Standardized Patient Use in Gero-focused Nursing Simulation: Variability in Cues Across Presentations and Meeting Simulation Objectives

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Abstract

The purpose of this dissertation was to examine the use of cues used by standardized patients in nursing simulation in an effort to meet scenario objectives. Qualitative descriptive research was used to examine 25 recorded episodes of a simulation scenario involving an elderly patient with Alzheimer's disease and her caregiver were used in this study. Results indicated that standardized patients, to propel a simulation, used both specific and a range of cues. Concepts were created from cues to organize and group similar cues. Evidence supports the use of both actors and students as standardized patients. Consistency in concepts allowed for opportunity for nursing students to meet simulation objectives. Simulation designers who create cues that correspond with simulation objectives can evaluate results of this study. As the use of standardized patients expands in nursing education, the use of cueing that aligns with the level of the students in an effort to meet simulation objectives is required to ensure successful simulation implementation.

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Chapter One: Introduction

Statement of problem

There are 40 million Americans over the age of 65, representing 13% of the population (United States Census, 2013); this number is expected to climb to 72 million (20% of the population) by 2050. Since January 1, 2011, roughly 10,000 baby boomers turn 65 each day and this trend will continue until 2030 (Pew Research Center, 2010). According to the Centers for Disease Control (2010), 5.3 million Americans 65 years and older have been diagnosed with Alzheimer's disease (AD). That number is expected to triple by 2050. In Oregon, the number of adults over the age of 65 with an AD diagnosis is 59,000 (10% of the state's population). By 2025, the number is expected to exceed 84,000 (Alzheimer's Association, 2013).

Research has shown that the nursing workforce is not well prepared to provide care to patients with AD and their family caregivers. This is significant because the number of people diagnosed with AD is growing and it is a burden for families (Yeager, Hyer, Hobbs & Coyne, 2010), health care providers, and health care organizations (Fick, Agostini & Innoye, 2002; Pedone, Erolani, Catania, Maggio, Ruggiero, Quartesan, et al., 2005; Zilkens, Spilsbury, Bruce & Semmens, 2009). The nursing care needs of this rapidly growing population are critical now and will be more so in the years ahead. The educational community is still in the process of learning the best ways to prepare baccalaureate-nursing students for an aging patient population facing AD. Information alone does not equal competency; students need opportunities to practice clinical assessment and to engage in critical thinking to improve clinical skills (Jeffries, 2005).

In 2008, the Institute of Medicine established recommendations to enhance the gerontological competence of health care professionals. These recommendations are necessary because less than one percent of registered nurses are certified in geriatrics; only 29% of baccalaureate programs have a faculty member certified as a geriatric expert; and just one-third of baccalaureate programs require clinical exposure to geriatrics (IOM, 2008). Simulated clinical learning is one pedagogy used in undergraduate nursing education as a means of developing skill attainment and clinical judgment that previously have been acquired in nursing education by clinical site instruction, preceptors, or by luck. Research has established that the use of simulation helps students retain information, partake in clinical situations that are less common or unavailable in clinical settings, decrease performance anxiety, increase self-confidence, and enhance critical thinking skills (Jamison, Hovancsek, & Clochsey, 2006; Jeffries, 2005). The use of standardized patients in the enactment of clinical scenarios is emerging as an important tool in nursing simulation.

A standardized patient is an actor who is instructed on how to perform as if they have a particular disease or condition or portray a family member and/or caregiver in a given patient situation. Simulations using standardized patients have been used in medical and nursing schools to enhance communication skills (Colletti, Gruppen, Barclay, & Stern, 2001; Wales & Skillen, 1997), teach nursing fundamentals (Yoo & Yoo, 2003), and to conduct an assessment of elder adults with congestive heart failure and dementia (Paquette, Bull, Wilson, & Dreyfus, 2010). Study findings have shown that scenarios using standardized patients involved in

emotionally charged situations – such as breaking bad news, communicating with an aphasic patients, or simulating interactions with a patient during a home visit – improved nurses' communication skills (Rosenzweig et al., 2008; Touhy, T.A., Jett. K.F., Ebersole, P., & Hess, P.A., 2010; Uitterhoeve et al., 2008) There is less information about the use of standardized patients in simulation scenarios requiring students to synthesize communication skills with knowledge of diseases, such as AD (Paquette, Bull, Wilson, & Dreyfus, 2010). Despite the positive preliminary findings, there is still little empirical information on the use of standardized patients in nursing simulation.

Purpose and Specific Aims

In each simulation scenario, there are a variety of participants, each with a specific role and pedagogical purpose. The standardized patients, or actors, may be professional actors or nursing students. Standardized patients may also play family members or caregivers. There is also the student nurse who is participating in the scenario in order to develop nursing clinical judgment skills. In these situations, the nursing student essentially represents the independent variable. We cannot know how a student will respond in a given situation. The standardized patients, on the other hand, are supposed to represent the dependent variable in that they are supposed to deliver a consistent performance each time. In reality, however, there is variation in how standardized patients deliver the scripts and how in the "cues" they deliver to the nursing students. The purpose of this study is to develop a better understanding of the variability that happens across presentations of a simulation scenario focusing on Alzheimer's disease. This study asks: what is the impact cue

variability has on the opportunities for students to meet the simulation objectives? The study will address the following specific aims:

1. Describe the variability in the cues given during different episodes of a standardized patient simulation scenario.
2. Explore the extent to which this variability relates to opportunity for students to meet the simulation objectives.

Significance of problem

Costs of dementia care. In 2010, Alzheimer's disease cost over $172 billion annually and was the sixth leading cause of death in the United States (Centers for Disease Control [CDC], 2010). By the end of 2013, the direct costs of caring for those with Alzheimer's to American society total an estimated $203 billion (an increase of nearly $30 billion in two years), including $142 billion in costs to Medicare and Medicaid. Alzheimer's disease will cost an estimated $1.2 trillion (in today's dollars) in 2050. Costs to Medicare and Medicaid will increase over 500 percent (AA, 2013). In 2011, global costs of dementia exceeded one percent of world gross domestic product for a total of $601 billion, with more than half of that number solely due to Alzheimer's, the most common form of dementia (Vann, 2011). With the escalating costs of providing care to patients with AD, it is essential that our nursing work force has a fundamental understanding of AD and clinical experience in providing care to this patient population.

Elderly adults requiring health care. Adults over the age of 65 account for 35 percent of hospital visits and 90 percent of nursing home use. Eighty percent of all deaths that occur in hospitals involve patients over the age of 65 (IOM, 2008).

One in three senior citizens dies with Alzheimer's disease or other types of dementia (AA, 2013). Among 70-year-olds with Alzheimer's, 61 percent are expected to die within a decade while among those without Alzheimer's, only 30 percent will die during the next ten years (AA, 2013).

The Alzheimer's Association (2013) states that AD and complications associated with the disease can lead to (a) bedsores; (b) muscle contractures; (c) malnutrition and dehydration; (d) failure of body systems; (e) harmful or violent behavior toward self or others; (f) abuse by an over-stressed caregiver. Multiple co-morbidities make AD difficult to diagnose and treat (Chhatre, Weiner, Jayadevappa, & Johnson, 2009; Hill et al., 2002; Verkaik, Francke, van Meijel, Ribbe, & Bensing, 2009). Studies have shown that hospital outcomes for patients with AD are significantly worse than for those without AD with respect to delirium, functional losses, length of stay, placement in care facilities, and death (Fick, Agostini & Innoye, 2002; Pedone, Erolani, Catania, Maggio, Ruggiero, Quartesan, et al., 2005; Zilkens, Spilsbury, Bruce & Semmens, 2009). Researchers have concluded that the needs of older patients with dementia and their caregivers are less related to instrumental needs and more associated with how they cope with the disease and well-being of both patient and caregiver (Hancock, Woods, Challis, & Orell, 2006). Studies have shown that functional decline and increasing dependence were most burdensome to caregivers in the early stages of the disease while behavioral symptoms were more burdensome in patients with moderate-to-severe disease (Yeager, Hyer, Hobbs & Coyne, 2010; Bertrand, Fredman, & Saczynski, 2006).

According to gerontological experts Mezey, Stierle, Huba, and Esterson (2007), discussing the Geriatric Nursing Education Consortium (a national initiative of the American Association of Colleges of Nursing with funding from the John A. Hartford Foundation to enhance geriatric content in senior-level undergraduate nursing courses), all nursing students must be able to assess for cognitive function and safety, recognize co-morbidities, differentiate between dementia and delirium, recognize caregiver issues and stress, and formulate plans of care relevant to AD patients and caregivers. This study will further the understanding of simulation as an educational tool that is consistent in its ability to enhance gerontological nursing competencies in the undergraduate nursing student.

Preparation of nursing students. Settings that have been the traditional focus of clinical care learning experiences in nursing education regarding care of older adults are nursing homes, hospitals, and residential, day, and home care. In an evaluation of associate degree (ADN) nursing education, researchers found that most ADN programs use nursing homes as clinical sites in an effort to introduce students to the complexities of caring for older adults (Ironside, Tagliareni, McLaughlin, King, & Mengel, 2010). However, it was noted that most learning activities focused on personal care and basic skill attainment rather than higher order clinical judgment activities. The consequence of limited or relative basic clinical experience is students fail to appreciate the complexities of providing care to older adults, especially those with Alzheimer's disease or other cognitive impairments.

In 2010, the American Association of Colleges of Nursing (AACN), in conjunction with the John A. Hartford Institute for Geriatric Nursing, presented the Recommended Baccalaureate Competencies and Curricular Guidelines for the Nursing Care of Older Adults. In an effort to establish the best methods to prepare nurses to meet the needs of patients with AD and their caregivers, these guidelines were established to assure that content focusing on older adults is incorporated into the didactic and clinical education of baccalaureate-prepared nurses. The 19 gerontological nursing competency statements do not specify disease states that particularly affect older adults (e.g. AD); however, they focus on patient-centered care, barriers facing older adults and their families/caregivers, recognizing and managing geriatric syndromes, decision-making, safety, promoting wellness, and advocating for this patient population. Clearly, there is a need for nurses to be knowledgeable about Alzheimer's disease as they progress through school and enter the health care workforce.

With decreased availability of clinical sites due to greater numbers of nursing students and competition for clinical sites (Dugan & Amorim, 2007; Magnusson, O'Driscoll, & Smith, 2007), nurse educators are including simulation scenarios that allow students to learn in a structured but unpredictable environment (Jeffries, 2005). Simulations are activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision-making, and critical thinking through [interactive] techniques (Jeffries, 2005). Simulation in nursing education allows students to practice patient care in a controlled environment and serves to decrease fears of failure that can occur when working with live patients (McCallum,

2007). Simulation is highly correlated with concurrent course learning objectives and allows participants the ability to stop interventions to analyze performance (Bambini, Washburn, & Perkins, 2009; Blum, Borglund, & Parcells, 2010; Nehring, W., Lashley, F., Ellis, W., 2001; Smith & Roehrs, 2009). Simulation also allows for the instructor to provide real-time feedback in an effort to allow students to meet simulation objectives. Alzheimer's disease can be difficult to understand for those who have had no clinical exposure. Simulation in nursing education allows students an opportunity to work with this complex patient population. Yet with the increased use of simulation in teaching of future nurse professionals, educators need to know whether and how variability in scenario presentation affects opportunity for students to meet simulation objectives. This study contributed to nurse educators and researchers understanding of cue variability and opportunity to meet simulation objectives.

Shortage of trained professionals. According to the United States Bureau of Labor Statistics (2014), an estimated 2.7 million registered nurses were employed in nursing in 2012. Sixty-two percent of nurses worked in hospitals and 5.3 percent worked in long-term care settings. However, less than one percent of nurses specialized in geriatrics. For nurses who worked in non-hospital settings (clinics, long-term care and skilled nursing facilities), an estimated 25 percent of their practice was devoted to the geriatric population (IOM, 2008). Rosenfeld, Bottrell, Fulmer, & Mezey (1999) published results from a national survey of baccalaureate nursing programs, concluding that a majority of nursing students were graduating without a specific concentration in care of the elderly. According to the American

Nurses Credentialing Center (2014), fewer than 7000 nurses are certified as gerontological nurses in the United States. Fifty-eight percent of baccalaureate nursing programs had no full-time faculty certified in geriatric content, and only 23 percent of undergraduate nursing programs required a course on gerontological nursing (Kovner, Mezey, & Harrington, 2002). Due to the aging population of America, it has been proposed that all university-based nursing programs should have required content in and experience caring for older adults and that geriatrics/gerontology must be recognized as a specialty area requiring stand-alone courses and interdisciplinary education and clinical focus.

The IOM (2008) established a need to increase recruitment and retention of geriatric specialists and caregivers. Key to the IOM recommendations was that "all licensure, certification, and maintenance of certification for health care professionals should include demonstration of competence in the care of older adults as criterion" (IOM, 2008, p.36). Barriers to offering a gerontological course or clinical component include curriculum overload, insufficient number of faculty, and lack of clinical placement sites (Gilje, Lacey, & Moore, 2007). Studies have shown that reasons for lack of clinical placement sites include shorter hospital lengths of stay, greater numbers of students, higher patient acuities, and nursing staff shortages (Medley & Horne, 2005; Mole & McLafferty, 2004; Rauen, 2004).

Implications for Nursing

It is a commonly held belief that simulation is a bridge in nursing education between theory and practice. Nurse educators are charged to develop and use evidence-based educational practices to prepare graduates able to function in the

complex healthcare environment. This study is important to nursing education for several reasons. First, adequate educational preparation is critical for safe nursing practice. The use of standardized patients in the simulated clinical practicum allows students the ability to practice in a safe environment, decreasing concern about possible harm to patients and increasing the focus on skills attainment and reflection of completed activities. Second, simulation environments have been integrated into nursing curricula in a majority of undergraduate nursing programs in the United States simulation and often supplement the traditional clinical environment. These study results may inform teaching behaviors/strategies that benefit simulation design and implementation. If cue variability emerges in the examination of the simulation scenario, it is suggested that this finding be taken into careful consideration when a simulation is planned in an effort to provide consistent cues to allow opportunities for students to meet simulation objectives—or alternately, to reconsider simulation objectives.

Chapter Two: Review of Literature

The purpose of this chapter is to present the current state of the science surrounding the use of the scenario-based simulation in pre-licensure nursing education, or more specifically, simulation that involves dynamic interactions with either live actors or human patient simulators (HPS). The chapter begins with the strategies used for the literature search and definitions of relevant terms. An overview of the use of simulation in nursing education is provided along with simulation components from the National League for Nursing/Jeffries Simulation Framework. Categories of simulation are presented and then examined using a subset of constructs. The chapter ends with a summary and identification of the current gap that this study addresses.

Search Methods and Results

A systematic search examined the use of simulation in nursing education settings. The search was limited to research reports, written in English, and published in peer-reviewed journals between 2003 and 2013. Since simulation in nursing education is a relatively young science, for the purposes of this literature synthesis, publications that are research-based as well as those that represent expert opinion have been included. The databases used were CINAHL and MEDLINE. Reference lists from relevant papers and the websites of healthcare organizations were also used to identify applicable studies. Initially, the primary search terms were *standardized patient, simulation*, and *nursing education (associate and baccalaureate);* however, this search yielded only 11 articles. Because there has been little research on the use of standardized patients in nursing simulation, to

widen the scope of the search, the primary search terms became *simulation* and *nursing education (associate and baccalaureate)*. Initial results from this search strategy returned 284 articles. After eliminating duplicate listings between the search engines, inclusion criteria for this literature review consisted of: English language, peer reviewed, simulation studies that involved a standardized patient or a dynamic human patient simulator (HPS) scenario between student and instructor/facilitator; targeted pre-licensure nursing students; and referenced the components of simulation design characteristics, specifically the subcomponents of objectives, fidelity, and cues, or outcomes. Exclusion criteria were non-dynamic simulation interventions such as: case studies, computer simulation, and anatomic models. The second search resulted in 41 studies (Appendices A, B, and C). Appendix A includes articles related to standardized patients while Appendix B focuses on dynamic HPS literature. Appendix C presents research findings as they relate to each of the major concepts: standardized patients, dynamic HPS, and the simulation design characteristics of objectives, fidelity, and cues.

Use of Simulation in Nursing Education

Simulation Definitions and Overview

Over the past 10 years, the use of simulation in pre-licensure nursing education has quickly grown in popularity, in part, because it allows opportunities for students to experience realistic clinical situations in a highly controlled environment either before or concurrent to practice in a clinical setting. While the definitions of simulation vary, all definitions highlight that simulation needs to replicate an activity; however, they are ambiguous in their practical application. For

the purpose of this study, simulation will be defined as: "[simulation] involves a student or group of students providing care for a patient who is typically represented by a manikin, an actor, [and/or] a standardized patient[1], depending on the clinical situation" (Jeffries, 2012, p. 3).

In nursing simulation literature, the National League for Nursing/Jeffries Simulation Framework (NLN/JSF) (2005, 2012) has been widely used to guide construction, implementation, and evaluation of nursing simulation scenarios. The NLN/JSF evolved from a National League of Nursing-Laerdal (a manufacturer of human patient simulators) Nursing Simulation study which was developed to study design, implementation, and evaluation of simulation as a teaching strategy in nursing education when compared to traditional teaching (pencil and paper and static manikin) methods. The purposes of this study were to (a) develop and test models that nursing faculty can implement when using simulation to promote student learning; (b) develop a cadre of nursing faculty who can use simulation in innovative ways to enhance student learning; (c) contribute to the refinement of the body of knowledge related to the use of simulation in nursing education; (d) demonstrate the value of collaboration between the corporate and not-for-profit worlds (Jeffries & Rizzolo, 2006). This was the first large-scale study completed in an effort to develop a teaching-learning framework, incorporating simulation and to evaluate desirable learning outcomes for pre-licensure students.

The NLN/JSF (Figure 1) has been described as a model (Jeffries, 2005), a

[1]A "standardized patient" as defined by Jeffries is based on the definition of Nehring & Lashley (2010) stating that SPs are "people who may or may not be professional actors who are instructed on how to act as if they have a particular disease or condition in a given patient situation" (p.14).

conceptual framework, and a theoretical framework. More recently, Jones, Reese, and Shelton (2013), highlight that while the NLN/JSF has been used to guide the development of numerous research studies, studies examining the analytic phase, including both the practical application and evaluation, are few, especially in terms of examining the components and how the components support each other. As a result, a solid empirical base to test the reliability and validity of the NLN/JSF simulation framework does not yet exist.

The NLN/JSF consists of five components (a) facilitator; (b) participant; (c) educational practices; (d) simulation design characteristics; and (e) outcomes, with each construct having associated subcomponents. For the purposes of this study, I focused on two of the five NLN/JSF components (a) simulation design characteristics; and (b) outcomes as these components are most relevant to this study's purpose and specific aims.

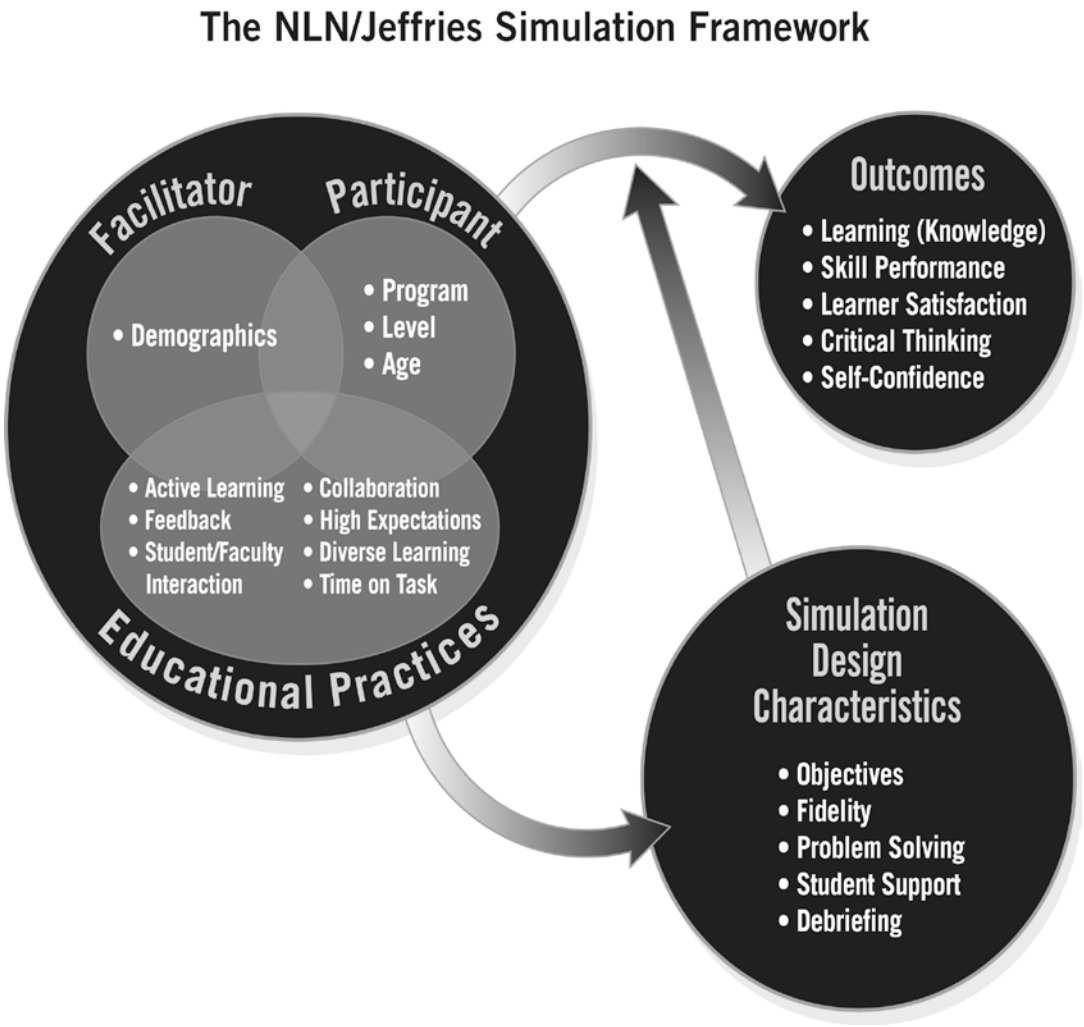

Figure 1. National League for Nursing/Jeffries Simulation Framework (used by permission from NLN/JSF).

Simulation Design Characteristics

Within the simulation design characteristics component, there are five subcomponents (a) objectives; (b) fidelity; (c) problem solving; (d) student support (cues); and (e) debriefing. For the purpose of this study, I focused on three subcomponents (a) objectives; (b) fidelity; and (c) student support (cues).

Objectives. Objectives are concise statements that specify expected learner behaviors and include sufficient detail to allow the learner to participate in the

simulation effectively (Jeffries, 2012). They are used to help provide a clear purpose for the simulation. According to the International Nursing Association for Clinical Simulation and Learning (INACSL) all simulation-based experiences begin with development of clearly written participant objectives (2011). When designing scenarios for simulation, objectives are related directly to course objectives (Miller, Leadingham, & Vance, 2010). Yet, despite the identified foundational need for objectives, there is no consensus as to whether students should be provided with simulation objectives prior to participating in simulation or at all (Groom, Henderson, & Sittner, 2013).

Fidelity. Fidelity refers to the extent to which a simulation experience mimics reality (INASCL, 2011). It is widely believed that simulation experiences improve proportionately as the precision of the replication of a realistic clinical experience improves. Thus, one would expect that a realistic simulation would be the goal. Fidelity is a subjective, yet essential aspect of simulation. Efforts to enhance fidelity in simulation have included improved technological sophistication and the use of standardized patients. Yet, the evidence base supporting fidelity matching clinical realism is not empirically based or grounded in learning theory (Groom, Henderson, & Sitter, 2013). This gap is important because a key barrier to knowledge acquisition from simulation experiences is students' perception of a scenario's lack of realism (Foronda, Liu, & Bauman, 2013).

In 2007, the NLN/JSF quantified fidelity as low, moderate, or high. Within this context, *low fidelity* simulations (e.g., pen and pencil case studies) do not closely resemble reality, whereas *high fidelity* simulations (e.g., use of manikins or

standardized patients) more closely approximate reality. Therefore, the term *fidelity* is often used as an indirect indicator of technological sophistication. For example, manikins that can be programmed to have heart tones and breath sounds are classified as *high-fidelity* manikins. Unfortunately, the use of the term *fidelity* in these different contexts contributes to confusion in the literature. For the purpose of this study, the term *fidelity* will be equated strictly to realism, not as an indicator of technological sophistication.

There are three dimensions to help organize the attributes of fidelity in simulation.

1. Physical dimension: Encompassing both the environment and equipment necessary to enhance realism. The technological sophistication of the manikin falls into the physical dimension.
2. Psychological dimension: The learner's engagement and experience with the simulation.
3. Conceptual dimension: Ensuring the information provided to the learner is interpretable by the student using clinical judgment (Paige & Morin, 2013; Dieckman, Manser, Wehner, & Rall, 2007).

Clinical judgment is used in nursing education to guide students and educators in clinical situations. The process of clinical judgment includes four aspects:

1. Noticing: A perceptual grasp of the clinical situation.
2. Interpreting: Developing a sufficient understanding of the clinical situation.
3. Responding: Attending to patients' responses to the nursing action(s) of the clinical situation.

4. Reflecting: Reviewing the outcomes of the response(s) to the clinical situation (Tanner, 2006).

While not part of the NLN/JSF, the components of clinical judgment are essential for the scenario designer, the facilitator in enacting a scenario, and for the student learner who must use existing clinical judgment as well as expand their clinical judgment in experiencing new clinical situations.

Student support (cues). To ensure that the scenario is linked to the simulation objectives, most scenarios are constructed to include key information that acts as a catalyst for student response in an effort to meet simulation objectives (Jeffries, 2007). These information bits are referred to as cues. Cues that occur during the simulation fall into two categories:

- Conceptual cues: Verbal statements, a response or lack of response from patients or other participants (e.g. family members), and/or preprogrammed physiologic changes relating to instructional support.
- Reality cues: Laboratory and assessment data provided to clarify the simulated reality (Paige & Morin, 2013; Cormier, Pickett-Hauber, & Whyte, 2010; Dieckman et al., 2007).

The use of cuing is not exclusive to nursing simulation. In standardized patient research in medicine, cues are identified as actions and process that connect the simulation to clinical experience (Dieckman et al., 2007).

Simulation scenarios can either be scripted, non-scripted, and/or designed to unfold in the moment. Thus, the degree of scripting can be viewed as occurring on a continuum, evolving, if necessary, as the scenario dictates. The evolution of a

simulated clinical scenario can be facilitated through the provision of conceptual and reality cues. Some cues are predetermined or scripted; others seem to arise through improvisation or as the result of prompting by outside facilitators who are monitoring the simulation to ensure the planned simulation objectives are met. In 2007, NLN/JSF changed the term from *cue* to *student support* (Jeffries, 2007). However, for the purpose of this study, the term *cue* will be used as this is the terminology used by Oregon Health & Science University simulation center facilitators.

Outcomes

The second component from the NLN/JSF I am focusing on in this study is outcomes. The NLN/JSF states that simulation objectives must reflect the intended outcome (Jeffries, 2012). Implicit in simulation is the use of objectives that are equated to outcomes. Outcomes identified in the NLN/JSF include (a) learning (knowledge); (b) skill performance; (c) learner satisfaction; (d) critical-thinking; and (e) self-confidence. Tools with established validity and reliability have been used to measure selected outcomes for almost a decade. Research including pre-licensure nursing students has established that the NLN/JSF produces positive student-learning outcomes, improved skill performance (Ironside, Jeffries, & Martin, 2009), enhanced student satisfaction and confidence (Jeffries & Rizzolo, 2006; Kardong-Edgren, Lungstrom, & Bendel, 2009; Smith & Roehrs, 2009), and improved critical thinking skills (Howard, Englert, Kameg, & Perozzi, 2011). The purpose of this study is to develop a better understanding of cue variability that happens across presentations of a simulation scenario focusing on Alzheimer's disease and there

will be no measurement tools used to assess any of the NLN/JSF outcomes.

Categories of Simulation

There are three categories of simulation (a) computer-based; (b) task and skill trainers; and (c) full-scale simulation (Seropian et al., 2004). Full-scale simulation is considered high fidelity as it involves portrayal of clinical scenarios requiring a myriad of cognitive and technical skills as well as interpersonal and dynamic interaction. The other categories are not relevant to the study.

Standardized patients. An actor used to portray a patient is referred to as a standardized patient. Standardized patients have been used for decades in medical education for teaching and evaluating clinical skills (Williams, 2004). However, standardized patient use in pre-licensure nursing education is a relatively new development. The use of a standardized patient is dynamic as the patient and student can role-play a clinical scenario in which the standardized patient needs to be responsive to student outcomes. In an effort to keep standardized patients on point to allow students to meet objectives, faculty facilitators monitoring a scenario from a control room can also provide prompts by speaking into an earpiece worn by the actors.

Yet, what is considered a standardized patient is inconsistent and a source of confusion in nursing simulation literature. According to the Association of Standardized Patient Educators (ASPE) a *standardized* (aka *simulated) patient* is defined as:

> An individual trained to portray a patient with a specific condition in a realistic, standardized and repeatable way (where portrayal/presentation varies based

> only on learner performance). Standardized patients can be used for teaching and assessment of learners including but not limited to history/consultation, physical examination and other clinical skills in simulated clinical environments. SPs can also be used to give feedback and evaluate student performance. (2014, para 1)

However, Churchouse and McCafferty (2012) maintain that there is a difference between a standardized patient and a simulated patient. A *standardized patient* is defined as:

> A community member who agrees to be 'themselves' for any part of a health care learning activity. They do not take on a role, play a part or take on characteristics of another person or patient, but are themselves and respond to any questioning with medical and social history from their own life. (p. e364)

In contrast, a *simulated patient* is defined as:

> …Any person who takes on a role. They act a part to guide a simulation to meet the learning outcomes of the simulation. It can be scripted when an actor performs the work as directed, or it can be improvisational where the actor is given key elements that need to be highlighted and improvises much of the character around those points. (Churchhouse & McCaffery, p. e364)

Although expert opinions differ about what constitutes a standardized patient, for the purpose of this literature synthesis, nursing simulation articles that include both *standardized* and *simulated* patients have been included. For the purpose of this study, I will be using the term *standardized patient*.

Human patient simulators (HPS). Human patient simulators use realistic technologically sophisticated manikins combined with real people who provide the voice of the patient, real interaction, real actions, and realistic responses and reactions. As defined by Alinier et al. (2006), an HPS is a "full body-size manikin with realistic anatomical and interactive physiological features as would be expected in a human being" (p. 360). A human patient simulator manikin can be pre-programmed to demonstrate physiologic changes, such as having an increased heart rate. Simulation laboratory staff, who are often located in a separate control room, can operate a HPS manikin remotely and alter physiologic activity as they monitor the simulation. An HPS scenario may also be dynamic and have an interactive component by use of a voice actor(s), simulation staff, or a simulation facilitator who communicates and interacts with the students. Due to the limited number of nursing stimulation articles focused on the use of standardized patients, research that included dynamic interaction, between a voice actor or a facilitator as a participant, and a student practicing on a HPS will be included in this literature review.

Standardized Patient Literature

A small number of researchers have explored the use of standardized patients in nursing simulation. The following section will describe the use of non-experimental and experimental research design involving standardized patients. I will briefly describe the NLN/JSF component of outcomes and simulation design subcomponents (objectives, fidelity, cues) as they relate to the study design category (non-experimental or experimental). I will also discuss some of the

assumptions of the use of standardized patients and how those assumptions have translated into educational practice.

Non-experimental Standardized Patient Studies

A total of six non-experimental studies examined the use of standardized patients (Ker, Mole, & Bradley, 2003; McWilliam & Botwinski, 2010; Paquette, Bull, Wilson, & Dreyfus, 2010; Rentschler, Eaton, Cappiello, McNally, & McWilliam, 2007; Robinson-Smith, Bradley, & Meakim, 2009; Webster, Seldomridge, & Rockelli, 2012). Simulation design characteristics and outcomes of these studies will be discussed in more detail.

Objectives. In four of the non-experimental standardized patient studies, objectives were included as part of the simulation design when researchers discussed components of simulation (Ker, Mole, & Bradley, 2003; McWilliam & Botwinski, 2010; Paquette, Bull, Wilson, & Dreyfus, 2010; Robinson-Smith, Bradley, & Meakim, 2009). In all four of these studies, it was not noted if the simulation objectives were related to the concurrent nursing theory course learning objectives. The four non-experimental studies that included objectives, as part of the simulation design did not provide any emperical data related to objectives, use measures to ascertain the achievement of simulation objectives at the conclusion of the standardized patient scenario, or examine the relationship between objectives and the other simulation design characteristics. The objectives included most frequently were patient assessment, intervention, and communication both with the patient and with other members of the health care team.

In one study, clinical skills and critical thinking were stated to be objectives.

However, these two objectives were actually subcomponents of outcomes (McWilliam & Botwinski, 2010). Although not technically the same, educators often use the terms objectives and outcomes interchangeably (K. Lasater, personal communication, May 5, 2014). As stated earlier, measures of objectives upon completion of the simulation did not occur in any of the non-experimental standardized patient studies. This dissertation study examined whether the subcomponents of fidelity and cues contribute to simulation objectives being met. This was also the first study to examine the interplay of the three simulation subcomponents (objectives, fidelity, and cues), which is important because of the growing use of standardized patients in simulation.

Fidelity. Within the non-experimental studies, five studies discussed the role fidelity, synonymous with realism, in the use of standardized patients. Descriptions of recruitment, training, and uniformity (which may affect the realism) in the use of standardized patients were inconsistent, however. Two studies used a variety of standardized patients without detailed explanation of recruitment and training efforts (Becker, Rose, Berg, Park, & Shatzer, 2006; Robinson-Smith, Bradley, & Meakim, 2009), while one made no mention of recruitment, training, or whether one or numerous standardized patients were used (McWilliam & Botwinski, 2010). Two studies specifically delineated their processes of recruitment and training of standardized patients, recruiting from local hospitals and nursing schools and detailing number of hours in training (Ker, Mole, & Bradley, 2003; Paquette, Bull, Wilson, & Dreyfus, 2010). However, researchers from these two studies did not explore variability in presentation by different individuals portraying standardized

patients or how this variability in patient portrayals impacted the simulation objectives. No research studies have explored whether the use of multiple individuals to portray a standardized patient impacts the fidelity of the scenario and meeting the simulation objectives. By examining the variability that occurs when different standardized patients are utilized, this study addressed that gap.

Cues. Two of the standardized patient studies that used a non-experimental design included cues as part of the simulation design when researchers discussed components of simulation (Paquette, Bull, Wilson, & Dreyfus, 2010; Robinson-Smith, Bradley, & Meakim, 2009). None of these studies provided any data related to cues or used measures to ascertain if cues were consistently delivered during simulation scenarios. However, Paquette et al. (2010) concluded that cues provided by standardized patients benefited both standardized patient and student. Researchers came to this conclusion through student and standardized patient self-report and not a validated measurement tool, which is a methodological concern. Also, the study's authors did not specify what standardized patients and students perceived as beneficial about the use of cues.

While limited research efforts have incorporated the use of cues in standardized patient simulations, cues have not been assessed for variability across presentations in simulation in either of the studies. Also, there has been no research examining how cues are incorporated into a scenario in an effort to facilitate students meeting the simulation objectives. This study addressed that gap by examining variability of cues.

Outcomes

Outcomes of the small number of non-experimental studies (n=6) primarily focused on the subcomponents of the NLN/JSF (Figure 1). In all of the studies, students perceived positive or beneficial outcomes following their interaction with a standardized patient within a clinical simulation. Reported positive outcomes included higher self-confidence and personal learner satisfaction (Rentschler, Eaton, Cappiello, McNally, & McWilliam, 2007). Other positive study outcomes reported included increased student knowledge and improvement in interpersonal, interprofessional skill performance (Ker, Mole, & Bradley, 2003).

The non-experimental standardized patient studies used an array of measurement tools. Measurement tools were created by the researchers specifically for their study and were all Likert-type scales utilizing self-reported questions. Only one study used validated measurement tools adapted from the NLN/JSF Student Satisfaction and Self-Confidence in Learning Survey (Robinson-Smith, Bradley & Meakim, 2009). Overall findings from these studies suggest that simulation leads to outcomes of enhanced self-confidence and learning after participation in simulation-based scenarios. Based on findings from the non-experimental standardized patient studies, it is unknown how variability across standardized patient scenarios contributes to simulation outcomes. This study did not measure outcomes; however, it was pertinent to examine what is known about outcomes measured in standardized patient research to highlight the strengths and limitations of existing non-experimental standardized patient studies.

Experimental Standardized Patient Studies

There were five studies that used an experimental design with a

standardized patient. The simulation design characteristics and outcomes of these studies will be discussed in more detail.

Objectives. There was no report of the experimental standardized patient studies (n=5) on their use of objectives as a simulation design characteristic. While much of the learning that occurs during simulation is something that is not formally measured, it can be surmised that objectives are essential to guide the development and implementation of a simulation scenario (Groom, Henderson, & Sittner, 2013). However, because objectives were absent in the experimental standardized patient studies, this assumption is untested. As discussed in the previous non-experimental section, this gap was addressed by this research.

Fidelity. Of the five experimental studies, only one study tested the assumption of fidelity and compared it to traditional teaching methods (Bornais, Raiger, Krahn, & El-Masri, 2012). Researchers concluded, using a comparative, randomized, and multisite study, that students who practiced health assessment skills on standardized patients performed better on an Objective Structured Clinical Examination (OSCE)[2] than the control group who practiced on their peers to assess clinical skill performance. However there was no statistical difference between the two groups in theoretical knowledge, measured by a multiple-choice test. While this research finding concludes that the use of a standardized patient may not translate to better test scores, it is difficult to draw conclusions on fidelity from the findings of

[2] The Objective Structured Clinical Examination (OSCE) program was designed to assess students in a variety of health topics that may not be experienced during the assigned clinical rotation and is used in both medicine and nursing.

just one study. Indeed, the differences between standardized patients and traditional teaching methods have not been clearly identified in the literature.

Cues. As in the non-experimental standardized patient studies, there is little evidence about the use of cues when using a standardized patient. Only one of the five experimental studies mentioned the use of cues (Becker, Rose, Berg, Park, & Shatzer, 2006). In that study, researchers evaluated therapeutic communication and students' understanding of depression. Study findings suggest there were no significant differences between control and intervention groups on the pre- and post-Communication Knowledge Test, a researcher-created measurement tool (although measurement of cues was not included in the data results). While this is a finding that differed from the researchers' hypothesis, there was no measurement of the use of cues to progress a scenario or whether cues were consistently delivered across presentations of the scenario. It was my assumption that consistent delivery of cues is necessary to progress the simulation to meet simulation objectives is untested. The research study tested that assumption.

Outcomes

The outcomes in studies with an experimental design (n=5) using standardized patient measured outcomes by using a variety of tools that reflect aspects of simulation thought to enhance the experience for students. The Standardized Patient Interpersonal Rating scale, created by researchers for their study measuring outcomes related to simulation, is a multiple-choice test to measure knowledge gain and skill performance and Health Assessment Educational Modality Evaluation, a student self-efficacy and satisfaction scale (Luctkar-Flude,

Wilson-Keates, & Larocque, 2012). The strengths of this investigation by Luctkar-Flude et al. (2012) included use of a reliable measure as well as replication of their study, which also enhances reliability. Weaknesses in studies where outcomes were measured were evidenced by researcher-created measures that lacked validity and reliability and the use of small sample sizes (Becker, Rose, Berg, Park & Shatzer, 2006; McWilliam & Botwinksi, 2009; Paquette, Bull, & Dreyfus, 2010; Shepherd, McCunnis, Brown, & Hair, 2010). Small sample size is a concern as it may lead to generalizability and to an insufficient statistical power needed for obtaining significance (Munro, 2005).

In general, most of the measurement instruments used in standardized patient experimental studies provide a list of outcomes such as self-confidence, self-efficacy, clinical judgment, skill performance, and communication skills that have been identified in NLN/JSF as common and beneficial in nursing simulation education. Similar to results from standardized patient studies with a non-experimental design, findings from the studies which had an experimental design suggest student outcomes include improved self-confidence and learning after participation in simulation-based scenarios. Yet, based on findings from these studies, it remains unknown how variability across standardized patient scenarios contributes to simulation outcomes. My study did not measure outcomes; however, as outcomes are equated with simulation objectives, it was pertinent to examine what is known about outcomes measured in standardized patient research to highlight the strengths and limitations of existing experimental standardized patient studies.

Dynamic Human Patient Simulator Literature

Thirty studies examined the use of dynamic HPS on nursing student outcomes and fidelity. HPS relies on manikins, and was included in this literature review due to the small amount of research in baccalaureate nursing focusing on standardized patients. Refer to Appendix B for a complete listing of the HPS studies. The simulation design characteristics of objectives and cues as well as outcomes of these studies will be discussed in more detail.

Simulation Design Characteristics

Objectives. Objectives were included as part of the simulation design when researchers discussed components of simulation in nine studies (Dillard et al., 2009; Jenkins, Blake, Brandy-Webb, & Ashe, 2011; Kardong-Edgren, Lungstrom, & Bendel, 2009; Liaw, Chan, Scherpbier, Rethans, & Pua, 2012; C. Miller, Leadingham, & Vance, 2010; Morrison, Scarcello, Thibeault, & Walker, 2009; Parker et al., 2011; Schlairet & Pollock, 2010; Schoening, Sittner, & Todd, 2006; Sears, Goldsworthy, & Goodman, 2010). In two studies, the students were provided objectives prior to the simulation exercise (Kardong-Edgren, Lungstrom, & Bendel, 2009; Schoeniong, Sittner, & Todd, 2006). Nonetheless, neither of these two studies empirically measured whether student knowledge of objectives prior to simulation ensured that opportunity to meet the objectives occurred by the end of the scenario.

Researchers examining HPS used to assess for signs and symptoms of cardiac arrest concluded that providing students with written learning objectives prior to HPS encounters might improve thoroughness in preparation, and perhaps lead to success in meeting outcomes (Kardong-Edgren, Lungstrom, & Bendel, 2009).

However, this conclusion was stated even though researchers did not provide any data or use of measures to ascertain the achievement of objectives at the conclusion of simulation. Therefore, the idea that providing objectives prior to the simulation results in students meeting outcomes is untested. However, Schoening, Sittner, and Todd (2006) used a faculty-developed measurement tool to assess if students felt they had met the simulation objectives. However, no validity or reliability was provided for the self-reported 10-item evaluation tool. As stated previously, this qualitative, descriptive study will examine whether the subcomponents of fidelity and cues contribute to simulation objectives being met.

Fidelity. None of the studies reporting on dynamic HPS (n=30) included fidelity as a simulation design component. The literature does not explain why fidelity has not been studied. I believe this omission exists because it is widely accepted in simulation that use of HPS is considered high fidelity and so fidelity is not considered a variable that researchers need to isolate for testing. This research starts with the assumption that cue variation may have an impact on study ability to meet simulation objectives.

Cues. While a number of researchers (n=14) included the use of cueing in their simulation research studies, cueing was not one of the variables examined. While some investigators described efforts by faculty or a facilitator to interject cues (Alfes, 2011; Foster, Sheriff, & Cheney, 2008; Jensen, 2013; Kardong-Edgren, Lungstrom, & Bendel, 2009; Schoening, Sittner, & Todd, 2006; Traynor, Gallagher, Martin, & Smyth, 2010), others used specific cues that were embedded in a script or provided note cards to students, who were actors used in addition to the HPS

manikins, as informational assistance aides during the enactment of the scenario (Richards, Simpson, Aaltonen, Krebs, & Davis, 2010; Warland, 2011).

In two of the studies that incorporated cues as a simulation design characteristic, the results suggest that students participating in simulation were statistically more self-confident (using the NLN/JSF Student Satisfaction and Self-Confidence in Learning – a validated and reliable measure) than those in a control group (Alfes, 2011; Foster, Sheriff & Cheney, 2008). Based on findings from these two studies, researchers concluded that the use of cues is a necessary simulation design subcomponent of nursing simulation design. However, from the HPS literature reviewed, even though cuing in simulation scenarios may be considered an essential subcomponent of simulation, there is lack of empirical data that supports the use of cues to facilitate students' achievement of the simulation objectives. Although this study did not include simulations with dynamic HPS, this literature was reviewed because of the limited research that has been done in nursing simulation and the use of standardized patients.

Outcomes

All of the dynamic HPS studies included in this literature synthesis (n=30) incorporated outcomes into their study design. However, there was no consensus on the outcomes that are most important to nursing education or in which outcomes should be measured. Investigators in two studies used valid and reliable measurement tools to assess the NLN/JSF subcomponents of outcomes of student satisfaction and self-confidence (Alfes, 2011; Foster, Sheriff & Cheney, 2008). Also, Sinclair and Ferguson (2009) used the Modified Baccalaureate Nursing Student

Teaching-Learning Self-Efficacy Questionnaire (Goldenberg, Andrusyszyn, & Iwasiw, 2005), a validated self-efficacy questionnaire. Results from these investigations conclude that student confidence, self-efficacy, and satisfaction improved after exposure to a simulation-based scenario. However, there is no consensus that students rating their satisfaction, self-confidence, or self-efficacy as high contributes to knowledge gain (a NLN/JSF outcome subcomponent) or retention of learned information.

Researchers in four studies used faculty-developed measurement tools that focused on selected NLN/JSF outcomes of learning skill performance (Grant, Moss, Epps, & Watts, 2010), satisfaction (Miller, 2010), or critical thinking and self-confidence (Alinier, Hunt, & Gordon, 2004; Blum, Borglund, & Parcells, 2010). In two other studies knowledge gain was the outcome measured using either a pretest/posttest design, (McKeon, Norris, Cardell, & Britt, 2009), or posttest multiple-choice tests (Elfrink, Kirkpatrick, Nininger, & Schubert, 2010). Based on findings from these studies, students' participation in simulation resulted in the desired outcomes of improved self-confidence and knowledge gain. However, a better understanding of the fidelity associated with HPS and the impact these subcomponents of the NLN/JSF students' achieving outcomes is needed.

Over half of the dynamic HPS studies (n=18) reported simulation replication, where the same simulation was repeated (Alfes, 2011; Burns, O'Donnell, & Artman, 2010; Grant, Keltner, & Eagerton, 2011; Ironside, Jeffries, & Martin, 2009; Jensen, 2013; Kaplan & Ura, 2010; Kardong-Edgren, Lungstrom, & Bendel, 2009; McKeon, Norris, Cardell, & Britt, 2009; Miller, Leadingham, & Vance, 2010; Morrison,

Scarcello, Thibeault, & Walker, 2009; Prescott & Garside, 2009; Richards, Simpson, Aaltonen, Krebs, & Davis, 2010; Schlairet & Pollock, 2010; Schoening, Sittner, & Todd, 2006; Sears, Goldsworthy, & Goodman, 2010; Sinclair & Ferguson, 2009; Sullivan-Mann, Perron, & Fellner, 2009; Warland, 2011). Simulations were repeated to allow all of the students to participate in the simulation scenario in all but one study. In that study, students repeated the scenario until they received an 80% grade on the competency checklist (Gantt & Webb-Corbett, 2010). None of the replicated HPS studies examined how replication and the variability in cue presentation, which would be provided by the instructor who was the voice of the manikin across iterations of the simulation presentations, may have an impact on student outcomes.

In most of the 30 research studies cited in Appendix B, the outcomes for students after a dynamic HPS experience were statistically significant when compared to control groups, whether it was an experimental dynamic HPS study compared to traditional nursing educational experiences or studies which used a non-experimental design. The notable exception was the research by Ironside, Jeffries, and Martin (2009). They found that there was no correlation between students' factors (e.g., anxiety) and achievement of patient safety competencies after students completed one of four different simulation scenarios. This study did not examine if variability occurred in simulation design subcomponents (objectives, fidelity, problem solving, student support, debriefing) throughout the different iterations of the four scenarios and whether any variability impacted measured outcomes. This study did not measure outcomes; however, as outcomes are equated

with simulation objectives, it was pertinent to examine what is known about outcomes, measured in dynamic HPS research to highlight the strengths and limitations of dynamic HPS patient studies.

Summary

The research on simulation in nursing education is in its infancy. Within simulation, there has been an increase in the use of standardized patients, yet we do not yet have empirical research to validate the use of this type of simulation with regard to learning outcomes. While simulation has emerged as a valued educational tool for students and instructors, the technology and the use of technology, such as the use of dynamic human patient simulators, is growing rapidly, but empirical evidence is lagging behind. Although the NLN/JSF provides a foundation for the design, implementation, and evaluation of simulation, there is a lack of research examining the subcomponents involved in the NLN/JSF simulation design characteristics. This study specifically addresses the lack of research about standardized patients and the subcomponents of objectives, fidelity, and cues.

According to Foronda et al. (2013), the dynamic interaction seen when a standardized patient is used allows for variability of simulation design and implementation. This is a desired characteristic of simulation because it conveys the complexities of real clinical practice—a feature that makes simulation considered high fidelity. Yet there can be tension between the written script and the actual dynamic interaction regarding the use of cues when individuals – whether they are voice actors, facilitators, or standardized patients – are used in high fidelity simulation. This tension nurtures the interactivity and attempts to balance the

interplay between students and standardized patients in an effort to meet simulation objectives. Monitoring of the interactivity by the standardized patient happens in real time and must be fluid in order to respond to the actions of the students.

Simulation has been used in a variety of formats and with differing degrees of fidelity in nursing education. There is some evidence suggesting students' improved skill performance, knowledge, higher self-confidence, and satisfaction with the use of standardized patients and dynamic human patient simulators. Of note is that it is generally accepted by researchers that students respond to the increased realism and dynamic interaction associated with a standardized patient. However, there is a lack of consensus on how simulation design characteristics individually or collectively affected or contributed to student learning outcomes.

In conclusion, there is limited evidence supporting the use of standardized patients in nursing simulation. Moreover, the nature of the evidence regarding variability, the role of NLN/JSF components and subcomponents and students' meeting simulation objectives when standardized patients are used is unclear. In this study, one scenario that focused on a patient with Alzheimer's disease was used and the impact that variability had on the opportunities for students to meet simulation objectives was examined. This study was designed to develop a better understanding of the variability that happens across a standardized patient simulation scenario.

Chapter Three: Methods

Introduction

This chapter begins by reviewing the purpose and specific aims of this study, and focuses on describing the methods that were used to maintain rigor and ethical research principles. Organized into eight major sections are the following aspects of the research design used in this study: (a) research design and methods, (b) rationale for study design, (c) study setting, (d) selection of participants, (e) data collection methods and data analysis, (f) procedures for ensuring methodological rigor, and (g) protection of human participants.

Purpose of Study and Specific Aims

The purpose of this study was to develop a better understanding of the variability of cues across a standardized patient (SP) simulation focused on a patient with Alzheimer's disease and the impact that cue variability has on the opportunities for students to meet simulation objectives. The purpose of this study was to describe phenomena, not to establish theory or test a particular hypothesis. The specific aims were:

1. Describe the variability in the cues given during different episodes of a standardized patient simulation scenario.
2. Explore the extent to which this variability relates to opportunity for students to meet simulation objectives.

Research Design and Methods

This study used a qualitative descriptive (QD) research design and content analysis to examine videotaped simulation scenarios involving baccalaureate-nursing students as they respond to cues (key bits of information that act as a catalyst for student learner response in an effort to meet simulation objectives) presented by a standardized patient. Detailed explanation of and rationale for the research design, study setting and participants, data collection, methodological rigor, and protection of human rights will be presented.

Rationale for study design. According to Denzin and Lincoln (1994; 2011), qualitative research focuses on interpreting phenomena in their natural settings to make sense in terms of the meanings people bring to these settings. In general, interpretivists share the following beliefs about the nature of knowing and reality:

> Relativist ontology - assumes that reality as we know it is constructed intersubjectively through the meanings and understandings developed socially and experientially.
>
> Transactional epistemology - assumes that we cannot separate ourselves from what we know.

Qualitative descriptive (QD) relies on data that richly reflect the phenomenon of interest. Rich data can be found in observable behavior, as well as spoken language and recorded as video-recorded interactions (Sandelowski, 2000). Observed interaction is the fullest condition of participating in the mind of another human being, understanding not only their words but also the meanings of those words as understood and used by the individual. To examine the phenomenon of variability in cues presented by a standardized patient during a simulation scenario, I used

observational methods to gather visual and auditory data about the social actions and interactions between students and standardized patient actors within video recorded simulation scenarios.

The purpose of QD is not thick description (ethnography), theory development (grounded theory), nor interpretative meaning of an experience (phenomenology), but a rich, straightforward, and detailed description of an experience or an event (Sandelowski, 2000). This means that in the analytical process and presentation of data, researchers using QD stay closer to the data by capturing and describing phenomena in its natural state (i.e., observation of simulation scenarios). Whereas other qualitative approaches often aim to develop concepts and analyze data in a reflective or interpretive interplay with existing theories, the final product of QD is a description of experiences. Qualitative description is useful when the goal is to obtain straight answers to questions of specific relevance to the researcher, such as what are responses toward an event. QD research findings focus on patterned responses and provide a comprehensive summary of details of the phenomenon of interest (Sandelowski, 2000). QD was appropriate for this study because it allowed me to examine cues that were used to propel a nursing simulation and describe the context of the cue (focused on either the caregiver or the behavior of Ellen Jones).

The data collection technique for this research was watching of video-recorded nursing simulation scenarios. Nursing simulation is a dynamic, interactive activity that simultaneously unfolds organically as well as being guided by the cues provided by the standardized patient. Observation is an appropriate data collection

technique for this research study because it is a robust way to approach examination of cue presentation across simulation presentations. According to Mulhall (2003), observational methods are useful for a researcher seeking to grasp the responses to an event and finding patterns.

Observation as a data collection technique can be limited by location of the study (Mulhall, 2003). Simulation, while dynamic in nature, also occurs in a very controlled environment. Observation of a controlled event, such as a simulation scenario, might be limited by the very control that is used to create and enact the scenario. Simulations have defined outcomes (or objectives) and a script to guide the participants. Enactment of a clinical experience in a controlled environment such as a simulation setting using a manikin could potentially limit the fidelity, or realism, inherent to simulation. The goal of standardized patient use is to enhance fidelity and allow for the simulation experience to feel more like it would in a clinical environment. This study observed the same standardized patient scenario as it was enacted across a four-year time frame. This observational technique of data collection allowed for ample opportunities to capture the variability of SP cue presentation.

Data collection techniques used in qualitative research, such as participant interview or survey, are not appropriate for this study. The specific aims of this study focused on observing cue variability across iterations of a singular scenario. Interview or survey of the participant might reveal learners' and/or SP perceptions; however, these two techniques would not capture how cues are presented across

iterations of a scenario. Observational research allowed the co-coder and I to track cues used to propel a simulation toward meeting the objectives.

Qualitative content analysis, as a data analysis method, is a set of procedures for collecting and organizing information in a standardized format that allows researchers to make inferences about the characteristics and meaning of material studied (Cavanagh, 1997). According to Morgan (1993), qualitative content analysis allows for counting to help detect patterns to guide further interpretation of the data. Content analysis places emphasis on understanding the contexts revealed by counting, and uses code categories, themes, or concepts that are developed from counting the data.

How data is counted and the use of those counts emphasizes the interpretive aspect of content analysis. According to Morgan (1993), this interpretation can be stated as the distinction between decontextualixing and recontextualizing. In this study decontextualization of the data occurred by establishing and counting cues separate from the simulation objectives. Recontextualizing of the data occurred by grouping similar cues into concepts and looking at how consistently the concepts aligned with simulation objectives across presentations. The key difference between quantitative and qualitative content analysis is that quantitative stops at decontextualizing while qualitative content analysis places as much, if not more, emphasis on what is revealed by the counting process, or recontextualization.

Setting

The primary data analyzed in this study came from existing video-recorded simulation scenarios that took place in the Simulation and Clinical Learning Center

at OHSU in Ashland, Oregon, between 2011 and 2014. A co-coder and myself conducted the secondary analysis of these videos in 2015 at OHSU in Portland, Oregon. The simulation center where the simulation scenario videos were recorded has a control room where simulation facilitators, who are faculty, as well as simulation center personnel, watch the scenario behind a two-way mirror. The set is designed to mimic the clinical setting. In this simulation, the clinical setting is the patient's home and the assessment takes place in the kitchen.

The scenario for the simulation studied is a home nurse visit, which takes places in the home of a patient named Ellen Jones. It is the third of three Ellen Jones scenarios in which the students have participated. The first scenario focuses on Ellen's early stages of AD and progress so that in the third scenario, Ellen has end stage AD and is completely dependent on her caregiver. Ellen, her sister or husband, and a visiting nurse are involved in this scenario. A standardized patient actor (hired by the simulation center) portrays Ellen. A nursing student standardized patient actor portrays Ellen's caregiver – either her sister or husband depending on the student's gender. Another nursing student enacts the role of the visiting nurse. During the scenario the student nurse's task during the home visit is to assess Ellen, who is an established patient with Alzheimer's disease to the visiting nurse (there was a home visit by the same visiting nurse five years prior), as well as assess for caregiver stress in the caregiver, who is either Ellen's sister or husband. The home visit lasts about 10 minutes. This scenario was selected for this study because there is ample opportunity for cues from both of the standardized patients—in this case, Ellen and her caregiver.

At OHSU Ashland, character notes (in lieu of a script) are provided to the standardized patient actor who portrays Ellen Jones (Appendix F). Additionally, character notes for the standardized patient are provided to the student nurse who portrays the caregiver (Appendix E). While there is no one definition of a caregiver, for the purpose of this study, a caregiver is defined as someone who lives with and provides daily care for a family member in the home. The character notes are provided to ensure the specific material related to the simulation objectives is covered (Appendix D). The three actors who portray Ellen Jones between 2011 and 2014 have portrayed her numerous times, and do not refer to the character notes while the scenario is being enacted. There was a different standardized patient student portraying the caregiver in all 25 Ellen Jones #3 scenarios between 2011-2104, and s/he references the character notes while the scenario is being enacted.

Participants

Study participants are second year undergraduate baccalaureate nursing students enrolled in Nursing 211: Chronic Care I at OHSU in Ashland, Oregon. Participants were registered in the course between the years of 2011 and 2014. All Nursing 211 students are required to participate in the simulation and prior to participation in simulation, consent to be video recorded. Each simulation group contains six to eight students. As described above, for the Ellen Jones scenario, two students participate in the simulated home visit. The remaining four to six students are not involved in the home visit. Instead, they view the scenario on video monitors in a conference room to observe the interactions and activities that occur during the simulation. At the conclusion of the simulation, all of the students participated in a

debriefing. During the debriefing, the students and facilitator discuss what students noticed about Ellen, what was observed in the interactions between Ellen and her caregiver, what it would be like to take care of Ellen, what should happen next for Ellen and her caregiver, and nonverbal communication between Ellen and her caregiver.

Video-recorded data. There are several advantages in the use of video-recorded simulation scenarios. To maintain fidelity, the simulation scenario cannot be stopped while it is being enacted. Using a video-recording of the simulation permitted the researchers to view each recorded scenario twice, thereby increasing the odds that all of the cues presented by the standardized patients (Ellen and her caregiver), were captured. Also, watching video-recorded simulations can reduce fatigue as the researchers can pause the video at any time. Self-monitoring of data collection, such as taking breaks during data analysis, helped the researchers avoid missed data that may occur during real-time enactments. Although the visual and sound quality of video recorded data can be impacted by camera angles and the location of microphones, the numerous cameras and advanced microphone technology that are used in the Simulation and Clinical Learning Center at OHSU Ashland offset the aforementioned limitations.

As the purpose of this study is to examine variability of cues given by the standardized patients, only the video-recorded simulation scenarios were used for data collection. Pre-briefings and post-conferences, or debriefings, which are also video-recorded, were not used because they do not focus on cues. There are six to seven Ellen Jones simulation scenarios video-recordings available each academic

year between 2011 and 2014, for a total of 27 video recorded episodes. The decision was made to use 27 video-recorded scenarios because this was all of the videos that were available at OHSU Ashland. Two of the videos could not be viewed due to technical difficulties. Thus, 25 videos were included in the data analysis phase of the research.

Coding Methods

Consistent with the recommendations of Schreier (2012), an expert in qualitative content analysis, the development of the coding tool and establishing coding reliability occurred in three distinct stages: trial coding, main coding, and comparison of coding findings with co-coder. Each of these data collection stages will be described in depth.

Observational tool development

Trial coding. The purpose of trial coding is to understand the cues presented during the scenario by the standardized patients (Schreier, 2012). During trial coding, I viewed two videotaped Ellen Jones scenarios. The focus during trial coding was an inductive approach to gather data cues designed to propel the simulation. Using an inductive approach allowed me the opportunity to frequently shift direction and re-analyze the cues presented during simulation. While I had the simulation objectives and character notes available to me, cues may be presented that might help meet more than one objective. This is why I chose to decontextualize the data. During trial coding, I recorded the cues and did not connect them to a specific objective. This allowed me to focus on cue presentation and delivery. As some cues may benefit more than one simulation objective, I chose to build the cue

database first. The cues were initially recorded as either manifest content or latent content as defined below.

Manifest content is the actual content of a message; the content exactly as it appears; for example, the words, time, space, item, or sentence (Krippendorf, 2013). Manifest content is direct and usually has just one meaning that can be interpreted and coded clearly and concisely. For example, to prompt the nurse (student) to ask about caregiver stress, the caregiver states, "she has not been sleeping well because s/he is worried Ellen might escape". The standardized patient student caregiver has not been trained to deliver specific cues and only has access to character notes immediately prior to enacting the scenario (S. Sideras, personal communication, May 19, 2015). In contrast, *latent content* are the underlying ideas, theses, or themes of the content. That is, the deeper meanings that are intended or perceived in the message or observations (Berleson, 1952). Latent content is when something is said or shown in an indirect way. For example, in an effort for the nurse (student) to notice signs of Ellen's advancing Alzheimer's disease and potential safety concerns, Ellen behaves impulsively and wanders during the interview, often heading to the door in an effort to leave the room. The standardized patient actor has been specifically trained to portray this type of behavior (S. Sideras, personal communication, May 19, 2015).

During the trial coding stage, I watched one video from each of the included years (2011-2014) two times each to establish first, manifest, and, second, latent content data, in the form of cues (Appendix I). Scenarios are identified using the following numbering scheme: year-term (where 1=Fall, 2=Winter, 3=Spring)

followed by the number of individual scenario based on when it implemented in the term. For example, the first scenario enactment of the fall term of 2011 would have the following identification number: 11-1-1 while the second scenario enactment would be identified 11-1-2. The cues, as well as incorporating the field notes from the trial coding, defined below, helped me to develop an observational tool to use in main coding to count cues.

Counting. The type of counting for the purpose of this study will be autonomous counting. According to Hannah and Lautsch (2011), autonomous counting is used when the intention of the data collection is to develop a summary of the data set that can be scrutinized for patterns or concepts in the data. With the decontextualization of data collection across presentations and not linking cues to simulation objectives, autonomous counting provided greater opportunity to gather manifest and latent content, essentially recognizing and recording each cue provided by the standardized patients within each of the 25 simulation scenarios.

Field notes. Field notes focused on context of a cue provided by the standardized patient. For example, a field note may be that the caregiver revisits that s/he is fatigue and tired all the time. When reviewing data, it can be surmised that the contextual field notes may link to cue presentation and therefore be relevant in the counting of cues and then measurement of cue presentation across time. It can also be assumed that field notes may be interchanged with latent cues and so to capture that contextual presentation via field notes of the cue will be relevant.

Main coding. Main coding is the application of the coding frame to the data (Schreier, 2012). For main coding, there were 21 additional videos available. I recruited a co-coder who watched the 25 scenarios (the videos watched during trial coding, were viewed again by the co-coder and myself) and cues were counted by scenario and year based on the results of trial coding (Appendix J). My co-coder was a first year doctoral-student and had participated in simulation as a learner, as well as having simulation as a research-area of interest. My co-coder was provided copies of the simulation objectives (Appendix D), caregiver character notes (Appendix E), Ellen Jones character notes (Appendix F), and Ellen Jones #3 case progression that outlines the foci of Alzheimer's disease and caregiver burden for EJ #3 (Appendix G) for the Ellen Jones#3 scenario. I trained the co-coder to count manifest and latent content (based on trial coding data) that occurred during the scenario and was also encouraged to take field notes.

As in trial coding, main coding was not to be connected to the simulation objectives. In training my co-coder, I reviewed the trial coding data to help establish what is to be counted in main coding. This helped build consensus by establishing cue counting expectations between my co-coder and myself. I also left a field notes option available to be used to note cues and other field observations that may not be part of the main coding. This helped ensure consensus as it provided an opportunity for all cue presentation as well as context of cues to be captured in the data collection. Using words to describe phenomena as well as inductive analytic process are essential in qualitative research consensus building (Cavanagh, 1997). My co-coder and I coded each scenario separately during main coding, and, as in trial

coding, each simulation scenario video was viewed two times by both the co-coder and I.

Comparison coding. The purpose of comparison coding is to unite the data of co-coders (Schreier, 2012). It is the final stage of data collection. My co-coder and I worked together to compare our counts and findings of caregiver-focused cues--manifest content (Appendix K) and behavior cues—manifest and latent content (Appendices L and M) across all simulation presentations. Comparison coding represents the end of the descriptive process and the beginning of the interpretive process (Morgan, 1993). During the comparison coding of cue counting and field notes, I met with my co-coder to discuss each discrepancy and the two of us decided what to do with disputed data so consensus is achieved. The two of us watched videos where only one of us noted a cue. Together, we decided if the cue was delivered and included only cues that the two of us both noted as occurring. The count of manifest and latent content gathered by me and my co-coder was used in data analysis, which is discussed in the following section. Figure 2 outlines the process of data collection, consensus building, and clarification of discrepancies.

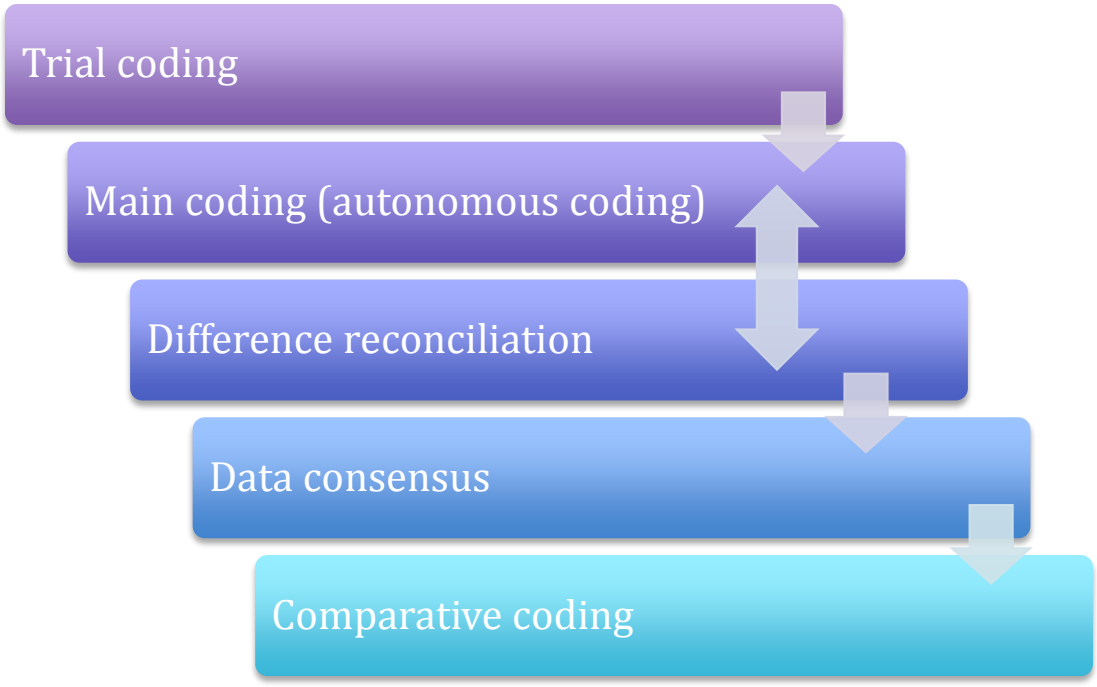

Figure 2. Data collection process.

There were five cues that were counted in trial coding that, due to only being viewed once as a cue, were removed prior to data analysis. These eliminated cues were:

- CG states EJ has "trouble swallowing".
- CG states "hard to see family member struggle".
- CG states s/he is "giving up on EJ".
- CG states living with EJ is "like a zoo".
- CG states Cindy has "limited resources".

Data Analysis

Counting is essential to qualitative content analysis, and specifically, to data analysis when examining for patterns in data and deviations from those patterns (Sandelowski, 2001). As it was the specific aim of this study to describe the

variability in the cues and explore the extent to which the variability of cues provides opportunity for students to meet simulation objectives, patterns in cues will be the focus of data analysis. To accomplish my specific aims, I followed an analytical procedure described by Miles, Huberman, and Saldana (2014) which includes: (a) noting themes/patterns (b) counting, and (c) noting the relations between variables. Each of these procedures will be described in depth.

Noting themes and patterns. The purpose of noting themes and patterns is to simplify and reduce data (Miles, Huberman & Saladana, 2014). To accomplish this, I examined the counts of cues observed during the recorded simulations we collected (Tables 3 and 4) and identified concepts that included both manifest and latent content across all presentations of the Ellen Jones scenario. Concepts were terms I created encompassing a range of cues (two or more similar cues that act as a catalyst for student learner response). According to Miles and Huberman (1994), form follows function – meaning that particular data reduction techniques must be dictated by emergent concepts. In counting data, I used an occurrence of 75 percent as the baseline for defining consistency of a specific cue or range of cues within a concept occurring across presentations. When using counting as qualitative data, the researcher can use numbers to connote quality (in this case, a percentage) and can operationally define what connoting quality will mean (Sandelowski, 2001). For this study, the operational definition of consistency in cue delivery was established when the cue or range of cues within a concept occurred in at least 75% of the simulations within a given year. I chose 75% because a cue or range of cues occurring at least 75% of the time represents a significant majority and a greater

than average likelihood of the cue occurring is consistent with the standard in the literature.

Patterns need to be subjected to skepticism (Miles, Huberman & Saladana, 2014). For example, if the caregiver expressed the cue that s/he sleeps in the living room because Ellen is trying to escape in only a handful of scenario enactments, it might be indicative of a fault in the processes used to prepare the standardized patient to portray caregiver stress. Therefore, I grouped similar cues into concepts. This allowed for cues to be recontextualized with simulation objectives in an effort to capture all data and measure consistency.

Counting. The purpose of counting is to get an overview of the data (Miles, Huberman, & Saldana, 2014). Reducing the data to numbers can sharpen the focus on a key finding (Sandelowski, 2001). Counting brought together both manifest and latent content to establish consistency. After counting cues, I grouped together similar range of cues into concepts. This allowed for another measure of consistency in cue delivery. If one cue wasn't consistently delivered, I was able to measure the frequency of a range of cues that was provided by the standardized patients. For example, the caregiver providing the cue that s/he sleeps in the living room as well as a cue from the caregiver that s/he has to watch Ellen all of the time would be included in the concept of safety for the caregiver. See Appendix N for behavior based concepts with associated cues and Appendix O for caregiver based concepts with associated cues.

Building a logical chain of evidence. The purposes of building a logical chain of evidence are to tactfully and specifically verify data beyond just causal

explanation of the events (Miles, Huberman, & Saldana, 2014). In this study, the chain of evidence includes the inductive data that were gathered (cues) and measured the occurrences of cues (organized into concepts) against the simulation objectives. This allowed for this research both inductive with data collection and counting of cues and deductive with data analysis of cue count and inclusion of simulation objectives in an effort to measure cue variability across simulation presentations. This helped build a chain of evidence in an attempt to link cues to simulation objectives.

Methodological Rigor

Criteria established by Lincoln and Guba (1985) are considered the gold standard for establishing trustworthiness, or the validity of findings, in qualitative research. The term trustworthiness is used to represent several criteria, including: (a) credibility, (b) transferability, (c) dependability, and (d) confirmability. In an effort to further enhance trustworthiness, Miles et al. (2014) propose similar criteria mirroring the criteria of Lincoln and Guba (noted in parenthesis) including: (a) internal validity/authenticity (credibility), (b) external validity/fittingness (transferability), (c) reliability/auditability (dependability), and (d) objectivity (confirmability). A description of each of these criteria will be discussed in the following sections and will include both the terminology of Lincoln and Guba and Miles and colleagues.

Internal validity/Credibility/Authenticity

The purpose of internal validity/credibility/authenticity is to establish confidence in the truth and interpretation of data (Lincoln & Guba, 1985). I relied on

triangulation on to enhance internal validity/credibility/authenticity. According to Miles et al. (2014), triangulation is the corroboration of results with alternate sources of data. This use of triangulation maximizes the range of data that might contribute to knowledge of the concept by understanding the importance of variety in time (different enactment of scenarios) and person (different groups of nursing students). For this study, I used different groups of nursing students who participated in the Ellen Jones #3 scenario between 2011 and 2014. I also used a co-coder, field notes, and expert interview.

I used peer examination to enhance the internal validity, credibility, and authenticity of the research. According to Lincoln and Guba (1985), peer examination involves the researcher discussing the research process and findings with impartial colleagues who have experience with qualitative methods. Dr. Kristin Lutz, a qualitative expert, is a member of my dissertation committee and her expertise was sought out and incorporated into my research methods and dissemination of results. I am also concurrently enrolled in Nursing 607DA at OHSU. This is a doctoral level dissertation seminar that focuses on qualitative methods of research. Similar to working with Dr. Lutz, my peer group provided their expertise and feedback into my research methods and dissemination of results.

External validity, Fittingness, and Transferability

The purpose of external validity, fittingness, transferability is to determine if the results relate to other contexts and participants and thus can be transferred (Lincoln & Guba, 1985; Miles et al. 2014). It is important that sufficiently dense description of the phenomenon under investigation is provided to allow readers to

have a proper understanding of it, thereby enabling readers to compare the instances of the phenomenon described in the research with those that they have seen emerge in similar situations, and is thereby useful to potential users (Sandelowski, 1986). In an effort to provide full description of all the contextual factors pertinent to the purpose and specific aims of the study, transferability will be facilitated by provision of simulation objectives and the character notes provided to the standardized patients (Appendices D and E). I interviewed Dr. Stephanie Sideras, who facilitates simulation at OHSU Ashland. The purpose of this interview, as a strategy of triangulation, was ascertain how standardized patient preparation has changed between 2011-2014. This interview occurred after data collection as to minimize researcher bias. Dr. Sideras' interview provided insight on variability in cue presentation that may be attributed to standardized patient preparation and was included in the clinical importance findings in Chapter 5. Finally, the templates used to collect data in trial, main, and comparison coding will be used to complete the data display examining simulation objectives and cues.

Reliability/Auditability/Dependability

The purpose of reliability, auditability, and dependability is to ensure that results that are consistent over time (Lincoln & Guba, 1985; Miles, Huberman & Saldana, 2014;). As variability is key to the specific aims of this research, consistency in data collection will be paramount. Observation inherently is an evolutionary process, wherein new insights can occur with each viewing of the data. The extent to which judgments about what is confirmed as a cue by the standardized patient will be noted in the counting of cues and observational notes and discussed by my co-

coder and me. This examination of stability over time is similar to the strategy of triangulation used to enhance credibility. The use of a peer co-coder worked with me closely during the main and comparison coding stages enhanced reliability, auditability, dependability by keeping check on the research plan and implementation of data collection of counting cues as well as efforts to achieve consensus with the data.

Objectivity and Confirmability

The purpose of objectivity and confirmability is to measure how well the inquiry's findings are supported by the data collected and to ensure that findings are reasonably free from researcher bias (Lincoln & Guba, 1985; Miles, Huberman, & Saldana, 2014). I enhanced objectivity and confirmability by providing specific details about the research methods and procedures. Also included is the decision trail of the research methods discussed earlier in this chapter. Finally, objectivity and confirmability is enhanced by inclusion of all tables as data collection sources. Retention of the study data allows for examination and reanalysis by others.

Protection of Human Subjects

Approval of this study was obtained from the Institutional Review Board at Oregon Health & Science University prior to conducting the study. Before participating in simulation lab exercises, participants (students and standardized patients) sign an informed consent form stating that videotaped episodes may be used for research purposes (Appendix H). Prior to signing the consent, students are informed that participating in a potential study does not affect the use of simulation lab as an educational tool at OHSU and refusing to consent will not affect their grade

in the course. Identifying data of the students was not used in the research so additional informed student consent was not required.

Chapter Four: Results

This chapter will present the findings from a qualitative descriptive research study conducted to examine video-recorded simulation scenarios involving baccalaureate-nursing students as they respond to cues presented by standardized patients. Content analysis of twenty-five videotaped episodes of the Ellen Jones (EJ) #3 scenario provided rich detail for in-depth cue analysis. The simulation scenario focuses on EJ, a woman with worsening Alzheimer's disease and caregiver stress evident in either EJ's sister or husband. From the narrative, concepts emerged that helped categorize the cues and allow for greater opportunity to measure cue consistency. Results presented in this chapter will be organized in three sections (a) introduction of cues and concepts; (b) variability in cues; and (c) simulation objectives and concept consistency.

Introduction of Behavior Cues and Concepts

A total of 26 cues were identified specific to EJ's behavior (Appendices I, J, and K). Cues are key bits of information that act as a catalyst for student learner response in an effort to meet simulation objectives. The cues that I present will be organized conceptually. Concepts were terms I created encompassing a range of cues (two or more similar cues that act as a catalyst for student learner response). Seven concepts were identified as behavior based cues of both manifest (actual content of a message or the content exactly as it appears) and latent content (underlying ideas, theses, or themes of the content). These concepts were (a) safety; (b) aggression; (c) physical needs/ADL; (d) psychosocial; (e) cognition; (f) repetitive behavior; and (g) aphasia (Appendix L). The following section describes the

concepts and associated range of cues and provides examples from the associated range of cues for each concept.

Safety. The cues associated with the concept of safety focus both on the manifest content of behavior the caregiver (CG) states EJ is exhibiting, as well as latent content, or safety cues EJ demonstrates during the enactment of the scenario. The four unique cues included in the concept of safety included (a) CG states EJ escaped; (b) CG states EJ is wandering; (c) EJ is wandering (during simulation); and (d) EJ knocks over glass. For example, in a majority of the videos, EJ rarely stays in a chair for a longer than a couple minutes at a time, often wandering out of her chair towards the door or a corner of the room away from the CG and nursing student learner, who are conversing at the dining room table. Each of the four cues associated with safety provided evidence that the CG is responsible for EJ's safety, because EJ is no longer able to keep herself safe without the assistance of others..

Aggression. The cues associated with the concept of aggression focused primarily on manifest content provided by the CG on EJ's behavior, as well as latent content exhibited by EJ. The six unique cues within the concept of aggression are (a) CG states EJ is combative; (b) CG states to EJ "no hitting today"; (c) CG states to EJ "let's not hit"; (d) CG states EJ is aggressive; (e) CG states s/he gets slapped by Ellen; (f) and EJ slaps at caregiver. For example, when the CG offers EJ a snack, EJ is seen slapping away the offering, followed by the CG stating, "let's not hit today," indicating that this is a common behavior exhibited by EJ. On the basis of this and other statements made by the CG during the scenario, it becomes evident that EJ displays moments of aggressive behavior.

Physical needs and activities of daily living (ADL). The cues associated with the concept of physical needs and ADL focus on manifest content provided by the CG as well as latent content provided by EJ. The four unique cues associated the concept of physical needs and ADL include (a) CG states EJ incontinent; (b) CG states s/he unable to keep EJ clean; (c) CG states EJ chews on the houseplant; and (d) EJ with food on face/jacket. When discussing caring for EJ with the nursing student learner, the CG mentions that EJ is incontinent and isn't able to "keep herself clean". Each cue associated with meeting EJ's physical needs and ADL provide evidence that she is unable to provide basic care for herself.

Psychosocial. The cues associated with the concept of EJ's psychosocial state focused primarily on latent content of the simulation. The two unique cues associated with this concept include (a) CG states EJ is difficult; and (b) EJ is crying. For example, during the simulation scenario EJ was sitting at the table with the CG and nursing student learner while the nursing student learner asked questions about the CG's physical health, and without provocation, EJ began to cry. The cues associated with the psychosocial concept demonstrate that EJ is unable to control her emotions as well as behavior that is deemed difficult, both indicators of advancing Alzheimer's disease.

Cognition. There are two cues associated with cognition and both were based on latent content presented by EJ. The two cues were (a) EJ unable to perform clock test (pen and paper test asking the patient to draw '10 minutes after 11') and (b) EJ with no eye contact. The essence of this concept is that EJ's cognition has diminished since the last home visit by the nursing student learner (five years

before). For example, EJ is unsure who the person (referring to the visiting nurse [student]) in her kitchen is or why the nurse (student) is asking so many questions. EJ rarely made an eye contact with either the nursing student learner or the CG during the course of the interview.

Aphasia. There are three cues associated with the concept of aphasia and all were based on latent content of the simulation. The three cues were (a) EJ mumbling; (b) EJ with one word/repetitive answers; and (c) EJ asks to call Cindy (EJ's daughter) and mumbles "help". For example, when asked a direct question, such as "would you like a cookie?" EJ either mumbled an incoherent response, or nodded her head and repeated "yes". Each of these cues reflects memory impairment and aphasia, which is the loss of language ability. These cues are indicators of advancing Alzheimer's disease.

Repetitive behaviors. The cues associated with repetitive behaviors all focused on latent content of EJ's behaviors. The five cues unique to repetitive behaviors include (a) EJ picking at jacket; (b) EJ tearing and folding a tissue or paper; (c) EJ rubbing at face; (d) EJ rocking in chair; and (e) EJ wants to get her watch off of her wrist. For example, during the interview between the nurse and the CG, is seen either picking at her jacket or rubbing at her face. These cues provided evidence of two key components of advancing AD (a) hyperorality (placing objects in or near mouth) and (b) hypermetamorphosis (touching everything in sight).

Introduction of Caregiving Cues and Concepts

A total of 17 unique cues of manifest content were identified specific to CG issues related to caring for EJ in the home (Appendices I, J, and K). The cues that I

present will be organized conceptually. Four concepts emerged from CG based manifest content cues. These were (a) support; (b) safety; (c) psychosocial/physical; and (d) finances. The following section describes the concepts and associated range of cues and provides examples from the associated range of cues for each concept. (Appendix M).

Support. Four cues were associated with the concept of support for the caregiver. These cues were all statements that were made by the CG (a) EJ's son is busy with family; (b) CG has no support; (c) CG needs help; and (d) [EJ's] kids aren't an option to help. For example, when asked by the nursing student learner if the CG has help (other than a home health aide who comes in during the week), the CG responds, "I have no support. I am doing this by myself". Each of the caregiver's responses reflected a challenge faced by the CG concerning the support needs for his/herself and for EJ.

Safety. Manifest content of seven cues delivered by the CG were categorized as a safety concept. These cues were all statements that were made by the CG (a) s/he keeps EJ safe; (b) s/he is worried that EJ will fall out of chair; (c) s/he has had to call the police (d) s/he has to sleep in the living room; (e) s/he has to watch EJ all of the time/constantly; (f) s/he has to do everything; and (g) caring for EJ is a 24-hour responsibility. For example, when the nursing student learner asks the CG if EJ is safe in the home, the CG responds by saying "I have to sleep in the living room…to make sure [EJ] doesn't escape". Each of these responses reflected the challenge faced by caregivers in providing safe care for a patient with advancing Alzheimer's disease in the home.

Psychosocial/physical. The concept of psychosocial/physical needs was defined by five cues. The cues, all statements by the CG about her/himself, include (a) s/he is covered in bruises; (b) s/he is feeling fatigue/exhausted; (c) s/he is at wits' end; (d) s/he is giving up on EJ; and (e) living with EJ is like a zoo. For example, when asked by the nursing student learner if s/he finds time to do things for his/herself, the CG responds, "I don't have the energy. I am exhausted all of the time." Evident in the emergence of this concept, is the physical and mental toll caring for EJ is having on the CG.

Finances. Only one cue focused on the financial costs of caring for EJ. This occurred when the CG stated that getting more assistance from a home health aide was too expensive (a home health aide does currently come to the house once a week to provide EJ with personal care assistance).

Behavioral Cues and Variability

When counting the qualitative data, numbers can be used to connote quality (Sandelowski, 2001). Quality (for the purpose of this study, quality was defined as consistency) was operationally defined at 75%. The value of 75% was chosen because a cue or range of cues occurring at least 75% of the time represents a significant majority and a greater than average likelihood of the cue occurring during the simulation and is consistent with the standard in the literature. For this study, the operational definition of consistency in cue delivery was established when either a specific cue or a range of cues pertinent to a concept occurred in at least 75% of the simulations within a given year. For example, in 2014, it was noted that EJ wandered in all seven of the video-recorded episodes (Table 1). Therefore,

that specific cue was considered consistent. Also, within a concept, if the range of cues for a concept were provided greater to or equal to 75% presentation within a given year, then the concept was considered consistently presented. For example, the behavioral concept of physical needs/ADL consisted of four different cues (Table 3). In 2011, across the range of cues pertinent to this concept, a cue was provided eight times during the six episodes. However, cues were provided during episodes one, two, three, and four (4/6 or 66%) and thus, consistent cue delivery did not occur.

Differentiation of cue consistency was an effort to examine both cue variability on the micro-level (as presented in each enactment of the scenario) and the macro-level (once the cues are organized into concepts and then how consistently those concept's range of cues were presented across all presentations in each year between 2011 and 2014). Data results are discussed with these two foci in the following sections. Behavioral data relating to EJ's behavior is presented followed by caregiving data relating to the care provided to or required for EJ. For each year, the numerator signified the number of counted occurrences of the specified cue and the denominator signified the total number of video-recorded episodes watched for that year. For example, in 2011, the cue of EJ wandering was counted in six of the six video-recorded episodes (6/6).

Safety. There were four cues in the behavior concept of safety (Table 1). In all four years, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and was therefore consistently delivered.

Table 1

Safety Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states EJ "escaped"	2/6	1/6	**5/6**	**7/7**
CG states EJ "wandering"	**5/6**	**5/6**	4/6	**6/7**
EJ wandering	**6/6**	**5/6**	4/6	**7/7**
EJ knocks over glass	1/6	2/6	1/6	2/7

Note. **Bold**=cue occurred at least 75% of time.

Aggression. There were six cues pertinent to the behavior concept of aggression (Table 2). In all four years, no specific cue was delivered with a frequency that met the 75% standard related to the concept of aggression. In 2011, across the range of cues pertinent to this concept, a cue was provided six times during the six episodes. However, cues were provided in episodes one, three, four, and six (66%) and consistent cue delivery did not occur. In 2012 and 2013, across the range of possible cues pertinent to this concept, only two of the six cues were provided; therefore these cues were not consistently presented. In 2014, seventeen total cues were presented across the seven episodes. A cue within the range of salient cues pertinent to this concept was presented in each of the seven EJ #3 episodes and was therefore consistently delivered.

Table 2

Aggression Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states EJ "combative"	2/6	0/6	0/6	2/7
CG states to EJ "no hitting today"	0/6	0/6	0/6	1/7
CG states "let's not hit"	0/6	0/6	0/6	4/7
CG states EJ "aggressive"	1/6	0/6	0/6	2/7
CG states "I get slapped"	3/6	1/6	1/6	4/7
EJ slaps at CG	0/6	1/6	1/6	4/7

Note. **Bold**=cue occurred at least 75% of time.

Physical needs/ADL. There were four cues pertinent to the concept of physical needs/ADL (Table 3). In all four years, no specific cue was consistently delivered related to the concept of physical needs/ADL. In 2011, across the range of cues pertinent to this concept, a cue was provided eight times during the six episodes. Cues were provided during episodes one, two, three, and four (66%) and therefore were not consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided eight times during the six episodes. Cues were provided in episodes one, two, three, five, and six (83%) and were therefore consistently delivered. In 2013, across the range of cues pertinent to this concept, a cue was provided seven cues during the six episodes. Cues were provided

in episodes one, two, four, five, and six (83%) and were therefore consistently delivered. In 2014, across the range of cues pertinent this concept, a cue was provided seventeen times during the seven episodes. A cue was provided at least once during each episode and was therefore consistently delivered.

Table 3

Physical Needs/ADL Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states EJ "incontinent"	2/6	2/6	3/6	5/7
CG states "unable to keep [EJ] clean"	3/6	4/6	4/6	2/7
CG states EJ "chewing on houseplant"	1/6	1/6	0/6	0/7
EJ with food on shirt/face	2/6	1/6	0/6	3/7

Note. **Bold**=cue occurred at least 75% of time.

Psychosocial. There were two cues pertinent to the CG concept of psychosocial (Table 4). In 2011, 2013, and 2014, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and were therefore, consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided three times during the six episodes. Cues were provided in episodes one, three, and five (50%) and therefore were not consistently delivered.

Table 4

Psychosocial Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states EJ is "difficult"	**5/6**	1/6	2/6	2/7
EJ crying	0/6	2/6	**6/6**	**6/7**

Note. **Bold**=cue occurred at least 75% of time.

Cognition. There were two cues pertinent to the behavioral concept of cognition (Table 5). In 2011, 2013, and 2014, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and were therefore, consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided six times across the six episodes. Cues were delivered in episodes one, two, three, and six (66%) and therefore were not consistently delivered.

Table 5

Cognition Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
EJ with no eye contact	**6/6**	4/6	**6/6**	**7/7**
EJ unable to do clock test	0/6	2/6	0/6	2/7

Note. **Bold**=cue occurred at least 75% of time.

Aphasia. There were three cues pertinent to the behavioral concept of aphasia (Table 6). In 2011, 2013, and 2014, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and were therefore, consistently delivered. In 2012, across the range of cues pertinent to this

concept, a cue was provided 10 times across the six episodes. A cue was provided at least once during each one of the six episodes and was therefore consistently delivered.

Table 6

Aphasia Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
EJ mumbling	**6/6**	4/6	**5/6**	**6/7**
EJ with one word/repetitive answers	4/6	4/6	**6/6**	**6/7**
EJ wants to call Cindy, mumbles "help"	**5/6**	2/6	4/6	3/7

Note. **Bold**=cue occurred at least 75% of time.

Repetitive behaviors. There were five cues pertinent to the behavioral concept of repetitive behaviors (Table 7). In all four years, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes and was therefore consistently delivered.

Table 7

Repetitive Behaviors Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
EJ picking at jacket	**5/6**	2/6	2/6	3/7
EJ tearing/folding at paper/tissue	0/6	4/6	**5/6**	**6/7**
EJ rubbing at face	3/6	0/6	0/6	0/7
EJ rocking in chair	4/6	1/6	**5/6**	**6/7**
EJ wants watch off	2/6	**5/6**	4/6	**6/7**

Note. **Bold**=cue occurred at least 75% of time.

Caregiving Cues and Variability

Support. There were four cues pertinent to the caregiving concept of support (Table 8). In 2011, across the range of cues pertinent to this concept, a cue was provided five times during the six episodes. Cues were provided during episodes one, two, and three (50%) and therefore were not consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided 11 times during the six episodes. Cues were provided during episodes one, two, three, five, and six (83%) and were therefore consistently delivered. In 2013, across the range of cues pertinent to this concept, a cue was provided 10 times during the six episodes. Cues were provided during episodes one, two, three, five, and six (83%) and were therefore consistently delivered. In 2014, across the range of cues pertinent to this concept, a cue was provided four times during the seven episodes.

Cues were provided during episodes three and four (29%) and therefore were not consistently delivered.

Table 8

Support Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states EJ's son is "busy with family"	1/6	4/6	4/6	1/7
CG states s/he "has no support"	2/6	4/6	2/6	1/7
CG states s/he "needs help"	2/6	1/6	4/6	2/7
CG states "[EJ's] kids aren't option to help"	0/6	2/6	0/6	0/7

Note. **Bold**=cue occurred at least 75% of time.

Safety. There were seven cues pertinent to the caregiving concept of safety (Table 9). In 2014, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and was therefore consistently delivered. In 2011, across the range of cues pertinent to this concept, a cue was provided 17 times during the six episodes. A cue was provided at least once during each episode and was therefore consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided 15 times during the six episodes. A cue was provided at least once during each episode and was therefore consistently

delivered. In 2013, across the range of cues pertinent to this concept, a cue was provided 13 times during the six episodes. A cue was provided at least once during each episode and was therefore consistently delivered.

Table 9

Safety Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states s/he "keeps EJ safe"	1/6	3/6	2/6	1/7
CG states s/he is "worried EJ will fall out of chair"	1/6	2/6	0/6	0/7
CG states s/he "has had to "call the police"	3/6	3/6	4/6	**7/7**
CG states s/he "sleeps in the living room"	2/6	2/6	0/6	2/7
CG states s/he has to "watch EJ all of the time/constantly"	4/6	2/6	3/6	4/7
CG states s/he has to "do everything"	2/6	1/6	2/6	1/7
CG states caring for EJ is a "24-hour thing"	4/6	2/6	2/6	2/7

Note. **Bold**=cue occurred at least 75% of time.

Psychosocial/physical. There were five cues pertinent to the caregiving concept of psychosocial/physical needs (Table 10). In 2014, at least one specific cue related to this concept was delivered in at least 75% of the simulation episodes, and were therefore consistently delivered. In 2011, across the range of cues pertinent to this concept, a cue was provided five times during the six episodes. Cues were

provided during episodes one, two, and three (50%) and therefore were not consistently delivered. In 2012, across the range of cues pertinent to this concept, a cue was provided five times during the six episodes. Cues were provided during episodes one, two, and three (50%) and therefore were not consistently delivered. In 2013, across the range of cues pertinent to this concept, a cue was provided six times during the six episodes. Cues were provided during episodes one, three, four, and five (66%) and therefore were not consistently delivered.

Table 10

Psychosocial/physical Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states s/he is "covered in bruises"	0/6	0/6	1/6	1/7
CG states s/he is "feeling fatigue/exhausted"	4/6	4/6	4/6	**6/7**
CG states s/he is "at wit's end"	0/6	1/6	0/6	2/7
CG states s/he is "giving up on EJ"	0/6	0/6	1/6	0/7
CG states living with EJ is "like a zoo"	1/6	0/6	0/6	0/7

Note. **Bold**=cue occurred at least 75% of time.

Finances. There was only one cue pertinent to the caregiving concept of finances (Table 11). In 2011, no cue was consistently delivered pertinent to this concept. In 2012, across the range of cues pertinent to this concept, a cue was provided three times during the six episodes. Cues were provided during episodes three, five, and six (50%) and therefore were not consistently delivered. In 2013,

across the range of cues pertinent to this concept, a cue was provided three times during the six episodes. Cues were provided during episodes one, two, and six (50%) and therefore were not consistently delivered. In 2014, across the range of cues pertinent to this concept, a cue was provided three times during the six episodes. Cues were provided during episodes two, six, and seven (43%) and therefore were not consistently delivered.

Table 11

Financial Cue Consistency Across Presentations

Cue	Occurrence by year			
	2011 (n=6)	2012 (n=6)	2013 (n=6)	2014 (n=7)
CG states "getting an aide is too expensive"	0/6	3/6	3/6	3/7

Note. **Bold**=cue occurred at least 75% of time

Simulation Objectives and Concept Consistency

This section addresses the extent to which consistency of cue delivery related to opportunity for student learners to meet simulation objectives. Behavior concepts, followed by caregiving concepts, were associated with corresponding relevant simulation objectives. Objectives for EJ #3 were for the learner to:

1. Demonstrate appropriate mental status examination, including mini-mental status examination.
2. Demonstrate appropriate communication techniques.
3. Demonstrate focused physical assessment.
4. Identify signs/symptoms of late stage Alzheimer's disease.
5. Identify criteria that reflect placement in a skilled nursing facility (SNF).

6. Discuss how to minimize stress to healthcare workers when caring for Alzheimer's patients.

None of the concepts linked with the third objective that the learner demonstrates focused physical assessment so I could not include it in data analysis.

My linking of concepts, or concept mapping, with simulation objectives was based on understanding of the pathology of late stage Alzheimer's disease and the evidence base associated with providing care (Appendix G). I examined the behavior concepts and how they correspond to the objective and then I will address the caregiving concepts.

Behavior concept mapping. The behavioral concepts of safety and aggression corresponded with the fifth simulation objective that the learner identifies criteria that reflect placement in a skilled nursing facility (SNF*)* as evidenced by EJ is a danger to herself. The behavioral concepts of physical needs/ADL, psychosocial, cognition, aphasia, and repetitive behavior corresponded with the fourth simulation objective that the learner identified signs/symptoms of late stage Alzheimer's disease as evidenced by EJ being totally dependent on others for physical care, EJ's loss of language ability and memory impairment, and disturbance of executive functioning. The behavioral concepts of psychosocial, cognition, and aphasia correspond with the first simulation objective that the learner performs a mental status examination as evidenced by memory impairment and loss of executive function. The behavioral concepts of aphasia and repetitive behavior corresponded with the second simulation objective that the leaner

demonstrate appropriate communication techniques as evidenced by loss of language ability.

Caregiving concept mapping. The caregiving concepts of safety and support corresponded with fourth and fifth objectives that the nursing student learner identify signs/symptoms of late stage Alzheimer's disease and identify criteria that reflect a need for placement in a SNF as evidenced by EJ being totally dependent on others for her care, she wanders, and is a danger to herself. The caregiving concept of support and psychosocial/physical corresponded with the sixth objective that the nursing student learner discusses how to minimize stress to healthcare workers when caring for AD patients as evidenced by CG feeling responsible for EJ and that she is wandering and having incontinence problems.

Simulation objectives and behavior concept consistency. In 2011, the fifth simulation objective focusing on the nursing student learner having the opportunity to assess for need of placement in a SNF corresponded with the consistently delivered concepts of safety, psychosocial, cognition, aphasia, and repetitive behavior (Table 12). The first and fourth simulation objectives focusing on the nursing student learner's opportunity to demonstrate an assessment of the patient's mental status as well as the opportunity for the nursing student learner to identify signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concepts of psychosocial, cognition, and aphasia. The second simulation objective demonstrating appropriate communication techniques corresponded with the concepts of aphasia and repetitive behavior. The fourth simulation objective focusing on the opportunity that the nursing student learner

assesses for signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concept of repetitive behavior.

Table 12

Simulation Objectives and Consistency of Behavior Concepts, 2011

Simulation Objective	Concept						
	Safety	Aggression	Physical needs/ADL	Psychosocial	Cognition	Aphasia	Repetitive behavior
Demonstrate appropriate mental status examination including mini-mental status exam				X	X	X	
Demonstrate appropriate communication techniques						X	X
Demonstrate appropriate physical assessment							
Identify signs/symptoms of late stage Alzheimer's disease				X	X	X	X
Identify criteria that reflect a need for placement in a skilled nursing facility (SNF)	X						

Note. X=at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2012, the fifth simulation objective focusing on the nursing student learner identifying criteria that reflected a need for patient placement in a SNF corresponded with the consistently delivered concepts of safety and physical needs/ADL (Table 13). The first and fourth simulation objectives focusing on the nursing student learner's opportunity to demonstrate an assessment of patient's mental status as well as the opportunity for the learner to identify of signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concepts of cognition and aphasia. The second simulation objective focusing on demonstration of appropriate communication techniques corresponded with the consistently delivered concept of aphasia and repetitive behavior. The fourth objective focusing on an opportunity for the nursing student learner to identify sign and symptoms of late stage AD corresponded with the consistently delivered concept of repetitive behavior.

Table 13

Simulation Objectives and Consistency of Behavior Concepts, 2012

Simulation Objective	Concept						
	Safety	Aggression	Physical needs/ADL	Psychosocial	Cognition	Aphasia	Repetitive behavior
Demonstrate appropriate mental status examination including mini-mental status exam					X	X	
Demonstrate appropriate communication techniques						X	X
Demonstrate appropriate physical assessment							
Identify signs/symptoms of late stage Alzheimer's disease					X	X	X
Identify criteria that reflect a need for placement in a skilled nursing facility (SNF)	X		X				

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2013, the fifth simulation objective focusing on the nursing student learner identifying criteria that reflect a need for placement in a SNF corresponded with the consistently delivered concepts of safety and physical needs/ADL (Table 14). The first and fourth simulation objectives focusing on the nursing student learner's opportunity to demonstrate an assessment of patient's mental status as well as the opportunity for the learner to identify of signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concepts of psychosocial, cognition, and aphasia. The second simulation objective focusing on the demonstration of appropriate communication techniques corresponded with the consistently delivered concept of aphasia. The fourth objective focusing on the nursing student learner identifying signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concept of repetitive behavior.

Table 14

Simulation Objectives and Consistency of Behavior Concepts, 2013

Simulation Objective	Concept						
	Safety	Aggression	Physical needs/ADL	Psychosocial	Cognition	Aphasia	Repetitive behavior
Demonstrate appropriate mental status examination including mini-mental status exam				X	X	X	
Demonstrate appropriate communication techniques						X	
Demonstrate appropriate physical assessment							
Identify signs/symptoms of late stage Alzheimer's disease				X	X	X	X
Identify criteria that reflect a need for placement in a skilled nursing facility (SNF)	X		X				

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2014, fifth the simulation objective focusing on the nursing student learner identifying criteria that reflect a need for placement in a SNF corresponded with the consistently delivered concepts of safety, aggression, and physical needs/ADL (Table 15). The first and fourth simulation objectives focusing on the nursing student learner's opportunity to demonstrate an assessment of EJ's mental status as well as the opportunity for the learner to identify of signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concepts of aggression, psychosocial, cognition, and aphasia. The second simulation objective focusing on the demonstration of appropriate communication techniques corresponded with the consistently delivered concepts of aphasia and repetitive behavior. The fourth objective focusing on the nursing student learner identifying signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concept of repetitive behavior.

Table 15

Simulation Objectives and Consistency of Behavior Concepts, 2014

Simulation Objective	Concept						
	Safety	Aggression	Physical needs/ADL	Psychosocial	Cognition	Aphasia	Repetitive behavior
Demonstrate appropriate mental status examination including mini-mental status exam				X	X	X	
Demonstrate appropriate communication techniques						X	X
Demonstrate appropriate physical assessment							
Identify signs/symptoms of late stage Alzheimer's disease		X		X	X	X	X
Identify criteria that reflect a need for placement in a skilled nursing facility (SNF)	X	X	X				

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In all four years, nursing student learners had consistently delivered concepts provided to them that were associated with the simulation objectives of the learner having the opportunity to:

1. Demonstrate appropriate mental status examination including mini-mental status exam.
2. Demonstrate appropriate communication techniques.
3. Identify signs/symptoms of late stage Alzheimer's disease.
4. Identify criteria that reflect a need for placement in a SNF (Table 16).

Table 16

Simulation Objective and Opportunity by Year (behavior concepts)

Simulation Objective	YEAR			
	2011	2012	2013	2014
Demonstrate appropriate mental status examination including mini-mental status exam	X	X	X	X
Demonstrate appropriate communication techniques	X	X	X	X
Demonstrate appropriate physical assessment				
Identify signs/symptoms of late stage Alzheimer's disease	X	X	X	X
Identify criteria that reflect a need for placement in a skilled nursing facility (SNF)	X	X	X	X

Simulation objectives and caregiving concept consistency. In 2011, the fourth and sixth objectives of the nursing student learner having the opportunity for the learner to identify signs and symptoms of late stage Alzheimer's disease and identify criteria that reflect a need for placement in a SNF corresponded with the consistently delivered concept of safety (Table 17). The concepts of support, psychosocial/physical, and finances were not consistently delivered.

Table 17

Simulation Objectives and Consistency of Caregiving Concepts, 2011

Simulation objective	Concept			
	Support	Safety	Psychosocial/physical	Finances
Identify signs/symptoms of late stage Alzheimer's disease		X		
Identify criteria that reflect a need for placement in a SNF		X		
Discuss how to minimize stress to healthcare workers when caring for Alzheimer's disease patients				

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2012, the sixth objective focusing on the nursing student learner having the opportunity to discuss how to minimize stress for healthcare workers caring for patients with Alzheimer's disease corresponded with the consistently delivered

concept of support (Table 18). The fourth and fifth simulation objectives focusing on the nursing student learner identifying criteria that reflect a need for placement in a SNF and opportunity for the learner to identify signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concept of safety. The concepts of psychosocial/physical and finances were not consistently delivered.

Table 18

Simulation Objectives and Consistency of Caregiving Concepts, 2012

Simulation objective	Concept			
	Support	Safety	Psychosocial/physical	Finances
Identify signs/symptoms of late stage Alzheimer's disease		X		
Identify criteria that reflect a need for placement in a SNF		X		
Discuss how to minimize stress to healthcare workers when caring for Alzheimer's disease patients	X			

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2013, the sixth objective focusing on the nursing student learner having the opportunity to discuss how to minimize stress for healthcare workers caring for patients with Alzheimer's disease corresponded with the consistently delivered concept of support (Table 19). The fourth and fifth simulation objectives focused on

the learner identifying criteria that reflect a need for placement in a SNF and opportunity for the learner to identify signs and symptoms of late stage Alzheimer's disease corresponded with the consistently delivered concept of safety. The concepts of psychosocial/physical and finances were not consistently delivered.

Table 19

Simulation Objectives and Consistency of Caregiving Concepts, 2013

Simulation objective	Concept			
	Support	Safety	Psychosocial/physical	Finances
Identify signs/symptoms of late stage Alzheimer's disease		X		
Identify criteria that reflect a need for placement in a SNF		X		
Discuss how to minimize stress to healthcare workers when caring for Alzheimer's disease patients	X			

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In 2014, the sixth objective focusing on the nursing student learner having the opportunity to discuss how to minimize stress for healthcare workers caring for persons with Alzheimer's disease corresponded with the consistently delivered concepts of support and psychosocial/physical. The fourth and fifth simulation objectives focusing on the nursing student learner identifying criteria that reflected

a need for placement in a SNF and opportunity for the learner to identify signs and symptoms of late stage Alzheimer's disease corresponded with the consistently deliver concept of safety. The concept of finances was not consistently delivered.

Table 20

Simulation Objectives and Consistency of Caregiving Concepts, 2014

Simulation objective	Concept			
	Support	Safety	Psychosocial/physical	Finances
Identify signs/symptoms of late stage Alzheimer's disease		X		
Identify criteria that reflect a need for placement in a SNF		X		
Discuss how to minimize stress to healthcare workers when caring for Alzheimer's disease patients	X		X	

Note. X= at least one cue from concept or range of cues delivery pertinent to concept occurred 75% of the time.

In all three of the four studied years, nursing student learners had consistently delivered concepts provided to them that were associated with the simulation objectives of the nursing student learner having the opportunity to:

1. Identify signs/symptoms of late stage Alzheimer's disease.
2. Identify criteria that reflect a need for placement in a SNF.
3. Discuss how to minimize stress to healthcare workers caring for persons with Alzheimer's disease (Table 21).

In 2011, there was not a consistently delivered concept related to the nursing student learner having the opportunity to discuss how to minimize stress to healthcare workers caring for persons with Alzheimer's disease.

Table 21

Simulation Objective and Opportunity by Year (caregiving concepts)

Simulation objective	Year			
	2011	2012	2013	2014
Identify signs/symptoms of late stage Alzheimer's disease	X	X	X	X
Identify criteria that reflect a need for placement in a SNF	X	X	X	X
Discuss how to minimize stress to healthcare workers when caring for Alzheimer's disease patients		X	X	X

Summary

There were 43 latent and manifest cues identified in this study. Of these cues, 14 were identified as specific cues that were consistently presented over 75% of the time. These 14 cues were:

- CG stated EJ is wandering (manifest content).
- CG stated EJ is difficult (manifest content).
- CG stated s/he has had to call the police (manifest content).
- CG stated s/he is feeling fatigue/exhausted (manifest content).

- EJ rocking in chair (latent content).
- EJ picked at jacket (latent content).
- EJ wanted to call Cindy; mumbled help (latent content).
- EJ wanted her watch off (latent content).
- EJ crying (latent content).
- EJ tearing/folding at paper/tissue (latent content).
- EJ wandering (latent content).
- EJ with no eye contact (latent content).
- EJ mumbling (latent content).
- EJ with one-word/repetitive answers (latent content).

These 14 consistently delivered specific cues bring forward five of the seven behavioral concepts. Of the 14 consistently delivered specific cues, 10 were latent content and delivered by the standardized patient actor. Manifest content, which was primarily provided by the standardized patient caregiver student, was less consistently delivered than the latent content of the EJ standardized patient. The use of cues to help identify concepts demonstrated that there was often a range of cues used to propel a simulation.

In summary, I identified 11 concepts that emerged from the manifest and latent cues that were counted in this study. The concepts were identified as either behavior related or caregiving related. In 2011-2014 consistent delivery of behavioral and caregiving concepts afforded nursing student learners ample opportunity to meet the simulation objectives of:

1. Demonstrating appropriate mental status examination including a mini-mental status exam.
2. Demonstrating appropriate communication techniques.
3. Identifying signs/symptoms of late-stage Alzheimer's disease.
4. Identifying criteria that reflect a need for placement in a SNF.
5. Discussing how to minimize stress to healthcare workers when caring for Alzheimer's disease patients.

The lone exception was 2011, when students were not afforded consistent opportunity to meet the simulation objective of discussing how to minimize stress to healthcare workers when caring for Alzheimer's disease patients. Discussion on clinical implications of these findings for simulation scenario design and implementation, as they relate to the specific aims, are addressed in Chapter 5.

Chapter Five: Discussion

This chapter will discuss the findings from a qualitative descriptive research study conducted to examine video-recorded simulation scenarios involving baccalaureate-nursing students as they respond to cues presented by standardized patients. In the scenario, EJ 's (portrayed by a standardized patient actor) Alzheimer's disease has advanced to the point where she was no longer able to speak for herself. EJ's caregiver (portrayed by a standardized patient student) has become the voice of EJ. The challenge in the EJ scenario for the student nurse learner was to extend his/her clinical judgment to assess both EJ and the CG based on cues provided by the standardized patients (actor and student). Results presented in this chapter will be organized in four sections (a) discussion of findings as they related to the specific aims; (b) strengths and limitations of the study; (c) summary of concepts and categories of cues; and (c) implications for simulation and areas for future nursing research.

Specific Aim 1: Describe the Variability in the Cues Given During Different Episodes of a Standardized Patient Simulation Scenario

This study identified 43 cues that were used to present the scenario of Ellen Jones (EJ) a patient in late stage Alzheimer's disease. Of these cues, 14 were consistently and specifically implemented. Of the 14 consistently delivered specific cues, ten were latent (behavior of EJ) and brought forward by the standardized patient actor and four were manifest (relating to caregiving of EJ) and brought forward by the standardized patient student caregiver. The following sections will discuss the latent and manifest content, including both specific cues and range of

cues, how the cues map into the concepts, and the consistency of the delivery of the concepts.

Latent content. Latent content is the underlying ideas, theses, or themes of a scenario (Burleson, 1952). Latent content in simulation was delivered by cues that focused on behavior of EJ who has late stage Alzheimer's disease. Cues are key information that act as catalysts for student responses in an effort to meet simulation objectives (Jeffries, 2007). In data analysis, when there was more than one cue provided, similar cues were grouped together. The range of cues was simplified by using cue mapping to develop a concept (two or more similar cues that act as a catalyst for student learner response). The EJ simulation was designed for the standardized patient actor to present latent content that was delivered by EJ to exhibit signs and symptoms of worsening Alzheimer's disease in an effort to enhance and challenge nurse student learner's clinical judgment.

For the person depicting EJ (standardized patient actor), data supports the use of specific cues to encourage the nursing student learner to understand and experience the severity of EJ's late stage Alzheimer's disease. This supports prior research on the importance of cuing in undergraduate nursing simulation involving standardized patients (Chan, 2014; Paquette et al., 2010). However, this is the first study that differentiates between specific cues and use of a range of cues in propelling a simulation scenario. For example, the behavior cue (latent content) of EJ wandering was a consistently delivered specific cue. Five of the seven behavior concepts were consistently delivered by use of singular cues provided by the standardized patient actor. Specifically, the concepts of safety, psychosocial, and

aphasia linked with three consistent specific cues, repetitive behaviors linked to four consistent specific cues and cognition linked to one consistent specific cue.

None of the consistently delivered specific cues mapped to the behavioral concepts of physical needs and aggression. Within the behavioral concept of physical needs, while no specific cues met the 75% standard, across the range of cues identified, the concept was addressed consistently in three of the four years studied. So while there was range in their consistency, the concept of physical needs was consistently delivered. When the range of cues was examined in relationship to the concept of aggression, between 2011-2014, it was only brought forward consistently in 2014. In the character notes for EJ, it is noted that she is to be agitated during the interview (Appendix E). Also, in the character notes for the caregiver, s/he comments on how EJ never knows when EJ is going to "slap" at him/her. The same actor portrayed EJ in 2013 and 2014. As preparation of the standardized patients was not included in this study, it is assumed that preparation of the standardized patient was more specific, including focusing on EJ's aggression as a symptom of late stage Alzheimer's disease, between 2011 and 2014. However, this assumption is untested in this study.

What was learned about the nursing student learner through the use of specific and salient cues is that s/he was focused on EJ and how advanced her Alzheimer's disease was at this point. Results support trained actors in the role of standardized patient with Alzheimer's disease are capable of implementing specific cues that were consistently delivered. The nursing student learner, based on specific

cues provided by the standardized patient actor, addressed key issues of late stage Alzheimer's disease in the EJ #3 scenario between 2011-2014.

Manifest content. Manifest content is the actual content of a message; it is direct and has just one meaning (Krippendorf, 2013). Manifest content, like latent content, was delivered by cues provided by the standardized patients (actor and student). Manifest content in the EJ scenario was designed so the caregiver would have a scenario-appropriate response to the questions the student nurse asked while assessing the caregiver's ability to care for EJ in the home. The standardized patient students who portrayed Ellen's caregiver were not expected to memorize their cues; in fact, they were intentionally given their character notes immediately before the scenario began. This was done so the nursing students who were portraying the standardized patient caregiver had the opportunity to experience the fidelity (realism) of the emotional, mental, and physical stress placed upon caregivers who care for a patient with worsening Alzheimer's disease (S. Sideras, personal communication, May 19, 2015).

For the person depicting the standardized patient caregiver, data supports the use of two specific cues of the caregiver stating s/he has had to call the police and the caregiver stating s/he is feeling fatigue/exhausted to encourage the nursing student learner to understand and experience the impact of caregiver stress. Specifically, the concepts of psychosocial and safety linked with these two specific caregiving cues. To more closely examine the variability of the manifest cues, it was necessary to map the range of cues and link them to a concept. When caregiving cues (manifest content) were mapped, the concept of support was consistently

brought forward in three of the four years studied and safety was addressed in all four years.

When cues were mapped to concepts, the caregiving concepts of psychosocial/physical and financial were never consistently addressed, with the exception of 2014, when psychosocial/physical cues were consistently provided. The case progression that outlines the foci of Alzheimer's disease and caregiver burden for EJ #3 (Appendix G) does include a CG statement saying there is "financial strain". There are also character notes reflecting the fatigue that the caregiver is experiencing in caring for EJ. While not assessed, it can be assumed the scenario designer decided that financial strain and psychosocial/physical issues related to caring for a loved one with late stage Alzheimer's disease were appropriate for the learner.

Data from this study show that manifest cues were less consistently delivered than latent content but the use of students in the caregiver role has potential given the time limitations of simulation and prior clinical focus of the student. For the standardized patient student caregiver, data supports that a range of cues were provided between 2011-2014 to encourage the nursing student learners to understand caregiver burden. Results indicate that there was range in the consistency of cues provided by the standardized patient student caregiver, and scenario designers can use students in the role and cues can be provided consistently. However, the lack of consistent delivery of financial and psychosocial/physical concepts (except in 2014) indicates that there are barriers for consistent concept delivery by standardized patient caregivers. The results of

this study do not give any indications what these barriers for the caregivers are. Further studies are necessary to investigate possible options with standardized patient training, i.e., how long training should occur, when it should occur prior to enactment of the scenario, benefit of information provided to standardized patients presented conceptually in pre-briefing, and if time given to enact the scenario is adequate.

Specific aim 2: Explore the Extent to Which This Variability Relates to Opportunity for Students to Meet the Simulation Objectives.

Results indicated that between 2011-2014, five of the six simulation objectives for the EJ #3 scenario (p.74) had concepts (behavior and caregiver) that mapped to them. The objective of the learner discussing how to minimize stress to healthcare workers when caring for Alzheimer's disease patient was consistently delivered in 2012, 2013, and 2014. The current study concluded that nursing student learners did not have the opportunity to meet the objective that the learner will demonstrate appropriate physical assessment. While not empirically tested in this current study, it can be assumed that sophomore level undergraduate nursing students focused on the two foci of the EJ#3 scenario, worsening Alzheimer's disease and its affect on the caregiver, more so than on a physical assessment of EJ. Caregiver stress as a focus of the simulation had not been addressed in the previous two EJ simulations. The EJ scenario used in this research was the third and final one in a series that is enacted after the nursing student learners have participated in two previous scenarios. In the first scenario, EJ is assessed in the home with mild Alzheimer's disease. In the second scenario, EJ is once again assessed in the home

and has progressed to moderate Alzheimer's disease. In EJ episode #3, EJ has progressed to end-stage Alzheimer's disease and is completely dependent on her caregiver. The evidence between 2011-2104 supports that after mapping cues to concepts and mapping concepts to objectives, physical assessment was not a priority for the nurse student learner in the EJ #3 scenario.

This study was not able to conclude if objectives should be provided to the standardized patients prior to enacting the scenario. Similarly, this study does not conclude that there are a specific number of objectives that should be established for the nursing simulation. There is no consensus from the nursing simulation literature about how many objectives are needed (Groom, Henderson, & Sittner, 2013). Looping the concept maps to objectives allows the simulation designer to ensure appropriate cues are consistently being provided to the learner. Limiting the number of concepts may be an opportunity for the scenario designer to simplify the simulation by eliminating objectives that are not the focus of the scenario. Concept mapping to simulation objectives is an area that requires further research.

Summary

Standardized patient simulation for clinical judgment practice is dynamic, interactive, and improvisational. The EJ #3 standardized patient simulation scenario provided opportunity for nursing student learners to experience a high fidelity interaction with a standardized patient who is demonstrating end stage Alzheimer's disease and the family CG who cares for the Alzheimer's disease patient in the home. Extremely limited empirical evidence in nursing has examined the use of standardized patients and the NLN/JSF (Figure 1) subcomponents of simulation

design characteristics (objectives, fidelity, and cues). Evidence from the 25 video-recorded EJ #3 scenarios between 2011-2014 used in this current study supports the use of cue mapping to organize both specific and the range of manifest and latent cues presented in a nursing simulation scenario. Concepts emerged after cue mapping to link cues to simulation objectives. Concept mapping allows the simulation designer to present high fidelity opportunity to meet simulation objectives as well as focus the student nurse learner's ability and time on task to experience more nuanced components of care of Alzheimer's disease patients and their caregivers. Prioritization of concepts supports and enhances the simulation design characteristics of fidelity and cues by presenting a scenario that is consistent, learner-centered with realistic, appropriate, and achievable objectives.

Strengths and Limitations of Study

This was the first study to examine the variability of cues in standardized patients used in undergraduate nursing simulation and variability in cues presented in an effort to meet simulation objectives. The findings of this study propose a new understanding in the use of cue mapping as well as concept mapping to objectives in an effort to provide a high fidelity clinical experience for students. Based on the findings from this study, the contextually based understanding of the subcomponents integral to the simulation design characteristics can serve as a beginning platform for an observational measure of cues and fidelity, as well as other components and subcomponents of the NLN/JSF. However, there are potential limitations in the continued examination of mapping concepts to learning objectives. These limitations include over-simplifying the scenario dialogue based on concepts, scenarios that are not

challenging enough to the level of the learner, and potential de-emphasis on the dynamic interaction between participant and standardized patients in an effort to simplify concepts and/or simulation objectives. These limitations would need to be addressed in further studies.

This research study has several limitations. First, this study focused on some, but not all components of the NLN/JSF. Simulation experts Groom, Henderson, and Sittner (2013) conclude that the value of the NLN/JSF components and subcomponents remains undefined and unmeasured. Further research efforts are needed to define the components and subcomponents of the NLN/JSF to bring standardization to the nursing simulation process. Results of this study are not necessarily transferable to other components or subcomponents of the NLN/JSF. Of interest in this study were manifest and latent content presented by standardized patients. It remains unclear the role of cues and fidelity in the overall successful achievement of meeting simulation objectives. This lack of clarity from this study highlights the need for further empirical examination of the components and subcomponents of the NLN/JSF.

Second, I did not examine the preparation of the standardized patient or caregiver (either actor or student). The specific aims of this study focused on observing cue variability across iterations of a singular scenario. While there were character notes for EJ and the CG providing cues for case progression, it is unknown the background of the standardized patients in either role. Interview or survey of the standardized patients might have revealed student nurse learners' and/or standardized patient perceptions of the simulation scenario. However, I chose to not

include interview or survey of learners or participants, as those research tools would not have captured how cues are presented across iterations of a scenario.

In the role of the standardized patient student caregiver, there are likely cues provided during the scenario which reflect some personal or clinical experience the student has in working or knowing someone with AD (S. Sideras, personal communication, April 16, 2015). Simulation is learner-centered and relies on the iterative process based on what the nurse student learner participant or standardized patient knows about the clinical situation that is presented. Preparation, either personal or professional, of the standardized patient or student nurse caregiver may well lead to a gain in his/her understanding of the clinical information (in this case Alzheimer's disease and caregiver burden), and therefore the presentation of symptoms essential to organic evolution of the scenario. However, this assumption was not tested. This study may have been strengthened if the preparation of the standardized patient or caregiver (e.g., personal and/or professional experience with AD or being a caregiver) was also examined and/or measured to establish baseline understanding of the participants and learner's understanding Alzheimer's disease and caregiver stress. While a simulation designer may not be able to use the information (as a simulation is designed well before enactment), simulation facilitators might appreciate an understanding of how well the participants understand Alzheimer's disease and the impact it is having on the patient and caregiver.

Third, debriefing was not included in this study. This study sought to parse out the simulation scenario, isolating the interactions between the standardized

patients and the nursing student learner on cues provided during the scenario. Only two of the five components of the NLN/JSF were included in this study. This study concluded that between 2011-2014, five of the six simulation objectives were met by cues presented by the standardized patient during the enactment of scenario. This dissertation study does not conclude that simulation objectives are only met by cues provided during the scenario by the standardized patients and caregivers. Results indicate the benefit to scenario designers in the use of concept mapping to simulation objectives. What is unknown is how debriefing contributes to objectives being met after the simulation scenario was enacted. This is an area requiring further research.

Fourth, this study used secondary data, video-recorded. This posed a couple of limitations. First, the quality of the video was itself limiting in identifying behavior cues –i.e. the food on EJ that was one of the behavioral physical cues that did not come across clearly on the video (it was part of the character notes). Second, as this was observational research and video-recorded simulations were used in this study, I did not have the opportunity to interview or collect additional data from any of the simulation participants, whether they were the actors who played Ellen, the students who portrayed her caregiver, or student nurses who observed the scenario. This study may have been strengthened with qualitative data from the standardized patients and students assessing personal and/or professional experience with Alzheimer's disease and caregiver-related issues.

Suggestions for Nursing Education and Future Research

This research focused on cues presented by the standardized patient (both hired actor and student). Now that there is a preliminary evidence of salient cues and evidence on how to modify standardized patient framing, nursing simulation may benefit from expanding the NLN/JSF to include standardized patients as a subcomponent of simulation design characteristics. The original 2005 NLN/JSF, as well as the update in 2012, was designed with use of high-fidelity human patient simulators. Results from this study conclude that standardized patients can be used to help students meet simulation objectives. Therefore, inclusion of standardized patients within simulation design characteristics would allow for further growth and expansion of the NLN/JSF as a fundamental foundation guide for the design and implementation of high fidelity clinical simulation scenarios.

There has been significant effort to include high stakes testing in nursing education (Kardong-Edgren, Hanberg, Keenan, Ackerman, & Chambers, 2011). While the research on this practice is emerging, recommendations have been made to make simulation part of high stakes testing. Standardizing and streamlining standards for simulation facilitators are important steps for producing valid and reliable results with simulations for evaluation. Simulation experts point out that the NLN/JSF component of simulation design characteristics is essential to the standardization of scenarios for use in high stakes testing (Willhaus, Burleson, Palaganas, & Jeffries, 2014). The inclusion of concept mapping to objectives is a tool that can be used by simulation designers to achieve consistent, high fidelity scenarios for assessing student clinical knowledge.

It would be pertinent to study how does the participant nursing student learner respond to cues. The participant, occasionally referred to in this study as the student learner, is a component of the NLN/JSF model. To better understand the fidelity inherent in simulation, further understanding of the participant's ability to learn from cues is necessary. For example, nursing student learners were given an opportunity to practice communication techniques with a person experiencing aphasia. The standardized patient, indicating she had extreme difficulty in communication, provided cues, such as mumbling and repeating words. However, what was not measured was the response of the nursing student learner. A mixed-methods study including content analysis of cues delivered by standardized patients as well as interviewing the student learner participants would help build an understanding of how the nursing student learner responded to the patient with late stage Alzheimer's disease. Results from this type of mixed-methods study would be beneficial in understanding the clinical judgment used by students when faced with patients who have communication challenges. This clinical understanding of communication challenges would go beyond Alzheimer's patients to include patients who have had a stroke, those with anoxic brain injury, or patients with intellectual disability.

In effort to enhance nurse student learner's finding of CG role strain, it would be beneficial to study the preparation of the standardized caregiver as it relates to this topic, and if that preparation leads to knowledge gain. Student learners are exposed to caregiver role strain for the first time in EJ #3. Why the standardized patient student caregiver omitted financial strain and psychosocial/physical

concepts is unknown and reasons for its omission can only be hypothesized. Future nursing research might use a two-group, post-test comparison in which one group receives the character notes prior to enacting the scenario (one to three days prior), and a second group that reviews the character notes per the usual routine, in the pre-briefing. Upon completion of the scenario, standardized patient student caregivers, as well as participants and facilitators would be asked which group had the higher fidelity portrayal of a caregiver experiencing role strain. These results could enhance scenario designers' understanding of fidelity and the contribution of preparation for the standardized patient in enacting caregiver burden.

A longitudinal study would be useful in measuring knowledge retention of Alzheimer's disease and caregiver burden. While it would be difficult to parse out the specific role that nursing simulation played on knowledge retention, it would be possible for researchers to compare students who had clinical exposure to patients with Alzheimer's disease and their caregivers and those who participated in a simulation scenario that focused on elderly adults with Alzheimer's disease (and perhaps also a group that had both the clinical and simulation experience). Measuring students knowledge pre-clinical and/or simulation experience, and then following them through the transition from student nurse to professional nurse and measuring their knowledge of Alzheimer's disease and caregiver burden could be seminal work in solidifying the pedagogical role of undergraduate nursing simulation in life long nursing knowledge and clinical retention.

Conclusion

A significant gap in the literature exists related to the NLN/JSF component of simulation design characteristics and how they are used collectively and individually in nursing simulation. This is the first study of its kind examining the component of simulation design characteristics, and specifically, the subcomponents of fidelity and cues provided by standardized patients allowing for opportunity to meet simulation objectives. Simulation research in nursing has focused on primarily on the outcomes (Howard, Englert, Kameg, & Perozzi, 2011; Jeffries & Rizzolo, 2006; Kardong-Edgren, Lungstrom, & Bendel, 2009; Smith & Roehrs, 2009;) rather than the process of simulation. There is also emerging research on the NLN/JSF component of debriefing (Neill & Wotten, 2011). This research study concluded that the use of a standardized patient is relevant in the use of NLN/JSF in simulation scenario design and implementation and proposes that expansion of the NLN/JSF to include standardized patients as a subcomponent of simulation design characteristics.

It remains necessary to study the effects of standardized patients in simulation on nursing student's developing clinical judgment. Students may have limited resources in there undergraduate baccalaureate nursing education; whether it be lack of clinical sites, limited geriatric-focused clinical faculty, or limited time for clinical or simulation experience. Research from the National Council of State Boards of Nursing (2014) concluded that simulation could be effectively substituted for 50 percent of traditional clinical experience in all core courses across the undergraduate nursing curriculum and that state boards of nursing must ensure that colleges and universities provide a realistic (or as I have defined a high fidelity) simulation environment. The practice of mapping student resources to simulation

opportunities will be of utmost importance for the future of nursing education. There is no guarantee that a gero-focused faculty member will be able to participate in either design or enactment a simulation scenario. This study concludes that when concepts are mapped to objectives, students are afforded opportunity to meet the objectives, regardless of clinical expertise of the simulation facilitator.

The ability to replicate high fidelity clinical practice in simulated environments as a teaching pedagogy, along with the ability to increase fidelity with the use of standardized patients, continues to require further investigation. Previous geriatric-focused, standardized patient research established the importance of simulation centers to provide clinical experiences for geriatric-focused content, such as Alzheimer's disease in nursing programs, has strong potential (Paquette et al., 2010). Concept mapping to simulation objectives is an opportunity to standardize and allow for reproducibility of nursing simulation scenarios. From a simulation standpoint, reproducibility of the scenario design and implementation legitimatizes simulation as an education tool (S. Sideras, personal communication, May 19, 2015). From a pedagogical standpoint, the effort to standardize simulation design with the use of concepts to meet simulation objectives will continue to evidentially support simulation's ability to build and enhance clinical judgment of undergraduate baccalaureate nursing students.

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Appendix A

Standardized Patient in Simulation Literature

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Becker, Rose, Berg, Park & Shatzer (2006)	Evaluate therapeutic communication and knowledge and evaluation of depression.	Pilot study: used a pretest-posttest RCT Intervention was use of a SP. Subjects: 147 senior nursing students Replication: Sessions of 8 to 10 students until all students participated	Not reported	Cues: SPs trained to ask interviewer to 'keep a secret', become tearful, mention SI, and express worry about "what was going to happen".	Communication Knowledge Test -Student Self-Evaluation of SP Encounter -Standard Patient Interpersonal Ratings (validated stated) -Post-encounter checklist (completed by SPs)	No sig. differences between control and intervention group on pre/post test CKT. Researchers surprised by post-interview debriefing effectiveness as educational tool	Researcher created measures; no report of reliability or validity of the checklists -Multiple t-tests used to used to analyze pre/post test scores between groups

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Bornais, Raiger, Krahn & El-Masri (2012)	Examine effectiveness of using SP in improving health assessment skills	Comparative, randomized multisite Subjects: 108 1st year students (84 university and 24 community college) Replication: not reported	Not reported	Cues: All SPs were provided a script to ensure consistency and reliability. -Various SPs used.	Pretest: Multiple choice test with 100 questions Posttest: Multiple choice test with 150 questions Randomized OSCE with 48 checklist competencies	Students who practiced with SPs performed better on OSCE than control group who practiced on peers; however no statistical difference in theoretical knowledge	No mention of reliability or validity of multiple choice tests

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Ker, Mole, & Bradley (2003)	Develop interprofessional simulated ward environment for nursing and medical students	Pilot study Subjects: 59 junior nursing students and 92 fifth year medical students Replication: Repeated 8 times over a two- week period until all students participated.	-Work collaboratively in a simulated work environment -Integrate clinical skills in a reality-based setting -Jointly prioritize care of SP -Socialize inter-profession-ally -Compile collaborative health records	12 SP's used: trained in history taking, communications skills, and physical exam. Cues: Scripts based on common, acute medical problems (no specific cues reported)	Semi-structured questionnaire Observers report of simulation	Themes emerged: educational environment, organizational issues, interprofessional aspects, and communication	Interrater reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Luctkar-Flude, Wilson-Keates, & Larocque (2011)	Compare HFS, SP, and community volunteers (CV) and students performing respiratory assessments -CVs are community members who were not provided a script prior to enacting scenario	Quasi-experimental Subjects: 44 2nd year students CV=16 students HFS=14 students HPS=14 students Replication: Not reported	Not reported	Cues: Not reported	Health Assessment Educational Modality Evaluation (HAEME) to assess self-efficacy and satisfaction (reliability reported)	Performance behaviors significantly greater with HFS No significant differences in self-efficacy across 3 modalities (HFS, community volunteer, SP).	Relative small sample size Students had previous experience with CV

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
McWilliam & Botwinksi (2009)	Examine specific aspects of the nursing OSCE in an effort to develop a reliable and valid tool for evaluating selected students' clinical competencies.	Assessment design Subjects: 50 senior students, 3 SP, 3 faculty/clinical consultant Replication: Not reported	Not specifically discussed, other than clinical skills and critical thinking of nursing students.	Cues: Not reported	Students: Post-encounter Likert-type questionnaire SP: Researcher developed questions; evaluate students using Nursing Interview Interaction Scale and Specific Case Content Checklist Faculty: Researcher developed questions	Students: Appreciate authenticity and value OSCE SP: Uneven portrayal of scenarios due to differences in knowledge and prior experiences; use of professional nurses may weaken OSCE Faculty: Scenarios require content experts from all nursing disciplines; ideally OSCE stations tested for interrater reliability and content validity.	Questionnaire: no reliability/validity reported SP: Reliability/validity not reported on Interaction Scale -Content List: not psychometrically tested

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Paquette, Bull, Wilson & Dreyfus (2010)	Complex elder adult simulation using improvisational actors	Survey Subjects: 50 junior students Replication: 2 groups of 25 students performed simulation (offered over 2 semesters); no other details reported	-Perform appropriate assessment of cognitively impaired elder -Consider other health conditions in making assessments and planning intervention -Intervene to reduce agitation - Discussed prior to simulation	Improv actors recruited from retired faculty and alumni (with understanding of geriatric issues) -Two training sessions prior to simulation with students Cues: Students provided cues to integrate physical assessment and interventions with therapeutic communication	Six survey questions developed by faculty assessing comfort level in communicating with elders and knowledge of assessment for delirium	Statistically significant increases in comfort in communicating with elders and knowledge level of delirium	No reliability/validity reported; non-psychometric measure used -According to DeVon (2007), the validity and reliability of tools used in nursing research is necessary for confidence in study findings, and credible psychometric data are a perquisite for credibility in results. -No control group

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Rentschler, Eaton, Cappiello, McNally & McWilliam (2007)	Evaluate an Objective Structured Clinical Evaluation (OSCE) to assess clinical competencies for nursing students. stated	Descriptive, pilot study Subjects: 49 senior students Replication: Groups of 8 students rotated through 3 of 6 simulation stations over two days in two different locations; no other details reported	Not reported	SPs received 3-4 hours of training Cues: Not reported	10-item checklist tool specific to each of the 8 case studies (completed by SP) SP: Nursing Interview Interaction Scale (NIIS) (adapted from Arizona Clinical Interview Medical Rating) (reliability/validity cited, not reported) Students: Post-OSCE evaluation tool, Likert-type scale	Case studies found to be realistic, students felt confident in knowledge, interpersonal skills, and clinical skills after OSCE	Students post-OSCE evaluation: no reliability/validity reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Robinson-Smith, Bradley & Meakim (2009)	Develop and evaluate nursing student's satisfaction with an SP psychiatric encounter.	Descriptive design -Postest with qualitative comments Subjects: 112 students Replication: Groups of 6 to 8 -Data collected over 3 semesters	Use mental status exam elements to assess symptoms, history, and emotions of SP -Observe patient's behavior during interview -Accept and give feedback about SP experience	Numerous SPs utilized -Provided with 2 hours of prep Cues: Reinforcement of questions from SP during interview	Student satisfaction and self-confidence adapted from NLN Student Satisfaction and Self-Confidence in Learning Survey SP: Observation Form	Reported an increase in self-confidence, satisfaction with SP experience	Student: reliability/validity not reported SP: No interrater reliability reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Shepherd, McCunnis, Brown, & Hair (2010)	Compare students' performance in relation to each other using a SP and a high-fidelity manikin to measure and assess vital signs	Longitudinal study, quantitative, quasi-experimental, multisite Subjects: 28 3rd year students Replication: Data collected between 1/2008 and 2/2009; no further information reported	Not reported	Cues: Not reported	Validated and piloted assessment tool to evaluate performances' within the cognitive, motor and affective domains (specifics not reported). -Test given upon completion of scenario and following 6 months of clinical practice Open ended questions	Mean scores for the 3 domains were similar between 2 groups. -SP group: scored higher on motor and affective domains Anxiety and confidence did not appear to affect their performance	Small study size
Webster, Seldomridge, & Rockelli (2012)	Help students communicate with and care for an individual with PTSD	Survey Subjects: 14 students Replication: Each student had a 15 minute session with SP	Not reported	SPs coached to portray PTSD patients Cues: Not reported	Researcher-developed 15 -tem Likert-type survey to assess realism, communication, meet course objectives, reduce anxiety	Overall rated by students to be positive learning experience	Reliability/validity not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure (s)*		
Yoo & Yoo (2003)	Compare the effectiveness of two teaching methods (traditional mannequin and SP) on clinical competence	Nonequivalent control group, quasi-experiment Subjects: 76 students Replication: Study took place over two semesters. SP group (n=36) divided into three groups to practice on 3 SP's -Each student performed nursing skills on SP (invasive skills done on mannequin)	Not reported	SPs recruited from hospital; 3 nurse's aides volunteered Cues: Not reported	Clinical judgment: evaluated by written test Clinical and communication skills: evaluated with checklists -One for instructors; one for SP	Students in SP group scored significantly higher clinical judgment, skill performance, and communication skill scores	-Validity and reliability not reported -Multiple repeated t-tests to analyze the difference between the two groups.

Appendix B

Dynamic HPS in Simulation Literature

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Alfes (2011)	Evaluate and compare effectiveness of simulation versus traditional skills laboratory in promoting self-confidence and satisfaction	Quasi-experimental Subjects: 63 1st semester students Replication: 6 lab sessions; no other details reported	Not reported	Cues: Prompts provided by graduate teaching assistant to aid is assessing and delivering comfort care measures to patient	NLN Student Satisfaction and Self-Confidence in Learning (reliabilities reported)	Students participating in simulation were statistically more self-confident than those in the control group There was not a statistically significant difference in satisfaction with learning between the two groups Students with higher levels of self-confidence had higher satisfaction with learning	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Alinier,Hunt, & Gordon (2004)	Study simulation as educational tool	RCT Subjects: 120 nursing students Replication: Two OSCE sessions are identical -no other details reported	Not reported	Cues: Not reported	Student confidence questionnaire Identical pre/post OSCE used a summative assessment and compare groups on competence	Students from the experimental group improved OSCE scores by 6.7 % over control group.	No validity/ reliability reported on questionnaire
Blum, Borglund, & Parcells (2010)	Examine the relationship between simulation and student self-confidence and clinical competence.	Quasi-experimental, quantitative study. Subjects: 53 junior BSN students Replication: Not reported	Not reported	Cues: Not reported	Select items focusing on self-confidence and clinical competence based on Lasater Clinical Judgment Rubric (LCJR) (Chronbach's given, validity stated)	Results indicated student self-confidence increased regardless of traditional or simulation lab experiences	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Burns, O'Donnel & Artman (2010)	Hands-on learning approach to facilitate and understanding of the nursing process	Pre/post test Subjects: 114 1st year undergraduate nursing students Replication of scenario: Simulated patient experience changed for each student group (12 total scenarios)	Not reported	Cues: Included, but not described	-Pre/post test of knowledge (selected by consensus of expert faculty and clinician panel) -Pre/post attitude (adapted from Health Professional Simulation Education Assessment Tool	-Significant gain in knowledge -Improvement in attitude in 6 of 14 survey items	Reliability/ validity not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Dillard, Sideras, Ryan, Carlton, Lasater & Siktberg (2009)	Evaluate students' clinical judgment using Lasater Clinical Judgment Rubric (LCJR); perceptions of transference from simulation to clinical setting	Survey Students: 68 junior students Replication: Not reported	-Recognize how body position affects breathing in CHF -Value of fluid volume assessment -Respond to patient anxiety & recognize impact on resp. distress -Describe importance of drug treatment plan -Importance of lab vales (e.g. BUN) -Communication	Cues: Related to congestive heart failure (e.g. "I hate my water pill")	Based on 6 objectives; Likert-type scale on understanding of concepts Student journals reflecting on process	Most students "mostly got" or " totally got" the concepts Journals: Faculty able to identify students' clinical judgment from the written work, identify performance deficits and strengths and guidance on how to modify students' future learning goals	Validity/ reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Elfrink, Kirkpatrick, Nininger & Schubert (2010)	Knowledge improved and retained following simulation	Pretest/posttest Subjects: 84 2nd and 3rd year prelicensure nursing students Replication of scenario: 2 different scenarios included; no other details reported	Not reported -Stated by researchers "if objectives were not met, students switch roles and repeat simulation."	Cues: not reported	Two to four pre and post test questions based on NCLEX-RN study questions. Ge of term final examination	Student scores improved posttest after mastectomy simulation; also concluded students who answered correctly on both posttest and final exam did significantly better than guessing.	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Foster, Sheriff & Cheney (2008)	Determine effectiveness of nonfaculty RNs in facilitating simulation; measure student confidence, satisfaction, and learning when compared to lecture	Prospective, quasi-experimental, Non-randomized controlled, multisite Subjects: 409 junior and senior students Replication: Not reported	Not reported	Cues: "NF-RN's…injected cues and prompts when needed…facilitated active learning."	Self-confidence: NLN 8-item measure (reliability provided) Satisfaction: NLN 5 item measure (reliability provided) Learning: 10 item investigator-constructed posttest (significance provided) Effectiveness of NF-RN: Criteria from Jeffries' model of simulation and Medical Education Technologies Inc. (METI) simulation guide	Results indicated higher self-confidence, satisfaction, and learning in simulation group. NF-RN's helpful and resourceful during simulation	Effectiveness of NF-RN: no reliability/ validity provided

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Gantt & Webb-Corbett (2010)	Integrate patient safety instruction into simulation experiences	Prospective, randomized Subjects: 194 senior students Replication: If student received a score of 80 or less on competency checklist, they were required to complete a second scenario; no other details reported	Not reported	Cues: Not reported	Competency checklist	48 % of students omitted hand washing, patient identification or both	Content validity established but not provided

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Grant, Moss, Epps, & Wats (2010)	Evaluate the effect of videotaped-facilitated simulator practice on clinical performance	Pilot, quasi-experimental Subjects: 40 nursing students Intervention: Debriefing session aided by videotape of the simulation Replication: Groups of 5-6 students rotated through simulation; used two scenarios until all students participated	Not reported	Cues: Not reported	Observational data tool adapted from the Clinical Simulation Tool; validated by faculty with expertise in conducting and evaluating simulation Five faculty score student behavior (interrater reliability ranged .71 to .94)	No statistically significant difference on total scores between two groups The intervention group had higher mean score on the majority of desired simulation behaviors	Use of non-psychometric measure

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Ironside, Jeffries, & Martin (2009)	Extent to which experiences with multiple-patient simulation improves students' patient safety competencies, and student factors related to outcome.	Prospective, pre/post test Subjects: 67 students in final semester; from 8 Indiana University schools Replication: Each student group completed one of four different scenario for the first and second simulation until all students participated	Not reported	Cues: Due to desired outcome of patient safety, incomplete or conflicting information at specific times provided during the scenario.	-Measure of ambiguity intolerance (MSTAT-I) (reliability/validity reported) -Dichotomous measure of student's knowledge, skills, and attitude (Chronbach's alpha provided)	Safety competencies improved with experience in multiple-patient simulations. No correlation between student factors and achievement of patient safety competencies.	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Jenkins, Blake, Brandy-Webb & Ashe (2011)	Examine strategies designed to focus on patient safety principles.	Prospective Subjects: 162 junior nursing students Replication: All students rotated through skills, simulation, and critique laboratory participating in two scenarios; no other details reported	-Recognize patient safety standard violations -Identify the consequences of patient safety errors -Relate patient safety standards to the role and function of the professional nurse	Cues: not reported	Form completed by critique group focused on communications and safe practices. Debrief session to discuss consequences of patient safety errors.	Patient safety errors readily recognized by critique groups. Debriefings led to opportunity to discuss potential sentinel events related to wrong med/dose.	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Jensen (2012)	Evaluate clinical reasoning	Descriptive Subjects: 88 associate and baccalaureate students Replication: Completed over 2 semesters, four patients with each scenario -Each semester, some students required a third eval, and participated in a third scenario opportunity; same patients as 2nd offering	Not reported	Cues: Faculty available to portray healthcare provider -Family member portrayed by non-faculty with info about simulation (specifics not provided)	Lasater Clinical Judgment Rubric (LJCR) (reliability reported for this study, not Lasater (2007)) -completed by faculty and students Self-evaluation	Majority of students demonstrated adequate levels of clinical reasoning on first attempt Students rated themselves higher than what faculty rated them (not significant)	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Kaplan & Ura (2010)	To increase student confidence and enhance student ability to safely and effectively prioritize, delegate, and implement care for numerous patients.	Post simulation survey Subjects: 97 senior students Replication: Students divided into groups of 10-12; rotation through simulation until all students participated	Not reported	Cues: Not reported	Survey to evaluates simulation based learning experience	Increased understanding and confidence of prioritizing and delegating care. Researchers concluded incomplete assessments led to delayed or missed cues; causing patients problems that could have been avoided.	No validity/ reliability reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Kardong-Edgren, Lungstrom, & Bendel (2009)	Compare student perceptions of simulation experiences over time	3x3 factorial, repeated measures, multisite design 3 groups: control group, VitalSim mannequin, SimMan mannequin (faculty as voice of patient) Subjects: 140 BSN students on 3 campuses Replication: Scenarios run back-to-back and side-by-side continuously for two days until all students participated	-Recognize S/S of heart attack -Assess patient for acute coronary syndrome (ACS) -Use ACS algorithm to treat and triage patients -Discussed prior to simulation	Cues: Instructor as formative role; providing cues and prompts to guide learning experience	15 multiple choice questions, based on AHA algorithm for ACS; also questions from med/surg course test bank Posttest 1 done 2 weeks after simulation; Posttest 2 done 6 months after simulation Satisfaction measured with faculty designed 6 item Likert-type tool	Results in simulator means (VitalSim & SimMan) were non-significant Posttest 1 mean increased significantly over pretest Posttest 2 mean decreased significantly from pretest 1 No significant difference in satisfaction by simulator type.	Satisfaction measure: no reliability/ validity reported Multi-site study

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Lasater (2007)	Effects of HFS on development of students' clinical judgment	Retrospective, focus group Subjects: 48 junior students Replication: Two groups of 12 for 2.5 hours/week	Not reported	Cues: Not reported	Interview	Codes emerged: strengths and limitations of HFS, paradoxical nature of simulation, desire for more direct feedback, values of students' connections to others, general recommendations for better facilitation of learning	
Liaw, Chan, Scherpbier, Rethans, & Pua (2011)	Explore simulation experience and how it transfers to clinical performance	Qualitative, critical incident technique (CIT), content analysis Subjects: 15 3rd year nursing students Replication: Not reported	Objectives mentioned but not detailed	Cues: Not reported	Interviews	Themes emerged: memory, mnemonics as transfer tool, recognizing similar situations, emotional response, realism, self-directed learning	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
McKeon, Norris, Cardell, & Britt (2009)	Compare the effectiveness and efficiency of computer-based versus manikin-based simulation to facilitate student learning in patient-centered care.	Pilot study, pre/posttest case study Subjects: 53 BSN students Replication: Groups of 8 participated in one of 6 different scenarios until all students participated	Not reported	Cues: Simulation director used scripted scenario to guide interaction and cues between student actors, human simulator and other characters	Patient centered care competencies: consent, pain treatment, patient values, conflict resolution, decisional conflict, boundary recognition Each scenario followed by four item decision point to test knowledge of patient-centered care	Significant improvement in overall patient-centered care competency score; no differences found between computer or manikin-based.	Knowledge test: Content validity established; no reliability reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Miller, Leadingham, & Vance (2010)	Determine students' perception in HPS to meet course objectives	Descriptive Subjects: 43 associate degree nursing (ADN) students Replication: Random assignment to groups of 4-5 and randomly assigned simulation roles. Simulation scenario performed until all students participated	Discussed, but not reported	Cues: Not reported	21 item survey developed by Kuznar (2007) based on a survey by Feingold et al. (2004) to assess for simulation satisfaction. Faculty developed post-HPS survey to assess student's reflections on simulation	Results indicate that students were satisfied with using HPS	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Morrison, Scarcelle, Thiebeault, & Walker (2009)	Conduct common clinical simulation labs in an effort to provide an opportunity for all regional students to meet in an interactive, collaborative environment.	Mixed methods, pre/post test experimental design study, nonprobability convenience sample. Subjects: 33 1st year students Replication: Groups rotated through simulation until all students participated	Nursing care of the mother and newborn during the antepartum, labor and delivery, and postpartum phases.	Cues: not reported -Faculty led scenarios	Instructor developed 25-item multiple choice test to measure cognitive gains in objectives of simulation (content validity confirmed) Six open-ended questions	Increase in nursing knowledge Themes emerged: benefit of meeting and connecting with classmates, limited time for workshop, benefits of simulation	Reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Parker, McNeill, Palayo, Goeu, Howard, & Gunter (2011)	Examine student learning outcomes between traditional and hybrid (part simulation, part clinical)	Pilot, quasi-experimental Posttest Subjects: 41 students Replication: Not reported	Mentioned, but not provided	Cues: Not reported; researcher state interest in interaction between students and CTA's (baccalaureate trained faculty hired to work in simulation lab)	Course grades used to measure knowledge acquisition in the a Child Health course; based on NCLEX-RN type multiple choice exam Simulation Design Scale (SDS) (content validity, reliability provided) Educational Practices in Simulation Scale (EPSS); measures 4 educational practices: active learning, collaboration, diverse ways of learning, and high expectations	No statistical significance in course grades between two groups SDS: Design of simulation important in regards to student learning EPSS: Four educational practices deemed important by students but not highly demonstrated by faculty SSSCLS: Students satisfied with simulation experience -Half reported increase in confidence skills	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Prescott & Garside (2009)	Evaluate simulation strategies for adult branch nursing students	Questionnaire Subjects: 45 2nd year students Replication: Simulation sessions repeated to allow large cohort to be split into small groups; no other details reported	Not reported	Cues: Not reported	Researcher-developed Likert-type scale questionnaire to assess knowledge, understanding, skills, and confidence Open ended questions	Quant: Students reported increased skill and confidence after simulation Qual: Five themes emerged: simulation as learning method, theory to practice, confidence building, individual support and feelings	No reliability/ validity reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Richards, Simpson, Aaltonen, Krebs, Davis (2008)	Preparing students for their first home visit and to determine comfort and confidence levels	Exploratory, convenience Pre/posttest Subjects: 115 students Replication: Groups of 2 to 4 to complete simulation (duration not reported)	-Not reported	Cues: Notecards provided to students to help standardize experience among groups -Faculty provided interaction	Pre/post simulation survey; face validity assessed by investigators -Evaluated students' confidence in ability to enter/exit client's home and document Open ended questions to assess for learning expectations/ lessons learned	Significant differences in mean scores in students' confidence	Reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Rush, Acton, Tolley, Marks-Maran, & Burke (2010)	Evaluate simulation as a learning and teaching strategy and identify its relationship to practice learning	Mixed-method, case study Subjects:37 1st and 148 3rd year students Replication: Not reported	Not reported	Cues: Not reported	Questionnaire, focus groups, field diaries, digital recordings, observations	Themes: value of simulation as learning experience, relationship between simulation and real practice, value of instant and ongoing feedback, simulation and the theory-practice gap	Interrater reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Schlairet & Pollock (2010)	Explore the effects of simulated clinical experiences on undergraduate students' knowledge acquisition	Intervention study with a 2x2 crossover design and equivalence testing Subjects: 74 students Replication: Completed over 2 semesters. Students' completed pretest, were either in clinical or simulation, completed posttest #1, switched group, completed posttest #2.	Stated but nor detailed	Cues: Not reported	25 multiple choice random questions chosen from NCLEX-RN review book (reliability reported to be acceptable but not provided)	t tests reveal significant knowledge score differences from pretest to posttest #1 to posttest #2 -Simulated traditional group had lower pretest scores, showed steeper positive incline when compared to traditional clinical group.	No validity reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Schoening, Sittner & Todd (2006)	Examine student's perceptions of a preterm labor simulated clinical experience	A non-experimental pilot evaluation Subjects: 60 junior students Replication: Groups of 7 to 8 students participated until all students participated	-Identify s/s of preterm labor (PTL) -Assessment skills for PTL patient receiving magnesium sulfate - Demonstrate critical thinking skills with a PTL patient - Psychomotor and technical skills to care for PTL patient -Student perceptions of simulation -Increased confidence in clinical setting - Discussed prior to simulation	Cues: Clinical instructor provided "coaching" and "refereeing" in an effort to cue students (examples not reported)	10-item evaluation developed by faculty authors to measure if student's felt they had met objectives and perceptions of simulation experience -peer reviewed -Also included narrative comments (results validated by faculty experts in qualitative research)	Quant: Mean for objectives met 3.64; mean for perceptions was 3.75 Qual: Themes that emerged: skills, hands-on-learning, practice, confidence, self-efficacy, nonthreatening environment, critical thinking, realism, knowledge, review, decision making, value, transferability, satisfaction, teamwork, communication, preparedness	No validity/ reliability reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Sears, Goldsworthy & Goodman (2010)	Reduce medication errors (actual and potential)	RCT, posttest only Intervention: replace some clinical hours with simulation-based experience Subjects: 54 2nd year students Replication: Groups of 5 rotated through simulation until intervention group students had all participated	Medication administration	Cues: Not reported -Faculty led simulations	Researcher developed survey of actual and expected medication errors; -Face validity confirmed by several experts. -Content validity assured through in-depth examination of research in field -Interrater reliability established through information session with clinical instructors	Students in clinical placement generated fewer medication errors if they had prior simulation-based experience	

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Sinclair & Ferguson (2009)	In combination with classroom activities, what is affect of simulation on students' perception of self-efficacy and satisfaction, effectiveness and consistency with learning styles.	Mixed methods, pre/posttest, multisite Subjects: 250 2nd year students (intervention group at one site, control group at another) Replication: Students divided into 6 groups simulation repeated until all groups participated	Not reported	Cues: Faculty facilitators prompted students (specifics not reported) -Topics used for simulation: adult health, mental health and child health	Modified Baccalaureate Nursing Student Teaching-Learning Self-Efficacy questionnaire (reliability reported) -Content validity for modified tool verified by two nursing experts (reliability not reported) Researcher-developed satisfaction questionnaire (for all subjects) Intervention group-reflective review	All but one simulation resulted in significant differences in pre- and posttest scores Qual findings: Themes included: peer learning opportunities, reinforcement of knowledge, improved confidence	Researcher developed questionnaire: reliability/ validity not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Sullivan-Mann, Perron & Fellner (2009)	To test whether exposing nursing students to three additional simulation scenarios, in addition to the curriculum's usual two scenarios, would lead to incrementally increased critical-thinking scores.	RCT, 2 (groups) x2 (times) mixed model design, pre/posttest Subjects: 53 ADN students Replication: All students participated in simulation in groups of 7-8; for intervention group, students were randomly assigned from these groups of 7-8. -All intervention subject groups completed scenario until all students participate	Not reported	Cues: Not reported	Health Sciences Reasoning Test (HSRT)	Posttest-higher scores for both groups -Experimental group found to have significantly more correct test answers than at pretest	Validity and reliability stated but not provided

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Traynor, Gallagher, Martin & Smyth (2010)	Perceived experience of students using a human fidelity patient simulator	Evaluative Subjects: 90 3rd year adult branch students Replication: 3 different scenarios	-Not reported	Cues: Not reported -Nurse lecturer interacted with student as patient via microphone	Researcher-developed 20-item Likert-type questionnaire to assess student's experience around simulation activities Open ended question	Results reported that students felt simulation: developed organization skills, clinical skills, diagnostic skills, gave confidence, was a useful learning experience Qual: Five themes emerged: reality of simulation, benefits of active learning, opportunity to experience as autonomous practioner, importance of theory to practice, and benefits of working in a safe environment.	Validity/ reliability not reported

Author/Yr	Purpose	Design	Simulation Features			Outcome	Concerns
			Objectives	*Cue*	*Measure(s)*		
Warland (2011)	Develop nursing students' work organization and people management skills and an evaluation of the simulation exercise.	A paper-based evaluation survey. Subjects: 125 students Replication: Groups of 10-13 students participated in 3 simulation scenarios; students played role of patient, nurse, and "extra". -Once assigned to scenario, group enacted it 3 times	Not reported	Cues: Each patient was given a cue card containing timed triggers (e.g. wait 10 minutes, then become agitated). -Faculty provided cues if necessary	Researcher-developed 13-item Likert-type survey to evaluate students' perceptions Follow-up survey 2 months after simulation while in clinical placement	Students agreed that simulation aided in understanding of systems and organization of nursing care Follow-up survey: low response rate (37%). -Reported that simulation helped with organization in clinical placement	Validity/ reliability not reported

Appendix C

Variables Measured in SP and Dynamic HPS Research

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Alfes (2011)		X		X			
Alinier, Hunt & Gordon (2004)		X					
Becker, Rose, Berg, Park & Shatzer (2006)	X				X		
Blum, Borgland & Parcells		X					
Bornais, Raiger, Krahn & El-Masri (2012)	X					X	
Burns, O'Donnel & Artman		X					

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
(2010)							
Dillard, Sideras, Ryan, Carlton, Lasater & Siktberg (2009)		X	X	X			
Elfrink, Kirkpatrick, Nininger & Schubert (2010)		X					
Foster, Sheriff & Cheney (2008)		X		X			

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Gantt & Webb-Corbett (2010)		X					
Grant, Moss, Epps & White (2010)		X					
Ironside, Jeffries & Martin (2009)		X		X			
Jenkins, Blake, Brandy-Webb & Ashe (2011)		X	X				
Jensen (2012)		X		X			
Kaplan & Ura (2010)		X					

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Kardong-Edgren, Lungstom & Bendel (2009)		X	X	X			
Ker, Mole & Bradley (2003)		X	X			X	
Lasater (2007)		X					
Liaw, Chan, Scherpbier, Rethans & Pua (2011)		X					
Luctkar-Flude, Wilson-Keates & Larocque (2011)	X	X					

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
McKeon, Norris, Cardell & Britt (2009)		X				X	
McWilliam & Botwinksi (2009)		X	X				
Miller, Leadingham & Vance (2010)		X					
Morrison, Scarcelle, Thiebeault & Walker (2009)		X	X				

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Paquette, Bull, Wilson & Dreyfus (2010)	X		X		X		
Parker, McNeill, Palayo, Goeu, Howard & Gunter (2011)		X					
Prescott & Garside (2009)		X					
Rentschler, Eaton, Cappiello, McNally & McWillaim (2007)	X						
Richards, Simpson,		X					X

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Aaltonen, Krebs & Davis (2008)	X		X		X		
Robinson-Smith, Bradley & Meakim (2009)							
Rush, Acton, Tolley, Marks-Maran & Burke (2010)		X					
Schlairet & Pollock (2010)		X					
Schoening, Sittner & Todd (2006)		X		X			

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Sears, Goldsworthy & Goodman (2010)		X	X				
Shepherd, McCunnis, Brown & Hair (2010)		X					
Sinclair & Ferguson (2009)		X		X			
Sullivan-Mann, Perron & Fellner (2009)		X					
Traynor, Gallagher, Martin & Smyth (2010)		X					

Authors	Fidelity		Objectives	How cues are provided			
	SP	Dynamic HPS		Faculty/facilitator	SP	Embedded in script	Use of notecards
Warland (2011)		X					X
Webster, Seldomridge & Rockelli (2012) Yoo & Yoo (2003)	X	X					

Appendix D

Educators Synopsis for Ellen Jones

PATIENT NAME:	Ellen Jones	MEDICAL RECORD: 012007MK0075
DATE OF BIRTH:	1/1/1934 Age 76 Sex F	

SCENARIO TITLE:Client with moderate to severe dementia, Alzheimer's Disease

PATIENT ACUITY:Physically stable; emotionally becoming unsafe at home

ABSTRACT:This is part 3 of 3 simulation scenarios designed to provide the student with an opportunity to provide care to a patient with Alzheimer's disease.

Students are expected to participate as RNs providing home care assessments. They are also expected to participate as caregivers in the roles of spouse/siblings or daughter, in order to better understand the caregiver perspective on both the disease and the information provided by the healthcare team.

LEARNING OUTCOMES:

In simulation #3 the patient is demonstrating the later stage of Alzheimer's. The RN interacts with the patient and the caregiver to conduct the clock draw test and then re-investigate the level of caregiver role strain.

Through participation in this simulation the learner will have the opportunity to practice:

1. Demonstrate appropriate mental status examination, including mini-mental status examination
2. Demonstrate appropriate communication techniques
3. Demonstrate focused physical assessment
4. Identify signs/symptoms of late stage Alzheimer’s disease
5. Identify criteria that reflect a need for placement in a SNF
6. Discuss how to minimize stress to healthcare workers when caring for Alzheimer's patient

Appendix E

Caregiver Notes
Ellen Jones Case #3 Moderate-severe dementia

Husband or sister character notes: You are really feeling overwhelmed and concerned about Ellen's problems

She's leaves the house without telling me. She has wandered off 5 or 6 times. I've had to enlist the neighbors' help to find her. One time I even had to call the police. They found her about a mile away. I'm so afraid something will happen to her. I sleep out in the living room now so that I'll hear her at night if she tries to get out.

I feel like I have to keep my eyes on her all the time now

I can't get her to take a bath or shower, she won't change her clothes. She sleeps in the same clothes. I never know when she's going to slap at me when I try to help her get dressed or change her clothes. She wets herself sometimes. I try putting those diapers on her and she just fights me, or rips them off. Sometimes at night, she takes all her clothes off, wets the bed and then she complains that she's cold.

She's just so different from the sweet woman (I married)
(who was my sister).
Her daughter wants me to put her in one of those Alzheimer's places, but I can't see how I could leave her there. When we married, I promised for better or worse. We've been married 25 yeas now. I'm the one who should be taking care of her. I don't mind changing her diapers. You get used to it. It's not so bad.

I tried finding someone who could come in and help, but they're so expensive.

It's all I can do every day just to take care of her and try to keep her safe.

<u>Caregiver stress index- Yes to all the questions.</u>

Yes, my sleep is disturbed. I'm so tired. I'm up and down all night. When she gets up at night, I have to get up also because I never know what she might do.

Yes it is confining, I have no time just for myself.

Family adjustments. Her son rarely calls. Of course, he works full-time and has the two teenagers. He hasn't been the same since he got divorced. He doesn't think Ellen has any problem

Yes emotional adjustments, Ellen was always such a sweet woman, now she just gets angry, no reason I can see.

Yes, some behavior is upsetting. She's been accusing the housekeeper of stealing her clothes and jewelry.

Appendix F

Ellen Jones Notes
Ellen Jones Case #3 Stage Three Alzheimer's Dementia

Appearance: Hair very askew; only one earring left – all others gone. Buttons undone; mascara under and on top of eyelids. Shirt slimed with yogurt and crumbs on face, neck, chest, also shirt sleeve. Shirt wrong side out

Characters:
Nurse, Ellen (Patient) Ed (Patient's second husband) or Esther (pt's sister)
Characters not present
- Cindy (Pts daughter)
- Simon (Pts son)

Behaviors
- Pick at clothes and objects
- Misunderstand objects – lemon on tablecloth is round so it is a ball
- Rhyme words – Ball, Ball.Tall, Fall…fall down, fall down
- Stare off at other objects – tea pot is fascinating or stare and point at picture "Pretty, pretty"

Verbal statements
- Very short – three to four words only
- Ellen is in her own space and not part of the present
- Days of week – are 7

Orientation – extremely wrong, knows name but not place or time
- New Jersey
- Saturday

Actions
- Watch hurts her wrist
- "Ow, Ow, Ow…Off, Off, Off…hurts"
- Wiggle and rock in chair to show restlessness

Clock test
- Move very slowly; Require much help and instruction
- See example: All numbers jumbled in same spot or go down off circle of clock
- Remember zero words – don't attend to instructions to remember or words stated by nurse

Midpoint actions
- Tug on hair
- Pet nurses' hand/arm with "Nice kitty" "Like cats"
- Stand up to wander off slowly move to door and try to exit (rattle door knob)
- To tea pot say "Here Kitty, Kitty, here Kitty"

- Pick at buttons with teeth

End-point actions

- Stand up agitated and pace or move to door
- "Can't stay, can't stay, can't stay…
- Ask for tea "Thirsty" then slurp loudly and smack lips and play with food, wipe mouth with sleeve
- Suspicious behaviors Ask Ed "Who is she?" "Do I know her" "Where is Cindy? "Cindy is in trouble" "Cindy needs me" "Trouble, Trouble, Trouble" "Cindy, visit, visit, visit"
- Hit the wall with fatigue. "Tired, I'm Tired"
- Behaviors: droop eyelids as if dozing or blink rapidly as if awakening with slight jerk

Appendix G

Ellen Jones #3 Case Progression

Time	Notice	Interpret / Respond	Enduring Understandings
Early	Physical appearance • Extremely untidy hair / makeup / clothes • Food smears on clothing • But not 'old' grimy mess – new <u>Pts verbalizations</u> • Short, 3-4 words only • Orientation to name only • Misunderstands objects – lemon on tablecloth is round so it must be a ball <u>Pt behaviors</u> • Picks at clothing and objects • Restless – wiggles and rocks in chair • Responds to immediate stimuli but becomes distracted rapidly <u>CG statements</u> • Pt wanders; 5-6 times; fearful of harm to pt • Hygiene	Interpret as reflective of pts level of apraxia and the level of CG role strain. Pt is unable to perform simple ADLs without extensive help and CG is becoming unable to provide the level of instruction Interpret as reflective of pts agnosia – inability to recognize objects aphasia – inability to find the correct words Respond with the Clock Draw Test to gain better understanding of the pts level of cognitive functions • Findings are positive with pt remembering zero words and CDT very abnormal	RNs need to remember… Cardinal symptoms observed in Alzheimer's Disease are the gradual worsening of • Memory impairment. pt will first loss recent events then lose recent and remote memory • Aphasia – loss of language ability. 1st loses ability to find the correct word then reduced to a few words, then babbling to mutism • Apraxia – loss of purposeful movement w/o motor or sensory impairment. Pt is unable to perform once familiar and purposeful tasks • Agnosia – loss

	problems; incontinent		of sensory ability to recognize objects. Can't recognize familiar sounds, familiar objects, loved ones, self • Disturbance of executive functioning – loss of ability to plan, organize, abstract thinking
Mid	<u>Pt Verbalizations and Behaviors</u> • Tugs on hair • Pets nurses' hand/arm with 'nice kitty' 'like cats' • To Teapot state 'here kitty, kitty, kitty' • Pick at buttons with teeth • Behaviors – stand up to wander around room, attempt to exit door, not agitated <u>CG Statements</u> • Daughter wants Ellen placed in a SNF; CG reluctant; feels responsible to continue personal care of pt • Financial strain • "I don't know what to do. What do you think I should do?"	Interprets as demonstration of pts level of hyperorality – need to put everything in one's mouth hypermetamorphosis – touching everything in sight Recognize the level of CG stress that is present • Respond with further exploration of level of CG Role Strain Recognize that the CG is NOT asking the RN to make the decision for them but rather asking for help in exploring options and their implications • Respond with gentle exploration of the facts of the current situation; bring forward the prior data from earlier assessments to help CG identify the extent of the changes present in the patient	When to introduce concept of Advanced Directive Criteria that may indicate the need for SNF placement • Pt wanders • Pt is a danger to self and others • Pt is incontinent • Pts behavior affects the sleep &/or general health of others • Pt is totally dependent on others for physical care Mechanisms to minimize the stress of healthcare workers interacting with cognitively impaired pts

		Your goal as an RN is to help the CG obtain an internal recognition of their personal limitations in the situation	• Have a realistic understanding of the disease so expectations of the pt are realistic • Establish realistic outcomes for the pt and recognize when they are achieved • Maintain good self-care
End	<u>Pt Verbalizations and Behaviors</u> • "Thirsty" slurp loudly, smack lips and play with food; wipe mouth on sleeve • Suspicious – does not recognize nurse then moves to familiar "Cindy' where is she; in trouble, needs me, visit, visit… • Agitated pacing; moves to door • Abrupt onset		

	fatigue		

Appendix H

Confidentiality and Consent to Film

_____ _____

_____

PRINT NAME DATE COHORT

CONFIDENTIALITY FORM

During your participation in courses at the Simulation & Clinical Learning Center (SCLC), you will likely be an observer of the performance of other individuals in managing medical events. It is also possible that you will be a participant in these activities. You are asked to maintain and hold confidential all information regarding the performance of specific individuals and details of the scenarios. No electronic devices are to be used in this setting such as cell phones, tape recorders, iPods, laptops and pagers.

By signing below, you acknowledge to having read and understood this statement and agree to maintain the strictest confidentiality about any observations you may make about the performance of individuals and the simulation scenarios.

_____ _____

SIGNATURE DATE

RELEASE: VIDEOTAPES AND STILL PHOTOS

I authorize instructors and administrators of the SCLC to publicly show videotapes and/or photographs of me during the course of training at the SCLC. I understand that, unless otherwise approved by me, I will **NOT** be specifically identified, and that the photographs will be shown only for educational purposes. No commercial use of videotapes or photos will be made without my permission.

_____ _____
SIGNATURE DATE

Appendix I

Trial Coding

Year, term, scenario presentation	Manifest content	Field notes	Latent content	Field notes
11-2-1	• CG (sister) states EJ "escaped" • CG states EJ "wandering" • CG states EJ "incontinent" • CG states EJ "son busy with family" • CG states EJ "trouble swallowing" • CG states she is "feeling fatigue" • CG states "it is a 24 hour thing" caring for EJ • CG states EJ is "combative" • CG states "Cindy (dtr) has limited resources" • CG states EJ "hallucinate" • CG states "hard to see family member	• CG revisits fatigue and tiredness	• EJ picking at jacket • EJ with no eye contact • EJ mumbling • EJ knocks over glass • EJ with food on shirt • EJ with one word answers • EJ wants watch off • EJ wants to use phone	

	struggle" • CG states she has "no support"			
12-2-2	• CG (sister) states "unable to keep EJ clean" • CG states EJ "chewing on house plant" • CG states EJ is "difficult" • CG states "she keep EJ safe" • CG states she is at her "wit's end" • EJ unable to do clock test • CG states "she needs help" • CG states "kids aren't option to help" • EJ wants to call Cindy; mumbles "help" • CG states she is worried EJ will "fall out of chair • CG states that she has had to "call police" • CG states she "sleeps in living room" • CG states	• CG Refusing suggestions of care facility	• EJ tearing at paper • EJ left alone in chair • EJ playing with lamp • EJ rubbing at face • EJ wandering • EJ folding paper	

	living with EJ is "like a zoo" • CG describes EJ's mood as "distant			
13-2-2	• CG (husband) states he has to "watch her all the time" • CG states he has to "do everything" • CG tells EJ "no hitting today" • CG states getting an aid is "too expensive" • CG states he is "covered in bruises" • CG states he is "giving up on her"	• CG with theme of commitment to care for EJ	• EJ rocking in chair • EJ crying • EJ mumbling she "has to go"	• EJ appears to be impulsive
14-1-2	• CG (sister) states to EJ "let's not hit" • CG states EJ is "aggressive" • CG states "I get slapped" • CG states "I have to watch her constantly" • CG states she gets "kicked"		• EJ slaps at CG • EJ folding tissues	

Appendix J

Main coding template

<table>
<tr><td colspan="4">(Year, term, scenario enactment)</td></tr>
<tr><td>Manifest content</td><td>Field notes</td><td>Latent content</td><td>Field notes</td></tr>
<tr><td rowspan="2">☐ CG states EJ “escaped”
☐ CG states EJ “wandering”
☐ CG states EJ “incontinent”
☐ CG states EJ “son busy with family”
☐ CG states EJ “trouble swallowing”
☐ CG states she is “feeling fatigue”
☐ CG states “it is a 24 hour thing” caring for EJ
☐ CG states EJ is “combative”
☐ CG states “Cindy has limited resources”
☐ CG states EJ “hallucinate”
☐ CG states “hard to see family member struggle”
☐ CG states she has “no support”
☐ CG states “unable to keep EJ clean”</td><td>☐ CG revisits fatigue and tiredness
☐ CG refusing suggestions of care facility
☐ CG with theme of commitment to care for EJ</td><td>☐ EJ picking at jacket
☐ EJ with no eye contact
☐ EJ mumbling
☐ EJ knocks over glass
☐ EJ with food on shirt
☐ EJ with one word answers</td><td>☐ EJ appears to be impulsive</td></tr>
<tr><td></td><td>☐ EJ wants watch off
☐ EJ wants to use phone
☐ EJ tearing at paper
☐ EJ left alone in chair
☐ EJ playing with lamp
☐ EJ rubbing at face
☐ EJ wandering
☐ EJ folding paper
☐ EJ rocking in chair
☐ EJ crying
☐ EJ mumbling she “has to go”
☐ EJ slaps at CG
☐ EJ folding tissues</td><td></td></tr>
</table>

☐ CG states EJ "chewing on house plant" ☐ CG states EJ is "difficult" ☐ CG states "she keep EJ safe" ☐ CG states she is at her "wit's end" ☐ EJ unable to do clock test ☐ CG states "she needs help" ☐ CG states "kids aren't option to help" ☐ EJ wants to call Cindy; mumbles "help" ☐ CG states she is worried EJ will "fall out of chair ☐ CG states that she has had to "call police" ☐ CG states she "sleeps in living room" ☐ CG states living with EJ is "like a zoo" ☐ CG describes EJ's mood as "distant" ☐ CG states he has to "watch her all the time" ☐ CG states he has to "do everything"			

☐ CG tells EJ "no hitting today" ☐ CG states getting an aid is "too expensive" ☐ CG states he is "covered in bruises" ☐ CG states he is "giving up on her" ☐ CG states to EJ "let's not hit" ☐ CG states EJ is "aggressive" ☐ CG states "I get slapped" ☐ CG states "I have to watch her constantly" ☐ CG states she gets "kicked"			

Other noted MC:

Appendix K

Caregiver (manifest content) cues template

Year

Cue	Episode						
	1	2	3	4	5	6	7
CG states EJ "son busy with family"							
CG states she is "feeling fatigue"							
CG states "it is a 24 hour thing" caring for EJ							
CG states she has "no support"							
CG states "she keep EJ safe"							
CG states she is at her "wit's end"							
CG states "she needs help"							
CG states "kids aren't option to help"							
CG states she is worried EJ will "fall out of chair							
CG states that she has had to "call police"							
CG states she "sleeps in living room"							
CG states living with EJ is "like a zoo"							
CG states he has to "watch her all the time"							

Cue	Episode						
	1	2	3	4	5	6	7
CG states getting an aid is “too expensive”							
CG states he is “covered in bruises”							

Appendix L

Behavior cues (manifest content) template

Year

Cue	Episode						
	1	2	3	4	5	6	7
CG states EJ "escaped"							
CG states EJ "wandering"							
CG states EJ "incontinent"							
CG states EJ is "combative"							
CG states "unable to keep EJ clean"							
CG wants to call Cindy, mumbles "help"							
CG states EJ "chewing on house plant"							
CG states EJ is "difficult"							
CG tells EJ "no hitting today"							
CG states to EJ "let's not hit"							
CG states EJ is "aggressive"							
CG states "I get slapped"							

Appendix M

Behavior (latent) cues template

Year

Cue	Episode						
	1	2	3	4	5	6	7
EJ picking at jacket							
EJ with no eye contact							
EJ mumbling							
EJ knocks over glass							
EJ with food on shirt							
EJ with one word answers							
EJ wants watch off							
EJ unable to do clock test							
EJ tearing/folding at paper/tissue							
EJ rubbing at face							
EJ wandering							
EJ rocking in chair							
EJ crying							
EJ slaps at CG							

Appendix N

Concepts of Behavior Cues

Safety

- CG states EJ "escaped"
- CG states EJ "wandering"
- EJ wandering
- EJ knocks over glass

Aggression

- CG states EJ "combative"
- CG states to EJ "no hitting today"
- CG states to EJ "let's not hit"
- CG states EJ "aggressive"
- CG states "I get slapped"
- EJ slaps at CG

Physical needs/ADL's

- CG states EJ "incontinent"
- CG states "unable to keep EJ clean"
- CG states EJ "chewing on house plant"
- EJ with food on shirt/face

Psychosocial

- CG states EJ is "difficult"
- EJ crying

Cognition

- EJ with no eye contact
- EJ unable to do clock test

Aphasia

- EJ mumbling
- EJ with one word/repetitive answers
- EJ wants to call Cindy (dtr); mumbles "help"

Repetitive behaviors

- E picking at jacket
- EJ tearing/folding at paper/tissue
- EJ rubbing at face
- EJ rocking in chair
- EJ wants watch off

Appendix O

Concepts of caregiver cues

Support

- CG states EJ's son is "busy with family"
- CG states s/he has "no support"
- CG states s/he "needs help"
- CG states "kids aren't an option to help"

Safety

- CG states s/he "keeps EJ safe"
- CG states s/he is worried EJ will "fall out of chair"
- CG states s/he has had to "call the police"
- CG states s/he "sleeps in the living room"
- CG states s/he has to "watch EJ all the time/constantly"
- CG states s/he has to "do everything"
- CG states caring for EJ is a "24 hour thing"

Psychosocial/Physical

- CG states s/he is "covered in bruises"
- CG states s/he is "feeling fatigue/exhausted"
- CG states s/he is "at wit's end"
- CG states s/he is "giving up on EJ
- CG states living with EJ is "like a zoo"

Finances

- CG states getting an aid is "too expensive"