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Teaching Strategies to Prepare Prelicensure Nursing Students to Teach-back

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Teaching Strategies to Prepare Prelicensure Nursing Students to Perform the Skill of

Teach-Back

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Abstract

Background: Prelicensure nursing programs prepare generalists with essential knowledge, skills, and attitudes to practice in complex health care environments. Nurse educators determine which teaching strategies will best prepare the nurse generalist. *Purpose:* The purpose of this study was to determine the effectiveness of a teaching plan that combined the strategies of pretest/posttest, classroom activities, and a problem-based learning activity: a clinical immersion experience. The skill of "teach-back" was taught and evaluated. *Theoretical framework:* Two theories guided the teaching plan for this research. Adult learning theory (Knowles, 1975, 1980, 2012) addressed how and why adults learn, and social cognitive theory (Bandura, 1977, 1986) described teaching strategies that assisted the adult learner to gain knowledge. *Methods:* A non-experimental design divided consenting participants were into intervention ($n = 21$) and control groups ($n = 11$). The Health Literacy Knowledge and Experience Survey (Cormier, 2006) was used to pretest/posttest for attainment of knowledge related to teach-back. The Communication Assessment Tool (Makoul, Krupat, & Chang, 2007) was used by standardized patients to evaluate the participants' ability to perform a teach-back. *Results:* The results of this study provided evidence that posttest scores improved for both intervention and control groups ($n = 32$). Twenty-seven participants performed a teach-back with evaluation. The results did not indicate a significant difference between groups in performing the skill of teach-back. *Conclusion:* There was little difference in posttest scores for groups and participants' ability to perform a teach-back, indicating that both groups gained knowledge and skill from the teaching strategies.

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Chapter One

Introduction

Prelicensure nursing programs aim to prepare nurse generalists who have the essential knowledge, skills, and attitudes to practice in the complex health care environment of the 21st century. The Institute of Medicine (Institute of Medicine [IOM], 2010) report, *The Future of Nursing, Leading Change Advancing Health,* has called for a transformation of prelicensure nursing programs. Many nursing professionals agree that a radical transformation of nursing education is needed (Adams & Valiga, 2009; American Association of Colleges [AACN], 2008; Benner, Sutphen, Leonard, & Day, 2010; National League for Nursing, 2008; Shultz, 2009). The nursing curricula needs to be student-centered, engaging, and taught using active learning strategies that allow nursing students to bridge the theory practice gap, to feel empowered to think critically, and to apply clinical reasoning in any patient situation they encounter (AACN, 2008; IOM , 2010; National League for Nursing, 2008). These thoughts have also been documented by key stakeholders of higher education.

Bridging the Theory Practice Gap

The American Association for Higher Education (AAHE), American College Personnel Association (ACPA), and the National Association of Student Personnel Administration (NASPA) joined together to form the Joint Task Force for Student Learning (AAHE, ACPA, & NASPA, 1998). The Joint Task Force for Student Learning (AAHE et al., 1998) has identified several key components of educational programs in

higher education. They specifically reported the importance of making connections between theory and practice and the importance of integrating the new with the old. The Joint Task Force (AAHE et al., 1998) also noted that educational experiences should be additive and cumulative requiring frequent assessments of learning and allowing time for students to make sense of their learning for future application. These statements add to the evidence that higher education, including prelicensure nursing education, requires radical transformation if students are to make the connections that will be required of them to complete their programs of study and to practice in real situations.

The role of the nurse educator is to determine which teaching strategies will best prepare the nurse generalist to provide patient-centered, high-quality, evidence-based, safe, timely care. In the past, nursing programs used teaching strategies that focused on rote memorization of facts in the classroom, and performance of tasks in the clinical setting without a focus of how these two strategies should be related to each other. Many new teaching strategies are being implemented in prelicensure nursing programs. It is thought that these new strategies will assist the prelicensure nursing student to make the connections they need to make, but there is little evidence that supports the effectiveness of one teaching strategy over another (Shultz, 2009).

Teaching Strategies

Knowing this information, several teaching strategies were combined and implemented into the first semester of a prelicensure nursing program to determine if they prepared the nursing student to perform one skill: teach-back. The combination of these strategies allowed the student to learn didactic content about teach-back, how this content should be applied in the clinical setting, and how to perform the skill of teach-

back. The learned behavior or skill was practiced in a positive learning environment in

which the students could gain confidence in their skill performance and cognitively

process the behavior or skill in a way that allowed the student to incorporate this behavior

or skill into professional practice, promoting transfer of learning (Curran, 2014).

The teaching strategies that were implemented during the dissertation study were

a pretest/posttest to assess knowledge, classroom activities to introduce content, and a

problem-based learning activity in the form of a clinical immersion experience focused

on performing a teach-back. The clinical immersion experience allowed the theory to be

applied and integrated into clinical practice. Each teaching strategy will be discussed

below.

Pretest/Posttest

Pretest/posttest is a teaching strategy that assists faculty to determine students'

previous knowledge about a topic before and after a lesson is taught. The pretest guides

the faculty in choosing how to focus the lecture or learning activity on information that

the student does not already know (McDonald, 2007). The pretest results identify which

information the student needs to review or learn during the teaching activity. The

posttest, given prior to the standardized-patient (SP) encounter, is a repeat of the pretest

but is given 8 weeks after the teaching activity has taken place. It allows the faculty and

the student to evaluate the degree to which knowledge has been retained.

Classroom Activities

Lecture is a teaching strategy that assists the lecturer to disseminate large amounts

of information to an audience in a timely, controlled environment (Lowenstein &

Bradshaw, 2004; Shultz, 2009). This teaching strategy is often selected because control

remains with the faculty member teaching the content. The lecturer can alter the cognitive level of the lecture at a moment's notice, based on the needs of the student. This type of learning is preferred by most novice learners because it is organized around course objectives, highly structured, systematic, orderly, and requires the lecturer to do most of the work (Lowenstein & Bradshaw, 2004; Saphier, Haley-Speca, & Gower, 2008; Shultz, 2009).

Lecture is documented as one of the least effective teaching strategies because it does not consider the students' past experiences, nor does it engage students to use their inductive reasoning capabilities to become critical thinkers. This situation makes learning difficult for the adult learner who has a wealth of experiences to draw from and the clinician who uses knowledge in ever-changing situations (Benner et al., 2010). Lowenstein and Bradshaw (2004) documented that much of the information students learn, utilizing lecture as the teaching strategy, is lost within 1 day of the lecture (approximately 80%) and another 80% is lost within 1 month of the lecture. This finding was not substantiated by the dissertation study. Most nursing programs still utilize the lecture as a teaching strategy due to faculty availability, faculty being out of current clinical practice, and large class sizes (Benner et al., 2010).

Problem-Based Learning (Clinical Immersion Experience)

A teaching strategy that has gained popularity is problem-based learning. This strategy is described by Lowenstein and Bradshaw (2004) as a way to prepare students to drive their own learning experience. It requires students to use information they learn and apply it to clinical situations they encounter. It also requires students to critically think and appraise their actions and to improve upon them. Formative evaluations,

during this active learning strategy, allow the students to assess where their application of skills is lacking and needs improvement. Content is not taught but requires students to seek out information that will assist them in their endeavor. This type of learning has been documented as highly effective in adult learners as it brings past experience to the learning experience. It is best used with small groups of students. It facilitates student understanding and retention of information. Benner et al. (2010) documented this teaching approach as integrative and patient centered. It requires the faculty to coach students in the clinical situation, which prepares them to develop their own knowledge.

Using problem-based learning is difficult with large groups. It requires the faculty member to become a facilitator of learning rather than a deliverer of information, taking control away from the faculty member (Lowenstein & Bradshaw, 2004). This type of teaching strategy also requires students to be highly motivated to learn, and it requires institutional commitment and allotment of required resources. Most students have been taught using passive learning styles, so transferring learning to an active learning strategy that requires independence may be a difficult transition for them.

Each of the teaching strategies described above have been used individually to prepare nursing students to meet their curricular objectives. In order to assess whether students have bridged the theory practice gap, a skill needed to be chosen to measure attainment. Patient teaching is one of the most important skills for the nurse generalist to acquire (AACN, 2008). It requires nurses to have a working knowledge of disorders, diseases, and their treatment options, so they can explain those things to the patient. The nurse must assess which information the patients already have about the disease process and how much they want to know. Patient teaching also requires nurses to evaluate the

content they have taught the patient to ensure understanding (Osborne, 2013). If understanding has not been achieved, nurses must adjust the strategies they have used and explain the content in a different way until understanding is achieved. This process is called teach-back and is a major factor in teaching any patient, but especially the patient with limited health literacy (Osborne, 2013).

Skill of Patient Teaching

The skill of patient teaching is influenced by many factors, such as patient age, ethnicity, pain, level of health, desire to learn, environment, and family and community support. These factors may be potential barriers to the patients' health literacy. Health literacy has been directly correlated to poor health outcomes for patients and an increase in medical cost for patients and the health care system (Dickens & Piano, 2013; Jager & Wynia, 2012).

Health Literacy

Approximately 90 million Americans have health literacy levels below the level needed to allow them to navigate within the current health care system in the United States (US; Ferguson & Pawlak, 2011; Jager & Wynia, 2012; Rothman et al., 2009; Schillinger et al., 2003; White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013). Only 12% of the population in the US can be considered health literacy proficient, meaning patients understand their disease and can care for themselves. Close to 50% of the population in the US has limited health literacy (Coleman, 2011; Dickens & Piano, 2013). This means that these patients may have difficulty learning basic information regarding their diagnosis, how to care for themselves when they go home from the hospital, how to take their medications, or even the meaning when they sign an informed

consent form for a procedure (Bass, 2005; Osborne, 2013; Powers, Trinh, & Bosworth, 2010; Rothman et al., 2009). Patients have a right to be educated about their health care, so they can make informed decisions about the best treatment options for them. Many health care professionals do not understand the meaning of health literacy or the scope of the health literacy problem in the US (IOM, 2004). In response, the *National Action Plan to Improve Health Literacy* (Office of Disease Prevention and Health Promotion, 2010) was developed to address this problem.

In May 2010, the *National Action Plan to Improve Health Literacy* (the Action Plan), was released by the Office of Disease Prevention and Health Promotion. The Action Plan lists goals and specific strategies that will assist in the achievement of a health literate society. The Action Plan gives health care workers the tools they need to not only teach patients but to also evaluate understanding of this teaching. The Action Plan needs to be disseminated to all health care professionals, especially nurses, as they are the largest group of health care workers, and they are the health care workers who spend the most time with the patient (Baur, 2011; Benner et al., 2010; Burkhardt, 2008; Jukkala, Deupree, & Graham, 2009; Oates & Paasche-Orlow, 2009). The IOM (2003a, 2003b, 2004, 2010) report documented a need to begin health literacy training while health care professionals are in their programs of study.

Assessment Utilizing Standardized Patient Encounter

In order to assess this training, programs will need to assess goal attainment. The use of SPs has been documented as an effective way to enable students to practice skills they have learned, to have those skills assessed immediately upon completion of the SP encounter, and for immediate feedback to be given (Lin, Chen, Chao, & Chen, 2013).

This strategy has been implemented to assist learners to apply essential concepts they have learned to their clinical practice. A SP is trained to portray a specific patient of interest, and the student is able to perform a skill on the SP in a controlled, safe environment. The SP encounter assists faculty to provide students with formative and summative evaluation of the skill being practiced.

This type of andragogy is in its infancy and has rarely been evaluated in undergraduate nursing education (Lin et al., 2013). It requires extensive preparation and planning as the SP must be trained prior to the encounter to act as the patient of interest and to evaluate the experience. This evaluation strategy can be costly, and it requires the institution to have the resources required to perform the encounter and to debrief the encounter once it has been completed. Faculty need to be trained to debrief students so that consistency can be maintained.

Problem Statement

Many teaching strategies are currently being used in prelicensure nursing programs, but there is little data that supports the use of one teaching strategy over another (Shultz, 2009). If nursing education is to undergo the radical transformation required to prepare the nurse generalist of the 21st century, there needs to be a strong evidence base that will guide the andragogical decisions and enable the integration of nursing theory into clinical practice, thereby improving the ability of the nursing student to critically think, and to clinically reason in any patient encounter.

Purpose of the Study

The purpose of the dissertation study was to determine the effectiveness of a teaching plan that combined the strategies of pretest/posttest, classroom activities, and a

problem-based learning activity in the form of a clinical immersion experience. To accomplish this task, content from the curriculum was chosen to measure the effectiveness of the teaching strategies. Prelicensure nursing students learned the importance of the skill of teach-back for patients, especially those with limited health literacy. They practiced this skill in the problem-based learning activity. Knowledge attainment was assessed with a pretest/posttest before and after the learning activities. The tool that was used to measure the effectiveness of the teaching was the Health Literacy Knowledge and Experience Survey (HL-KES; Cormier, 2006). Skill acquisition was assessed with a SP encounter in which the SP completed a Communication Assessment Tool (CAT; Makoul, Krupat, & Chang, 2007). A literature search demonstrated the importance of teach-back skills, especially for patients in which limited health literacy had been identified (IOM, 2003a, 2003b, 2004, 2010). Different teaching strategies are often used to teach content. There is little evidence to indicate which strategy supports the teaching of health literacy skills.

Research Questions

Research Question 1

Research question. Will prelicensure nursing students retain the information they are taught through the pretest/posttest, classroom activities, and problem-based learning experience (clinical immersion experience, evaluated by HL-KES)?

Research Question 2

Research question. Will the combination of pretest/posttest, classroom activities, and problem-based learning activity (clinical immersion experience) prepare

the prelicensure nursing student to teach patients with limited health literacy using a teach-back skill (evaluated by CAT completed by SP)?

Significance of Study

The dissertation study assessed the effectiveness of a teaching plan to determine if prelicensure nursing students could learn the skill of patient teaching to improve health literacy in patients. It has significance for nursing education, nursing practice, nursing education research, and health policy.

Nursing Education

Teaching strategies that allow the nursing student to bridge the theory-practice gap cannot only have great effects for nursing schools but also for clinical practice upon graduation. These strategies give students the tools they require to think critically in any patient-care situation and to become lifelong learners (Adams & Valiga, 2009). Nurse educators often implement new teaching strategies in their classrooms, but they rarely evaluate which teaching strategy works best (Shultz, 2009). The dissertation study facilitated the analysis of a teaching plan that combined several teaching strategies (pretest/posttest, classroom activities, and problem-based learning) to determine if the combination of these strategies would prepare the nursing student to perform the activity (teach-back) in the clinical setting. If this teaching plan provided evidence of the ability of the students to perform this key skill, the teaching plan could be replicated for other skills to determine if skill attainment could be acquired. Current literature documents a gap in nursing student ability to apply classroom learning to clinical situations. This combination of strategies may assist in this endeavor.

Nursing Practice

The teaching plan facilitated a nursing skill to be taught, practiced, and evaluated. The clinical faculty role modeled behaviors that every nursing student should use to teach patients, especially those with limited health literacy. The nursing students practiced this skill throughout an entire semester, receiving formative feedback about the strengths and weaknesses of their performances, so they could integrate the feedback and improve on their self-efficacy related to this skill. Benner et al. (2010) documented the importance of this type of activity as it helps nursing students to become engaged in their learning and to develop situated knowledge and skills, which they can utilize in their clinical practices. Benner et al. (2010 further discuss how nursing students can develop a sense of salience, which will prepare them to notice the significance and urgency of clinical situations, so they can develop a self-improving practice that will promote effective communication with other members of the health care team and their patients. The strategies utilized in the dissertation study modeled the expected behaviors, allowed the student to practice and become proficient at those expected behaviors, and, finally, implemented those behaviors into their clinical practices, similarly to the information gained by the patient when the teach-back method of patient teaching is done correctly.

Nursing Education Research

Developing a strong evidence base in nursing education is important if health care transformation is to occur. Shultz (2009) documented that some research-based studies regarding teaching strategies and learning in nursing education have been done outside of the US, but few studies have a theoretical framework to guide them, and the reliability and validity of the findings have been poorly documented. As adults, nursing students

need to understand the relevance of the teaching and learning that occurs within the classroom and their clinical experiences (Merriam, Caffarella, & Baumgartner, 2007). Educators need to understand that adult learners have a wealth of knowledge and experience that plays an important part in how they learn new skills and concepts: adult learning theory (ALT; Knowles, Holton, & Swanson, 2012). Bandura's (1977, 1986) social cognitive learning theory (SCT) stresses the need for content to be organized and presented in a series of steps that allows for the learner to practice a skill, receive feedback regarding skill acquisition, and review this feedback to improve. This theoretical framework documents the importance of role modeling by experienced practitioners so that novice learners can identify traits that will improve their self-efficacy with each task.

The dissertation study intended to provide evidence that the theory-practice gap could be decreased by combining three teaching strategies that allowed nursing students to build on knowledge they already had (pretest), to gain more knowledge regarding a subject in classroom activities that utilized active learning strategies, to be tested on knowledge acquired (posttest), and to apply that knowledge in activities that utilized formative feedback to increase student self-efficacy and performance (problem-based clinical immersion experience and SP encounter). If these strategies decrease the theory-practice gap for the skill of teach-back, further studies will need to be done to evaluate whether this combination can be used in teaching nursing students other important skills they must acquire to become a nurse generalist, using the theoretical framework that acknowledges the nursing student as an adult learner (ALT) and the SCT that describes how the student learns.

Health Policy

The nurse of the 21st century needs to be prepared to practice in a complex health care environment that requires patient-centered, high-quality, evidence-based, safe, timely care for a diverse population. Limited health literacy has been directly correlated to poor health outcomes and increased costs for the health care system overall. As the requirements of the Patient Protection and Affordable Care Act of 2010 are integrated into the current health care system, health care agencies are being asked to explain deficits in patient care, and these deficits are not being reimbursed. Patients need to be able to navigate within our health care system. They need to be able to make informed decisions regarding their care. They need to understand their disease processes, so they can decide which treatment options are best for them. They need to be able to take their medications and understand when their physicians need to be contacted. In order for these things to be accomplished, patients will require extensive education. All health care professionals need to learn how to provide patient teaching that assists all patients and their families, including those with limited health literacy, to care for them and obtain the services they require if health care improvement goals can be attained. Koh et al. (2012) documented improved health literacy as a solution that addresses access, quality, and cost of health care.

The Action Plan, released by the Office of Disease Prevention and Health Promotion as part of the U.S. Department of Health and Human Services in 2010, has been created to assist health care professionals to learn to provide patients with the education they require. Health policy hopes to ensure a health-literate America (Parker, Ratzan, & Lurie, 2003), and the only way this situation can occur is if health care

professionals, especially nurses, know how to educate these patients. This teaching plan may be a way to ensure that prelicensure nursing students understand the meaning of health literacy and how best to improve the outcomes associated with it.

Philosophical Underpinnings

The dissertation study was guided by a post-positivist worldview. Within this philosophical approach, certain key principles make it appropriate for this study. According to Creswell (2009), the post-positivist worldview is used with quantitative research because in this type of research, there is a need to identify and assess the causes of the outcomes obtained in scientific research. Key variables are identified that require testing, and these tests are done through careful observation and measurement. The post-positivist worldview also assumes that the laws or theories that govern the world need to be tested or verified so that understanding can be attained. Several assumptions guide this worldview: (a) knowledge is conjectural, absolute truth can never be found; (b) research is a process of making claims and then refining or abandoning them; (c) data, evidence, and rational considerations shape knowledge; (d) research seeks to develop relevant, true statements that explain situations or describe causal relationships; and (e) being objective is an essential aspect of competent inquiry (Creswell, 2009, p. 7). The post-positivist worldview guided the theoretical framework chosen for the dissertation study.

Theoretical Framework

Two theories guided this work: adult learning theory by Knowles (1975, 1980, 2012) and social cognitive theory by Bandura (1977, 1986). Knowles' theory addresses

adult learners and how and why they learn. Bandura's theory describes the teaching

strategies that assist adult learners to gain the knowledge they desire.

Adult Learning Theory

ALT (Knowles, 1975, 1980, 2012) or andragogy is the theoretical framework that

described adult learners and their characteristics. Knowles based his framework on the

work of Knapp and Linderman who documented how adults learn differently from

children and so should be taught differently. Knowles (1980, p. 44) started with four

assumptions about the adult learner: (a) adult learning needs to be self-directed, (b) adults

have many experiences that should be used as a resource for learning, (c) the readiness of

adult learning is related to the developmental tasks of their societal role, and (d) adults

are problem-centered in their learning. Later, Knowles (1984) added two additional

assumptions: adults' potent motivators are internal not external and adults need to know

why they need to learn something. ALT is important in the dissertation study as

prelicensure nursing students are adults, and the patients who will require education are

adults (learning for themselves or for a friend or family member), so this theory assists

the nurse educator in the development of strategies that are specific to this population to

meet their needs.

Adult learning theory has been used to guide nurses in educating adult patients

within the inpatient setting. Mitchell and Courtney (2005) used the framework of ALT to

guide the development of a brochure to assist nurses in teaching family members about

the transfer of their family member out of the intensive care unit. The brochure was

developed with key considerations: adults are self-directed, autonomous learners have

motivations to learn that are grounded in choice, and the collaborative efforts of the

teacher and learner develop an association that guides the education. Utilizing ALT allowed the nurses to develop a brochure that guided the nurse (as teacher) in educating the family (the student) about transfer from the intensive care unit.

Curran (2014) also documented how important ALT is to the transfer of knowledge from teacher to student and also supports the use of this framework to guide curriculum development. The Curran evaluated learner preference to teaching style using The Principles of Adult Learning Scale. Several key examples of ALT were detailed, including the use of curriculum design with input from learners, identification of learner needs via different assessments, and design of curriculum that was centered on actively engaging the learner. The implications support the use of ALT as it has the ability to assist the learner in understanding course content and how it was chosen. This theoretical framework also assists the learner to apply concepts they have learned in the classroom to their clinical practices.

Social Cognitive Theory

The SCT is the theoretical framework that guided the choice of teaching strategies for the dissertation study (Bandura, 1977, 1986). This learning theory has elements from a behaviorist and cognitivist perspective (Merriam et al., 2007). Bandura's theory describes the importance of observation and cognition to learn skills, strategies, and behaviors (Curran, 2014). This process is known as modeling. According to Schunk (2012), modeling allows for three key functions to occur: response facilitation, inhibition/disinhibition, and observational learning. Schunk (2012) described response facilitation as the prompts that motivate an observer to perform a skill. Inhibition/disinhibition is learning that occurs because a learner is punished for

performing a skill (inhibition) or is not punished for performing a prohibited activity (disinhibition), and observational learning is when the modeled behavior causes the observer to perform a new behavior or activity that he or she would not have done without seeing the model.

Learning is not just imitation of behaviors but requires the learner to observe the consequences of actions as they are performed or observed. Learning consequences can occur if learners enact the skill themselves or just observe a role model perform the skill, which is called learning vicariously (Bandura, 1977, 1986, 1988 2005; Curran, 2014; Merriam et al., 2007; Schunk, 2012). If positive consequences are noted after the performance of the skill, then the skill is retained and used in practice. If negative consequences are noted, the learner knows that improvement is needed, which requires the learner to use three different processes: self-observation, self-judgment, and self-reaction (Bandura, 1977, 1986, 1988, 2005; Schunk, 2012). This process is described as self-regulation, which is a key assumption of the theory (Bandura, 1977, 1986, 1988, 2005). Self-regulation is determined by behaviors, environments, and personal factors, which influence the learners' self-efficacy, or belief that they can accomplish the task or skill.

The process of learning is active, but the observations may be passive or active and are guided by why the learner is learning the skill (Bandura, 1977, 1986, 1988, 2015; Schunk, 2012). Observational learning requires the learner to go through four different processes (Bandura, 1977, 1986, 1988, 2005; Schunk, 2012). The first is attention in which the behavior is divided into parts, and competent models demonstrate the usefulness of the modeled behavior. The next process is retention in which the learner

rehearses the behavior and codes it into his or her memory by relating the new material to material learned previously. The third process is called production in which the learner performs the behavior and receives feedback about whether the behavior was done correctly or ways the learner could improve his or her behavior. The last process is called motivation, which gives the learner the self-efficacy to continue performing the skill.

Self-efficacy is one of the key factors determining if the behavior will be repeated in professional practice. Self-efficacy is the learners' belief that they can perform the skill proficiently and at the level their job dictates (Schunk, 2012). The learner does not need to have high ability to be able to perform a task well. Often, believing one can perform a skill and practicing until skill attainment is achieved can lead to positive outcomes. Learner's receiving positive feedback may put forth more effort and persistence to reach goal attainment (Bandura, 1977, 1986, 1988, 2005; Schunk, 2012).

Plotnikoff, Lippke, Courneya, Birkett, and Sigal (2008) stressed the need for teaching strategies to have a theoretical basis. The Plotnikoff et al. conducted a study in which SCT was evaluated in relation to physical activity in Type 1 and Type 2 diabetic patients. Self-efficacy was documented as one of the most important factors in predicting the behavior of physical activity. Other factors that predicted physical activity included social support and outcome-expectancies, goals, and plans. Each of the factors was measured using a different scale, which was specific to the factor.

SCT was again evaluated by Whitehead (2001), who describes this theory within health-related behavioral changes. Behavioral changes are described as complex. The nurse who implements the teaching must understand not only those complexities related

to the behavioral change but also have a thorough understanding of the processes that assist in those changes. A key motivator to change is the individuals' reasons for adopting the health-related behaviors and their self-efficacy.

SCT was used as a framework in the work of Burke and Mancuso (2012) as well. Burke and Mancuso used the SCT to guide the evaluation of simulation learning, which requires cognitive, behavioral, and environmental factors to assist in learning. Working in small groups during the simulation activity, the students were able to practice communication skills to evaluate those communication skills and to determine the impact of those skills on the learner (Burke & Mancuso, 2012). Proficiency in a skill and adoption of that skill into professional practice is the goal of the activity. Debriefing after the simulation experience facilitated the students' assessment of their skills, so they could self-regulate and establish self-efficacy.

The theoretical frameworks used in the dissertation study guided teaching strategies that not only fostered the adult learner but also focused on placing adult learner sin situations that would prepare them to become proficient in the skill of teach-back to the limited-literacy patient. The pretest allowed adult learners to evaluate previous knowledge about the content. The classroom activities assisted the adult learner to see why this skill affects health care in the 21st century, and why it is important. The problem-based clinical immersion strategy required the teacher to model the behaviors the learner would need to perform the skill. The problem-based clinical immersion experience also required the adult learners to enact the behavior and to receive frequent feedback that could guide not only their motivation to learn the skill but also increase their self-efficacy in performing the skill in their professional practice. The SP encounter

allowed the educator to assess skill attainment by the learner. The posttest allowed the

adult learner and the educator to assess how much knowledge the learner retained after all

of the activities.

Theoretical Assumptions

1. Adults need to know why they need to learn something (Knowles, 1984).

2. Prelicensure nursing students need active learning strategies that facilitate their ability to integrate old knowledge with new (Curran, 2014).

3. Learners will observe and debrief their learning events, which will lead to self-regulation, self-efficacy, and reciprocal determinism (Curran, 2014).

4. Combining several teaching strategies will prepare the prelicensure nursing student to provide patient teaching in the form of a teach-back to patients with limited health literacy.

Definition of Terms

1. Active learning. A form of learning in which students are involved in the process rather than listening passively to the teacher present information (Young & Paterson, 2007).

2. Health literacy. The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Selden, Zorn, Ratzan, & Parker, 2000, p. vi).

3. Lecture. A teaching methodology comprised mostly of one or more teachers providing information verbally to a group of learners (Young & Paterson, 2007).

4. Modeling. Refers to behavioral, cognitive, and affective changes deriving from observing one or more models (Schunk, 2012).

5. Problem-based learning. Problem-based learning is focused, experiential learning organized around investigation and resolution of messy, real-world problems. It refers to learning that results from the process of working toward resolving a problem. The problem is encountered first in the learning process and serves as the stimulus for the search for knowledge to better understand the problem and the application of reasoning skills in the search for resolution of the problem (Young & Paterson, 2007).

6. Reciprocal determinism. Behaviors, cognitive and personal factors, and environmental influences all operate interactively as determinants of each other (Bandura, 1986).

7. Self-efficacy. Personal beliefs about one's capabilities to learn or perform actions at designated levels (Bandura, 1986).

8. Self-regulation. The process whereby individuals activate and sustain behaviors, cognitions, and affects, which are systematically oriented toward the attainment of goals (Zimmerman & Schunk, 2001).

10. Simulation. A teaching approach that allows the learner to function in an environment that is close to a real-life situation and provides the opportunity for the learner to think spontaneously and actively (Shultz, 2009).

Chapter Summary

The nurse generalist of the 21st century needs to be prepared with the knowledge, skills, and attitudes to practice in a complex health care environment. The curriculum

needs to include teaching strategies that are student-centered, engaging, and are taught using active learning strategies that assist the student to bridge the theory practice gap. Following the theoretical framework of ALT and SCT, three teaching strategies (pretest/posttest, lecture, and problem-based learning) were implemented and evaluated in a prelicensure nursing program to assess the nursing students' abilities to acquire the skill of teach-back for a specific population of patients: those with limited health literacy. All patient populations need patient teaching that will prepare them to navigate through the complex health care system, and it is known that approximately 12% of the U.S. patient population is currently able to navigate the system. Developing evidence-based teaching strategies has great implications to nursing education, nursing practice, nursing education research, and health policy.

Chapter Two

Literature Review

The literature review will examine the teaching strategies integrated in the dissertation study. The benefits and limitations of the lecture, clinical immersion, and SP encounter will be appraised to determine their significance. The impact of health literacy on the patient and the health care system, focusing on patient outcomes and economic cost will be examined. Health professional knowledge of health literacy will be explored to determine if additional teaching is required. Key strategies to teach health literacy content to health care workers has been identified and its effectiveness has been documented in the National Action Plan to Improve Health Literacy, but the best ways to integrate this content into health professional educational programs, particularly in prelicensure nursing programs, have not been established. The theoretical framework that guided the dissertation research will complete the literature review.

Each keyword produced a large number of publications, so each was filtered for date (2005 to present) and academic journal. This strategy narrowed the number of publications to adult learning theory ($n = 74$) and health literacy ($n = 1,400$). These terms were added to the term "patient education," which initially yielded 22,000 publications, and once filtered as above, yielded an n of 360. The same strategies were initiated with the terms nursing education ($n = 22,900$) and teaching strategies ($n = 1,085$). When these terms were combined and filtered as above, the number of publications that were analyzed was much less ($n = 285$). Again, the same technique was applied for the

following terms: (a) lecture ($n = 1951$) and nursing education (filtered: $n = 110$, (b)

problem-based learning ($n = 1,770$) and nursing education (filtered: $n = 115$), (c)

standardized patient ($n = 331$) and nursing education (filtered: $n = 16$), (d) adult learning

theory ($n = 155$) and nursing education (filtered: $n = 18$), and (e) social cognitive theory

($n = 1,434$) and nursing education (filtered: $n = 35$).

Abstracts were carefully evaluated to determine their relevance to the dissertation

study. Three key topics guided this literature review due to their relevance to the study

topic: teaching strategies used in nursing education, health literacy, and theoretical

frameworks that guide teaching strategies.

Teaching Strategies

The need for health literacy training for health care professionals has been

established in the literature. Baur (2011) described the importance of nurses in this

endeavor. Nurses work in most health care areas, have direct access to patients, and

provide a large portion of the patient teaching that is provided to patients, so their role in

health literacy improvement is crucial. Many teaching strategies have been implemented

to teach health care professionals about health literacy. In a literature review, Coleman

(2011) documented a variety of approaches, which include didactic teaching, experiential

teaching, workshops, small-group exercises, role play, video review, simulated

encounters with standardized patients, direct observation, modeling and feedback, service

learning, and exposure to adults with limited health literacy. The Coleman reported

inadequate data to recommend one teaching strategy over another due to a lack of

evaluation of tools, inadequate evaluation in controlled trials, and few comparative

studies. Coleman recommended evaluating the appropriate or ideal time to teach health literacy and also the need to develop techniques that evaluate its effectiveness.

Lecture

Lecture has long been the standard teaching strategy used in nursing programs. Shultz (2010) identified lecture as the most frequently used strategy in higher education. The teacher holds the responsibility for organizing all content delivered to the students and how it is presented. This teaching strategy has also been noted for promoting student passivity. There are many ways being utilized that allow the faculty to deliver essential content to students, which assists them to bridge the theory practice gap.

Beers (2005) evaluated the effect of problem-based learning versus lecture on objective test scores. Eighteen students enrolled in the Adult Health I course in the fall semester received the traditional lecture as the teaching method, and 36 students enrolled in the Adult Health I course in the spring semester received instruction on the same content, by the same instructor, using a problem-based teaching method. All students received a pretest of their knowledge related to the content and a posttest both consisting of 10 multiple-choice questions. The construct validity of the tests was confirmed. Pretest scores for the fall semester group ranged from 3 to 7, with a mean of 5.11, and the scores of the pretest for the spring group ranged from 2 to 8 with a mean of 4.72. The posttest scores of the fall semester ranged from 3 to 9 with a mean of 4.94 while the posttest scores of the spring semester group ranged from 2 to 9 with a mean of 4.97. The results were documented by Beers to support that there was no difference between the objective test scores based on the teaching method used. The teaching method chosen by faculty must be considered in relation to the objectives of the course.

Pugsley and Clayton (2003) also compared the lecture to another teaching strategy (experiential learning) within two research courses to assess for attitudes toward research. Within their study, a senior level research course ($n = 19$) used a traditional model format that contained lecture format, article critiques, and examinations. A junior level research course ($n = 25$) used an experiential model, which consisted of a hands-on problem-solving activity, a mini-research project, and a critique. The demographics between groups were similar and Pugsley and Clayton used a two-tailed t test to determine significance between the course delivery methods and student attitudes toward nursing research. Significance was documented by $t(42) = 3.981$, $p = .001$, reporting that junior level students exhibited significantly more positive attitudes toward nursing research than the senior level students (mean = 64.2, SD = 6.85) and (mean = 53.4, SD = 11.4). Limitations, however, documented small sample size, comparison of groups of students at different points in their educational endeavors, the use of different textbooks and articles for each course, and two different instructors teaching the two classes.

Oermann (2004) documented the beneficial effects of blending the lecture with active learning strategies to foster development of problem solving, critical thinking, and communication skills. She supported the need for lecture to enable the synthesis of information from different sources to provide students with the most up-to-date information and to show students the difference between essential and nonessential content. Lecture also allows the faculty to conserve time by delivering only the most pertinent information to the students. Active learning requires the students to participate in the learning experience by requiring them to assess their own needs and take an active role in meeting those needs. This strategy also allows students to explore different

perspectives, examine different decisions, and to synthesize this information to determine the best action to take in a given scenario. The dissertation study combined both approaches during the first intervention to provide students with the skills they required to actively participate once they began the clinical immersion experience.

Clinical Immersion

Many nursing organizations (AACN, NLN) and the IOM *Future of Nursing Report* (2010) agree that clinical education in prelicensure nursing programs needs to be reformed. This education is currently focused on task completion rather than providing students with the ability to synthesize nursing knowledge and patient care to improve patient outcomes. Nursing students need to be able to critically think about the care their patients require and to include patients in the decisions that are made about that care. Patient communication and education are vital components of this clinical education, and these topics are often disregarded so that tasks can be completed. The dissertation study evaluated focused clinical immersion experiences whose main focus were about patient communication and education.

In 2008, the NLN formed a think tank to discuss changes needed in clinical nursing education. The first task assigned to this group was to determine the most important issues related to current clinical nursing education. The next task was to determine an ideal clinical experience. The members agreed that integrative experiences were key to assisting students to understand and gain an appreciation for the continuum of care and changes in patient status and that the concepts learned needed to be transferrable from one clinical setting to another. Evaluation of these clinical experiences would be done by the patients receiving care, the clinical faculty evaluating student

higher order thinking, and staff narratives and peer reviews that provided formative evaluations for student growth about self. The greatest potential transforming activities identified were the advancement of relationship-centered and patient-centered approaches and immersion experiences throughout the programs, which focused on different patient populations, completed in different settings, and implemented in different timeframes. Feedback would guide clinical practices and student learning. These guidelines require nursing schools to examine their current clinical experiences and to perform research on innovative clinical experiences.

Ironside, McNelis, and Ebright (2014) discussed current education in clinical experience. The Ironside et al. conducted a multi-method descriptive study in which clinical education was observed at three different nursing schools. Thirty students and six clinical faculty were directly observed on faculty and preceptor-driven clinical units to determine which activities occurred during clinical experiences. After the direct observations, the observer interviewed the students to determine the goals of the clinical experience, students' thought processes at the time of different encounters, students' expectations, and any knowledge obtained from the experience. Although faculty described wanting students to connect the theory with the practices or tasks they were performing, the results of the study documented the focus of task completion rather than the need for higher level thinking. Students' comments documented the need to complete tasks or take care of more patients as evidence of a successful clinical experience. Ironside et al. described the need for research and scholarship to develop innovative clinical experiences for nursing students that teach students the knowledge needed to enter practice.

Hickey (2010) described students' perceptions of their clinical experiences during their undergraduate nursing education. Hickey developed a Clinical Instructional Experience Questionnaire (CIEQ), which contained 20 items that measured recent graduates' attitudes towards their actual previous clinical experience for their preparation into practice (reliability for clinical teaching $\alpha = .81$, developing clinical competence $\alpha = .74$). They were then asked to rate those same items on importance for preparation for practice and, finally, answer five open-ended questions, which were analyzed for themes. The data documented that though students felt that their clinical experience were positive, those experiences were more important for practice than the actual experiences provided ($p = \leq .001$). The open-ended question themes reported that students felt they spent too much time on non-nursing tasks (vital signs and hygiene) and not enough time doing *real* nursing (learning to prioritize, learning to provide care for more than one patient, and interacting with other members of the health care team). The sample size for this study was small and only studied one nursing program, but Hickey stressed the need for clinical instructional models to be reevaluated so that clinical experiences provide learning opportunities that assist the nursing student to transition to the professional role.

Papathanasiou, Tsaras, and Sarafis (2014) assessed the views and perceptions of nursing students about the clinical learning environment, teaching, and learning. The authors conducted a cross-sectional descriptive design by having students complete two Clinical Learning Environment Inventories (CLEI): one for actual experiences ($n = 196$ students) and one for preferred experiences ($n = 180$ students), which assessed the perceptions of nursing students on the psychosocial characteristics of their clinical learning environments. Reliability of the CLEI was documented as a scale factor,

Cronbach alpha of 0.55 to 0.76 (actual experiences) and 0.58 to 0.77 (preferred

experiences). Results documented a significant distance between preferred scores and

actual scores on the CLEI survey. The highest mean scores on the actual experience

CLEI was for personalization and task orientation (23.97 and 23.31), whereas the

preferred experience CLEI high scores were for personalization, satisfaction, and task

orientation (27.87, 26.82, and 26.78). The lowest scores for the actual experiences were

for innovation (19.21) and individuation (19.24) and for the preferred experiences

individuation (22.72) and involvement (24.31). Students preferred experiences

documented the need for positive environments with support and consistent supervision.

Standardized Patient Encounter

Standardized patient encounters have been used to evaluate clinical skills in

medical schools for some time (Williams, 2004). The Association of Standardized

Patient Educators (2011) defines a standardized patient as an individual who is trained for

teaching, assessment, and evaluation purposes to act consistently as a patient, both in

physical presentation and health history. The SP encounter provides students with an

opportunity to apply and synthesize theoretical knowledge with clinical practice. The SP

encounter has also been shown to facilitate effective patient communication skills by

nurses. Teaching methods must be evaluated to determine if learning outcomes have

been met. As an evaluation tool, this strategy has been used because it allows for

objective evaluation.

Bornais, Raiger, Krahn, and Masri (2012) evaluated the use of a SP in a health

assessment course. Although this strategy has been used in medical education Bornais et

al. documented that it is under investigation in nursing education. In their study, 108

students in a first-year undergraduate nursing program were divided into two groups. One group received the traditional theory of the health assessment topic followed by a two-hour practice session in the laboratory in which the group practiced the assessment skill on peers (control group). The second group received the same traditional theory of a health assessment topic followed by two practice sessions in the laboratory in which the group practiced the assessment skill on a SP. All students had a final objective structured clinical examination (OSCE) in which they were tested on their ability to perform an assessment on an SP. Analysis of covariance results showed that after adjusting for baseline differences, the intervention group had higher objective OSCE mean scores than the control group ($M = 78.57$ and 69.28, $F = 24.13$, $p \leq .001$) although scores on their theory examination were not different ($M = 77.23$ and 77.29, $F = .002$, $p = .963$). These results indicated that students who practiced their health assessment skills on standardized patients performed significantly better on the OSCE than those taught in the traditional manner, which suggests improved clinical competencies with SP use. Bornais et al. document that increased scores on the OSCE among the interventional group may be related to students' comfort with working with the SP. Further research with SPs is suggested.

Rickles, Tieu, Myers, Galal, and Chung (2009) also evaluated the use of a SP within a lecture-laboratory communication course with pharmacy students. Students had 100 minutes of lecture and six 120-minute laboratories with a SP each week. The SP encounters were videotaped for retrospective review. The students were evaluated at baseline, midpoint, and at completion of the course on their ability to perform certain communication skills, using a communication skills assessment form (CSAF) by the

course faculty. Each student recording was scored by two different raters with 94% interrater agreement across the two CSAF score totals for each tape. Students and SPs were asked to complete a survey at the end of the semester, using a Likert scale and open-ended questions about the SP program and general comments about the laboratory sessions.

Repeated measures analysis of variance (ANOVA) methodology was used to examine the differences in means of baseline, midpoint, and final scores for the CSAF ($p \leq .001$). Rickles et al. documented that students received significantly higher scores from baseline to midpoint, midpoint to final, and between baseline and final tapes ($p \leq .001$) on pairwise comparisons with the greatest improvements between baseline and midpoint. Of the 127 students in the course, 77 completed the survey (61% response rate). Students reported favorable evaluations of the SP program, documenting it was helpful in improving the skills covered in class. Of the 30 SPs, 20 completed surveys (67% response rate) positively rated the scenarios. Limitations of the study included the lack of a comparison group, the need for more validation and reliability of the psychometrics of the CSAF, evaluation of SP consistency, and equality of the three difference scenarios used for the comparisons.

Teaching nursing students therapeutic communication skills usually begins in the classroom and is assessed by paper-and-pencil tests. Faculty count on random patient encounters in the clinical area to support this learning and allow for students to practice the skills they have learned. Becker, Rose, Berg, Park and Shatzer (2006) evaluated the use of SPs trained to present a standardized, unvarying scenario to teach the acquisition and application of clinical skills. Students in two sections of an undergraduate nursing

psychiatric course were the sample ($n = 147$, treatment group $n = 58$, control group $n = 89$). Two instruments were used to collect data: Communication Knowledge Test (CKT), a 20 item multiple-choice test of core competencies in therapeutic communication, and the Student Self-Evaluation of SP Encounter (SSPE), a six-item Likert scale measuring students' attitudes toward the SP experience.

Students in the control group received the traditional teaching strategies, which included a structured clinical conference focused on therapeutic communication and the nursing care of clients with depression, followed by the students verbally telling the clinical instructor the actions they would take to communicate with the patient. The intervention group interviewed and admitted a standardized patient to an inpatient unit, followed by a group discussion, and finally the students evaluated their interviews by watching a videotape of their performance. Both groups completed a pretest CKT prior to the intervention and a posttest CKT at the completion of the course. Results showed that there were no significant differences found between the two groups on the CKT, both groups of students scored better on the posttest. Students who participated in the intervention group overwhelmingly described the experience as a positive one. Students reported the post-interview group discussion as invaluable as well as the written feedback provided to each student from the SP. Limitations to the results of this study are the small sample size and possible contamination between the two groups. Another limitation was listed as the cost of training and using the SPs and audiovisual recording equipment.

Lin et al. (2013) used an SP encounter with feedback and group discussion to teach interpersonal and communication skills to advanced practice nurses (APNs). In this study, the 26 first year APN students were randomly assigned to the experimental (SP

assessment with SP feedback and group discussion) or control group (SP assessment only). Two outcome indicators were used: an Interpersonal Skills (IPS) assessment tool and a Student Learning Satisfaction (SLS) scale. Participants were required to interview an 18-year-old female patient (SP) with a history of depression, who had attempted suicide the previous night and was brought to the emergency room by her father. All students had significant improvements on the IPS assessment tool, indicating there was no benefit to adding the SP feedback and group discussion to the intervention. All students also had extremely high SLS scores (control group 8.50 versus intervention group with 8.29). A limitation of this study was the absence of a control group without a SP assessment. Contamination between the groups was also a consideration, and there was no follow-up to determine the long-term effects of using SPs. Although there was no support for the SP feedback and group discussion, students found the experience reflective and insightful.

Health Literacy

Health literacy has been defined as the degree to which individuals have the capacity to obtain, communicate, process, and understand basic health information and services needed to make appropriate health decisions (Patient Protection and Affordable Care Act, 2010, p. 518). As health care changes in the United States and the demographics of the population change, the health care system needs to address the limitations and disparities of the care being provided through education (Parnell, McCulloch, Mieres, & Edwards, 2014). The needs of patients must be met and for this reason. Health literacy knowledge and strategies to improve must be instilled in health

care organizations, starting with health professional education in institutions of higher learning and continuing into all health care settings.

Implications of Limited Health Literacy

The Agency for Healthcare Quality (AHRQ; 2011) performed a systematic review of health literacy interventions and outcomes. Within this review, more than 3,496 articles were reviewed to answer two key questions: the relationship of health literacy to various outcomes and disparities and interventions to improve low health literacy. To answer the first question, the evidence provided in this review showed that lower health literacy has been associated with an increase in emergency room care and increased hospitalization as well as lower use of preventative services, such as mammography and influenza vaccine. Other results showed higher mortality for seniors with lower health literacy, decreased ability to take medications correctly, diminished ability to interpret labels and health messages, and overall poorer health status among seniors with limited health literacy. Although the research showed many other associations of limited health literacy and poor outcomes, the studies performed were either poorly designed or had inconsistent results.

In relation to the second question of interventions to improve low health literacy, the AHRQ (2011) *Evidence Report No. 199* documented more than 42 studies that addressed interventions to improve limited health literacy. There were few studies that utilized a single intervention, and of those that did, the studies had a poor strength of evidence to support them. There were several interventions identified that did improve limited health literacy and they included (a) presenting needed information by itself and first, (b) discussing quality information and outcomes, (c) providing simple statistics

related to risk and benefit of treatment, and (d) adding videos to verbal instructions (AHRQ, 2011). Those interventions that were combined supplied evidence of two major findings: Health service use decreased with interventions focused on intensive self-management and adherence, and health outcomes improved with interventions focused on intensive disease-management. The need for replication of studies with consistent approaches has been identified as well as the need for studies with larger sample sizes.

The National Assessment of Adult Literacy (NAAL) was completed by the U.S. Department of Education in 2003 to determine the literacy levels of adults in the United States (Kutner, Greenberg, Jin, & Paulsen, 2006). This survey measured the ability of adults to search, understand, and use information and to perform basic math skills, such as computation using numbers. Examples of skills evaluated were the ability to read editorials and news stories, to complete job applications and payroll forms, and how to balance a checkbook or figure out a tip. The assessment evaluated 28 health literacy items related to the above topics, including clinical activities, disease prevention activities, and the ability to navigate within the health care system. Approximately 19,000 adults were assessed.

According to Kutner et al. (2006), approximately 53% of adults had intermediate health literacy (able to determine a healthy weight range for a person of a specific height and weight), 22% of adults had basic health literacy (able to give reasons why symptoms of a disease may not be present with diagnosis), 14% had below basic health literacy (able to determine if anything is permissible to drink before a medical test based on short instructions), and 12% had proficient health literacy (able to find information to determine which legal document is applicable to a specific health care situation). These

activities were evaluated to determine the adults' ability to obtain, understand, and use basic health information and services they will require. These services include information about how to fill a prescription, the meaning of signing a consent form for surgery, how to schedule a doctor appointment, or the actions to take about lead paint in an apartment. Approximately 88% of the adult population in the United States is below the proficient level for health literacy.

DeWalt, Berkman, Sheridan, Lohr, and Pignone (2004) also completed a systematic review of the literature related to health literacy and poor patient outcomes. DeWalt et al. reviewed more than 3,015 titles and abstracts: 684 articles were fully reviewed, 73 articles met inclusion criteria, and 44 were chosen that addressed the relationship between literacy and health outcomes. The review documented that patients with low health literacy had poorer health outcomes, which included knowledge, intermediate disease markers, measures of morbidity, general health status, and use of health resources. The studies evaluated ranged in quality from fair to good. Reading ability was related to poor outcomes but not necessarily increased costs. DeWalt et al. stressed the need for further research as to the relationship between reading ability and health status. Limitations of the review included the following: the findings reflected the quality of the published literature, comparison of a wide variety of reading measures and cut-points for analysis make comparison of studies difficult, lack of reporting of appropriate statistical measures makes it difficult to determine true effects of studies, and lack of reports on how poor health outcomes were assessed. Again this review documented the poor quality of published data guiding major changes to health care and patient teaching.

Linking limited health literacy to poor patient outcomes has been an established practice, but Paasche-Orlow and Wolf (2007) described this causal association as being much more complicated than described above. Paasche-Orlow and Wolf conducted an analysis of current medical and public health research to determine if a causal pathway could be identified. The results of this analysis documented limited health literacy as a major factor in the navigation of health care for patients but also documented many other factors that affect patient abilities, such as race/ethnicity, education, age, occupation, employment, income, social support, culture, language, vision, hearing, verbal ability, memory, and reasoning (Paasche-Orlow & Wolf, 2007). They also described the pathway to health outcomes as being extremely complicated as well with access and utilization issues, provider-patient interaction issues, and self-care issues. In order to compete with this many variables affecting health literacy and health outcomes, Paasche-Orlow and Wolf stressed the need for more research that explores interventions that improve patient health outcomes, which will require future researchers to determine which factors are causal in the pathway of limited health literacy and poor patient outcomes.

DeWalt and Hink (2009) also evaluated health literacy in relation to health outcomes but focused their study on parent and child literacy and child health outcomes. DeWalt and Hink performed a systematic review of the literature from 1980 to 2003 and found 24 articles that met their inclusion criteria. The findings indicated that a relationship between parental low health literacy and less health knowledge related to children's health, which led to less advantageous behaviors for children as compared to parents with high health literacy. These behaviors resulted in less satisfactory outcomes

for the children but did not necessarily result in an increase use of health care services.

Interventions that improved limited literacy included improving written material and

included a counseling session when reviewing those written materials. DeWalt and Hink

documented that the quality of the studies they reviewed was fair to good, another major

factor in health literacy research.

Health Professional Knowledge

The mission of the Joint Commission is to improve health care by defining

standards that health care organizations should follow to improve patient safety. Several

key strategies to achieve this mission, specifically to address health literacy and patient

communication issues, have been identified and include the need to make effective

communication a priority in all health care organizations, incorporating strategies that

address patient communication needs across the continuum of care and creating policy

changes that promote and improve practitioner-patient communications (Joint

Commission Public Policy Initiative, 2007). Low literacy levels affect the ability of

patients to interact with health care professionals, to follow medication instructions, and

to obtain follow-up care. Literacy levels affect preventive care, acute care, and chronic

care of patients. These literacy levels are not often visible to the health care provider, so

it is emphasized that a *universal precaution* be implemented in all health care

communications. A key step in improving health literacy is to educate the health care

professional about health literacy and its effect on patient safety and patient-centered care

and also the best techniques to provide patient-centered education to these populations.

According to Turner et al. (2009), many physicians reported situations in which

they knew parents did not understand health information they were given about their

children. In their study, they asked pediatricians to describe their self-reported

experiences with health literacy and the communication techniques that would improve

communication. Approximately 900 pediatricians (56% response rate) returned an eight-

page, forced-choice, self-administered questionnaire. The survey content was developed

by the American Academy of Pediatrics (AAP) and the Health Literacy Project Advisory

Committee. Of the physicians surveyed, 81% could identify situations in the past 12

months of practice in which parents did not understand information about the health of

their child. The physicians surveyed knew that patients with limited health literacy had

poorer health status and outcomes, but system factors restricted their ability to improve

their communication techniques. These system factors included lack of time to discuss

information, the volume of information requiring discussion, and the complexity of the

information they needed to present. The teach-back skill, using written materials

effectively, and medication demonstration were listed as methods to improve

communication to assist the patient or family member to understand and also to improve

adherence to treatment regimens. Turner et al. recommend future evaluation of physician

communication by parental assessment with surveys, observations by senior physicians,

and peer coaching. It was also emphasized that medical resident education should

include more extensive training in communication techniques and health literacy.

Jukkala et al. (2009) assessed health care providers' awareness and knowledge of

the impact that limited health literacy has on the health care system and the individual

patient. Two hundred thirty providers (nurses, physicians, dentists, faculty, and others)

attending a health literacy conference were surveyed with eight multiple-choice questions

about the impact that limited health literacy has on patients and the health care system.

Content validity was established prior to administering the survey. Results of the survey showed that participants were most knowledgeable about the impact of health literacy on patients and less knowledgeable about the impact of health literacy on the health care system. Health literacy knowledge continues to be a challenge to the health care system. Sixteen percent of the total 230 participants (17% of the participating nurses) reported not having heard of health literacy before the conference. No significant knowledge difference was noted among the health professional groups. Other data showed that less than 12% of participants knew that more than 30% of the U.S. population had difficulty understanding health care information and instructions, and 25% of participants felt they could determine health literacy based on race, culture, age, or socioeconomic status. Based on the results, Jukkala et al. identified the need for health literacy education during educational preparation of all health care professionals.

A systematic review of effective training strategies for teaching communication skills to physicians was completed by Berkhof, van Rijssen, Schellart, Anema, and van der Beek (2011). The results of this review showed more than 12 systematic reviews and meta-analyses related to the search terms. The quality of the reviews was rated and resulted in a Cohen's kappa for all items of 0.88 with scores ranging from fair agreement ($k = 0.31$) to perfect agreement ($k = 1.00$). Of the reviews, three were found to be of high quality, five were of medium quality, and four were of low quality. Berkhof et al. found that the best training programs lasted for more than 1 day, were learner centered, and combined a didactic component with practical rehearsal and constructive feedback. These guidelines were considered when developing the interventions for the dissertation study.

Connelly, Turner, Tran, and Giardino (2010) assessed physician knowledge of health literacy and the communication strategies necessary for patients with limited health literacy. Connelly et al. implemented a focused educational intervention, which included 2 hours of didactic lecture, video clips, group discussion, and role playing, using common clinical scenarios. Physicians were asked to complete a questionnaire before the focused educational intervention, immediately after the intervention, and at 1 month and 3 months after the intervention. Definitions covered in the didactic lecture included health literacy and discussed its impact on patient outcomes. Thirteen physicians completed the pretest and immediate posttest questionnaire, seven physicians returned the one-month posttest questionnaire, and six physicians returned the three-month posttest questionnaire. Participants' mean knowledge score increased from 59.2% to 80% immediately after the intervention ($p < .001$) and decreased to 63% at 3 months ($p < .005$). Awareness about health literacy increased from 23.1% to 92.3% ($p < .001$). All physicians documented an increase in their awareness of health literacy issues and also reported an increase in their use of health literacy strategies, which included using simple language, limiting the amount of information presented in a session, and checking for understanding. Connelly et al. recommended a replication study with a larger sample size, objective measurement of strategies being utilized by physicians, and measuring patients' opinions about the strategies being utilized. The American Medical Association Council recommends the development of undergraduate, graduate, and continuing medical education programs to train physicians to communicate with patients.

Macabasco-O'Connell and Fry-Bowers (2011) evaluated the knowledge and perception of health literacy among nursing professionals. They randomly selected

nursing professionals from a publicly available database of all nurses licensed in the state

of California. They asked nursing professionals to describe the impact limited health

literacy had on patients, their practice, and on the health system by completing the

Nursing Professional Health Literacy Survey (NPHLS). This survey consisted of 47

items compiled from other questionnaires that assessed professional awareness literacy.

They also asked which self-reported communication techniques nursing professionals

used to facilitate the care of the patient with limited health literacy. Of the 76

respondents, 47% worked as staff nurses, 33% were nurse practitioners, and more than

half worked in acute care settings (59%).

Data from the study showed that 80% of respondents had heard the term health

literacy, and 75% reported knowing a lot of information about health literacy. Less than

50% of nursing professionals understood the impact of limited health literacy on their

patients, 48% thought that low health literacy greatly interfered with patients' ability to

understand health information, 38% perceived health literacy interfered with patients'

ability to obtain appropriate health services, and 45% perceived health literacy interfered

with patients' ability to follow through on recommended treatment. Of those who

responded, 56% felt that low health literacy is a low priority compared to other issues

related to patient care, and cost would be a barrier to providing nursing professionals with

the education to improve health literacy. Macabasco-O'Connell and Fry-Bowers reported

the need to add health literacy education to nursing school curriculum due to the fact that

nurses comprise the largest portion of health care professionals and are responsible for

providing most of the education patients receive prior to their discharge from the hospital.

Although the data from this survey is not generalizable to the nursing profession as a

whole due to its small sample size, the authors documented poor health literacy as an epidemic problem that requires development and testing of interventions that improve communication and health outcomes and testing educational strategies that increase nursing students' knowledge and understanding of health literacy and its impact on patient outcomes.

Effective ways to educate patients and their families have been developed. Kornburger, Gibson, Sadowski, Maletta, and Klingbeil (2012) evaluated the implementation of an educational intervention that taught nurses about health literacy and the benefits of using the teach-back method, which requires nurses to check for patient and caregiver understanding of discharge instructions prior to the patient being discharged. The intervention required nurses on two pilot units to answer a pre-education and post-education survey of seven questions about health literacy and teach-back. After the pre-education survey, poster presentations on health literacy were displayed in the conference rooms on the units. Other educational activities included reviewing relevant articles. A five-minute video presentation entitled, *Help Your Patient Understand* was shown, followed by a 20-minute educational intervention session held on different dates and times to accommodate nurses' schedules. Role-playing activities were included in the activities.

Fifty-eight pre-education surveys were returned (78% response rate), and 53 post-education surveys were returned (72% response rate). The nurses were asked if they were familiar with the teach-back process before the intervention, and 63% of the respondents said they were familiar with it, 31% stated they were not sure, and 8.6% said they were not familiar. On the post-education survey, 100% of the respondents were

familiar with process. After the intervention, the use of the teach-back process improved, and 45.1 % of nurses responded they *always* use teach-back demonstration in their practice from 3.4% of nurses on the pre-education survey. No participants responded *never* on the post survey from 15.5% on the pre-education survey. More than 98% of the post-education survey respondents documented the benefit of teach-back demonstration, but at the four-week post-education survey, 54.9% only used it *sometimes.* Barriers to using the teach-back method were lack of time due to busy schedules, high patient-to-nurse ratios, patient/family constraints, or lack of interest of parents. Another barrier was language requiring the use of interpreters. Although the teach-back skill has been identified as an important tool in improving limited literacy, patient outcomes were not evaluated.

Nursing student knowledge of health literacy has also been evaluated. Cormier and Kotrlik (2009) evaluated 360 final-semester, senior nursing students to determine their knowledge of health literacy and their experiences related to health literacy. Cormier and Kotrlik developed the Health Literacy Knowledge and Experience Survey, which consisted of two sections: one to assess health literacy knowledge (29 multiple-choice items) and the other to assess health literacy experiences (nine items). The survey was evaluated by content experts in health literacy and content validity index scores were 0.98. Both subscales of the HL-KES documented reliability with Cronbach alpha scores of 0.79 and 0.72. Responses to the HL-KES documented that the participants had some knowledge regarding health literacy but that there were many gaps in their knowledge. More than two thirds of the participants had basic knowledge of health literacy, but only 15.3% could correctly identify literacy as the best predictor of health outcomes, and only

about 49.2% knew that adults read about three to five grade levels below the last year of

school graduated. More than 50% of students did not know the best way to assess

reading ability of patients. Most students were knowledgeable about guidelines for

written health care materials, but only 37.5 % knew that written materials provided to

patients should be written at a fifth-grade reading level. The results of the Health

Literacy Knowledge and Experience Scale showed that most students had engaged in

health literacy experiences only *sometimes.* The experience that students rated as

frequently was the use of written materials (scale ranged from *never*, to *sometimes*, to

frequently, and to *always*).

Cormier and Kotrlik documented that most senior-level, baccalaureate nursing

students enter the workforce with some knowledge and experiences related to health

literacy. Cormier and Kotrlik (2009) stressed the importance of preparing nurses for the

teaching role while in institutions of higher learning. The findings also suggested that

health literacy content should be introduced early in the curriculum and should be

integrated throughout to ensure students receive the practice they require to perform the

skill of communicating with patients. The HL-KES was used as the pretest/posttest

within the dissertation study to determine the knowledge of students prior to the health

literacy seminar and at the end of the clinical immersion experience to evaluate student

retention of knowledge.

Torres and Nichols (2014) examined the health literacy knowledge and

experiences of associate degree nursing students using the HL-KES instrument described

above. Three hundred and ninety-one nursing students participated in the study with a

Cronbach's alpha equal to .82, documented as an acceptable range. The mean score for

the participants was 15.52, ($SD = 3.709$), and scores ranged from 5 to 24. Participants

had some health literacy knowledge, but the knowledge was not consistent between the

five content areas (basic facts on health literacy, consequences associated with low health

literacy, health literacy screening, guidelines for written health care materials, and

evaluation of health literacy intervention). Participants exhibited experience in some

areas of health literacy and lacked experience in other areas. Torres and Nichols

documented consistency with scores obtained on the original study performed by

Cormier and Kotrilik (2009). Torres and Nichols recommend exposing students to health

literacy concepts from the start of their educational experiences and reinforcing that

knowledge throughout their programs of study.

Zanchetta, Taher, Fredericks, Waddell, Fine, and Sales (2013) evaluated

undergraduate nursing students' knowledge of health literacy and barriers that affect

health literacy promotion. Zanchetta et al. completed a qualitative study with 16

undergraduate, year-four, nursing students. The students decided whether to participate

in a focus group or an individual interview. Themes were identified by the researchers.

The first theme identified by the students' responses was the challenges of being effective

health educators in the health care setting. Zanchetta et al. observed many physicians and

nurses providing minimal education to patients, if any. The students also found nursing

staff and other health professionals uninterested in teaching students how to teach

although the teaching of students improved in teaching hospitals and community health

organizations in which patient teaching was better. Limited time to provide patient

education was another barrier to health teaching. The second theme identified by the

nursing students was the importance of the social interactions that took place between

themselves and the patient. They used the theoretical knowledge they learned about

social justice, social inclusion, and critical social theory to assist patients to understand

how important health information was and to increase the patients' independence with

their own health issues.

Barriers to effective health teaching were documented by the students in social

and health care settings. Zanchetta et al. (2013) suggested innovative teaching strategies

by faculty to engage students in developing their skills as health educators in the face of

the barriers listed. Nursing students need to have an awareness of the health literacy

challenges of patients as they enter the health care system.

The National Action Plan to Improve Health Literacy (Office of Disease

Prevention and Health Promotion, 2010) was developed to assist health care professionals

to communicate with patients in a way that assists patients to obtain, process, and use the

information with which they are provided. Currently, approximately nine out of 10

Americans cannot use information they are given, which leads to poor patient outcomes,

more costly care, low quality health services, and poor quality of life. Key strategies to

improve communication and limited health literacy have been identified within the

Action Plan and (a) include simplifying written materials; (b) providing patient teaching

with video; (b) improving the way that providers communicate with their patients by

using a universal precautions approach; or (c) assuming that patients require simple,

clear, accurate information and instructions regarding their health or illness. Seven goals

were identified in the endeavor to improve health literacy. These goals included (a)

educating health care professionals about health literacy and the best ways to

communicate with patients; (b) increasing research, development, and evaluation of

practices and interventions that improve health literacy; and (c) disseminating that

research. The dissertation study addressed these goals by implementing a teaching plan

that educated prelicensure nursing students about how to educate patients and collected

data about whether the teaching plan used prepared the prelicensure nursing student to

perform this skill by allowing SPs to evaluate the communication skills used by those

students.

Theoretical Framework

Adult learning theory. Adult learning theory informs the faculty of the

characteristics of the adult learner (the nursing student). These characteristics must be

considered when determining the content that needs to be presented to students and the

best ways of presenting it. Knowles (1975, 1980, 2012) described the six characteristics

of the adult learner. By knowing the characteristics of the adult learner, faculty can tailor

their teaching to allow nursing students to use their past experiences to guide present

learning, to self-direct certain activities to assist in learning, understand the impact of the

content on their new role as a nurse generalist, and focus on problem-based activities to

build on previous knowledge.

Green and Ellis (1997) used the ALT to guide curricular changes for primary care

internal medicine students. The goal of the study was to develop and implement an

evidence-based medicine (EBM) curriculum and to determine its effectiveness in

improving resident EBM behaviors and skills. Third- and fourth-year internal medicine

residents ($n = 34$) were arbitrarily assigned to groups during the ambulatory care rotation.

These students were divided into a case subject or control groups. The case subjects were

further divided into smaller groups, which were taught the key steps in performing

evidence-based medical reviews to determine the best treatment for their patients. The students used actual clinical scenarios to perform these reviews. Students were asked to complete an EBM skills test, which consisted of 17 questions prior to the EBM course and after course completion to determine if their behaviors and skills improved.

Approximately 82% of participating students completed the pretest/posttest. The case subject group scores improved (8.5-11.0, $p = .001$), and the control group scores did not improve (8.5-7.9, $p = .09$). The mean difference of posttest scores for all students was 3.9 points ($p = .001$, 95% confidence interval). Case-subjects reported increased frequency in examining the methods sections of articles and also an increased frequency of referring to original studies, and the control group did not. The case-subjects group also demonstrated an increased frequency in its ability to evaluate evidence-based materials using the statistical analyses to determine the reliability of the study. Several limitations of this study were noted by Green and Ellis. The first limitation was that random assignment did not take place. Green and Ellis (1997) also noted a possible test-training effect as the same test was given for the pretest and the posttest. Lastly, the Green and Ellis documented that evaluation time was short in their study, and while the reliability and content validity were established, the study lacked validation as only 34 students participated.

Curran (2014) discussed the role of the nursing professional development (NPD) specialist within hospitals. This role of NPD specialist must promote and facilitate the use of evidence-based practices to guide clinical reasoning, competence, and patient advocacy within the nurses of the health care facility. The literature reviewed by Curran documented the need for a theoretical basis for curricular and teaching strategy

development, but there was little evidence that supported one theoretical framework over another. ALT (Knowles, 1984) is described by Curran as a learner-focused, collaborative approach to teaching that most NPD specialists have been taught but rarely utilize to guide their pedagogy. Curran described ALT as the core adult learning principles needed to improve patient outcomes, and lapses may be the reason that knowledge transfer is not occurring when nurses are being taught. The ultimate result of these lapses may be poor patient outcomes.

Clapper (2010) discussed the increasing use of simulation in nursing and medical education. Clapper noted that ALT has guided the curricular choices within this teaching strategy, but simulation adds another layer of complexity to the learning environment, and while ALT explains how some adults learn, higher education is evolving and with these changes, ALT needs to change as well, recognizing that the motivation of the adult learner is internally disciplined. Clapper (2010) describes the many theoretical frameworks that build on the work of Knowles (1975, 1980).

The Clapper noted several key assumptions that affect the adult learner and educators of adult learners.

1. Educators need feedback on any teaching strategy they utilize and this feedback should be constructive and guide adjustments to teaching.

2. Adults bring a lot of baggage to the classroom, and even though they can juggle multiple responsibilities, learning activities need to be essential and meaningful.

3. Educational experiences need to be timely, convenient, and accessible to ease the burden on students.

4. Adult students are self-directed, but they may need additional support within the online learning forum.

5. Learners need safe and trusting environments that promote collaboration and that allow them to explore alternative personal perspectives and critically reflect on those perspectives.

6. Learners need to reflect on learning experiences and to replay the experience after they receive feedback, allowing for attention to the feelings evoked by the experience.

7. Learning involves all of the senses so educators must use them.

8. Adult learners need to inquire, gather, process, and apply new knowledge.

Clapper (2010) evaluated many theoretical frameworks to guide his publication and although adult learning theory is at the forefront of the discussion, strategies used should foster self-directed learning that continues lifelong.

Social cognitive theory. Social cognitive theory guided the selection of teaching strategies and evaluation methods chosen in the dissertation study. The SCT was developed by Albert Bandura (1977, 1986) to explain the factors that influence learning and behavior. This framework has been used to describe learning related to health education for patients or communities, but not to describe the learning that takes place within the classroom and clinical setting for nursing students; however, several references were discussed.

There are several principles that guide the learning process.

1. Behavioral, personal, and environmental factors influence how we learn.

2. Competencies are developed through mastery modeling.

3. People need to believe they can be competent in a skill in order to succeed.

4. Self-motivation guides the goals we set for ourselves. (Bandura, 1988)

Bandura (1977, 1988) discussed the interacting determinants that influence learning which he termed *triadic reciprocal causation*. Each factor (behaviors, personal factors, and environment) influences the other in the learning process. In order for learning to occur, the learner must observe modeled competencies from someone who is proficient in them. Complex competencies are broken down into sub-competencies. The learners then require guided practice performing the competency, so they can perfect it. While the learners are practicing a competency, they need to receive informative feedback and social persuasions that direct their attention to the corrective changes they must make to perform the competency proficiently. Lastly, the learner is assisted to apply this newly acquired competency in the setting in which it will be practiced in ways that reinforce the teachings through vicarious experiences.

Another competency that is required for learning is the need to strengthen the learners' belief that they can accomplish the competencies that are required of them, termed *self-efficacy*. Self-efficacy influences the competencies that the learners feel they can achieve and their motivation to learn and perfect them. During the modeling experience, learners need to see others similar to themselves in order to be able to perform a competency proficiently, called vicarious experiences. If learners do not receive appropriate feedback or are not able to apply the competency they have learned in appropriate situations, they may begin to experience self-doubt and increased anxiety, which leads to a decrease in self-efficacy and a lack of motivation to perform the competency.

The last competency discussed by Bandura (1986, 1988) is the capacity to self-regulate. Self-regulation allows the learners to develop self-motivation and to set goals that they can achieve. Learners with high self-efficacy are able to set goals or outcome expectations that lead to a sense of purpose and direction. Goals need to be explicit with clear guidelines for performance and evaluation of competency attainment. Goals also need to be challenging enough that they strengthen the learner's motivation. Lastly, the goals learners set need to be timely so that proficiency can be seen in the short-term.

Bandura (1988) also discussed the importance of SCT in relation to health promotion and disease prevention activities. Again, he stressed the importance of perceived self-efficacy as a causal structure, which motivates the learners and dictates their actions towards competencies in health promotion and disease prevention. He described the need for people to know how their lifestyle habits affect their health. People's personal efficacy is developed through four sources of influence: mastery experiences, strengthening self-beliefs of efficacy, social persuasion, and somatic and emotional states in judging capabilities.

According to Burke and Mancuso (2012), SCT is integrated in nursing education by the use of simulation, which requires students to learn how to intervene to patient problems from simple to complex. Within the simulation experience, students are expected to be able to master a variety of skills in an environment that is conducive to learning, which requires students to model behaviors of others, using attentiveness, symbolic coding operations, motor retention processes, and motivation (Burke & Mancuso, 2012). This modeling leads the students to make intentional decisions regarding how to invest in their learning and change their behaviors, which is called

human agency. Human agency requires the students to develop their own goals based on how vested they are in attaining proficiency in behaviors, which is influenced by their belief that they can attain their goals or their self-efficacy. Forethought allows the students to anticipate the consequences of their behaviors in relation to others and their environment. Self-reactiveness and self-reflection allow the learners to reflect on past experiences and determine how they can improve their learned behaviors. Feedback is a key determinant of whether the students will increase their self-efficacy about a behavior and set high goals for themselves or whether the students will experience a reduction of their self-efficacy about a behavior and give up trying to attain goals or to set goals that are easily achievable.

Burke and Mancuso (2012) described how the activities of simulation foster learning, utilizing the tenets of the theory. According to the authors, faculty are able to create environments that are conducive to learning by structuring activities during simulation. These activities allow the learners to rehearse the learned material to allow for motor retention processes to occur. The simulation and debriefing activities allow the learners to self-regulate and develop their self-efficacy related to the task at hand. The debriefing process of simulation allows the learners to receive feedback on their skill performance, which is one of the most important steps to simulation. The feedback that students obtain immediately after a simulation activity allows them to understand the stress and anxiety are normal responses to new student-patient encounters. Debriefing also allows the student to cope with the challenges of alternate beliefs, values, and assumptions.

Pike and O'Donnell (2010) also used the SCT to evaluate the impact that clinical simulation has on improving student self-efficacy and clinical competence. Bandura (1986) documented self-efficacy as one of the determinants in improved performance of any activity. Pike and O'Donnell used a qualitative approach to gain an understanding of the perspective of the student regarding the importance of enactive mastery experiences for self-efficacy beliefs, the value of vicarious experiences, and the influence of the educator/mentor on teaching and learning methods within clinical simulation. Nine pre-registration nursing students participated in the Pike and O'Donnell study.

Two major themes arose from the data analysis: students had a low level of self-efficacy in relation to the practicing of communication skills. Although communication skills are identified as an integral aspect of nursing, students felt that their education provided them with little experience with communication, and they had low self-efficacy beliefs about it. The second theme that arose from the data analysis was that clinical simulation experiences need to be authentic to assist in the transfer of learning to the clinical setting. The clinical setting is complex and unpredictable, which makes it difficult to apply concepts learned in the classroom to clinical scenarios. The clinical simulation experience can assist in this transfer if activities are realistic. The findings support the importance of enactive mastery experiences to improve individual self-efficacy beliefs. Pike and O'Donnell noted that limitations to their study included limited sample size and convenience sampling, which make it difficult to generalize the results of the study to nursing education overall. They documented the need for further research to determine effective pedagogical approaches of clinical simulation using quantitative studies with larger sample sizes.

Suter, Suter, and Johnston (2011) applied the SCT theory to improve the self-efficacy of patients with chronic diseases enrolled in a telehealth program. They described the role that health professionals play in structuring experiences that promote self-efficacy in patients, which influences motivation, performance, and affect to change behaviors. The four key constructs that were implemented to improve self-efficacy were mastery experiences, social modeling, social persuasion, and psychological responses. Suter et al. gave examples of how these principles were implemented into specific patient scenarios and the results they obtained. The adult learning theory guided other teaching strategies, such as enhanced perceived relevance, activities that allowed for application of learned concepts, and meaningful information being provided in chunks that allow for easy organization. The telehealth program has demonstrated reductions in preventable re-hospitalizations, which can lead to reductions in health care spending. The importance of building patient self-confidence and improving retention of knowledge in regard to disease management are added benefits of this program.

Anderson, Winett, and Wojcik (2007) evaluated the use of SCT with effective nutrition behaviors. The authors wanted to determine how SCT accounted for the nutritional content of food purchased and consumed by adults in a health promotion study. Approximately 60% of members from Baptist and United Methodist churches in southwestern Virginia participated in the study ($n = 712$). Participants completed psychosocial questionnaires, Block Food Frequency Questionnaires, and provided family food shopping receipts for analysis. The Food Beliefs Survey was refined and piloted with 158 members of two congregations to obtain measures regarding family social support, self-efficacy, outcome expectations, and self-regulation that correlated ($p < .01$)

with nutrition behaviors. Nutrition behavior was measured with the food shopping receipts and with the Block Food Frequency Questionnaires. Three causal models were developed: one each for fat, fiber, and fruits and vegetables. The authors found the efficacy beliefs influenced the expected behavior outcomes.

According to Anderson et al. (2007), self-efficacy from personal and environmental variables promoted more positive and fewer negative expectations about the impact of healthier food choices. Higher self-efficacy led to participants setting goals to eat healthier and to monitor their eating habits. The key factor that influenced the participants' nutritional behavior was the enactment of self-regulatory behaviors for consumption of fat, fiber, and fruits and vegetable purchases and intake (β of .45-.61). Social support and negative outcome expectations were also important determinants of nutrition behaviors (β = -.38 to .36). Limitations to this study were documented as the non-experimental study design and data correlation. The authors suggested a causal link between the psychosocial and nutrition variables. The data from this study suggested that nutritional interventions may be more successful because they strengthen family social support, build self-efficacy, improve the use of self-regulatory behaviors, and dispel negative outcome expectations related to healthy food choices (Anderson et al., 2007).

Allen (2004) evaluated the use of social cognitive theory in relation to diabetes exercise research. The author performed an integrative literature review to examine and summarize the data from 13 studies to evaluate this causal link. All of the studies analyzed had sufficient sample sizes for statistical analyses to be performed. The studies used different measurements to measure self-efficacy. The instrument reliability in nine of the studies reported an internal consistency range from 0.58 to 0.95. Outcome

expectancies were measured in five of the 13 studies with three of the studies having alphas between .54 and .72 and the others having alphas of .85 and .50. The aim of the study was to answer two questions: "Is SCT related to exercise adherence?" and "Can SCT predict exercise initiation and maintenance?"

Of the 13 studies that examined the relationship between SCT, self-efficacy, and exercise, 12 examined exercise as part of a self-care regimen and one examine exercise behavior. Ten of the studies reported a significant relationship between self-efficacy and exercise behavior. Allen (2004) found mixed results regarding the predictive ability of outcome expectancies for exercise behavior. In all five studies, self-efficacy was predictive of exercise initiation; however, three intervention studies found inconclusive evidence that self-efficacy and exercise behavior increased over time. Limitations of this study included few studies for analysis, and only three of those that actually evaluated interventions. Allen (2004) also noted limitations in the sample, which included mostly female, middle-aged, Type 2 diabetic patients, so this population was not generalizable to all populations. The other limitation was the variety of instruments used within the 13 studies. Further studies need to evaluate exercise-specific self-efficacy instruments.

Chapter Summary

This chapter explored the literature that was relevant to the purpose of this study. Extensive data shows the impact of health literacy on patients and the health care system. Knowing that approximately 88% of the population in the United States is below the proficient level in regard to health literacy, improving patient teaching skills is even more important. The best ways to provide patients with the education they require has been

identified and now needs to be disseminated to health care professionals, especially nurses.

Nurses have an instrumental role in patient teaching, but many nurses express a lack of preparation for this role. Many studies show the need to begin health literacy and patient education while nurses are in their prelicensure programs. Many teaching strategies are used to educate nurses, but there is little data to show which strategies assist the prelicensure nursing students to develop the knowledge, skills, and attitudes they require to perform the crucial skill of teach-back, especially to patients with limited health literacy.

To date, studies have examined prelicensure nursing students' knowledge of health literacy and the steps needed to provide a teach-back. The dissertation study evaluated the prelicensure nursing students' knowledge of health literacy and their ability to perform the skill of teach-back using ALT as a guide to the characteristics of the learner and SCT as the framework to guide the process of teaching strategy selection. Both theories assisted the researcher in the choice of evaluation methods.

Chapter Three

Methods

The purpose of the dissertation study was to determine the effectiveness of a teaching plan that combined the strategies of pretest/posttest, classroom activities, and a problem-based learning activity in the form of a clinical immersion experience to determine if this plan would prepare the prelicensure nursing student to perform the skill of teach-back to the patient with limited health literacy. The study was implemented in the first semester of the accelerated baccalaureate program. The accelerated students have a previous bachelor's degree in a field other than nursing and have matriculated into an intensive one year of study. All accelerated students follow the course sequence as outlined in their course program.

Research Design

A non-experimental design guided the dissertation study. This design was chosen because it facilitated the examination of causality when all the parts of a true experimental design were not possible (Polit & Beck, 2012). The design is classified as a nonequivalent group with pretest/posttest to answer research question one, and nonequivalent group with posttest only (CAT) to answer Research Question 2. Students in the intervention group were randomly assigned to clinical groups of eight students each. All clinical faculty members trained to role model the teach-back skill and provide formative feedback, using the strategies learned in the Health Literacy Seminar. The

faculty members were assigned to each group of eight students. Students in the control group were randomly assigned to different clinical groups of eight students each. These groups of students were assigned to clinical faculty who had not received any additional training.

Strength of Design

The strength of a non-experimental design is its practicality. In educational programs, it is often difficult to randomize the participants in the study because groups are already established. This design is preferable to true experimentation for participants who are not necessarily ready to give up their condition or experience (Polit & Beck, 2012).

Limitations of Design

The weaknesses of this design must be understood, so control can be regained by the researcher by addressing these issues. One threat to the internal validity of the study is that of selection in which students are participants in the study, but they are not from a truly random population. This threat was controlled by using a comparison group that was similar to the intervention group. The similarity of the groups was assumed as all students who entered the accelerated nursing program completed the same prerequisite requirements and had to meet the same entrance criteria to matriculate in the program. If the groups are truly similar, it can be inferred that the scores they receive on the pretest/posttest, and the scores on the posttest only (CAT, SP encounter) will be the result of receiving the intervention and not a result of any alternative cause (Polit & Beck, 2012). A testing threat was also possible. Polit and Beck (2012) describe this threat as a change in posttest scores due to the prettest. The two tests were given 10 weeks apart to

control for this threat. There was also the possibility of an instrumentation threat as the students were evaluated by different SPs. All SPs were trained on the tool they were using (CAT), but the possibility that they had evaluated the students differently was still there. Mortality threat was also possible as both groups were at risk of losing students. In this case, all participants continued in the program although all did not complete the SP encounter. Design contamination was a possible threat as well because all students took all of their required coursework together; the intervention group may have discussed with other students the knowledge they had gained and how the intervention was different. The students in the intervention group were instructed not to discuss their teaching strategies with the other students although they still may have, which also had the potential to cause a compensatory rivalry between the students in which the members of one group think they are receiving more or less than another group (Trochim & Donnelly, 2008).

Research Assumptions

1. Students in the intervention group and the control group are similar.

2. Clinical faculty and standardized patients received similar training to prepare them for participation in the study.

3. Students in the intervention group received the same intervention and received similar formative feedback from their clinical faculty during the problem-based clinical immersion experience.

4. The Communication Assessment Tool was an effective measure to determine the students' ability to educate patients with limited health literacy.

5. The standardized patient would evaluate each student objectively and accurately using the CAT as per their training to the role.

6. The scores on the CAT evaluated students' ability to perform the skill of patient teaching to standardized patients demonstrating limited health literacy.

Setting

The dissertation study took place at a health professional university in Philadelphia, Pennsylvania. Approximately 128 students are matriculated into the accelerated prelicensure nursing program each May. Students are expected to meet all requirements for acceptance into the program before beginning the program. All accelerated prelicensure nursing students follow a similar course sequence throughout the prelicensure nursing program. All students attended class lectures together and were broken down into random groups with a maximum of eight students for clinical experiences.

Students performed and practice their clinical skills in a simulation center within the university. The clinical immersion experience took place in one of the many acute care facilities affiliated with the university.

Sampling Plan

A nonprobability convenience sampling plan was used for this study. This plan was chosen because of its practicality in nursing research. All accelerated prelicensure nursing students were enrolled in the Fundamentals course at the same time. This course was the students' first nursing course. Throughout the summer semester, students were divided into two groups for all fundamental skills learning. Both groups received their didactic instruction together in the morning, and then one half of the group went to the

simulation center where they practiced the learned skill for approximately 3 hours. That group was then dismissed for the day, and the other group entered the simulation center and practiced the learned skill for approximately 3 hours before being dismissed.

The only day of the Fundamental course that differed for the accelerated students participating in the study was the last day of the course (June 9, 2015) in which students received their orientation to their clinical rotation and their communication lecture. Students in the intervention group completed their communication lecture and their simulation laboratory experience early in the day, and then returned to the classroom for the Health Literacy Seminar (the first part of the study). Students in the control group and students not participating in the study went to their simulation laboratory experience later in the afternoon. They practiced performing a teach-back demonstration, which ended their communication experience.

From this point forward throughout the semester, students continued in their assigned groups. The members of the intervention group began their problem-based clinical immersion experience, and the members of the control group began their clinical rotation as usual. The members of the intervention group practiced a teach-back demonstration each week during their post-conference session. The members of the control group may or may not have had the opportunity to perform a teach-back demonstration while in their clinical rotation. The focus of the post-conference session for the control group was the choice of the clinical faculty member. All students continued to be assessed on their attaining the clinical objectives assigned to the course.

The aim of quantitative research studies is to achieve statistical conclusion validity that can be generalized to a population (Polit & Beck, 2012). Although this

sample was not an inclusive representation of all nursing students, it was representative of the nursing student population at this prelicensure nursing school. Random assignment was selected to strengthen the equivalence of the study groups. The benefit of this sampling plan was that it was practical, accessible, and less time consuming than probability sampling (Polit & Beck, 2012). The limitation of this type of sampling plan was the ability to generalize the data that was collected.

Eligibility Criteria

Inclusion criteria. All accelerated prelicensure nursing students were asked to participate in this study. Students consenting to participate were assigned to either the intervention or control group. Students all met the same entrance criteria and were matriculated into this prelicensure nursing program.

Exclusion criteria. There was one exclusion criterion. Students who did not consent to be in the study were excluded.

Determination of Sample Size

Power analysis. Prior to data analysis, a power analysis was completed using *G*Power,* a free software program (http://www.psycho.uniduesseldorf.de/aap/projects/gpower/). This power analysis indicated that 102 study participants (51 participants for each group) would provide sufficient statistical power to detect a moderate effect size between the variables, which should be a sufficient statistical power for the analysis ($\alpha = .05$; power [$1 - \beta$ err prob] = 0.80).

Study Participant Recruitment

Study participants were recruited from the accelerated students who began their course of study. During the orientation meeting for these students, the study was described, and all students were invited to participate in the study as required by the host nursing program. All participants were advised that consent would be required prior to the completion of the pretest. Students were made aware that grades would not be affected by their participation in the dissertation study. A reminder email was sent to students and participation was finalized several days later so that clinical assignments could be completed. A total of 36 students signed consent forms. All students agreeing to participate in the study were randomized using a sealed envelope technique; they were divided into two groups: an intervention group ($n =24$) and a control group ($n = 12$). Each sealed envelope was given a number (1 through 36). This number was used by the study participants as an identifier on all completed surveys.

During the final recruitment, many students approached the researcher and documented a desire to be a part of the study, but they described a feeling of anxiety and a feeling of being overwhelmed by their course schedules and fundamental laboratory activities. They felt that participation in the study would require extra resources that they were not able to provide. This concern was confirmed by the two students who initially consented to participate in the study and who later withdrew their consents; the students reported that they did not realize the magnitude of the coursework that was required of them in the accelerated nursing program when they agreed to participate.

Sample Size

After all recruitment activities, 36 students consented to participate in the study. Twenty-four students were assigned to the intervention group and 12 students were assigned to the control group. Prior to the pretest, two students in the intervention group withdrew from the study leaving the intervention group with an *n* of 22. One student from the intervention group and one student from the control group failed to complete the posttest, so those pretest scores were deleted from this report. The final total of participants was 32 (*n* = 21 in the intervention group and *n* = 11 in the control group). The proposed minimum subjects required for each group was 51.

Protection of Human Subjects

Institutional review board (IRB) approval from Nova Southeastern University and Thomas Jefferson University was obtained prior to conducting the dissertation study (see Appendix C and Appendix D). All students signed a consent form prior to participating in the study. Participant information was kept confidential and will be kept in a locked file cabinet for at least 1 year after the study. Demographic data was obtained from all study participants during the pretest. The identifier number given the students earlier was placed on the pretest/posttest, and the CAT was completed by the SP.

Data Storage

Any information collected from students was kept strictly confidential. No identifying information was provided in the research report. Students completed survey information on their iPADs using SurveyMonkey, an electronic survey software program, and information collected was stored in the researcher's work computer, which is

password protected and locked in an office. The only people with access to this data were the researcher and the members of the dissertation committee.

Risks and Benefits of Participation

The benefit of participating in this study was that the intervention group would gain the skills required of them to perform the skill of teach-back to patients with limited health literacy. There were no risks to participating in this study. Participation in this study had no influence on any course or clinical grades.

Procedures

A teaching plan, including pretest/posttest, classroom activities, and problem-based clinical immersion experience, was implemented in the summer semester for matriculated accelerated prelicensure nursing students in the intervention group. On the orientation day for the accelerated program, all prelicensure nursing students who matriculated into the accelerated program were invited to participate in the study. Students were made aware that the researcher is a faculty member at the university but that she was not a course faculty member. The students were all made aware that all aspects of the study would be kept confidential and not shared with their course faculty. Students who were interested signed a consent form. Based on the response rate the first day, a reminder email was sent to the students. Students were able to consent to participate in the study until several days later when the clinical assignments were posted by the course lead.

After all student consents were collected, a sealed envelope technique was used to randomize the students into the intervention group and the control group. Each participant's name was placed in its own envelope and sealed. The envelopes were

placed in a container and an administrative assistant pulled one envelope out of the

container at a time and placed them in the intervention or control group, alternating them.

The intervention group was allotted a number that was a multiple of eight due to the

configuration of clinical groups. After randomization, each student was assigned a

number starting with 01 and continuing with 02, 03, 04, and so forth until all students had

a number. This number was placed on all survey documentation for identification

purposes. Once this was completed, the pretest was sent to all participants via

SurveyMonkey.

The students in the intervention group ($n = 21$) were assigned to three clinical

faculty members who had been trained to provide specific feedback to teach-back. This

feedback was provided during the clinical day and during the post conference each day.

The students in the control group ($n = 11$) were randomly assigned to clinical groups with

the students who were not participating in the study. Those clinical faculty members

received no special education about the teach-back skill. The control group students

received no specific feedback on teach-back during the 10-week clinical experience. The

clinical experiences for all students were two 12-hour shifts per week for 10 weeks. The

teaching plan ended with a SP encounter and posttest completion on August 10, 2015.

Each strategy is delineated below.

Pretest/Posttest

The pretest was given to all study participants prior to their communication

lecture. The pretest was the Health Literacy Knowledge and Experience Survey

(Cormier, 2006). The students accessed the pretest on their iPAD, which required them

to enter their identification number as described earlier. Upon entering the

SurveyMonkey pretest, students were required to enter their demographic data, which included their age, gender, ethnicity, prior educational experience, certification in an area of health care, and how frequently they interacted with health care providers for themselves or a significant other. The student was forced to complete the demographic data but had the ability to choose an answer choice, which stated, "I do not wish to answer this question." Once demographic data was completed, the HL-KES began. It consisted of 39 questions, which assessed students' knowledge and experiences as they relate to health literacy. This survey was administered again after the 10-week clinical experience to determine how much information the students retained during their first clinical experience.

Health Literacy Seminar

The Health Literacy Seminar (HLS) was a four-hour learning experience in which the intervention group received a combination of didactic learning about health literacy and active learning in which they were able to practice skills learned during the didactic learning session. Several key concepts were introduced during the didactic learning session: (a) how to use plain language in conversation and teaching patients, (b) use of culturally and linguistically appropriate messages, (c) designing messages that require patient participation, (d) evaluating the effectiveness of communication (teach-back), (e) improving written communication, (f) improving patient self-management and empowerment, and (g) improving supportive systems (Coleman, 2011). This content was determined after analyzing all of the pretest scores and identifying the weaknesses within those content areas. Participant responses and analysis of content areas can be found in Appendix E. The National Action Plan to Improve Health Literacy (Office of Disease

Prevention and Health Promotion, 2010), released by the U.S. Department of Health and Human Services, was also utilized as a guide to develop the learning activities presented in this seminar. Each session had short lectures followed by 35 minutes of activities. A detailed explanation of each session can be found in Appendix F. Participants were asked to complete an evaluation survey about the HLS; this information was not used in the analysis but assisted the researcher to improve the HLS in the event it was recommended for use with future groups.

Problem-Based Learning/Clinical Immersion Experience

A teach-back demonstration was performed to assess whether prelicensure nursing students were able to perform the skill of patient teaching to patients with limited health literacy. All intervention group participants were introduced to this content during the HLS and were now able to practice performing this skill in the clinical setting. According to Benner (2001), each person brings his or her own history to every clinical situation. This past experience must be clarified and understood before the nursing student can perform the skill and become an expert at it. This skill takes a great deal of practice on the part of the prelicensure nursing student. The nursing student needs to see an expert model the right way to perform a skill so that personal experience can be meshed with the clinical situation. Benner goes on to describe the need for nursing students to develop their own *know-how* by practicing a skill and putting it into context with their past and present experiences. The student must receive feedback on skill performance and must be allowed to continue to practice this skill in order to demonstrate continuous improvement so that the novice can eventually become more proficient.

The purpose of the clinical immersion experience was to allow the prelicensure nursing students to learn the skill of teach-back for limited health literacy patients and to practice that skill, receiving frequent formative feedback until the end of the semester when they would perform the skill and be evaluated on their performances by a SP.

All accelerated prelicensure nursing students began their first clinical rotation the week following the HLS. All students continued on their assigned floor in their assigned clinical groups for the entire 10 weeks of the clinical rotation. The clinical faculty oriented the students to their clinical floors the first day of clinical rotation and discussed the expectations of the students. Each clinical day concluded with a post-conference session, which was either focused on patient teaching and the skill of performing a teach-back (the intervention group) or was determined by the clinical faculty.

The intervention group practiced the skill of teach-back during the post-conference session each week. All intervention group participants had post-conference sessions together to ensure that they all received the same education and formative evaluation. The first post-conference session was a "modeled" teach-back demonstration in which two of the trained clinical faculty role modeled the preferred method of performing patient teaching. The intervention group was given time to practice this skill by breaking into groups of two and being evaluated by the clinical faculty. The clinical faculty member also provided the students with formative verbal feedback regarding the experience. Each post-conference session focused on a different concept related to the skill of teach-back for patients with limited health literacy. A detailed description of weekly post-conference discussions and assignments is included in Appendix H. Participants were given the opportunity during this clinical rotation to perform a teach-

back demonstration on a real patient and to receive formative verbal feedback on this skill if they wanted to practice. All participants in the intervention group performed at least one teach-back on a real patient. The clinical rotation was evaluated by the clinical faculty using a pass/fail grading system. The students' performances of a teach-back demonstration were not included in their clinical evaluation.

The purpose of the post-conference experience was to provide the participants with a focus during their clinical rotation and to provide them with feedback on the ways they could improve their skills. A post-experience survey was completed by all intervention group participants. This survey asked them to evaluate the problem-based learning experience, and although it was not part of the analysis, it provided the researcher with information about the benefits and limitations of the experience.

Instrumentation

Two different evaluation methods were used to determine if the participating students had retained the information they had been taught: the HL-KES posttest and the ability to perform the skill of teach-back to a patient with limited health literacy, evaluated by the CAT. All participants completed the HL-KES prior to their communication lecture, and all but one participant in the intervention group and one participant in the control group completed the HL-KES again after their clinical rotations. These withdrawn participants' pretest scores were eliminated from the data analysis. Participants were sent several email reminders to complete the posttest HL-KES. All study participants were scheduled to complete the SP experience and be evaluated by the SP with the CAT on the last day of semester one. Prior to the SP experience, all course students were scheduled to take a nationally normed two-hour integrated exam. The SP

experience was scheduled to begin 30 minutes following the achievement test. Twenty participants from the intervention group and seven from the control group completed the SP experience. When participants were approached later and asked why they did not attend the SP encounter, the participants reported feeling overwhelmed and exhausted after their final exams and the integrated exam. This situation will be discussed in Chapter 5. The students also had only a week off before their next semester began, and many had made travel arrangements to go away during their very brief break, and so they decided not to attend the SP encounter.

Instrument 1 Health Literacy Knowledge and Experience Survey (HL-KES)

The HL-KES was developed by Cormier (2006) to assess senior level baccalaureate nursing students' knowledge and experiences related to health literacy. The HL-KES is divided into two parts. The first part of the survey is the health literacy knowledge section, which included 29 multiple-choice items developed to test participants' knowledge in five areas: basic facts on health literacy, consequences associated with low health literacy, health literacy screening, guidelines for written health care materials, and evaluation of health literacy interventions. The second part of the survey included nine items that required the students to describe how often they engaged in health literacy learning activities during nursing school. This portion of the survey was called the Health Literacy Experiences section, and it consisted of items designed to capture specific learning experiences related to health literacy; however, the principle component analysis with varimax rotation method revealed that two constructs existed: Core Health Literacy experience and Technology Health Literacy Experience. The two constructs explained a total of 57.15% of the variance in health literacy experience.

Validity

The content validity index (CVI) asked five experts to evaluate individual items on the survey and the overall survey instrument. The experts agreed that with a rating of 0.98, the content validity of the HL-KES was excellent. The content experts rated each item in the first part of the instrument using a four-point scale: 1 for *not relevant*, 2 for *fairly relevant,* 3 for *relevant*, or 4 for *very relevant*. A CVI rating of 1.0 was calculated on 28 of the items. The remaining item received a CVI rating of .80. Pilot testing of the instrument documented difficulty indices ranging from 0.15 to 0.88.

Reliability

The second part of the survey was the health literacy experience section, which consisted of nine Likert-type items with an exemplary reliability ($\alpha = 0.82$) explaining 42.11 percent of variance. The nine items were designed to capture different experiences related to health literacy. The principle component analysis with varimax rotation method revealed two distinct constructs. The first construct was labeled Core Health Literacy Experience (CHLE) and captured basic health literacy learning activities. The second construct was labeled Technology Health Literacy Experience (THLE), and it addressed the use of audiotapes, videotapes, and computer software used to provide patient teaching. A criterion rating of .60 or higher is considered a good estimate of reliability according to Polit and Beck (2012).

To develop this instrument, Cormier (2006) collected data over three semesters, including approximately 360 senior, baccalaureate, nursing students enrolled at state universities in Louisiana. All of the students were enrolled in their last semester of required clinical courses. Cormier (2006) demonstrated that many senior-level

baccalaureate nursing students have some knowledge and experience related to health literacy as they enter the health care workforce, but many gaps exist: identifying older adults as a high-risk group, conducting health literacy screening, and implementing health literacy interventions. Cormier also showed the student experiences related to health literacy varied but were limited, especially related to conducting health literacy screenings, assessing the suitability of written materials, and using technology when providing health care teaching. A copy of the HL-KES can be found in Appendix C.

Scoring

The first part of the survey required 29 multiple-choice questions to be answered with the participant circling the correct response for each question (Cormier, 2006). Participants were also instructed to record only one response for each question. The second part of the survey required the participants to describe how often they participated in learning activities related to health literacy while enrolled in nursing school. This section of the test included nine items to which the participants chose the response that best described their health literacy experiences while enrolled in nursing school with a 1 for *never,* and a 4 for *always.* In the dissertation study, students completed the survey on their iPads. They were required to answer each question before they could move to the next question. The possible range of scores for this survey were 0 to 29 with 0 indicating no knowledge of health literacy and 29 indicating high health literacy knowledge. The scores on the second portion of the survey ranged from 1 to 4 on each item with 1 indicating no health literacy experience and 4 indicating many health literacy experiences.

Instrument 2: Communication Assessment Tool

The CAT, developed by Makoul et al. (2007), consist of 15 items, written at a fourth-grade reading level, requiring the patient to respond using a five-point scale ranging from *poor* to *excellent*. The tool was developed to assess the interpersonal and communication skills of nurses during nurse-patient interactions.

To generate the items, Makoul et al. (2007) assessed current practices at different physician offices to assess communication. They also wanted to make sure that the developed tool would consider the individuality of each physician in achieving the goal of patient teaching and communication. Following this step, the authors polled lay-person focus groups to determine how to rate items. A national survey was then conducted to determine item importance ($n =$1011, 41% response rate). Twelve items were retained from this survey, and three items were added based on an assessment of significant gaps in the items. Makoul et al. (2007) also wanted to ensure that patients would be able to read the questions and answer them easily. They used a Lexile analysis to determine the readability of the items with a value of 1000 indicating a level of eighth-grade text and more than 80% comprehension. The CAT items ranges from a Lexile value of 260 to 760 indicating an average Lexile value of 510, which corresponds to a fourth-grade reading level.

Validity

To establish the validity of the tool, Makoul et al. (2007) used an existing patient satisfaction tool routinely collected by another group of physicians. The authors compared the CAT ratings for three physicians with the lowest satisfaction scores (78, 78, 79) and the three physicians with the highest satisfaction scores (98, 99, 99) on the

initial tool. The CAT ratings were different for the two groups with average CAT ratings of 4.28 (*SD* = 0.67) for the low patient satisfaction physicians and average of 4.92 (*SD* = 0.23) for high patient satisfaction (*df* = 173, *p* < .001), which reinforces the validity of the CAT.

Reliability

For instrument development, a pilot study was done by Makoul et al. (2007) to determine the psychometric characteristics of the items. More than 600 patients completed the CAT after their physician visits. Exploratory factor analysis with principle components extraction and varimax rotation revealed one factor that accounted for 78.8% of variance. The results of the pilot study indicated the 15-item CAT was internally consistent and highly reliable with a Cronbach's coefficient alpha of 98.

The CAT was piloted by 38 physicians asking 25 patients to complete the CAT. More than 950 patients completed the CAT. A broad age range of patients completed the CAT with an average age of 45 to 54. The 15-item CAT was documented as a reliable and valid instrument for measuring patient perceptions of physician performance in interpersonal and communication skill. This tool has been used for physician groups and for nursing groups (Makoul et al., 2007). A copy of the CAT can be found in Appendix B.

Scoring

The tool required participants to rate how they felt about the way their physicians communicated with them. Participants were told to circle the answer that rated their physician's communication with a 1 for *poor* and a 5 for *excellent*. For the dissertation study, the nurses' CAT, which is simply substituting the term nurse for physician, was

utilized with permission from the author and administered to the participants. In the

dissertation study, the SP completed the CAT after the participant performed a teach-

back. The SPs completed the survey on an iPad that was provided for them. Each SP

was educated how to use the iPAD prior to the encounter and practiced entering their

scores until proficiency in this usage was documented.

General Statistical Strategy

All data collected for the dissertation study was entered and analysis was

performed using the Statistical Package for Social Sciences (SPSS) version 23 for

Windows (2015). According to Bannon (2013), there are several steps to data analysis

that should be followed for any research study. These steps included the following:

1. Data must be entered correctly.

2. Data must be evaluated for outliers and analyzed to determine if they are

    appropriate for the analysis.

3. Univariate analysis must be completed to describe the variables.

4. Bivariate analysis must be completed to determine how two variables are

    related.

5. Multivariate analysis will be completed to determine how multiple variables

    are related.

6. The results must be written up and reported.

Parametric statistics were completed that allowed for assumptions to be made

about the data (normal distribution of scores and homogeneity of variance).

Nonparametric statistics were performed to examine the relationship between the

variables. Descriptive statistics were completed to describe the characteristics of the

sample. Inferential statistics were used to make inferences about the population based on the survey results.

Data Cleaning

Participants received an email with the link to the SurveyMonkey pretest and posttest. The participants opened this email on their iPAD and answered the questions as they appeared. For Part 1 of the HL-KES, participants were required to answer each question prior to advancing to the next question. For Part 2 of the HL-KES, participants were able to respond to the questions using a Likert-type scale with 1 for *never* and 5 for *always.* Each question required a response prior to advancing to the next question. Outliers were evaluated and the researcher determined if responses needed to be removed from the analysis.

Descriptives

Descriptive statistics were collected from the participants at the end of the pretest and posttest. Participants were asked their age, gender, race, prior education, and frequency interacting with a health care provider. Measures of central tendency were reported for the scores on the HL-KES.

Reliability Testing

According to Polit and Beck (2012), reliability is used to assess the consistency with which an instrument measures the target attribute. The reliability of each of the instruments has been discussed previously, and the tools were chosen because of their reliability. When considering the reliability of the study, Polit and Beck (2012) document the need to consider the stability, internal consistency, and equivalence. Stability is the ability to obtain similar scores on separate occasions, which is measured

by test-retest reliability that was done to assess HL-KES scores before and after the learning activity. These scores were assessed for both the intervention and the comparison groups. A reliability coefficient was computed. The scores could range from 1.00 to -1.00, describing the relationship between variables. One limitation of the test-retest reliability is that some traits will change over time without outside influences. To account for this limitation, a control group was assessed using the test-retest reliability. Polit and Beck (2012) describe attitude, knowledge, and perception as variables that can change without the influence of an intervention. Another issue related to pretest/posttest reliability is that the answers to the second test can be influenced by the first test if there is little time between evaluations. To account for this issue, the tests were given approximately 10 weeks apart. A second testing can cause students to haphazardly answer questions without a focus on detail because they remember the test.

Internal consistency is measured by the Cronbach's alpha or coefficient alpha. The Cronbach's alpha estimates the extent to which different subparts of an instrument are reliably measuring a critical attribute (Polit & Beck, 2012, p. 333). In most social science research, a Cronbach's alpha of .70 or higher is in the acceptable range. This measurement can be computed by the SPSS Version 23 statistical program.

Equivalence requires two or more observers to agree about scoring (Polit & Beck, 2012). Equivalence was accomplished by the researcher and the research dissertation committee assessing the results of the study.

Hypothesis Testing

To ensure that data met the assumptions required for the statistical test, descriptive statistics, mean, minimum, maximum, and standard deviation were analyzed.

The assumptions of normally distributed difference scores were examined for skew and kurtosis. Homogeneity of variance with a Levene's statistic were examined.

Research Question 1

Research Question 1 was the following: Will prelicensure nursing students retain the information they are taught through the pretest/posttest, classroom activities, and problem-based learning experience (clinical immersion experience)? A paired-sample t test was used to analyze the data from the pretest/posttest. The mean, minimum, maximum, and standard deviation were analyzed. These scores were analyzed for both the intervention and the control groups. The assumptions of normally distributed difference scores were examined by evaluating the skew and kurtosis levels. To evaluate the homogeneity of variances a Levene's statistic was examined.

Research Question 2

Research Question 2 was the following: Will the combination of pretest/posttest, classroom activities, and problem-based learning activity prepare the prelicensure nursing student to teach patients with limited health literacy using a teach-back? The CAT was completed by the SP after the participants performed their teach-back. A logistic regression mode with robust, clustered standard error was completed to account for the correlation within the standardized patients. The p value, odds ratio, and counts percentages were evaluated.

<div align="center">

Limitations

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Throughout this section, the limitations have been discussed. Additional threats to internal and external validity are described below. A non-experimental design was chosen because random assignment is not possible. The students participating in the

study had already been accepted into the program and all students take the same courses at the same time. This factor has been controlled by randomly selecting participating students to be either in the intervention group or the control group. All students met the same acceptance criteria, so for this university, it was assumed that the population represented a typical accelerated prelicensure nursing student.

Threats to Internal Validity

Threats to internal validity included history, mortality, regression, selection, and testing (Trochim & Donnelly, 2008). Each of these threats will be discussed in Chapter 5.

Threats to External Validity

Threats to external validity have also been identified and include compensatory rivalry, diffusion of treatment, and resentful demoralization (Trochim & Donnelly, 2008). Each of these threats will be discussed in Chapter 5.

Chapter Summary

The chapter included a description of the study design and research assumptions. The dissertation study took place within a university setting in which students were assigned to their courses upon matriculation into the program. These groups were limited by the size of the group as 128 students are the maximum number of students matriculated each year. To improve the reliability and validity of the study, participants were randomly assigned to different clinical groups within the intervention and comparison groups. tools were used to evaluate whether the teaching plan prepared the accelerated prelicensure nursing student to perform the skill of teach-back to patients with limited health literacy. The HL-KES was used evaluate knowledge retention and the

CAT was used to evaluate students' ability to perform the skill using effective

communication.

Chapter Four

Results

The purpose of this study was to determine the effectiveness of a teaching plan that combined the strategies of pretest/posttest, classroom activities, and a problem-based learning activity in the form of a clinical immersion experience to determine if accelerated prelicensure nursing students would retain the information they were taught at the beginning of the semester and could bridge the theory-practice gap by performing the skill of teach-back proficiently at the end of the semester. Data collection took place between May and August 2015. Analysis of the data was completed using SPSS Version 23 (2015) and is presented within this chapter.

Data Cleaning

Data from the two tools was completed by the participants on their iPAD. Each question required an answer selection prior to progression. Each variable was coded and a data dictionary was established to define terms. Data was imported from the SurveyMonkey program into the SPSS Version 23 program to create a database. The data were cleansed to detect, correct, or remove incorrect or inaccurate values. All questions were answered by all participants. No outliers were found.

To analyze the pretest and posttest, all correct answers were coded as a 1 and all incorrect answers were coded as a 0. For the CAT, based on the number of responses, data were collapsed into two categories: all ratings of *poor* and *fair* were grouped

together and given a 1; all ratings of *good* and *very good* were grouped together and given a 2. The researcher then determined if any data required recoding; none was required.

To answer Research Question 1, Will prelicensure nursing students retain the information they are taught through the pretest/posttest, classroom activities, and clinical immersion experience? A paired samples *t* test was used to assess the changes in scores from the pretest to the posttest. There were several assumptions that had to be considered when performing this parametric testing and they included the following:

1. The dependent variable was measured at the interval or ratio level using a continuous scale.

2. Scores were obtained using a random sample from the population.

3. The observations that made up the data were independent of one another.

4. The populations from which the samples were taken were normally distributed.

5. The samples obtained were from populations of equal variances.

6. The difference from the two scores obtained for each subject was normally distributed (Pallant, 2007).

The overall significance was calculated, the mean values were compared, and the effect size was determined utilizing Cohen's d (Polit & Beck, 2012). The Cohen's d is described as a way to estimate the effect size or the magnitude of the relationship between the variables.

To answer Research Question 2, Will the combination of pretest/posttest, classroom activities, and clinical immersion experience prepare the prelicensure nursing student to educate patients with limited health literacy?, a logistic regression model with

robust, clustered standard errors was completed to account for the correlation within the standardized patients. The p value, odds ratio, and counts and percentages were reported. Each analysis was performed separately, so individual p values and 95% confidence intervals were reported. Several assumptions must be considered: (a) the scale of measurement should be interval or ratio, (b) all subjects will provide a score for both variables, (c) the observations that make up the data will be independent from one another, (d) scores will be normally distributed, (e) the relationship between the two variables will be linear, and (f) homoscedasticity will be confirmed (Pallant, 2007).

<div align="center">**Descriptives**</div>

Description of the Sample

The subjects in the study were accelerated prelicensure nursing students taking their first clinical course. All 128 accelerated prelicensure nursing students were approached and 32 students consented with the predominant amount of participants being female in both groups ($n = 18$, intervention group; $n = 10$, control group). The age range of the participants was 22 to 39 years of age ($M = 26$, $SD = 3.87$) in the intervention group and 22 to 42 years of age ($M = 27.8$, $SD = 4.81$) in the control group. All participants within both groups had at least one undergraduate degree before entering nursing school ($n = 32$), and three students had at least a master's degree before entering the accelerated prelicensure nursing program ($n = 2$ in the intervention group, and $n = 1$ in the control group). Most participants in the study listed their race as White ($n = 19$ in intervention group, and $n = 9$ in the control group). Two participants in the intervention group listed their race as Asian, and two students in the control group listed their race as more than one race. Participants were also asked if they were certified in some area of

health care (nursing assistant, radiology technician, emergency medical technician, or

licensed practical nurse). Nine from the intervention group and two from the control

group listed yes.

Table 1

Frequencies and Percentages of Sample Demographic Data

Variable	Category	Intervention group		Control group	
		N	*%*	*n*	*%*
Age	22-26 years	11	52.4	4	36.4
	27-32 years	9	42.8	6	54.5
	33-37 years	0	0	0	0
	38-42 years	1	4.8	1	9.1
	Total	21	100	11	100
Gender	Female	18	85.7	10	90.9
	Male	3	14.3	1	9.1
	Total	21	100	11	100
Race	Asian	2	9.5	0	0
	White	19	90.5	9	81.8
	More than one race	0	0	2	18.2
	Total	21	100	11	100
Prior education	At least one undergraduate degree	21	100	11	100
	At least master's degree	2	9.5	1	9.1
Frequency interacting with health care provider	At least once a year	10	47.6	6	54.5
	Three to four times a year	11	52.4	5	45.5
	Total	21	100	11	100

Note: N = 32

Participants were also asked how frequently they had the opportunity to interact

with health care providers for their own personal health care needs or the health care

needs of a significant other. In the intervention group, 10 listed at least once a year, and

11 listed three to four times a year. In the control group, six listed at least once a year

and five listed three to four times a year.

Reliability Testing

The HL-KES was the tool utilized to assess participant knowledge and experiences related to health literacy. This tool was used to answer research question one. The Cronbach's alpha for this scale was 0.734 for the intervention group and 0.768 for the control group, indicating very good internal consistency of the scale. These results were similar to the results found by Cormier and Kotrlik (2009) who documented a reliability with Cronbach's alpha scores of 0.79 and 0.72.

The CAT was the tool utilized to assess participants' ability to teach-back. This tool was completed by the SP. The Kuder-Richardson 20 (KR20) coefficient was 0.8936, indicating very good internal consistency of the overall scale. Makoul et al. (2007) documented an overall Cronbach's alpha score of 0.96 on the entire instrument.

Research Questions

This study contained two research questions. Study participants responded to the pretest/posttest (HL-KES); the CAT was completed by the SPs. The data that were collected provided the results to the two research questions. A total of 32 students participated in the pretest/posttest ($n = 21$, intervention group; $n = 11$, control group) and a total of 27 students ($n = 20$, intervention group; $n = 7$, control group) participated in the SP encounter. Demographic information collected during the pretest described the sample. Frequencies and percentages (see Table 1) and descriptive statistics of the demographic data for each group are listed below. All students participating in the SP encounter were evaluated for their performance of the teach-back skill.

Research Question 1

The first question was the following: Will prelicensure nursing students retain the information they are taught through the pretest/posttest, classroom activities, and problem-based learning experience (clinical immersion experience)? In order to answer this question, a paired samples *t* test was used to compare the mean scores on the pretest (HL-KES, Part 1) to the (a) mean scores on the post-test (HL-KES, Part 1; *M* = 71.59, *SD* = 9.56, *SEM* = 2.08) pretest intervention group, (b) posttest intervention group (*M* = 77.50, *SD* = 8.83, *SEM* = 1.92), (c) pretest control group (*M* = 71.15, *SD* = 8.76, *SEM* = 2.64), and (d) posttest control group (*M* = 76.49, *SD* = 8.42, *SEM* = 2.54). These scores were compared for both the intervention group and the control group, and the results can be found in Table 2.

Descriptive statistics, mean, minimum, maximum, and standard deviation were analyzed to show the similarity between the groups. Prior to conducting the analysis, the assumptions of normally distributed difference scores were examined and considered satisfied as the skew and kurtosis levels were reported at (a) -2.87 (*SE* = .501); (b) -.607 (*SE* = .972) for the pretest, intervention group; and (c) .410 (*SE* = .661); -.794 (*SE* = 1.279) for the pretest, control group (see Table 3). According to Bannon (2013), the skew/*SE* skew was 2.0 or less, which approximated a normal distribution, and kurtosis/*SE* kurt was at least 2.0 or less, which approximated a normal distribution.

Table 2

Results Paired Samples t-Test Comparing HL-KES Pretest Scores to Posttest Scores for Intervention and Control Groups

Group	Test	*M*	*SD*	*t*	*DF*	Sig	Cohen's *d*

Table 2

Results Paired Samples t-Test Comparing HL-KES Pretest Scores to Posttest Scores

for Intervention and Control Groups

Group	Test	*M*	*SD*	*t*	*DF*	Sig	Cohen's *d*
Intervention group	Pretest	71.59	9.56	-3.20	20	.004*	.642
	Posttest	77.50	8.83				
Control group	Pretest	71.16	8.76	-2.37	10	.039*	.620
	Posttest	76.49	8.42				

Table 3

Descriptive Statistics of HL-KES Pretest Scores for Intervention and Control Groups

Variable	Group	*n*	Min.	Max.	*M*	*SD*	Skewness Result	*SE*	Kurtosis Result	*SE*
Pretest	Interv.	21	51.72	86.21	71.59	9.56	-.287	.501	-.607	.972
	Control	11	58.62	86.21	71.16	8.76	.410	.661	-.794	1.28

For the posttest (Part 1), the descriptive statistics, mean, minimum, maximum, and standard deviation were analyzed to show the similarity between the groups (Table 4). Prior to conducting the analysis, the assumptions of normally distributed difference scores were examined and considered satisfied as the skew and kurtosis levels were reported at .335 (*SE* = -.501) and .501 (*SE* = .972) for the intervention group, and -.055 (*SE* = .661) and -.801 (*SE* = 1.279) for the control group. Both scores indicated an approximately normal distribution. The Levene's test was again used to evaluate homogeneity of variance for the posttest with the Shapiro-Wilk result being .947 (*DF* = 21, *p* = .296) for the intervention group and the Shapiro-Wilk result being .971 (*DF* = 11, *p* = .900) for the control group. Both indicating homoscedasticity.

Table 4

Descriptive Statistics of HL-KES Posttest Scores for Intervention and Control Groups

Variable	Group	*n*	Min.	Max	*M*	*SD*	Skewness result	*SE*	Kurtosis result	*SE*
Posttest	Interv.	21	62.07	93.10	77.50	8.83	.336	.501	-.589	.972
	Control	11	62.07	89.66	76.49	8.42	-.055	.661	-.801	1.279

After analysis was completed, it was evident from the results that scores on the posttest increased for both the intervention group and the control group participants. These findings will be discussed in Chapter 5.

Research Question 2

The second question asked, Will the combination of pretest/posttest, classroom activities, and problem-based learning activity prepare the prelicensure nursing student to teach patients with limited health literacy using a teach-back? To evaluate this question, the CAT was completed by the SP after the participants performed their teach-back demonstration. Most students participating in the study ($n = 20$, intervention group; $n = 7$, control group) completed the SP encounter. There were no missing data within this data collection. Due to the size of the sample, data were collapsed into two categories: a rating of *poor* or *fair* was coded a 1, and a rating of *good*, *very good*, or *excellent* was coded a 2. A logistic regression mode with robust, clustered standard errors was completed to account for the correlation within the standardized patients. The *p* value, odds ratio, and counts and percentages were reported. Each analysis was performed separately, so individual *p* values and 95% confidence intervals were reported (see Appendix E).

After a data analysis was completed, it was evident that five of the 16 items had significant results. Item 5, "attention paid to SP", had a *p* value of .00. For this item, 90% of the intervention group scored a *good*, *very good*, or *excellent,* and 71% of the control group scored a *good*, *very good*, or *excellent*. Item 6, "talking without interruptions", had a *p* value of .00. For this item the intervention group was evaluated higher by the SP (intervention group = 95%, control group = 86%). Item 13, "helped in timely manner," had a p value of .00, which indicated that the control group had higher scores than the intervention group. The control group had 71% score a *good*, *very good*, or *excellent*, whereas the intervention group had 50%. For Item 14 (*p* = .04) "evaluated the participants' communication with the health care team," the control group had a higher rating on this item as well (control group = 71% percent, intervention group = 40%). The final item that showed significant results was Number 16 (*p* = .02). This item asked the SP to "evaluate the participants on the overall care they provided." For this item, 80% of the intervention group received a rating of *good*, *very good*, or *excellent,* whereas 57% of the control group received ratings of *good*, *very good*, or *excellent*. These results indicate that for three of the items, the intervention group's results were significant, and on two items, the control group's results were significant.

Additional Analyses

Additional analyses were performed to evaluate the test that was given to the participants to determine if it measured the statistic it was supposed to be measuring: health literacy knowledge. Part one of the pretest (HL-KES) measured the health literacy knowledge of the participants prior to any education about health literacy. There were 29 questions within this section. Analysis of this section of the pretest was conducted by

measuring the mean, standard deviation, and the range of HL-KES scores for all

participants (see Table 5). An item analysis was also completed (see Appendix I).

According to McDonald (2007), the analysis allows the overall test to be analyzed as well

as a detailed analysis of each item as it relates to the test. The overall KR20 score

evaluates "the degree to which the individual item responses correlate with the total test

score or how well a test correlates with itself" (McDonald, 2007, p. 223). The KR20 for

this test was 0.304. KR20 scores generally range from 0.0 to 1.0 with a KR20 of 0.70 or

greater known to be more internally consistent. A small sample size can influence the

KR20 score (McDonald, 2007).

Table 5

Frequencies and Percentages of Health Literacy Knowledge Scores (Part 1) Pretest for

Intervention and Control Groups

Score	*F*	Percentage	Cumulative %
51.72	1	3.1	3.1
55.17	1	3.1	6.3
58.62	1	3.1	9.4
62.07	2	6.3	15.6
65.52	8	25.0	40.6
68.97	3	9.4	50.0
72.41	4	12.5	62.5
75.86	2	6.3	68.6
79.31	3	9.4	78.1
82.76	5	15.6	93.8
86.21	2	6.3	100.0
Total	32	100	

Note: Mean = 71.44   *SD* = 9.15410   Range = 34.48
          Median = 70.68   Minimum = 51.72
                                    Maximum = 86.21

This analysis indicated that participants had some health literacy knowledge

although there were major gaps in this knowledge ($M = 71.59$, $SD = 9.56$, intervention

group and $M = 71.15$, $SD = 8.76$, control group). The mean scores for both groups were very similar, which confirms the similarity of the groups though one group was larger than the other one.

The first item in Part 1 required participants to choose from five items. The remaining 28 questions required the participants to choose from four items. Most of the questions had all distracters chosen by at least one participant, which suggested that all of the alternative answer choices were plausible (see Appendix I).

The majority of participants knew that low health literacy levels are most prevalent among individuals 65 years of age and older (75%). Participants also knew that low health literacy levels are common with all ethnic groups (84%). Most participants were able to identify the best approach for initiating a health literacy screening with a patient (96.8%). The ability to identify the most effective wording for a heading in a teaching brochure was also evident (87.5%).

An example of the gap in knowledge was that the majority of participants did not know that literacy levels were the best predictor of health care status (75%). The majority of participants were not aware that the recommended reading level for written health care information is fifth grade (81%). Only 62% of participants knew that the first step in developing written health care information was to find out the information the audience needs to know. Approximately 53% of participants realized that nurses should limit lists of information for patients to five or six items. When participants were asked how many main ideas written health care information should provide regarding a specific disease process, only 68% selected that three or four main ideas should be discussed. Cormier (2006) delineated the breakdown of content areas and the questions that

examined those areas; the researcher used this breakdown to determine areas that needed to be addressed when developing the Health Literacy Seminar (see Appendix F).

Part 2 of the HL-KES (nine questions) required the participants to describe their health literacy experiences since they began the prelicensure accelerated program. Each question required the participants to complete a Likert-type scale in which 1 = *never*, 2 = *sometimes*, 3 = *frequently*, and 4 = *always*. All students who completed the pretest were required to answer each question prior to advancing to the next question. All students (*n* = 21, intervention group) completed this part of the HL-KES and the results are documented in Table 7. All students in the control group also completed this part of the HL-KES, and the results are documented in Table 7 (*n* = 11).

Table 6

Frequencies, Percentages for Part 2 HL-KES (Pretest/Posttest: Intervention Group)

Question	Test	Never *n* (%)	Sometimes *n* (%)	Frequently *n* (%)	Always *n* (%)	Total *n* (%)
30. How frequently was health literacy emphasized in your curriculum?	Pre	4 (19.0)	8 (38.1)	7 (33.3)	2 (9.5)	21 (100)
	Post	2 (9.5)	12 (57.1)	7 (33.3)	0 (0.0)	21 (100)
31. How often did you use a health literacy screening tool to assess the health literacy skills of an individual?	Pre	14 (66.7)	4 (19.0)	2 (9.5)	1 (4.8)	21 (100)
	Post	8 (38.1)	11 (52.4)	2 (9.5)	0 (0.0)	21 (100)

(continue)

Question	Test	Never n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Total n (%)
32. How often did you evaluate the reading level of written health care materials before using them for patient teaching?	Pre	13 (61.9)	5 (23.8)	3 (14.3)	0 (0.0)	21 (100)
	Post	5 (23.8)	8 (38.1)	7 (33.3)	1 (4.8)	21 (100)
33. How often did you evaluate the cultural appropriateness of health care materials, including written handouts, videos, audiotapes, before using them for patient teaching?	Pre	11 (52.4)	7 (33.3)	3 (14.3)	0 (0.0)	21 (100)
34. How often did you evaluate the use of illustrations in written health care material before using them for patient teaching?	Pre	12 (57.2)	6 (28.6)	3 (14.3)	0 (0.0)	21 (100)
	Post	4 (19.1)	9 (42.9)	6 (28.60	2 (9.5)	21 (100)

Question	Test	Never n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Total n (%)
35. How often did you use written materials to provide health care information to an individual or community member?	Pre	8 (38.1)	7 (33.3)	4 (19.0)	2 (9.5)	21 (100)
	Post	1 (4.8)	10 (47.6)	8 (38.1)	2 (9.5)	21 (100)
36. How often did you use audiotapes to provide health care information to an individual or community group?	Pre	18 (85.8)	3 (14.3)	0 (0.0)	0 (0.0)	21 (100)
	Post	21 (100)	0 (0.0)	0 (0.0)	0 (0.0)	21 (100)
37. How often did you use videotapes to provide health care information to an individual or community group?	Pre	14 (66.7)	6 (28.6)	1 (4.8)	0 (0.0)	21 (100)
	Post	17 (81.0)	4 (19.0)	0 (0.0)	0 (0.0)	21 (100)
38. How often did you use computer software to provide health care information to an individual or community group?	Pre	15 (71.4)	6 (28.6)	0 (0.0)	0 (0.0)	21 (100)
	Post	16 (76.2)	3 (14.3)	1 (4.8)	1 (4.8)	21 (100)

Table 7

Frequencies, Percentages for Part 2 HL-KES (Pretest/Posttest: Control Group)

Question	Test	Never n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Total n (%)
30. How frequently was health literacy emphasized in your curriculum?	Pre	4 (36.4)	6 (54.5)	1 (9.1)	0 (0.0)	11 (100)
	Post	0 (0.0)	8 (72.7)	3 (27.3)	0 (0.0)	11 (100)
31. How often did you use a health literacy screening tool to assess the health literacy skills of an individual?	Pre	9 (81.8)	1 (9.1)	0 (0.0)	1 (9.1)	11 (100)
	Post	7 (63.6)	3 (27.3)	1 (9.1)	0 (0.0)	11 (100)
32. How often did you evaluate the reading level of written health care materials before using them for patient teaching?	Pre	9 (81.8)	2 (18.2)	0 (0.0)	0 (0.0)	11 (100)
	Post	6 (54.5)	2 (18.2)	1 (9.1)	2 (18.2)	11 (100)
33. How often did you evaluate the cultural appropriateness of health care materials, including written handouts, videos, audiotapes, before using them for patient teaching?	Pre	8 (72.7)	3 (27.3)	0 (0.0)	0 (0.0)	11 (100)
	Post	6 (54.5)	2 (18.2)	2 (18.2)	1 (9.1)	11 (100)

(continue)

Question	Test	Never n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Total n (%)
34. How often did you evaluate the use of illustrations in written health care material before using them for patient teaching?	Pre	7 (63.6)	4 (36.4)	0 (0.0)	0 (0.0)	11 (100)
	Post	5 (45.5)	4 (36.4)	2 (18.2)	0 (0.0)	11 (100)
35. How often did you use written materials to provide health care information to an individual or community member?	Pre	6 (54.5)	3 (27.3)	2 (18.2)	0 (0.0)	11 (100)
	Post	2 (18.2)	4 (36.4)	3 (27.3)	2 (18.2)	11 (100)
36. How often did you use audiotapes to provide health care information to an individual or community group?	Pre	10 (90.9)	1 (9.1)	0 (0.0)	0 (0.0)	11 (100)
	Post	9 (81.8)	2 (18.2)	0 (0.0)	0 (0.0)	11 (100)

Question	Test	Never n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Total n (%)
37. How often did you use videotapes to provide health care information to an individual or community group?	Pre	9 (81.8)	2 (18.2)	0 (0.0)	0 (0.0)	11 (100)
	Post	9 (81.8)	2 (18.2)	0 (0.0)	0 (0.0)	11 (100)
38. How often did you use computer software to provide health care information to an individual or community group?	Pre	7 (63.6)	2 (18.2)	1 (9.1)	1 (9.1)	11 (100)
	Post	7 (63.6)	4 (36.4)	0 (0.0)	0 (0.0)	11 (100)

Chapter Summary

This chapter documents the research findings for each of the two research questions. The data collected were analyzed using SPSS version 23. To answer Research Question 1, descriptive, frequencies, and percentages were presented. A paired samples *t* test provided the data to analyze the difference in pretest and posttest scores for both the intervention and the control groups. The data indicated a significant change in scores from the pretest to the posttest for both groups. For Research Question 2, a logistic regression mode with robust clustered standards error were completed. Five of the 16 questions showed significant results. These results will be further discussed in Chapter 5.

Data collected from Part 2 of the HL-KES showed the differences in health literacy experiences for the intervention and control groups over the course of the semester. Both groups reported an increase in health literacy experiences at the time the posttest data was completed.

Chapter Five

Discussion and Summary

This chapter will present a summary of the research findings and the implications of those findings. Previous literature will be integrated with this researcher's results to explain the differences. The limitations will be discussed and recommendations for future research will be suggested.

The purpose of the dissertation study was to determine the effectiveness of a teaching plan that combined the teaching strategies of pretest/posttest, classroom activities, and a problem-based learning activity in the form of a clinical immersion experience to determine if the skill of teach-back could be learned and performed in a proficient manner to patients with limited health literacy. A post-positivist worldview guided the research. There were two theories that provided the framework for the research: the ALT by Knowles (1975, 1980, 1984, 2012) that described adult learners and their characteristics and the SCT by Bandura (1977, 1986, 1988) that guided the choice of teaching strategies. The teaching strategies that were chosen fostered the adult learner by placing the learner into situations that would allow practice of a skill, the learner to receive feedback on the skill, and preparation for proficiency in the skill of teach-back.

Summary of Findings

Research Question 1

Research Question 1 asked, Will prelicensure nursing students retain the information they are taught through the pretest/posttest, classroom activities, and problem-based learning experience (clinical immersion experience)? This question was evaluated by having all participants complete the HL-KES prior to the classroom activities and the problem-based learning experience. The scores on the pretest guided the classroom activities that were presented to the intervention group. Part 1 of the HL-KES assessed participants' knowledge of health literacy, and this section was used to assess the results of Research Question 1. The participants took the HL-KES again at the end of the semester after all learning activities had taken place. The mean scores on the posttest were compared to the mean scores on the pretest for the intervention group and the control group.

Both the intervention group and the control groups mean scores increased on the posttest. Although the power was low, the results indicated significance, which could be due to the limited number of participants ($n = 32$). The power analysis performed prior to the study indicated that each group required 51 participants for moderate power to be recognized. The limited number of participants will be discussed in the limitations section of this chapter.

Integration of the Findings with Previous Literature

Possible reasons that both groups improved might be related to the fact that both of these groups received the standard communication lecture that was required within the course, and the participants in each group had time to practice a teach-back

demonstration during their laboratory time following the communication lecture. These

results could indicate that the teaching strategies being utilized in the prelicensure

program (didactic lecture for one hour followed by two hours of practice) adequately

prepared the student with some knowledge about the teach-back skill and its importance

in patient education. Oermann (2004) also documented the importance of blending the

lecture with active learning strategies because of its beneficial effects on the ability of the

student to problem solve, critically think, and communicate. This finding was confirmed

by the results of Beers (2005), who evaluated the lecture versus a problem-based learning

activity on test scores. He found that the teaching method did not result in a change in

test scores, but that the teaching method should be considered according to the objectives

to be achieved within each course.

It is possible that many of the prelicensure nursing students were novice learners

(age range 22-42 for both groups) who prefer the lecture style because of its organization

around course objectives and how structured it is (Lowenstein & Bradshaw, 2004;

Saphier et al., 2008; Shultz, 2009). According to Lowenstein and Bradshaw (2004), the

students need to be able to use information they learned and apply it to a clinical situation

that they encountered.

For adult learners, they also could have utilized experiences from their past to

make sense of the information they were taught as documented within the ALT theory

(Knowles, 1975, 1980, 1984). Students participating in the dissertation study could also

have researched the topic of teach-back after taking the pretest even if they did not

participate in the classroom activities, knowing another test would be given at a later

time. These characteristics are also confirmed by Clapper (2010) who describes the adult

learner as being internally disciplined. The students might also have recognized how essential patient education is and the ability to practice the skill of teach-back after learning about it could have assisted the adult learner to make meaning of the educational experience (Clapper, 2010). Bandura (1977, 1986, 1988) also described the importance of allowing students to practice the competencies they are expected to perform, so they can perfect them. Burke and Mancuso (2012) described students making intentional decisions about how to invest in their learning by changing their behaviors.

It is possible that the students in both groups were exposed to the teach-back method while in their clinical experiences as the clinical agencies participating in the clinical experience utilize the teach-back method to educate patients. This finding is evidenced by both groups of students completing Part 2 of the HL-KES and reporting that their health literacy experiences increased during the semester. Bandura (1977, 1986, 1988) described this practice as the modeling experience in which the student might observe an experience within the clinical setting, and whether the experience is positive or negative, the student will learn from that experience by examining the feedback the person involved in the experience receives. Students in the control group could also have learned the material discussed in the classroom activities from talking to the participants in the intervention group during other courses.

Research Question 2

Research Question 2 asked, Will the combination of pretest/posttest, classroom activities, and problem-based learning activity (clinical immersion experience) prepare the prelicensure nursing student to teach patients with limited health literacy using a teach-back? This question was answered by having the participants perform a teach-back

demonstration to SPs and having the SPs complete the CAT survey to evaluate the teach-back demonstration. Only five items were found to have significance out of the 16-item survey. The SPs rated most of the participants in the intervention group as *good* or *very good* (80%) on the care they provided, whereas the control group received a 57% rating of *good* or *very good* on this item. The next item that had significant results asked the SP to rate the participants on the attention paid to the SP. The intervention group rating was 90% as *good* or *very good*, and the control group rating was 71%. The third item that had significant results asked the SP to rate the participant on being allowed to talk without interruption. For this item, the intervention group rating was 95% (*good* or *very good*) and the control group rating was 86%. When the SP was asked to rate the participants on whether they were helped in a timely manner, the control group was rated at 71%, and the intervention group was rated at 50%. This item provided a significant result in which the control group scored higher than the intervention group. This item needed to be considered by the researcher as all participants were timed on their performance of the teach-back demonstration.

Very few comments were provided by the SPs, but those that were provided seemed to be inconsistent with the rating the participant received. An example would be the rating of *poor* or *fair* for one participant on the survey item asking the SP to rate the participant on checking to be sure that "I understood everything." The SP followed this rating by writing the following comment, "She was great at her explanations, gave an excellent intro to the agenda, but she was so concerned that I followed and understood, that she ran out of time." Another example was the rating of *good* or *very good* for a participant on the item asking the SP to rate the care that was provided by the nurse. This

SP followed the rating with the following comment, "It was hard to know if she ran out of time or had completed her teach-back. She was unable to remember the milligrams for the medications, gave me incorrect information about my prescription, and did not tell me how many pills I should take or when I should take them." These examples seemed to indicate that the rating given did not match the comments provided.

Integration of the Findings with Previous Literature

SP encounters have been utilized to evaluate clinical skills in many health professional educational programs. The SPs for this encounter were trained about their role in the encounter approximately 3 weeks prior to the encounter. They were also trained on the completion of the survey via SurveyMonkey on the iPAD. The survey required the SP to evaluate the students using a Likert-type scale where a 1 indicated *poor* communication and a 5 indicated *excellent* communication. After each encounter, the survey was submitted although the researcher did not analyze them until all of the encounters were completed. The SPs were given the survey prior to the encounter, so they did not have to memorize the information they were to use to evaluate the participants.

All of the encounters were viewed by the researcher as they occurred. Unfortunately, one of the SPs rated all of the students he encountered with all 5's although he did not actually allow most of the participants to perform the teach-back demonstration. He continually interrupted the participant, and he took on the role of a disgruntled patient instead of the role of a limited health literacy patient. After the first encounter, the SP was again instructed of his role, but he continued in the same manner, giving all participants 5's. As there were only three other SPs and 27 participants anxious

to begin the summer break, and the SPs were being paid by the hour, so there was no other recourse but to allow him to continue in the encounter. Rickles et al. (2009) also document the need for more validation and reliability in the evaluation of SP consistency. Ju et al. (2014) also found that SPs were possibly overly generous with their evaluation of radiation oncology students. The SP is a paid actor who is trained to portray a specific population; therefore, they require coaching as with acting.

The three other SPs evaluated the students' teach-back demonstrations more carefully although some of the results were inconsistent with the written comments. One of the questions asked the SPs to determine if the students greeted them in a way that made them feel comfortable, and although they rated the student with a *good* or *very good,* the SPs wrote in the comments that the student did not give them their name or ask the patient's name. When the SPs were interviewed after the encounter as to why they rated the student with a *good*, *very good*, or *excellent*, they told the researcher that they liked the student and did not want to give him or her a bad grade. The students who participated in the encounter were first semester prelicensure nursing students. They had just completed their first 10 weeks of clinical rotations, but it is difficult to imagine that all 27 students performed the teach-back demonstration at the *very good* or *excellent* level. The need for reliability and validity testing to continue when utilizing SPs has been documented repeatedly (Bornais et al., 2012; Ju et al., 2014; Rickles et al., 2009). As a teaching tool, the SP encounter appears to be an acceptable learning tool (Bornais et al., 2012; Lin et al., 2013; Rickles et al., 2009), but as an evaluation tool, the results are inconclusive as to the objectivity of the tool. This educational tool is also a very costly teaching tool with the cost estimated at almost $500 for 27 students to participate.

After the SP encounter, a debriefing session was held for all participants. Participants were asked if they found the SP encounter helpful. All 27 participants agreed that the SP encounter was a great learning experience. They listed several limitations to the SP encounter, which included the short timeframe of the interview, their lack of knowledge regarding the medications and treatments they were teaching, the anxiety of the SP encounter experience, and the timing of the encounter. The participants had an exam prior to the SP encounter, and once they completed the encounter, they were starting their one-week break before the start of their next semester. Many of the participants were anxious to begin their vacations. The participants also expressed a desire to have more SP encounters throughout their program.

Implications of the Findings

The study assessed the effectiveness of a teaching plan to determine if prelicensure nursing students could gain knowledge about health literacy by combining several teaching strategies. The ability to perform the skill of teach-back was also evaluated to determine if students could bridge the theory-practice gap and apply the content they learned in the classroom to their practices. The implications for nursing education, nursing practice, nursing education research, and health policy will be discussed.

Implications for Nursing Education

The dissertation study facilitated the analysis of a teaching plan that combined several teaching strategies (pretest/posttest, classroom activities, and problem-based learning) to determine if the combination would assist the students in retaining the knowledge they required to perform the skill of teach-back to patients with limited health

literacy. Patient education has been identified as a key initiative of Healthy People 2020 (U.S. Department of Health and Human Services, 2014). Health literacy affects the way the patient is able to learn and navigate within the 21st century health care environment (IOM, 2004). Toronto and Weatherford (2015) reported that while health professional schools are implementing new practices to improve health literacy knowledge in health care professionals, the curricula that should be taught and the evaluation methods that should be utilized are not in place at this time.

Teaching strategies implemented for the intervention group were chosen because of their ability to engage the student. Active learning strategies allowed the students to use their past experiences to gain new knowledge. Learning was student-centered. The skill of patient education was role modeled by an expert (clinical instructor), and then students practiced this skill in the safe environment of the classroom (post conference) until the students gained the self-efficacy to perform patient education to a real patient. Students received formative feedback throughout the problem-based learning experience. The strategies utilized were chosen because of their theoretical support as well. Knowles' (1975, 1980, 1984) ALT and Bandura's SCT (1977, 1986. 1988) guided the decisions.

Knowledge acquisition was assessed by completion of the pretest/posttest with the HL-KES. Although the analysis indicated significant improvement in posttest scores for the intervention group, it also indicated significant improvement in posttest scores for the control group, but the power of the analysis was weak due to the limited number of study participants. Upon completion of the teaching strategies, the intervention group completed a survey to determine the effectiveness of the activities, and although this

survey was not a part of the data analysis, it did document that all intervention group participants rated the teaching strategies as highly effective in assisting them to teach-back patients with limited health literacy.

These results could indicate that there is a place for lecture in nursing education. Both groups were taught using didactic content, which used a lecture while in their communication lecture with 2 hours of practice in the learning skills laboratory. This communication lecture occurred before the students separated into intervention and control groups. The intervention group went on to participate in the Health Literacy Seminar. This seminar used short theory bursts (lectures) followed by the application of the content, using practice with formative feedback (see Appendix G). The intervention group also went on to the problem-based learning experience in which they continued to learn about health literacy and the strategies that address limited health literacy, such as assessing documents for reading level and preparing teaching documents (see Appendix G). All of these skills were not evaluated as there are no tools to specifically evaluate these tasks, and time and resources limited their development.

Skill acquisition was assessed utilizing a SP encounter in which the participant performed a teach-back demonstration and the SP evaluated that teach-back demonstration by completing the CAT. The results of this assessment were not significant, and the consistency of SP evaluation was questioned. This assessment was costly, and although the participants rated it as a great teaching tool, its effectiveness as an evaluation tool could not be documented.

New teaching strategies are implemented by nursing faculty often. Shultz (2009) documents the need for these teaching strategies to be evaluated to determine their

effectiveness, and while the results of the dissertation study did not have strong power, the results indicated that knowledge of health literacy increased with the strategies utilized. These results need to be tested with a larger sample before they can influence nursing education. If the results are significant with a larger sample, then the teaching strategies should be evaluated for other skill attainment as well.

Implications for Nursing Practice

Nursing is a characterized as practice profession and with a set of practice expectation of its nursing graduates upon completion of their programs of study. Graduates need to have the knowledge, skills, and attitudes they require to make critical decisions in their clinical practices. Many authors have documented a gap in this ability (Adams & Valiga, 2009; AACN, 2008; Benner et al., 2010; National League for Nursing, 2008; Shultz, 2009). The teaching plan facilitated a nursing skill to be taught, practiced, and evaluated. Both groups received a lecture about patient communication and health literacy. They practiced the skill of teach-back in the learning lab for a short time. Participants in the intervention group received additional information about the importance of health literacy and the performance of the skill of teach-back. They practiced this skill, and they received formative feedback to allow for improvement of this skill. The control group did not receive the teaching strategies discussed above, but scores on the HL-KES improved for both groups. The results of the dissertation study may indicate that teaching makes a difference but that recommending a specific teaching strategy to faculty may not.

The second part of the HL-KES asked the participants to document their experiences as they relate to health literacy. The intervention group members

documented an increase in their experiences during the semester. Few of the participants in the control group also documented an increase in their experiences. All intervention group participants completed a Likert-type survey (1 = *not effective* and 5 = *highly effective*) about the problem-based clinical experience, and all rated this experience as *highly effective* in improving their self-efficacy related to the skill of teach-back.

All of the participants involved in the SP encounter documented the value of this encounter as a teaching tool in preparing them to teach-back. During the debriefing, the participants described increased anxiety as they prepared to perform the teach-back demonstration for the SP, but once they began teaching, their anxiety decreased, and they noted the desire to provide the patient (SP) with the education that would be required to be discharged from the hospital. All participants (intervention and control group) also described increased self-efficacy related to the skill of teach-back after the encounter.

The difficulty of bridging the theory-practice gap has been noted by Benner et al. (2010). It was expected that all nurses be proficient in the skill of patient education. The health literacy of the patient greatly affects their ability to learn and apply new knowledge in the 21st century health care system. It is essential that all nursing students learn this skill while in their programs of study. The need to include health literacy education in health professional educational programs has been documented. Toronto and Weatherford (2015) conducted an integrative review of the research related to the health literacy education in health professional schools. They found that while health professional schools have begun to integrate key knowledge related to health literacy into their programs, there is a lot of work that still needs to be done to identify the best

strategies that assist the health professional student to gain the knowledge, skills, and attitudes required of them.

Preparing students to integrate skills learned in the classroom to the practice setting is a challenge for nursing educators. The dissertation study evaluated several teaching strategies to determine if they assisted the students to apply skills learned in the classroom to their clinical practice. Skill acquisition was not confirmed by the results of the CAT, but student evaluations did document an increase in self-efficacy related to the performance of teach-back. Healthy People 2020 specifically lists seven objectives related to improving health providers' communication skills (Toronto & Weatherford, 2015). The authors also documented a need for evidence-based practices with rigorous methods and procedures. While the results were not conclusive that the strategies allowed the theory practice gap to be decreased, the dissertation study did provide the researcher with the initial data to continue to develop learning activities that support skill acquisition. The SP encounter was rated highly as a teaching tool, and this teaching tool could be utilized in the health care environment to allow nurses to practice new skills they have learned in a non-threatening environment.

Implications for Nursing Education Research

The development of a strong evidence base is essential for health care transformation. The dissertation study was guided by a post-positivist worldview, which allowed the researcher to identify and assess the causes of the outcomes obtained in scientific research (Creswell, (2009). Two theoretical frameworks guided decisions regarding the needs of the adult learner (ALT) and the teaching strategies that assisted that adult learner (SCT). The pretest allowed the researcher to identify knowledge gaps

related to health literacy. Once these gaps were identified, the content for the Health

Literacy Seminar was developed. The Health Literacy Seminar described the importance

of health literacy by showing the students the implications of limited health literacy and

allowing them to learn and practice several patient teaching strategies. The participants

applied these strategies to their past experiences and performed a teach-back

demonstration for the group. Knowles (1975, 1980, 1984) identified these attributes as

essential to adult learners. The problem-based clinical experience allowed the

participants to see the skill role modeled, and different facets of health literacy were

discussed, and strategies were developed that addressed those facets. Bandura (1977,

1986, 1988) identified these attributes as essential for learning to occur. Formative

feedback allowed the participants to determine which skills they were performing

proficiently and which skills they needed to adjust. The SP encounter allowed the

participants to apply the skills they had learned during the semester by performing a

teach-back demonstration. The SP evaluated the teach-back demonstration, and while the

results were not significant, the participants all documented the value of this teaching

strategy as a teaching tool but not necessarily as an evaluation tool.

The importance of strong communication skills and health literacy knowledge has

been documented by the IOM (2004) and by the Office of Disease Prevention and Health

Promotion (2014). Toronto and Weatherford (2015) have documented the need for a

strong evidence base in identifying the essential competencies and standard assessments

required for this essential information. The dissertation study documented an increase in

participant knowledge related to health literacy. The dissertation study needs to be

implemented on a larger scale to determine if a stronger power can be evidenced.

Implementing the dissertation study on a larger scale will potentially be impeded by the requirement of consent for study participants. Faden et al. (2013) discuss this issue in practice environments. In order to improve health outcomes, health care environments need to allow for learning to occur, and traditional research ethics and clinical ethics impede this process. Faden et al. (2013) describe the need for a learning health care system in which learning activities can be implemented and evaluated in an ethically acceptable way. This issue will be further discussed in the limitation section below.

If research (done on a larger scale) documents a strong evidence base, it could be used to advance educational practices being used to improve health literacy knowledge and the skill of teach-back. The ALT and SCT theoretical frameworks address the adult learner and how they learn as well as the evaluation methods that need to be developed. The dissertation study has evaluated these strategies for accelerated prelicensure nursing students. Further evaluation needs to be done for the traditional prelicensure nursing students as well to determine if the teaching strategies utilized will increase their knowledge about health literacy.

Implications for Health Policy

The nurse of the 21st century needs to be prepared to practice in a complex health care environment. Health policy assists key stakeholders in identifying the most effective way to achieve health care goals. Healthy People 2020 (U.S. Department of Health and Human Services, 2014) documents the current goals. Health care professional communication strategies are the focus of approximately seven goals for 2020. Limited health literacy has been identified as a key factor that influences the patients' ability to be

educated and to navigate within the health care system. It has also been correlated to poor patient outcomes.

The Action Plan released by the Office of Disease Prevention and Health Promotion (2010) has identified essential content that health care professionals need to know in order to provide patient education to all patients, but more specifically to limited health literacy patients. The way that this information is being disseminated to health professional students is variable to say the least (Toronto & Weatherford, 2015). Toronto and Weatherford (2015) performed an integrative review of the literature and identified a need for specific competencies related to health literacy education. These competencies need standardized assessment methods to evaluate them if improvements are to be noted for patients with limited health literacy.

The Action Plan (Office of Disease Prevention and Health Promotion, 2010) was used to develop the curriculum taught during the Health Literacy Seminar and problem-based learning activities implemented during the dissertation study. The HL-KES pretest allowed the researcher to assess the knowledge prelicensure nursing students had related to health literacy. Once this information was obtained, the Health Literacy Seminar allowed content specific to the needs of the population to be taught and practiced during the problem-based learning experience. The problem-based learning experience allowed the students to practice and improve their ability to perform a teach-back demonstration. This teach-back skill has been identified as a way for the nurse to evaluate patient understanding of the education received. If knowledge attainment has not been identified, it is the nurses' responsibility to reteach the content until knowledge attainment can be confirmed, leading to an improvement in patient education and possibly health

outcomes. The first step in making changes to the health policies implemented for health professional schools will be to run the dissertation study on a larger scale. The teaching strategies will be repeated as they are documented above. If the results of this second study document significant results related to health literacy knowledge and skill attainment, these strategies can be implemented by other institutions in which health professionals are educated to determine if the same results are found. If these strategies are identified as improving health professional and skill attainment, they can be implemented and required by all health professional programs.

<div align="center">**Limitations**</div>

According to Polit and Beck (2012), the limitations of a study must be identified and discussed. There were several limitations noted during the dissertation study. One limitation that must be noted is that the two groups of students participating in the study may not have been similar/comparable. The most significant limitation was sample size. Thirty-two students participated in the pretest/posttest ($n = 21$ in the intervention group, and $n = 11$ in the control group); 27 students participated in the SP encounter ($n = 20$ in the intervention group, and $n = 7$ in the control group). This number is approximately 25% of the students recruited for participation.

When developing the dissertation study, the researcher had hoped to implement the study for the entire class of 128 students, dividing the group in half and increasing the strength of the results. Teaching strategies are often implemented in education without the students consenting to participate. They are implemented and evaluated, and the teacher makes decisions regarding which strategies are implemented into future courses, according to established outcomes.

For educational research to be recognized as rigorous and ethical, current requirements by the participating institution's IRB are for all participants to be aware of the reason for the study and the risks for participation (Polit & Beck, 2012). The informed consent is evidence that these two components have been addressed. Faden et al. (2013) documented the need for traditional research ethics and clinical ethics to be changed if improvement in patient outcomes is to be attained. They documented the need for a *learning health care system* in which students and patients are required to participate so that rigorous methods and analysis can be conducted. Yet, evaluation of teaching strategies is often determined to be exempt, and results are used without formal informed consent (Faden et al., 2013).

The researcher was also limited to a very strict timeframe for recruitment. The accelerated prelicensure nursing program requires the students to complete all nursing requirements within 48 weeks, which means that the students have a heavy course load throughout the entire program. Due to the consent issue described above, the researcher was required to recruit students at the end of their orientation day (Friday at 4 p.m.). By the following Tuesday (9 a.m.), all students needed to decide if they would participate so that clinical assignments could be made. The clinical assignments affected their classes Thursday of the same week. Many students struggled to complete all of the work required of them in this program. The dissertation study was considered an unnecessary burden by many of the students, which was confirmed by a few students withdrawing from the study before completing the pretest. Time was identified as a factor at the end of the study as well. It was very difficult to schedule a time for the SP encounter. On the days that students were on campus and not in clinical rotations, they were in class from

early morning until late in the afternoon. The SP encounter had to be scheduled at the end of final exam week after their integrated exams. Students participating in the SP encounter discussed the lack of time to prepare their teach-back demonstratons due to exams.

Participation in the dissertation study also required the students in the intervention group to attend the health literacy seminar. The health literacy seminar consisted of short didactic (lecture) portions followed by active teaching strategies that allowed the students to apply skills they had been taught during the didactic portion. Although lecture has been documented as one of the least effective teaching strategies (Benner et al., 2010), combining it with active teaching strategies might have assisted the students to consider their past experiences, to be engaged, and to use their inductive reasoning capabilities to become critical thinkers. It was also documented by Lowenstein and Bradshaw (2004) that much of the information students learn, utilizing lecture as a teaching strategy, is lost within 1 month of the lecture. This finding was not substantiated by the dissertation study.

The health literacy seminar was held after the students had already attended the traditional communication lecture and laboratory experience, which required the students to return to class at 2 p.m. after all other learning activities. Attending the traditional communication lecture was required by all students participating in the study. This communication lecture could have influenced the results of the control group as it also included information about health literacy and teach-back. To truly evaluate the effectiveness of the teaching strategies, it was preferable that students only received the education provided to them by the teaching strategies within the study.

The cost of the SP encounter is another limitation that can influence the implementation of this teaching strategy into the curriculum. The SPs are paid hourly, which must include training time, travel time, and extra SPs for relief during required breaks. The inconsistency of the evaluations of these SPs must also be considered when evaluating this strategy. More extensive training might improve the inconsistency of the evaluations. This training would include more information about the role of the limited health literacy patient and also the importance of evaluating the student correctly. Other ways of providing this strategy utilizing the resources within the university need to be evaluated.

Recommendations for Future Research

1. Implement teaching strategies for a larger group to increase the power of results.

2. Evaluate the teaching strategies for traditional prelicensure nursing students to determine if the strategies produce significant results.

3. Evaluate the teaching strategies as an interprofessional learning activity to determine if the strategies increase the knowledge and skill attainment for other health care professionals.

4. Evaluate the teaching strategies for other nursing skills to determine if the strategies prepare the prelicensure nursing student to increase knowledge and ability to perform skills.

5. Evaluate the self-efficacy of students related to the skill of teach-back.

6. Perform the SP encounter again at the end of the program to determine if the skill of teach-back has been integrated into the prelicensure nursing students' practice.

7. Evaluate graduate nurses' performance of teach-back once they enter practice. Were they able to gain proficiency in the skill of teach-back?

Chapter Summary

This chapter allowed the researcher to discuss and evaluate the results of the dissertation study. The results of the pretest/posttest indicated that knowledge related to health literacy had increased for both groups. The possible reasons that scores on the posttest increased were discussed. Participation in the required communication lecture may have affected the results obtained during the study. Students may have seen the teach-back skill role modeled while in their programs of study. The CAT completed by the SP after the teach-back demonstration did not provide the researcher with consistent results related to student performance of the skill of teach-back, and while the students rated this encounter as a positive learning experience, the researcher questions this strategy as an evaluation method.

The previous literature was integrated and discussed as it related to the findings. Toronto and Weatherford (2015) conducted an integrative review to determine health literacy education in health professions schools. Their review documented a need to identify specific competencies related to health literacy and to have standardized assessments of those competencies. They also documented the need for more rigorous studies related to this content as many studies were excluded from their evaluation

because of the lack of IRB approval or theoretically based interventions to connect findings to the existing body of knowledge.

The implications of the findings in relation to nursing education, nursing practice, nursing research, and health policy were described. Health literacy has been identified as a major issue deterring patients from learning and navigating within the 21st century health care environment. Nursing education needs a strong evidence base to defend the teaching strategies that are being utilized. Nursing practice needs graduate nurses prepared to critically think and clinically reason upon entrance to the practice environment. As a practice profession, nursing may need to rethink traditional research ethics that require patient and student consent if practice issues are going to be addressed.

Finally, the limitations of the study were delineated and a plan to address those limitations was described. Sample size was discussed as a limitation. This limitation was influenced by the need to obtain consent prior to implementing the teaching strategies utilized. Time was also a limitation. The accelerated prelicensure nursing program is completed by students in 48 weeks. This program is labor intensive for all involved. Adding extra requirements to this already-saturated program is difficult.

Lastly, the SP encounter was a costly strategy to implement. Students in both groups identified this strategy as effective as a teaching strategy. The researcher identified concerns of inconsistency when this strategy was utilized as an evaluation tool. The need for other ways to create the same environment, using current resources, needs to be considered.

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Appendix A

IRB Approval Nova Southeastern University

NOVA SOUTHEASTERN UNIVERSITY
Office of Grants and Contracts
Institutional Review Board

NSU
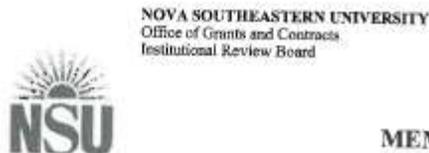
MEMORANDUM

To: Mariann Kerr, MSN, RN
        Health Professions Division – College of Nursing

From: Jo Ann Kleier, PhD, EdD, ARNP   *Jo Ann Kerr*
        Institutional Review Board   Signature

Date: May 1, 2015

Re: *Teaching Strategies to Prepare Prelicensure Nursing Students to Perform the Skill of Teach-back*

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms these must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE EVENTS/REACTIONS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and 954-262-1978 respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Protocol File
       Office of Grants and Contracts (if study is funded)

3301 College Avenue • Fort Lauderdale, FL 33314-7796 • (954) 262-5369
Fax: (954) 262-3977 • Email: irgo@nsu.nova.edu • Web site: www.nova.edu/cwis/ogc

Appendix B

IRB Approval Thomas Jefferson University with Consent Form

Jefferson.

Office of Human Research
Division of Human Subjects Protection
Institutional Review Board

Jefferson Alumni Hall
1020 Locust Street, Suite M-34
Philadelphia, PA 19107
T 215-503-8966
F 215-503-3843

May 13, 2015

Mariann Kerr
Department of Nursing

Dear Ms. Kerr:

The **Institutional Review Board (IRB)** has reviewed the involvement of humans as research subjects in your study entitled:

"Teaching Strategies to Prepare Prelicensure Nursing Students to Perform the Skill of Teach–back" *per 45 CFR 46.110 (7) Survey study of 128 nursing students before and after specific training program, required identifiers Control #15D.254*

In accordance with Federal Wide Assurance #00002109 to the U.S. Department of Health and Human Services, I am pleased to inform you that this study was administratively **approved** for one year on **5/12/15** Board #153 will be notified at the 5/14/15 meeting.

(X) EXPEDITED/NEW Review

PROSPECTIVE ENROLLMENT OF RESEARCH SUBJECTS REQUIRES THAT INFORMED CONSENT BE OBTAINED FROM ALL PERSONS PRIOR TO THEIR INVOLVEMENT IN THE STUDY BY THE USE OF THE LATEST APPROVED SUBJECT CONSENT FORM.

EACH SUBJECT MUST RECEIVE A COPY OF THEIR SIGNED CONSENT FORM.

This approval expires **5/11/16** one year from the original approval date of the study, unless suspended or terminated earlier by action of the IRB. Prior to the expiration date, an OHR-9 must be submitted to the IRB summarizing progress on the study during that period.

Any injury and/or unanticipated problem involving risks to the human research subjects not included in the written consent form must be reported promptly to the IRB using the on-line eSAEy or eazUP reporting systems. This report should describe the event, evaluate its probable relationship to the experimental treatment received by the subject, and summarize the resulting outcome of the event.

Any proposed change in the protocol or in the written consent form must be submitted to the IRB for review and approval using Form OHR-12 before the proposed change can be implemented.

This approval verifies that the IRB operates in accordance with applicable federal, local and institutional regulations that govern IRB operations.

Sincerely,

Kyle Conner, M.A., CIP
Associate Director
Division of Human Subjects Protection

Full
Accreditation

Thomas Jefferson University
Informed Consent Document for Human Subjects Research – OHR-8 (v.4/9/15)

Department: Thomas Jefferson University School of Nursing

Principal Investigator: Mariann Kerr   **Telephone:** 215-955-8220

Co-Investigator(s): Dr. Julia Aucoin   **Telephone:** 919-632-6490

Medical Study Title: Teaching Strategies to Prepare Prelicensure Nursing Students to Perform the Skill of Teach-back

Lay Study Title: A research study to determine the effectiveness of a teaching plan that uses three teaching strategies to determine if they prepare the prelicensure nursing student to perform the skill of patient teaching in the form of a teach-back.

What Is Informed Consent

You are being asked to take part in a medical research study. As required by federal regulations, this research study has been reviewed and approved by an Institutional Review Board (IRB), a University committee that reviews, approves and monitors research involving humans. Before a knowledgeable decision about whether to participate in a research study can be made, the possible risks and benefits related to the study should be understood. This process of learning and thinking about a study before deciding to participate is known as *informed consent* and includes:

- Receiving detailed information about this research study;
- Being asked to read, sign and date this consent form once the nature of the study is understood and a decision is made to participate. If there is anything about the study you don't understand or if there are questions, you should ask for explanations before signing this form;
- Being given a copy of the signed and dated consent form to keep.

41 **What is the purpose of this study?**
42 The purpose of this study is to determine the effectiveness of a teaching plan that combines
43 several teaching strategies. To accomplish this there must be a topic that is used to measure the
44 effectiveness of the teaching strategies. Prelicensure nursing students will learn the importance of
45 the skill teach-back for patients, especially those with limited health literacy.
46

47 **How many individuals will participate in the study and how long will the study last?**
48 128 students will be invited to participate. We hope to enroll all 128 students at Jefferson. Each
49 participant will be in the study for about 14 weeks.
50

51 **What will happen during the study?**
52 The study will explore various ways nursing faculty educate students about patient teaching.
53
54

55 **What are the side effects and other risks or discomforts involved?**
56 There is minimal risk involved in participating in this study. Students will receive formative feedback
57 from their clinical instructors.
58

59 **Are there benefits from being in this study?**
60

61 There may be no benefit from being in this research, but we hope that what we learn may be
62 helpful to future patients or society in general. Possible benefits from being in the study may
63 include: The prelicensure nursing student will become more proficient at performing the skill of
64 patient teaching.
65

66 **Are there alternatives to being in the study?**
67

68 Participation in this study is entirely voluntary.
69

70 **How will privacy and confidentiality (identity) be protected?**
71

72 Federal regulations require that certain information about individuals be kept confidential. This
73 information is called "protected health information" (PHI). PHI includes information that
74 identifies an individual personally such as name, address and social security number, or any
75 medical or mental health record, or test result, that may have this sort of information on it. The
76 laws state that people may see and review their medical records at any time. However, in a
77 research study, people may not see the study results or other data about the study until after the
78 research is completed unless the study doctor decides otherwise.
79

80 The following individuals or entities may have access to your campus code and by law must
81 protect it. These include investigators listed on this consent form and other personnel of Thomas
82 Jefferson University, Jefferson University Physicians, and Thomas Jefferson University
83 Hospitals, Inc. involved in this specific study, the University's Division of Human Subjects
84 Protection and the Institutional Review Board (IRB), and you.
85
86
87

88 The following information will be provided to the study sponsor and other entities noted above:
89
90 **Study data for analysis**: the pretest/posttest and communication assessment tool results.
91 **Demographic data**: gender, age, race, prior educational experience
92
93 PHI collected as part of this research may be used/disclosed until the end of the research study
94 *OR* for three years after completion of the study.
95
96 You may quit the study and revoke permission to use and share PHI at any time by contacting
97 the principal investigator, in writing, at: **mariann.kerr@jefferson.edu.** Further collection of PHI
98 will be stopped on those who quit the study, but PHI that has already been collected may still be
99 used.
100
101 **Is there payment for being in this study?**
102
103 There is nopayment for participating in this study.
104
105 **Can I be removed from the study or quit the study?**
106
107 Your decision to participate in this research study is entirely voluntary. You have been told what
108 being in this study will involve, including the possible risks and benefits.
109
110 Your participation in this research project may be terminated by the study investigator without
111 your assent for any reason that he/she feels is appropriate.
112
113 You may refuse to participate in this investigation or withdraw consent and quit this study
114 without penalty and without affecting the ability to receive medical care at Thomas Jefferson
115 University.
116
117 If you withdraw from this study, you may continue with your course of study here at Jefferson
118 University.
119
120 Should you decide to withdraw from the study, please be sure to inform the study investigator.
121
122 **CONTACT INFORMATION**
123
124 **If you are having a medical emergency, call 911 or go directly to an emergency room. You**
125 **should let emergency personnel or providers know that you are participating in this study.**
126

Telephone number for questions about your rights as a research participant	The Jefferson Institutional Review Board	215-503-8966
For questions, concerns or complaints about the research, or if you suspect a research-related injury	The Principal Investigator, Mariann Kerr or any co-investigator listed at the beginning of this form	*Insert telephone number* 215-955-8220

If you have difficulty contacting the study staff	Call the Jefferson Office of Human Research	215-503-0203

127
128
129 If you want more information about the Jefferson Institutional Review Board or Jefferson's
130 Human Research Protection Program, please visit our website at
131 http://www.jefferson.edu/human_research/irb/index.cfm.
132
133 **Subject Communications**
134
135 Do you wish to communicate with the study staff by e-mail?   YES _____   NO _____
136
137 If you checked yes, please print your e-mail address on the line below.
138
139
140
141 **RISKS:** E-mail correspondence is not always secure and there is a risk of loss of confidentiality.
142 To help protect against loss of confidentiality, all e-mail that originates from Jefferson University
143 or Jefferson Hospital employees using Jefferson University or Jefferson Hospital e-mail
144 addresses is encrypted. That means, unless you have allowed others to have access to your e-
145 mail, only you will see the e-mail.
146
147 YOU SHOULD **NEVER** USE E-MAIL TO REPORT A SUSPECTED ADVERSE EVENT OR
148 ANY OTHER MEDICAL PROBLEM. THESE SHOULD BE REPORTED BY TELEPHONE.
149

144

150
151 **Non-Waiver of Legal Rights Statement**
152
153 ✓ By your agreement to participate in this study, and by signing this consent form, you
154 are not waiving any of your legal rights.
155 ✓ In order to be in this research study, you must sign this consent form.
156 ✓ You affirm that you have read all pages of this consent form. You have been told
157 that you will receive a copy.
158
159 SIGNATURES
160
161
162
163 Your Name   Your Signature   Date
164
165
166
167 Name of **Person Conducting**   Signature of **Person Conducting**   Date
168 **Consent Interview**   **Consent Interview**
169
170
171
172 Name of **Investigator**   Signature of **Investigator**   Date
173 or **Co-Investigator**   or **Co-Investigator**
174
175
176 ☐ Copy of Signed and Dated Consent Form Given to the Subject/Parent/LAR
177
178 ***
179
180
181 Your Name **(if Minor)**   Your Signature **(if Minor)**   Date
182 *(If subject is a minor and this document is being used both as consent and assent form.)*
183
184
185
186 Name of **Witness**   Signature of **Witness**   Date
187
188 *(Witness required if the only language the subject speaks and understands is English, but*
189 *the subject cannot read English, or if the subject is blind or cannot physically sign the*
190 *consent form.)*

As per University Counsel - Do not sign
this consent form after 5/11/16

Appendix C

Health Literacy Knowledge and Experience Survey

Part 1: Health Literacy Knowledge
Directions: Questions 1-29 are multiple-choice questions. Choose the best answer and record only one response for each question.

1. Low health literacy levels are most prevalent among which of the following age groups?
        a. 16 to 24 years of age.
        b. 25 to 34 years of age.
        c. 35 to 44 years of age.
        d. 45 to 54 years of age.
        e. 65 years of age and older.

2. Low health literacy levels are common among:
        a. African Americans.
        b. Hispanic Americans.
        c. White Americans.
        d. All ethnic groups.

3. The research on health literacy indicates that:
        a. the last grade completed is an accurate reflection of an individual's reading ability.
        b. most individual's read three to five grade levels lower than the last year of school completed.
        c. if an individual has completed high school they will be functionally literate.
        d. if an individual has completed grammar school they will be functionally literate.

4. What is the likelihood that a nurse working in a public health clinic, primarily serving low-income minority patients, will encounter a patient with low health literacy skills?
        a. almost never
        b. occasionally
        c. often
        d. very often

5. The best predictor of healthcare status is:
        a. socioeconomic status.
        b. literacy.
        c. gender.
        d. educational level.

6. Patients with low health literacy skills:
        a. rate their health status higher than those with adequate literacy skills.

b. are often prescribed less complicated medication regimes than those with adequate   health literacy skills.

c. are often diagnosed late and have fewer treatment options than those with adequate health literacy skills.

7. Health behaviors common among patients with low health literacy skills include:

a. lack of participation in preventative health care.

b. disinterest in learning about health care problems.

c. an unwillingness to make lifestyle changes necessary to improve health.

d. the inability to learn how to correctly take prescribed medications.

8. Patients cope with low health literacy skills by:

a. asking multiple questions about health care instructions that they do not understand.

b. exploring treatment options before signing surgical consent forms.

c. relying heavily on written health care instructions.

d. pretending to read information given to them by health care providers.

9. The nurse should keep in mind that individuals with low health literacy levels:

a. can understand written health care information if they are able to read it.

b. will not be able to learn about their health care needs.

c. have lower intelligence scores than average readers.

d. have difficulty applying health care information to their health situation.

10. The Rapid Estimate of Adult Literacy in Medicine is an instrument utilized to:

a. determine the reading level of written health care information.

b. assess the math skills of an individual required for medication administration.

c. evaluate the overall quality of written health care information.

d. should not be expected to manage their health care since they cannot read.

11. When working with individuals who have low health literacy skills the nurse should keep in mind that these individuals:

a. may not admit that they have difficulty reading.

b. will readily share that they need assistance with written information.

c. will frequently ask questions about information they do not understand.

d. should not be expected to manage their health care since they cannot read.

12. Which of the following questions would provide the nurse with the best estimate of reading skills of the patient?

a. "What is the last grade you completed in school?"

b. "Do you have difficulty reading?"

c. "Would you read the label on this medication bottle for me?"

d. "Do you need eye glasses to read?"

13. Which instrument best describes the Test of Functional Health Literacy? This instrument is:

a. used to assess the reading comprehension and numerical skills of an individual.

b. only available in English and therefore has limited use with immigrants.
c. an effective tool for assessing the reading level of individuals.
d. recommended for determining the reading level of written health care materials.

14. What is the strongest advantage to conducting health literacy screening? Health literacy screenings:
a. provide nurses with a good estimate of the educational level of individuals.
b. will help nurses to be more effective when providing health care teaching.
c. can be used to diagnose learning difficulties that serve as barriers to patient teaching.
d. assist health care agencies to comply with educational standards established by the Joint Commission on Accreditation of Health Organizations.

15. Which of the following statements, made by the nurse, would be the best approach to initiating a health literacy screening with a patient?
a. "It is necessary for me to assess your reading level; this will take a few minutes, and it is very important."
b. "I need to conduct a test to see if you can read. Please read these words for me."
c. "I want to make sure that I explain things in a way that is easy for you to understand. Will you help me by reading some words for me?"
d. "I need to administer a reading test to you. If you cooperate this will not take long."

16. After providing written health care information to a patient he states, "Let me take this information home to read." This may be a clue to the nurse that the patient:
a. is in a hurry and does not have time for instruction.
b. is not interested in learning the information.
c. is noncompliant with health care treatments.
d. may not be able to read the materials.

17. An individual with functional health literacy will be able to:
a. follow verbal instruction but not written health care instructions.
b. read health care information but have difficulty managing basic health care needs.
c. read and comprehend health care information.
d. read, comprehend, and actively participate in decisions concerning health care.

18. Which of the following is true with regard to written health care information?
a. Most health care information is written at an appropriate reading level for patients.
b. Illustrations can improve a patient's understanding of written information.
c. Patients are usually provided with information better that they think is important to know about their health care status.
d. Overall, patients comprehend written information better than verbal information.

19. The recommended reading level for written health care information is:
    a. 5th grade.
    b. 8th grade.
    c. 10th grade.
    d. 12th grade.

20. The first step in developing written health care information is to:
    a. outline the content.
    b. list the learning objectives.
    c. find out what the audience needs to know.
    d. research the content area.

21. Which of the following statements best describes the Fry Method?
    a. This formula is used to calculate word difficulty in a written document.
    b. This method calculates the readability level of a written document by counting selected syllables and sentences within the document.
    c. It is an effective tool used for measuring how well a patient understands health care information.
    d. This instrument is used to evaluate the cultural appropriateness of written health care instructions.

22. Recommendations for developing written healthcare materials include:
    a. using dark colored papers for printing.
    b. presenting information in the form of a conversation.
    c. including abbreviations when possible to save space.
    d. printing words in fancy script.

23. When listing side effects for a handout on chemotherapy, the oncology nurse should limit the list to:
    a. 2-3 items.
    b. 5-6 items.
    c. 10-12 items.
    d. 15-20 items.

24. Written health care information provided to a patient related to a specific disease should include:
    a. only three or four main ideas about the disease.
    b. all treatment options available to manage the disease.
    c. a detailed explanation of the pathophysiology of the disease.
    d. statistics on the incidence of the disease.

25. Which of the following would be the most effective wording for a heading in a brochure on hypertension?
    a. HYPERTENSION: THE SILENT KILLER
    b. Symptoms of high blood pressure

c. How do I know that I have high blood pressure?

d. What factors contribute to hypertension?

26. The best way to ensure that a breast cancer prevention brochure is culturally appropriate is to:

a. review research on the community's culture.

b. obtain input from nurses who have worked in the community.

c. explore the types of materials currently available.

d. include community members in the design of the brochure.

27. Which of the following instructions on the management of diabetes would be best understood by an individual with low health literacy skills?

a. Check your blood sugar every morning.

b. Insulin should be taken as directed by your physician.

c. Diabetes is a disease of energy metabolism.

d. Complications associated with insulin include hypoglycemic reactions.

28. Which of the following approaches to patient education provides minimal opportunity for the patient to actively engage in learning?

a. Incorporating short answer questions periodically throughout written health care materials and providing space and for the patient to write responses.

b. Instructing the patient to watch a video after providing written instructions.

c. Planning a question answer session in small groups after completing a learning activity.

d. Providing pictures for the patient to circle in response to questions asked in a health care brochure.

29. The most effective way for a nurse to determine how well a patient with low health literacy skills understands health care information is to:

a. utilize a pre-test before instruction and a post-test following instruction.

b. ask the question, "Do you understand the information I just gave you?"

c. Have the patient teach back the information to the nurse.

d. verbally ask the patient a series of questions following instructions.

Part 2: Health Literacy Experiences

Directions: Questions 30-38 ask you to describe how often you participated in learning activities related to health literacy. Choose the response that best describes health literacy experiences while enrolled in nursing school.

Never Sometimes Frequently Always

30. How frequently was health literacy
Emphasized in your nursing curriculum?   1   2   3   4

31. How often did you use a health literacy

screening tool to assess the health literacy skills of an individual?	1	2	3	4

32. How often did you evaluate the reading level of written health care materials before using them for patient teaching?

1	2	3	4

33. How often did you evaluate the cultural appropriateness of health care materials, including written handouts, videos, audiotapes, before using them for patient teaching?

1	2	3	4

34. How often did you evaluate the use of illustrations in written health care materials before using them for patient teaching?

1	2	3	4

35. How often did you use written materials to provide health care information to an individual or community group?

1	2	3	4

36. How often did you use audiotapes to provide health care information to an individual or community group?

1	2	3	4

37. How often did you use videotapes to provide health care information to an individual or community group?

1	2	3	4

38. How often did you use computer software to provide health care instructions to an individual or community group?

1	2	3	4

Demographic data will be completed using a different survey than included on this survey.

Cormier, C. M., & Katrlik, J. W. (2009). Health literacy knowledge and experiences of senior baccalaureate nursing students. *Journal of Nursing Education, 48*(5), 237-247. doi: 10.9999/01484834-20090416-02.

Appendix D

Communication Assessment Tool

Nurse's Name and Unit:

<u>Communication Assessment Tool – Nurse (CAT-N)</u>

Communication with patients is a very important part of quality medical care. We would like to know how you feel about the way your nurse communicated with you. **Your answers are completely confidential, so please be as open and honest as you can**.

The Nurse…	Poor	Fair	Good	Very Good	Excellent
Told me he/she is a nurse	1	2	3	4	5
Greeted me in a way that made me feel comfortable	1	2	3	4	5
Treated me with respect	1	2	3	4	5
Showed interest in my ideas about my health	1	2	3	4	5
Paid attention to me (looked at me, listened carefully)	1	2	3	4	5
Let me talk without interruptions	1	2	3	4	5
Informed me about my plan of care	1	2	3	4	5
Talked in terms I could understand	1	2	3	4	5
Checked to be sure I understood everything	1	2	3	4	5
Encouraged me to ask questions	1	2	3	4	5
Involved me in decisions as much as I wanted	1	2	3	4	5
Showed care and concern	1	2	3	4	5

| Helped me in a timely manner | 1 | 2 | 3 | 4 | 5 |
| Communicated with my healthcare team | 1 | 2 | 3 | 4 | 5 |

Your participation is completely voluntary and will not affect your medical treatment in any way.

Please rate the nurse's communication with you. Circle your answer for each item below.

Thank you very much.

Appendix E

Frequencies, Odds Ratio, and Percentages of CAT

Question	Group	Fair	Good	Total	*P-value*	*OR*	Confidence Intervals Lower 95%	Upper 95%
1.	Intervention	4 (20%)	16 (80%)	20 (100%)				
	Control	0 (0%)	7 (100%)	7 (100%)	NS*	NS*	NS*	NS*
	Total	4 (29%)	23 (85%)	27 (100%)				
2.	Intervention	8 (40%)	12 (60%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.62	NS*	NS*	NS*
	Total	10 (36%)	17 (63%)	27 (100%)				
3.	Intervention	5 (25%)	15 (75%)	20 (100%)				
	Control	1 (14%)	6 (86%)	7 (100%)	0.58	NS*	NS*	NS*
	Total	6 (22%)	21 (78%)	27 (100%)				
4.	Intervention	8 (40%)	12 (60%)	20 (100%)				
	Control	4 (57%)	3 (43%)	7 (100%)	0.26	NS*	NS*	NS*
	Total	12 (44%)	15 (56%)	27 (100%)				
5.	Intervention	2 (10%)	18 (90%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.00	3.60	1.97	6.54
	Total	4 (15%)	23 (85%)	27 (100%)				
6.	Intervention	1 (5%)	19 (95%)	20 (100%)				
	Control	1 (14%)	6 (86%)	7 (100%)	0.00	3.16	0.18	5.62
	Total	2 (7%)	25 (93%)	27 (100%)				
7.	Intervention	6 (30%)	14 (70%)	20 (100%)	0.14	NS*	NS*	NS*

Question	Group	Fair	Good	Total	P-value	OR	Lower 95%	Upper 95%
							Confidence Intervals	
	Control	3 (43%)	4 (57%)	7 (100%)				
	Total	9 (33%)	18 (67%)	27 (100%)				
8.	Intervention	3 (15%)	17 (85%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.51	NS*	NS*	NS*
	Total	5 (19%)	22 (81%)	27 (100%)				
9.	Intervention	7 (35%)	13 (65%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.70	NS*	NS*	NS*
	Total	9 (33%)	18 (67%)	27 (100%)				
10.	Intervention	6 (30%)	14 (70%)	20 (100%)				
	Control	3 (43%)	4 (57%)	7 (100%)	0.53	NS*	NS*	NS*
	Total	9 (33%)	18 (67%)	27 (100%)				
11.	Intervention	9 (45%)	11 (55%)	20 (100%)				
	Control	3 (43%)	4 (57%)	7 (100%)	0.88	NS*	NS*	NS*
	Total	12 (44%)	15 (56%)	27 (100%)				
12.	Intervention	9 (45%)	11 (55%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.45	NS*	NS*	NS*
	Total	11 (41%)	16 (59%)	27 (100%)				
13.	Intervention	10 (50%)	10 (50%)	20 (100%)				
	Control	2 (29%)	5 (71%)	7 (100%)	0.00	0.40	0.23	0.69
	Total	12 (44%)	15 (56%)	27 (100%)				
14.	Intervention	12 (60%)	8 (40%)	20 (100%0	0.04	0.27	0.07	0.96

Question	Group	Fair	Good	Total	*P-value*	*OR*	Lower 95%	Upper 95%
							Confidence Intervals	
	Control	2 (29%)	5 (71%)	7 (100%)				
	Total	14 (52%)	13 (48%)	27 (100%)				
15.	Intervention	16 (80%)	4 (20%)	20 (100%)				
	Control	4 (57%)	3 (43%)	7 (100%)	0.07	NS*	NS*	NS*
	Total	20 (74%)	7 (26%)	27 (100%)				
16.	Intervention	4 (20%)	16 (80%)	20 (100%)				
	Control	3 (43%)	4 (57%)	7 (100%)	0.02	3.00	1.16	7.72
	Total	7 (26%)	20 (74%)	27 (100%)				

* NS–not significant

Appendix F

Student Pretest Answer Choices According to Content Areas

Content Item[a]	Correct Responses		Incorrect Responses	
	N	Percent	n	Percent
Basic Facts on Health Literacy				
1. Low health literacy levels are most prevalent among which of the following age groups	22	68.7	10	31.3
2. Low health literacy levels are common among:	25	78.1	7	21.9
3. The research on health literacy indicates that:	27	84.3	5	15.6
4. What is the likelihood that a nurse working in a public health clinic, primarily serving low-income minority patients, will encounter a patient with low health literacy skills?	28	87.5	4	12.5
5. The best predictor of health care status is:	8	25	24	75
17. An individual functional health literacy will be able to:	26	81.1	6	18.8
Consequences Associated with Low Health Literacy				
6. Patients with low health literacy skills:	31	96.9	1	3.1
7. Health behaviors common among patients with low health literacy skills include:	22	68.8	10	31.2

Content	Correct Responses		Incorrect Responses	
Item[a]	N	Percent	n	Percent
8. Patients cope with low health literacy skills by:	30	93.8	2	6.2
9. The nurse should keep in mind that individuals with low health literacy levels:	23	71.9	9	28.1
Health Literacy Screening				
10. The Rapid Estimate of Adult Literacy in Medicine is an instrument utilized to:	22	68.7	10	31.2
11. When working with individuals who have low health literacy skills the nurse should keep in mind that these:	30	93.7	2	6.2
12. Which of the following questions would provide the nurse with the best estimate of reading skills of the patient?	23	71.8	9	28.1
13. Which statement describes the Test of Functional Health Literacy? This instrument is:	2	6.2	30	93.7
14. What is the strongest advantage to conducting health literacy screenings?	26	81.2	6	1
15. Which of the following statements, made by the nurse, would be the best approach to initiating a health literacy screening with a patient?	32	100	0	0
Guidelines for				

Content	Correct Responses		Incorrect Responses	
Item[a]	N	Percent	n	Percent
Written Health care Materials				
18. Which of the following is true with regard to written health care information?	24	75	8	25
19. The recommended reading level for health care information is:	7	21.8	25	78.1
20. The first step in developing written health care information is to:	17	53.1	15	46.9
21. Which of the following statements best describes the Fry Method?	13	40.6	19	59.3
22.Recommendations for developing written health care materials include:	31	96.9	1	3.1
23. When listing side effects for a handout on chemotherapy the oncology nurse should limit the list to:	17	53.1	15	46.9
24. Written health care information provided to a patient related to a specific disease should include:	18	56.3	14	43.7
25. Which of the following would be most effective wording for a heading in a brochure on hypertension?	27	84.3	5	15.6
26. The best way to ensure that a breast cancer prevention	17	53.1	15	46.9

Content	Correct Responses		Incorrect Responses	
Item[a]	N	Percent	n	Percent
brochure is culturally appropriate is to: 27. Which of the following instructions on the management of diabetes would be best understood by an individual with low health literacy skills	32	100	0	0
28. Which of the following approaches to patient education provides minimal opportunity for the patient to actively engage in learning? Evaluation of Health Literacy Interventions	20	62.5	12	37.5
16. After providing written health care information to a patient he states, "Let me take this information home to read." This may be a clue to the nurse that the patient:	25	78.1	7	21.8
29. The most effective way for a nurse to determine how well a patient with low health literacy skills understands health care information is to:	26	81.2	6	18.7

[a]The content areas from items listed in Part 1 of the HL-KES (see Appendix C)

Appendix G

Seminar Schedule

Seminar Schedule: 1300-1350: Session 1
                    1350-1400: Break

1400-1450: Session 2
1450-1500: Break
1500-1550: Session 3
1550-1600: Break
1600-1650: Session 4
1650-1725: Wrap-up Session

      Session 1 will include: Introduction, discussion about why health literacy is important, how to assess for health literacy and other factors that impact health literacy. The didactic portion will take approximately 15 minutes. The next 35 minutes will require students to work in their clinical groups to: perform a health literacy assessment, assess documents for readability and jargon which may be difficult for patients to understand; and how to know your audience, an activity that teaches students to assess what their patient wants to know.

      Session 2 will include: A didactic portion where communication will be discussed for 15 minutes. Students will be separated into their clinical groups to watch videos where discussions occur between the healthcare provider and the patient. The students will be asked to identify communication that is appropriate for patients with low health literacy and communication that is not appropriate. Students will be asked to correct the scenario they just watched. Each student will have a partner, they will either act as the healthcare provider, or the patient and will correct the communication that was not appropriate (35 minutes).

      Session 3 will include: A didactic portion where preparation of written material will be discussed (15 minutes). Students will be separated into clinical groups and will evaluate several documents for readability. They will then work together to prepare two different documents on an assigned topic. Students will present their documents to the larger group explaining their choice of wording, pictures, content (35 minutes).

      Session 4 will include: A didactic portion where confirmation of patient understanding will be discussed. Teach-back is a teaching technique where patients are asked to explain in their own words what they have been taught. This allows the healthcare professional to determine if the patient understands the information they have been given. If understanding has not been attained, it is the responsibility of the healthcare professional to re-teach the information in a different way and ask the patient to explain in their own words, again, what they have been taught. This process should be repeated until patient education and understanding has been attained (Osbourne, 2013). Several teach-back videos will be presented and discussion will follow. Students will work in their clinical groups and will identify how to perform a teach-back and how to re-teach if confirmation of understanding cannot be attained (35 minutes). Several groups will be asked to present their teach-back to the large group so formative feedback can be given.

      The wrap-up session will include: A review of the major points addressed during the seminar. Students will be asked to complete an evaluation survey about the health literacy seminar. This information will be obtained to determine the effectiveness of the seminar day and will not be used in data analysis, but will allow for the seminar day to be changed to meet the needs of the student in the future.

Appendix H

The Clinical Immersion Experience

The purpose of the clinical immersion experience will be to allow the nursing student to learn a skill and continue to perform that skill with formative feedback until the end of the semester where they will be required to perform the skill and be evaluated on their performance by a SP encounter. Teach-back will be performed to assess whether the nursing student is able to perform the skill of teach-back to patients with limited health literacy. Students will be introduced to this content during the HLS and will now perform this skill in the clinical setting. According to Benner (2001), each person brings their own history to every clinical situation. This past experience must be clarified and understood before the nursing student can perform the skill and become an expert at it. This takes a lot of practice on the part of the prelicensure nursing student. The nursing student needs to see an expert model the right way to perform a skill so that personal experience can be meshed with the clinical situation. Benner goes on to describe the need for nursing students to develop their own *know-how* by practicing a skill and putting it into context with their past and present experiences. The student must receive feedback on skill performance and must be allowed to continue to practice this skill, continually improving so that the novice can eventually become an expert.

All FACT prelicensure nursing students will begin their first clinical rotation the week following the HLS. Students have already been assigned to clinical groups of eight students. Each clinical group will have a clinical faculty member and a clinical floor assigned to them for the entire 10 weeks of the clinical rotation. Each clinical day will conclude with a post-conference (30-45 minutes) which will be focused on the health literacy content students have been taught. Students will practice the skill of patient teaching, in the form of a teach-back, during the post conference each week. They will receive formative feedback from their clinical faculty member each week. Each post conference will focus on a different concept related to the skill of teach-back to patients with limited health literacy.

The nine clinical groups participating in the clinical immersion experience will be broken down into two or three clinical groups per post-conference room. The two clinical faculty will role-model the correct way and the incorrect way to perform teach-back. A discussion will follow where students will be asked why they think a teach-back is important and what they would do to change the role-modeled teach-back. After the discussion the students will be introduced to the schedule for the rest of the nine weeks of clinical. Each student will be expected to perform at least one teach-back per week to be viewed by the clinical faculty. During the first three weeks of the clinical rotation, the students will work as teams of two students and will each perform a teach-back. The clinical faculty will provide formative feedback during these sessions.

Weeks four through ten the students will continue to perform the skill of teach-back to a patient with limited health literacy. Students will be asked to identify a topic the patient will require education on, they will evaluate the current literature being used to teach the patients, they will develop their own teaching plan for one of their patients, and they will perform a five to ten minute teach-back for a patient while the clinical faculty member watches. After the teach-back, the clinical faculty member will provide the

student with formative feedback on the encounter. If the student does not have a patient that can receive the teach-back, the student will be asked to perform the teach-back on another student, receiving feedback from the clinical faculty member. The clinical rotation is evaluated using a pass/fail grading system. The purpose of the post-conference experience is to provide the students with feedback on ways they can improve their skill acquisition of teach-back to patients with limited health literacy.

Appendix I

Pretest Item Analysis

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Total Possible Points: 29   Median Score: 68.97   Highest Score: 86.21
Students in this group: 32   Mean Score: 71.44   Lowest Score: 51.72
Standard Deviation: 9.154 Reliability Coefficient (KR20): .304

No.	Total	Upper 27%	Lower 27%	Point Biserial	Correct Answer	A	B	C	D	E	Non Distractor
		Correct Group Responses				Response Frequencies					
1.	75	87.5	62.5	0.25	E	6	2	0	0	24	CD
2.	84.3	100	68.75	0.31	D	3	2	0	27		C
3.	71.8	68.75	75	-0.06	B	8	23	0	1		C
4.	81.3	81.25	81.25	0.00	D	0	0	6	26		AB
5.	25	6.25	43.75	-0.375	B	20	8	0	4		C
6.	93.7	100	87.5	0.125	D	2	0	0	30		BC
7.	75	93.75	56.25	0.375	A	24	1	4	3		
8.	68.7	87.5	50	0.375	D	7	0	3	22		B
9.	81.2	81.25	81.25	0	D	3	3	0	26		C
10.	68.7	75	62.5	0.125	D	10	0	0	22		BC
11.	62.5	100	87.5	0.125	A	30	0	2	0		BD
12.	71.8	87.5	56.25	0.3125	C	6	2	23	1		
13.	12.5	6.25	18.75	-0.153	A	4	2	3	23		
14.	84.3	81.25	87.5	0.0625	B	0	27	4	2		A
15.	96.8	100	93.75	0.0625	C	1	0	31	0		BD
16.	81.2	93.75	68.75	0.25	D	1	5	0	26		C
17.	80.6	68.75	87.5	-0.02	D	3	2	2	25		
18.	78.1	93.75	62.5	0.3125	B	2	25	3	2		
19.	28.1	37.5	18.75	0.1875	A	9	11	8	4		
20.	62.5	81.25	43.75	0.357	C	7	5	20	0		D
21.	50	43.75	56.25	-0.125	B	5	16	8	3		
22.	96.8	100	93.75	0.0625	B	0	31	1	0		AD
23.	53.1	56.25	50	0.0625	B	11	17	4	0		D
24.	59.3	81.25	37.5	0.4375	A	19	11	1	1		
25.	87.5	100	75	0.25	C	3	0	28	1		B
26.	71.8	100	43.75	0.5625	D	5	3	1	23		
27.	100	100	100	0	A	32	0	0	0		BCD
28.	68.7	75	62.5	0.125	B	5	22	2	3		
29.	81.2	87.5	75	0.125	C	1	1	26	4		

Appendix J

Posttest Item Analysis

Total Possible Points: 29   Median Score: 75.8621   Highest Score: 93.10
Students in this group: 32   Mean Score: 77.1552   Lowest Score: 62.07
Standard Deviation: 8.57 Reliability Coefficient (KR20): .102

No.	Correct Group Responses Total	Upper 50%	Lower 50%	Point Biserial	Correct Answer	A	B	C	D	E	Non Distractor
1.	68.8	87.5	.5	0.375	E	3	0	5	2	22	B
2.	78.1	93.75	62.5	0.312	D	5	2	0	25		C
3.	84.3	100	68.75	.3125	B	4	27	0	1		C
4.	71.8	93.75	81.25	0.125	D	1	1	2	28		
5.	25	37.5	12.5	0.125	B	22	8	0	2		C
6.	96.8	100	93.7	0.062	D	1	0	0	31		BC
7.	68.7	87.5	50	0.375	A	22	3	1	7		
8.	93.7	100	87.5	0.125	D	1	0	1	30		B
9.	71.8	93.75	50	0.4375	D	5	4	0	23		C
10.	43.7	68.75	23.07	0.5	D	17	0	1	14		B
11.	100	100	100	0	A	32	0	0	0		BCD
12.	78.1	100	56.25	0.437	C	5	2	25	0		D
13.	12.5	12.5	12.5	0	A	4	2	14	12		
14.	84.3	100	68.75	0.3125	B	1	27	3	1		
15.	100	100	100	0	C	0	0	32	0		ABD
16.	96.8	100	93.75	0.0625	D	1	0	0	31		BC
17.	81.2	100	62.5	0.375	D	1	2	3	26		
18.	84.3	100	68.75	0.3125	B	1	27	3	1		
19.	72.7	100	50	0.5	A	24	7	1	0		D
20.	59.3	68.75	50	0.1875	C	1	3	19	3		
21.	75	93.75	56.25	0.375	B	4	24	3	1		
22.	93.7	100	87.5	0.125	B	2	30	0	0		CD
23.	37.5	43.75	31.25	0.125	B	20	12	0	0		CD
24.	93.7	100	87.5	0.125	A	30	1	0	1		C
25.	84.3	100	68.75	0.325	C	3	1	27	1		
26.	75	100	50	0.5	D	4	2	2	24		
27.	100	100	100	0	A	32	0	0	0		BCD
28.	81.2	100	62.5	0.375	B	1	26	4	1		
29.	100	100	100	0	C	0	0	32	0		ABD