journal of Nursing Scholarship, 45*(3), 311-317.

- Collins, A. S., Graves, B. A., Gullette, D., & Edwards, R. (2010). Developing an interactive microsimulation method in pharmacology. *Journal of Nursing Education, 49*(7), 410-413.
- Creswell, J. W. (2007). *Qualitative inquiry & research design*. Thousand Oaks, CA: Sage.
- Crimlisk, J. T., Johnstone, D. J., & Sanchez, G. M. (2009). Evidence-based practice, clinical workshop, and intravenous medications: Moving toward safer practice. *MEDSURG Nursing, 18*(3), 153-160.
- Crotty, M. (1998). *The foundation of social research*. Thousand Oakes, CA: Sage.
- Cumming, C. L. (2015). Evaluating clinical simulation. *Nursing Forum, 50*(2), 109-115.
doi: 10.1111/nuf.12075
- Ferguson, A., Delaney, B., & Hardy, G. (2014). Teaching medication administration through innovative simulation. *Teaching and Learning in Nursing, 9*(2), 64-68.
doi:10.1016/j.teln.2013.12.004
- Finkelman, A., & Kenner, C. (2012). *Teaching IOM: Implications of the Institute of Medicine reports for nursing education*. Silver Springs, MD: American Nurses Association.
- Fitts, P. M., & Posner, M. I. (1967). *Human performance*. Belmont, CA: Brooks/Cole.
- Florida Nurse Practice Act. (2015). Fla. Stat. § 464.019(1)(c). Retrieved from <http://floridasnursing.gov/resources/>
- Harding, L., & Petrick, T. (2008). Nursing student medication errors: A retrospective review. *Journal of Nursing Education, 47*(1), 43-47.

- Harris, M. A., Pittiglio, L., Newton, S. E., & Moore, G. (2014). Using simulation to improve medication administration skills of undergraduate nursing students. *Nursing Education Perspectives, 35*(1), 26-29. doi: 10.5480/11-552.1
- Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jefferies, P. R. (2014). The NCSBN simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2), 83-S64.
- Husserl, E. (1913). *Logical investigations: Volume 1* (J. N. Findlay, Trans., 1970). New York, NY: Routledge.
- Institute of Medicine. (2000). *To err is human: Building a safer health system*. Washington, DC: The National Academies Press.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: The National Academies Press.
- Institute of Medicine. (2003). *Priority areas for national action: Transforming health care quality*. Washington, DC: The National Academies Press.
- Institute of Medicine. (2007). *Preventing medication errors: Quality chasm series*. Washington, DC: The National Academies Press.
- Koharchik, L., Hardy, E., King, M., & Garibo, Y. (2014). Evidence-based approach to improve nursing student dosage calculation proficiency. *Teaching and Learning in Nursing, 9*(2), 69-74. doi:10.1016/j.teln.2013.12.003
- Koohestani, H. R., & Baghcheghi, N. (2009). Barriers to the reporting of medication administration errors among nursing students. *Australian Journal of Advanced Nursing, 27*(1), 66-74.

- Krautscheid, L. C., Orton, V. J., Chorpenning, L., & Ryerson, R. (2011). Student nurse perceptions of effective medication administration. *International Journal of Nursing Scholarship*, 8(1), article 7.
- Lee, J., & Oh, P. (2015) Effects of the use of high-fidelity human simulation in nursing education: A meta-analysis. *Journal of Nursing Education*, 54(9), 501-513. doi: 10.1111/j.1466-7657.2011.00964.x
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Meechan, R., Jones, H., & Valler-Jones, T. (2011). Do medicines OSCEs improve drug administration ability? *British Journal of Nursing*, 20(3), 817-822.
- Meechan, R., Mason, R., & Catling, J. (2011). The impact of an integrated pharmacology and medicines management curriculum for undergraduate adult nursing students on the acquisition of applied drug/pharmacology knowledge. *Nurse Education Today*, 31, 383-389.
- Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual causes of death in the United States, 2000. *Journal of the American Medical Association*, 291(10), 1238-1245. doi:10.1001/jama.291.10.1238
- Moran, D. (2001). Introduction. In E. Husserl, *Logical investigations: Volume 1* (J. N. Findlay, Trans., 1970) (pp. xxi-lxxii). New York, NY: Routledge.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oakes, CA: Sage.
- Oermann, M. H. (2011). Toward evidence-based nursing education: Deliberate practice and motor skill learning. *Journal of Nursing Education*, 50(2), 63-64.
- Orbaek, J., Gaard, M., Fabricius, P., Lefevre, R. S., & Moller, T. (2015). Patient safety and technology-driven medication – A qualitative study on how graduate nursing

- students navigate through complex medication administration. *Nurse Education in Practice*, 15(3), 203-211. doi:<http://dx.doi.org/10.1016/j.nepr.2014.11.015>
- Ozturk, D., Caliskan, N., Baykara, Karadag, Z. G., & Karabulut, H. (2015). Determining the effect of periodic training on the basic psychomotor skills of nursing students. *Nursing Education Today*, 35, 402-407.
- Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice*. Philadelphia, PA: Wolters Kluwer / Lippincott, Williams, & Wilkins.
- Raurell-Torreda, M., Olivet-Pujol, J., Romero-Collado, A., Malagon-Aguilera, M. C., Patino-Maso, J., & Baltasar-Bague, A. (2015). Case-based learning and simulation: Useful tools to enhance nurses' education? Nonrandomized controlled trials. *Journal of Nursing Scholarship*, 47(1), 34-42. doi: 10.1111/jnu.12113
- Reid-Searl, K., Moxham, L., & Happell, B. (2010). Enhancing patient safety: The importance of direct supervision for avoiding medication errors and near misses by undergraduate nursing students. *International Journal of Nursing Practice*, 16, 225-232.
- Reid-Searl, K., Moxham, L., Walker, S., & Happell, B. (2008). Shifting supervision: Implication for safe administration of medication by nursing students. *Journal of Clinical Nursing*, 17, 2750-2757.
- Rizzolo, M. A., Kardong-Edgren, S., Oermann, M. H., & Jeffries, P. (2015). The National League for Nursing project to explore the use of simulation for high-stakes assessment: Process, outcomes, and recommendations. *Nursing Education Perspectives*, 36(5), 299-303. doi: 10.5480/15-1639

- Roykenes, K., & Larsen, T. (2010). The relationship between nursing students' mathematics ability and their performance in a drug calculation test. *Nurse Education Today, 30*(7), 697-701. doi:10.1016/j.nedt.2010.01.009
- Saintsing, D., Gibson, L. M., Pennington, A. W. (2011). The novice nurse and clinical decision-making: How to avoid errors. *Journal of Nursing Management, 19*, 354-359.
- Sears, K., Goldsworthy, S., & Goodman, W. M. (2010). The relationship between simulation and nursing education and medication safety. *Journal of Nursing Education, 49*(1), 52-55.
- U.S. Department of Health and Human Services, National Institute of Health. (2011). *Protecting human research participants*. Retrieved from <https://phrp.nihtraining.com/index.php>
- Valdez, L. P. M., de Guzman, A. B., & Escolar-Chua, R. L. (2014). Every move counts in learning: Filipino clinical instructors' scaffolding behaviors in teaching medication administration. *Nurse Education Today, 33*(10), 1214-1218. doi:10.1016/j.nedt.2012.06.011
- The W. Edwards Deming Institute. (2015). *The PDSA cycle*. Retrieved from <https://www.deming.org/theman/theories/pdsacycle>
- Weeks, K. W., Higginson, R., Clochesy, J. M., & Coben, D. (2012). Safety in numbers 7: veni, vidi, duci: A grounded theory evaluation of nursing students' medication dosage calculation problem-solving schemata construction. *Nurse Education in Practice, 13*(2), e78-e87. doi:http://dx.doi.org/10.1016/j.nepr.2012.10.014

- Wolf, Z. R., Hicks, R., & Serembus, J. F. (2006). Characteristics of medication errors by students during the administration phase: A descriptive study. *Journal of Professional Nursing, 22*(1), 39-51.
- Wulf, G., Shea, C., & Lewthwaite, R. (2010). Motor skill learning and performance: A review of influential factors. *Medical Education, 44*, 75-84.
- Worral, P. S. (2014). Evaluation in healthcare education. In S. B. Bastable (Ed.), *Nurse as educator: Principles for teaching and learning for nursing practice* (4th ed.) (pp. 601-636), Burlington, MA: Jones & Bartlett Learning.

APPENDIX A
IRB APPROVAL LETTERS



11300 NE Second Avenue
Miami Shores, FL 33161-6695
phone 305-899-3020
800-756-6000, ext. 3020
fax 305-899-3026
www.barry.edu

OFFICE OF THE PROVOST
INSTITUTIONAL REVIEW BOARD

Research with Human Subjects
Protocol Review

Date: October 1, 2014

Protocol Number: 140912

Title: The Lived Experience of Nursing Faculty Teaching Nursing Students to Manage Medications

Meeting Date: September 17, 2014,

Researcher Name: Mr. Brian Chris Lorentz
Address: [REDACTED]

Sponsor: Dr. Jessie Colin
College of Health Sciences, Division of Nursing

Dear Mr. Lorentz

On behalf of the Barry University Institutional Review Board (IRB), I have verified that the specific changes requested by the convened IRB on September 17, 2014 have been made.

It is the IRB's judgment that the rights and welfare of the individuals who may be asked to participate in this study will be respected; that the proposed research, including the process of obtaining informed consent, will be conducted in a manner consistent with requirements and that the potential benefits to participants and to others warrant the risks participants may choose to incur. You may therefore proceed with data collection.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events

include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on October 8, 2015. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date. The IRB will request a progress report from you approximately three months before the anniversary date of your current approval.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at [REDACTED] or send an e-mail to [REDACTED]. Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,



Linda Bacheller, Psy.D., J.D.
Chair, Institutional Review Board
Barry University
Box Psychology
[REDACTED]

Cc: Dr Jessie Colin

Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.



Institutional Review Board
671 Winyah Drive
Orlando, FL 32803
(407) 303-5619 T
(407) 303-5671 F

Date: November 25, 2014
To: Chris Lorentz
From: Len M. Archer

Project Title: The Lived Experience of Nursing Faculty Teaching Nursing Students to Manage Medications
Category: Educational

The Institutional Review Board of Adventist University has reviewed the above titled project and has determined that the proposed study is granted an Expedited approval. The study is not determined to be greater than minimum risk as defined by 45 CFR 46.101 (b)(1). The Principal Investigator accepts responsibility to comply with all Federal, State and University policies regarding the rights and welfare of human subjects. If you wish to change the protocol of your research study, you must submit subsequent changes for review. The proposal will be reviewed by a full sitting of the IRB at a later date.

- Approved as submitted
 Expedited
 Exempt
 Additional IRB Review Required [one year later].
 Denied

Comments/Recommendations:

If you have any further questions, please contact Dr. Len Archer at [REDACTED]

Sincerely

Len M. Archer, PhD
Chair, Institutional Review Board

IRB# [00077ADU]

Submission Date: [11/03/2014]

Status: [Approved]

Date of approval: 11/23/2014

- New Submission
 Resubmission
 Multicenter Study

APPENDIX B

INFORMED CONSENT FORM

Approved by Barry University IRB :

Date :

OCT -2 2014

Signature :

Ante L. Lella, PhD, JD

Institutional Review Board
Protocol Form
Sept., 2014 6

Appendix B

Barry University Informed Consent Form

Your participation in a research project is requested. The title of the study is "The Lived Experience of Nursing Faculty Teaching Nursing Students to Manage Medications". The research is being conducted by B. Chris Lorentz, a student in the nursing department at Barry University, and is seeking information that will be useful in the field of nursing. The aim of the research is to understand the lived experience of nursing faculty teaching nursing students to manage medications. In accordance with this aim, the following procedures will be used: audio recorded interviews that will be transcribed and analyzed. We anticipate the number of participants to be less than 20.

If you decide to participate in this research, you will be asked to do the following: participate in an interview lasting approximately one hour and later review transcripts of the interview for accuracy. The member check for review of transcripts should take approximately thirty minutes.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects on your employment or personal life. You may refuse to answer any question and have the recording stopped at any time. There are no known risks in this study and there will be no adverse effects from this study. There are no direct benefits to you.

As a research participant, information you provide will be held in confidence to the extent permitted by law. Any published results of the research will refer to group aggregates of the data and no names will be used in the study. Data, including audio recordings and their transcripts, will be kept in a locked file in the researcher's office. Your signed consent form will be kept separate from the data. Audio recordings will be destroyed after transcription and member checks. The data will be kept for a minimum of five years and indefinitely after that.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, B. Chris Lorentz, at [REDACTED] my supervisor, Dr. Jessie Colin, at [REDACTED] or the Institutional Review Board point of contact, Barbara Cook, at [REDACTED]. If you are satisfied with the information provided and are willing to participate in this research, please signify your consent by signing this consent form and returning it to the researcher either in person or at [REDACTED].

Voluntary Consent

I acknowledge that I have been informed of the nature and purposes of this experiment by B. Chris Lorentz and that I have read and understand the information presented above, and that I have received a copy of this form for my records. I give my voluntary consent to participate in this experiment.

Signature of Participant

Date

Researcher

Date

Witness

Date

(Witness signature is required only if research involves pregnant women, children, other vulnerable populations, or if more than minimal risk is present.)

APPENDIX C

August 9, 2014

Mr. B. Chris Lorentz, MSN, RN
Barry University
Doctoral Student

[REDACTED]

To Whom It May Concern,
Chair/Director

[REDACTED]

Dr. Concern,

I am a doctoral student conducting a phenomenological investigation into the lived experience of nursing faculty teaching pre-licensure nursing students to manage medications. I would be very grateful if you and/or any of your faculty members who have experience with teaching nursing students to manage medications would consent to be interviewed for my research. My contact information is available above and on the attached flyer. Feel free to share the flyer with anyone you feel may be interested in participating in my study.

Thank you for any assistance you may provide to help me advance my degree and contribute to the body of nursing research.

Respectfully,

Mr. B. Chris Lorentz, MSN, RN
Barry University
Doctoral Student

APPENDIX D

FLYER

The Lived Experience of Nursing Faculty Teaching Nursing Students to Manage Medications



Are you a nursing faculty member who teaches nursing students to manage medications?



I would like your input to help understand the essence of teaching nursing students to manage medications.

Your information will be kept confidential.

What to expect?

- You will be asked to participate in 2 interviews. The first interview will be an approximately 1 hour long, face-to-face, audio-taped interview that will be transcribed.
- The second interview will be approximately a half-hour long. You will confirm that the transcripts are correct, and answer any questions the researcher may have either in person or telephonically.
- The total time will be 1.5 hours.
- A maximum of 20 volunteers are needed.

Would you like to participate?

Please contact Mr. B. Chris Lorentz, [REDACTED] or email [REDACTED]

Faculty advisor Dr. Jessie Colin PhD, RN, FAAN may be contacted at [REDACTED] or email [REDACTED] Institutional Review Board point of contact Barbra Cook may be contacted at 305-899-3020 or email [REDACTED]

APPENDIX E
INTERVIEW QUESTIONS

1. What is the lived experience of nursing faculty teaching nursing students to manage medications?

How are you teaching nursing students to manage medication?

2. What educational strategies, techniques, and activities are being implemented by nursing faculty members to teach nursing students to manage medications?

What educational strategies, techniques, and activities are you using to teach students to manage medications?

Technology

Simulation - level of fidelity/realism?

Embedded errors, distractions

Computer-based programs, Pyxis, Bar-code scanner, Electronic Medical

Records

Tradition

Books, PowerPoint, paper MARs, med drawers,

3. How are the educational strategies, techniques, and activities that are being implemented by nursing faculty members to teach nursing students to manage medications being evaluated?

How do you know how effective your teaching strategies are?

Tests/Evaluations

Dosage Calculation

Check lists for simulation evaluation

Pharmacology

Medication error reports

APPENDIX F**DEMOGRAPHIC DATA COLLECTION SHEET**

- 1) I choose not to supply this information: _____
- 2) Nursing Faculty Position:
Full-Time _____ Part-Time _____ Didactic _____ Clinical/Lab

- 3) Type of RN Program:
ASN _____ Generic BSN _____ Other Program (specify) _____
- 4) Years as Nursing Faculty: _____
- 5) Experience with RN Student Medication Errors: Yes _____ No _____
- 6) Age: < 25 _____ 25-35 _____ 36-45 _____ 46-55 _____ 56-65 _____ > 65 _____
- 7) Race: _____
- 8) Sex: _____
- 9) Highest Degree Earned: _____

VITA

Brian Christopher Lorentz

EDUCATION

2011-2015	Doctor of Philosophy in Nursing Barry University
2003-2005	Master of Science in Nursing – Leadership and Management Graduate Certificate in Nursing and Health Professional Education University of Central Florida
1995-1996	Bachelor of Science in Nursing – Accelerated Option Barry University
1986-1992	Bachelor of Science in Health Science Education University of Florida
1989-1990	EMT and Paramedic Certificate Programs Santa Fe Community College

PROFESSIONAL EXPERIENCE

ADMINISTRATIVE

2011-2013	Level II Coordinator Adventist University of Health Science Department of Nursing Orlando, FL Manage student and faculty issues related to first and second trimester nursing courses.
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UNDERGRADUATE TEACHING

2015-Present	Assistant Professor Adventist University of Health Sciences Department of Nursing Orlando, FL -NURS 220 Foundations of Nursing – Course Coordinator Didactic and clinical teaching, writing course reports, academic advising, faculty committees
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- NURS 410 Introduction to Nursing Research
Didactic teaching, writing course reports, academic advising, faculty committees
 - NURS 430 Leadership and Management – Course Coordinator
Didactic and clinical teaching, writing course reports, academic advising, faculty committees
- 2014-2015 -NURS 225 Health Assessment
Faculty in Health Assessment Laboratory
- 2012-2015 Assistant Professor
Adventist University of Health Sciences
Department of Nursing
Orlando, FL
 - NURS 115 Introduction to Nursing – Course Coordinator
 - NURS 220 Foundations of Nursing – Course Coordinator
 Didactic and clinical teaching, writing course reports, academic advising, faculty committees
- 2006-2012 Assistant Professor
Florida Hospital College of Health Sciences
Department of Nursing
Orlando, FL
 - NRS 110 Introduction to Nursing
Course Coordinator (2006-2010)
 - NRS 111 Foundations of Nursing – Course Coordinator
 Didactic and clinical teaching, writing course reports, academic advising, faculty committees
- 2005-2006 Assistant Professor
Florida Hospital College of Health Sciences
Department of Nursing
Orlando, FL
 - NRS 120 Adult Health 1 – Course Coordinator
 Didactic and clinical teaching, writing course reports, academic advising, faculty committees
- 2003-2004 Graduate Teaching/Research Assistant
University of Central Florida
Department of Nursing
Orlando, FL