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Effectiveness of Clinical Simulation in Occupational Therapy Level II Fieldwork Preparation

A Dissertation submitted

by

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to

College of Saint Mary

in partial fulfillment of the requirement

for the degree of

DOCTOR OF EDUCATION

with an emphasis on

Health Professions Education

This Dissertation has been accepted for the faculty of

College of Saint Mary by:

May 21, 2017

We certify that this Dissertation, submitted by Maureen Hoppe, conforms to acceptable standards and fully fulfills the Dissertation requirements for the degree of Doctor of Education from College of Saint Mary

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This dissertation is dedicated to my mother, Eileen Trentman, who passed away during my doctoral journey. My mom was an amazing woman who inspired me to be my best every day, and instilled in me a strong faith, value of family, education, and hard work. Her love and support was unwavering, and I am confident continues on, with Irish eyes smiling down on me today.

Acknowledgement Page

I would like to first acknowledge and thank my husband, Scott Hoppe for his love and constant support throughout my doctoral journey. I appreciate the many sacrifices made over the last five years to help me achieve my goals and for this I will be forever grateful.

Thank you to my children, Trent, Megan, and Cole for their support, encouragement, and willingness to step up and help out when needed so I could make deadlines on my dissertation. Hopefully, from the process you learned to dream big, challenge yourself, and never settle for the easy route. It is through hard work and commitment that you will achieve great things!

I would like to thank my Dad for his love, encouragement, and unwavering support throughout my life. I would not be the person I am today without the awesome role models I had in my parents.

To my Dissertation Chair, Dr. Lois Linden: Your constant support and words of encouragement when needed were truly appreciated. Thank you for being a great mentor and your willingness to share your time and expertise to help support my professional development.

To my Dissertation Committee, Dr. Jennie Rose-Woodward and Dr. Andrea Thinnes: Thank you for your support, constructive feedback, and reassurance throughout the dissertation process. I am truly grateful for your contributions and mentorship.

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Abstract

The purpose of this retrospective, quantitative research study was to investigate the effect of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork. Forty-nine graduate occupational therapy students enrolled in a Transition to Level II Fieldwork course participated in two clinical simulations with a standardized patient, completing a comprehensive occupational therapy evaluation initially in a small group with assigned roles within the occupational therapy process and then individually later in the semester. Prior to participating in the initial group clinical simulation, occupational therapy students completed the Self-Assessment of Clinical Reflection and Reasoning (SACRR) and then completed the SACRR after the final individual clinical simulation to assess changes in student perceptions of clinical reasoning from this instructional methodology with statistically significant higher mean scores, $p < .05$, found on 7 of the 26 items. Findings from analysis of student performance scores on clinical skills assessment rubric, developed to assess performance areas based on the American Occupational Therapy Association Fieldwork Performance Evaluation in preparation for Level II fieldwork, indicated positive learning from participation in clinical simulation with a standardized patient with higher mean scores in performance areas of basic tenets and evaluation. This study contributes to occupational therapy education providing insight in to the effectiveness of clinical simulation with standardized patients, as an instructional methodology, on occupational therapy student clinical reasoning and learning in preparation for Level II fieldwork, as well as, student perceived value of aspects of the clinical simulation process to learning.

CHAPTER 1: INTRODUCTION

The United States health care system has changed dramatically over the last decade, in how it is delivered, managed, and financed. The restructuring of hospital organizations, increased cost containment efforts, and greater expectations on occupational therapists to meet patient care needs within reimbursement constraints and productivity demands has a direct impact on a health care practitioner's preparation for practice (Casares, Bradley, Jaffe, & Lee, 2003; Coker, 2010). Entry level occupational therapists are treating more medically complex patients, necessitating strong clinical reasoning and critical thinking skills (Coker, 2010). Thus, occupational therapy fieldwork students need to be prepared to address these comprehensive patient care needs in a dynamic, fast paced health care environment (Coker, 2010; Scaffa, & Smith, 2004; Vogel, Geelhoed, Grice, & Murphy, 2009).

Fieldwork is a component of occupational therapy curriculum "designed to enrich coursework through observation and participation in the occupational therapy process" within diverse occupational therapy practice settings (American Occupational Therapy Association Commission on Education, 2004, p. 3). These experiences enable students to integrate academic knowledge in a real practice setting, while providing practical application of learned skill sets (Costa, 2004). The Accreditation Council of Occupational Therapy (ACOTE) requires a minimum of 24 full-time weeks of Level II fieldwork for occupational therapy students, which is completed under the supervision of a licensed or otherwise regulated occupational therapist in diverse occupational practice settings. Level II fieldwork experiences are designed to develop entry level competency skills, as an occupational therapist general practitioner (Accreditation Council for Occupational Therapy Education, 2011).

Due to the increasing complexity of clinical practice, occupational therapy faculty are challenged with providing effective instructional methods to bridge learning and facilitate clinical reasoning skills necessary for student success on Level II fieldwork and with transition to entry level practice (Karimi et al., 2010; Velde, Lane, & Clay, 2009). Clinical simulation, as an instructional method, provides a safe, low risk environment for healthcare professional students to practice necessary skill sets based on specific learning objectives preparatory to clinical experiences (Koo, Idzik, Hammersla, & Windemuth, 2013). Although there is significant research on the use of clinical simulation as an effective instructional method in nursing (Seibert, Guthrie, & Adamo, 2004), medicine (Dillon, Noble, & Kaplan, 2009), and pharmacy (Koo et al., 2014), limited research exists on the effectiveness of clinical simulation in occupational therapy curriculum and the impact on student learning.

This quantitative, retrospective research study examined the effectiveness of clinical simulation, with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork. The background of the problem provides insight into the relevance of this study, as well as, identification of the research problem. In addition, the purpose and significance of the study will be discussed. Key terms are defined and assumptions, limitations, and delimitations provided.

Background of Problem

The demographics in the United States are changing dramatically, with an increasing percentage of the population over the age of sixty-five, and a corresponding need for qualified health care professionals to meet health care service demands (Brissette, 2004; United States Census Bureau, 2012). It is projected that the population of individuals 65 years of age and older will increase from 43.1 million in 2012 to 92 million in 2060 placing “greater demands on

the health care system" (Brissette, 2004, p. 46; United States Census Bureau, 2012). It is imperative that future occupational therapists are adequately prepared and exhibit essential clinical reasoning skills to "meet the challenges of the rapidly changing health care environment" (Mitchell & Xu, 2011, p. e87).

ACOTE supported a resolution to require a post baccalaureate degree for entry level practice with the goal of graduating occupational therapists possessing more advanced clinical reasoning skills necessary to address complex patient care needs (Mitchell & Xu, 2011). Since 2007, **"**the master's degree is the lowest degree level at which one can enter the profession as an occupational therapist" (Coppard & Dickerson, 2007, p. 674). As a result of the graduate degree requirements and health care environment demands for justification of therapy services, there has been an increased emphasis on research in graduate occupational therapy coursework to support best clinical practice, however, concerns have been raised whether the emphasis on research in graduate coursework could be limiting student opportunity for hands on learning in the classroom which may allow students to clinically reason through unpredictable patient scenarios and foster clinical reasoning skills in preparation for successful transition to Level II fieldwork (Velde et al., 2009).

Identifying effective instructional methodologies, which can facilitate the clinical reasoning skills necessary for patient care and best prepare occupational therapy students for fieldwork and entry level practice, is necessary in order to successfully manage the increased demands faced in today's health care environment (Dillon et al., 2009). "Poor problem solving skills, poor clinical reasoning skills, and difficulty getting the big picture" are common cited characteristics of occupational therapy students who are unsuccessful with Level II fieldwork and ultimately fail the fieldwork experience (James & Musselman, 2005, p. 67).

Clinical simulation is defined as "the artificial representation of a phenomenon or activity," utilized as a teaching methodology in health professions' programs to help practice skill sets in a safe environment prior to actual patient interactions (Larew, Lessans, Spunt, Foster, & Covington, 2006, p.17). Simulated clinical experiences provide students the opportunity to actively engage in the learning process and require the student to critically think about patient care needs with provision of feedback from experienced faculty in order to enhance learning. Such experiences allow application of knowledge and decision making in real time facilitating development of higher level thinking imperative for effective patient care (Vyas, Ottis, & Caligiuri, 2011). Use of clinical simulation may be designed based on the student level in the program and integrated in occupational therapy curricula to foster the development of higher level cognitive skill sets which are imperative for successful transition to clinical practice.

Principles of constructivism and experiential learning provide an educational theoretical framework which supports clinical simulation, as an instructional methodology, for occupational therapy students (Kolb, 1984; Sperling, Clark, & Kang, 2013). Clinical simulation experiences can be graded based on student level in the occupational therapy program and learning objectives established to address cognitive, affective, and psychomotor domains of learning, thus providing an enhanced learning opportunity designed to challenge students to examine simulated patient encounters comprehensively (Anderson et al., 2014). The use of standardized patients or individuals trained to accurately depict certain characteristics consistent with a clinical diagnosis for educational purposes can enhance the realism of the simulated encounter learning for students to help prepare students for patient interactions in future clinical experiences (Gibbons et al., 2002; Giles, Carson, Breland, Coker-Bolt, & Bowman, 2014; Shoemaker et al., 2011).

Significance of Study

The use of simulation for medical and nursing student preparation is prevalent in the literature, but a gap in the literature supports research in this area relevant to occupational therapy students' instruction (Velde et al., 2009). Clinical simulation, as an instructional method, incorporates the four different components necessary for effective learning, according to experiential learning theory; "concrete experience, reflective observation, abstract conceptualization, and active experimentation," thus meeting diverse student learning needs and multi-modal learning (Kolb, 1984; Linares, 1999, p. 408; Robertson, Smellie, Wilson, & Cox, 2011). This instructional method may be an effective approach to facilitate development of essential clinical reasoning skills in a safe environment, providing hands on practical application of knowledge learned in occupational therapy coursework preparatory to Level II fieldwork (Scaffa & Smith, 2004).

Research Problem

Faculty in occupational therapy programs are challenged to identify effective instructional methodologies to foster the development of "higher level clinical skills" needed by graduate occupational therapy students to meet the multi-faceted challenges faced in a dynamic health care environment (Coker, 2010, p. 280). Although clinical simulation has been utilized as an effective instructional method in other health care professions (Dillon et al., 2009; Koo et. al., 2014; Seibert et al., 2004), there has been limited research on the use of clinical simulation with standardized patients in occupational therapy curriculum, as a method to enhance student preparation for Level II fieldwork (Bethea, Castillo, & Harvinson, 2014; Velde et al., 2009).

Purpose of Study

The purpose of this retrospective, quantitative research study was to investigate the effect of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork.

Research Questions

Central Research Question

What were the effects of clinical simulation with the use of a standardized patient on graduate occupational therapy student preparation for Level II fieldwork in a Midwest occupational therapy program?

Subsidiary Research Questions

1. What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student clinical reflection and reasoning utilizing the Self-Assessment of Clinical Reflection and Reasoning tool, in a Midwest occupational therapy program?
2. What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student learning as measured by the Clinical Skills Assessment Rubric, in a Midwest occupational therapy program?
3. What components of the clinical simulation process did graduate occupational therapy students enrolled in a Master of Occupational Therapy program in the Midwest, find most valuable to their learning prior to Level II fieldwork?

Definition of Terms

There are several terms that were utilized throughout this research study. For purposes of this research, the following definitions are provided to ensure clarity for the reader.

Clinical reasoning. Clinical reasoning is defined as the "thinking and decision making process the therapist utilizes to plan, direct, perform, and reflect on client care" (Zoltan, 2007, p. 324). For purposes of this study, clinical reasoning was measured by the Self-Assessment of Clinical Reflection and Reasoning tool (Royeen, Mu, Barrett, & Luebben, 2000).

Clinical simulation. Clinical simulation is defined as "the artificial representation of a phenomenon or activity," utilized as a teaching methodology to help occupational therapy students practice skill sets in a safe environment prior to actual patient interactions (Larew et al., 2006, p.17). Clinical simulation components for educational purpose include the pre-simulation experience, clinical simulation experience, and debriefing after participation in the clinical simulation (Vyas et al., 2011).

- **Pre-simulation experience.** Pre-simulation experience includes the student preparation for the simulation experience. For purposes of this study, pre-simulation experience included student preparation for the experience such as review of instructor provided simulation expectations, completion of assigned readings, participation in open lab, and review of identified aspects of the occupational therapy process (Herge et al., 2013; Vyas et al., 2011).
- **Clinical simulation experience.** For purposes of this study, the clinical simulation experience included graduate occupational therapy student participation in a two clinical simulation experiences with standardized patients, completing an occupational therapy evaluation of a standardized patient initially

in a small group and then individually three to four weeks after the group clinical simulation experience Clinical simulation experience included review of the standardized patient's medical chart, completing an occupational therapy evaluation, and documenting the session.

- **Debriefing.** Debriefing is a teaching method utilized to enhance student learning after the simulation experience occurs, consisting of student reflective analysis of performance for future application (Dreifuerst, 2012; Herge et al., 2013). For purposes of this study, debriefing on clinical simulation experiences was completed after clinical simulation experiences with course instructor and occupational therapy students during scheduled class time. Debriefing for reflective learning included self-analysis of group clinical simulation with standardized patient.

Fieldwork. Fieldwork is a component of occupational therapy curriculum "designed to enrich coursework through observation and participation in the occupational therapy process" (American Occupational Therapy Association Commission on Education, 2004, p.3). These experiences enable students to integrate academic knowledge in a real practice setting providing practical application of learned skill sets (Costa, 2004).

Fieldwork educator. A fieldwork educator is a licensed or otherwise regulated occupational therapist, who has a minimum of one year experience subsequent to initial board certification and supervises a Level II occupational therapy fieldwork student in an occupational therapy practice setting (Accreditation Council for Occupational Therapy Education, 2011).

Graduate occupational therapy student. For purposes of this study, a graduate occupational therapy student was defined as an occupational therapy student, who has a

Bachelor's degree and is in the final didactic semester of graduate coursework prior to Level II fieldwork.

Level II fieldwork. Level II fieldwork consists of 24 full-time weeks of occupational therapy student development, under the supervision of a licensed or otherwise regulated occupational therapist, designed to develop entry level competency skills as an occupational therapist general practitioner (Accreditation Council for Occupational Therapy Education, 2011).

Occupational therapy program. For purposes of this research study, an occupational therapy program was defined as a combined Bachelor of Rehabilitation Studies, Master of Occupational Therapy program in the Midwest accredited by the Accreditation Council of Occupational Therapy Education (ACOTE).

Standardized patients. Standardized patients are individuals who have been trained to accurately portray characteristics typically exhibited by a client with a specified diagnosis for educational objectives and will be utilized for clinical simulation in this research study (Giles et al., 2014; Shoemaker et al., 2011). For purposes of this study, all individuals in the role of a standardized patient were licensed health care professionals.

Student learning. Student learning includes the acquisition and integration of knowledge, experience and clinical skill sets obtained through occupational therapy coursework. For purposes of this study, student learning was measured by the Clinical Skills Assessment Rubric.

Assumptions

For purposes of this study, the researcher assumed that all participants would respond to the statements on the Self- Assessment of Clinical Reflection and Reasoning tool and demographic survey truthfully to ensure accuracy of data collection. It was also assumed that the

student participants had a foundational knowledge of occupational therapy and emerging skill sets for participation in selected aspects of the occupational therapy process through previous occupational therapy coursework prior to participation in this study. Finally, it was assumed that clinical reasoning could be measured.

Limitations and Delimitations

Limitations

This study was limited to a convenience sample of graduate, occupational therapy students. As a result, the convenience sample may not be representative of the occupational therapy student demographics including age, ethnicity, educational background, and work experience. The participants of this study were all female students at a Midwestern, Catholic woman's university, eliminating representation of approximately 11% of enrolled master's level occupational therapy students (Harvinson, 2014).

Delimitations

Delimitations for this research study included confining the study to an entry level master's occupational program at one Midwestern university. Clinical simulation, as an instructional method, was limited to simulation with the use of standardized patients who have specific training to portray characteristics typically exhibited by a client with a specified diagnosis (Giles et al., 2014; Shoemaker et al., 2011). No other forms of clinical simulation were assessed for purposes of this study.

Summary

The purpose of this quantitative research study was to investigate the effect of clinical simulation, as an instructional methodology, on graduate occupational therapy student preparation for Level II fieldwork. Due to the changing health care environment, occupational therapists are treating more medically complex patients necessitating strong clinical reasoning

and critical thinking skills. Faculty are challenged with facilitating the development of these skill sets in occupational therapy students prior to Level II fieldwork, in order to prepare them to meet the increased demands faced in fast paced, dynamic health care environment. This study aimed to provide insight into the use of clinical simulation, as an effective instructional method, to enhance essential clinical reasoning skills in occupational therapy students.

CHAPTER 2: REVIEW OF LITERATURE

The purpose of this chapter was to critically examine the literature related to the use of clinical simulation, as an instructional method, in health care professions' programs. Supportive theoretical frameworks, as well as a historical background of clinical simulation use in health professional preparation are discussed. Types of clinical simulation used and the impact on student development provided a foundational context for this research study, which investigated the effect of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork.

Theoretical Framework

In order to prepare students to address the complex patient care needs in today's health care environment, theoretical frameworks provide guided structure for curricular design in health care professions' programs to facilitate student learning, (Casares et al., 2003). Principles of constructivism, experiential learning theory, and revised Bloom's taxonomy provide theoretical support for the use of clinical simulation in the curriculum of health care professions' programs. Constructs from these theories emphasize active learning, which builds upon prior knowledge and skill sets to foster development of higher level thinking based on an individual's cognitive level (Brandon & All, 2010; Kolb, 1984; Wenger, 2009). This aligns with clinical simulation use with standardized patients by providing students with active learning opportunities to practice skill sets in a safe, supervised environment, which can allow reflective learning to bridge occupational therapy student successful transition to fieldwork in clinical practice settings (Herge et al., 2013). Instructional delivery in health care professions' programs should be adjusted in response to dynamic changes in the health care environment and designed to enrich student development with overarching theoretical constructs providing a supportive framework

for learning. The following sections will describe constructs of constructivism, experiential learning theory, and revised Bloom's taxonomy providing a theoretical framework of support for clinical simulation, as an instructional methodology.

Constructivism

Constructivism is a learning theory that focuses on active, hands-on learning opportunities, (Wenger, 2009) which build upon existing knowledge (Brandon & All, 2010), in order to develop new meaning (Merriam, Caffarella, & Baumgartner, 2007). Principles of constructivism include recognition that "learning is development," not a consequence of development (Fosnot, 1996, p. 29). Learning involves inquiry and active exploration of the physical and social environment to derive meaning reflective of unique experiences to deepen understanding of concepts or ideas (Fosnet, 1996). Curriculum in health professions programs incorporate constructivism principles in curricular design with prerequisite course requirements and assessment of learning that is scaffolded, thus "transforming old knowledge" (Giles et al., 2014, p. S58) with new knowledge acquisition.

Integrating constructivism into instructional methodology requires faculty to facilitate learning, thus, fostering self-directed knowledge integration, rather than acting as disseminators of information (Brandon & All, 2010; Wenger, 2009). Critical reflection and probing questions can be integrated into instructional methodologies to build upon the student's knowledge from previous coursework. This method is used to promote conceptual growth "from the sharing of various perspectives" which is a theoretical concept of constructivism (Brandon & All, 2010, p. 90). Emphasis on reflection of past experiences, as a means to construct new knowledge, in addition to the focus on the learner as an active participant in the learning process, applies to shared principles of experiential learning theory (Kolb, 1984; Merriam et al., 2007). Shared

principles of constructivism and experiential learning theory, including building knowledge acquisition through integration of past learning with emphasis on the active role of the learner in the process provide structured support for clinical simulation, as an instructional methodology for occupational therapy students to enhance skill set development prior to fieldwork experiences.

Experiential Learning Theory

Clinical simulation experiences can provide students with experiential learning opportunities, incorporating guided and reflective learning to develop skill sets and identify areas for growth, in a simulated, safe environment. Experiential learning theory, as described by Kolb (1984), focused "on the process of learning as opposed to the behavioral outcomes" (p. 26). Kolb (1984) credited John Dewey, Kurt Lewin and Jean Piaget, as foundational contributors to the contemporary experiential learning theory which provided insight into learning as a continuous process that results from interactions between individuals and environmental experiences (Kolb, 1984). This process, as described by experiential learning theory, is a continuous cycle of learning consisting of four interactive dimensions or stages, which all contribute to enriched learning.

Dimensions of experiential learning theory. The experiential learning theory, including the premise that "knowledge is created through the transformation of experience," is particularly applicable to occupational therapy student development and preparation for fieldwork experiences with the use of clinical simulation (Kolb, 1984, p. 38). In addition to student learning through observation, integration of hands-on experiential learning in the classroom provides an opportunity for occupational therapy students to practice learned skill sets in a safe low risk environment (Herge et al., 2013), prior to their fieldwork experience with actual

patients. Integration of "concrete experience, observation and reflection, abstract conceptualization, and active experimentation" is necessary for effective learning to occur, according to experiential learning theory (Wenger, 2009, p. 217). Provision of a concrete experience includes active participation of the learner in an activity such allowing the student to complete a simulated evaluation of a patient, thus providing tangible learning (Kolb, 1984). The next stage in the learning cycle involves reflective observation which entails a focused review of what occurred in the experience with questions to further enhance learning. Through reflective observation of this encounter, learners gain additional understanding through conscious reflection on the experience. Learning may be further enhanced through recognition of inconsistencies noted between what was thought to be known prior to the encounter and the actual clinical simulation experience (Kolb, 1984). This learning bridges into abstract conceptualization including facilitated discussion of possible alternate ways to address patient encounters for student application into future clinical experiences reflective of Kolb's active experimentation mode in the learning cycle (Kolb, 1984). These key components of experiential learning theory align with the elements of clinical simulation, as an instructional methodology utilized to prepare students in health care professions' programs for clinical practice by providing students the opportunity to actively experience a simulated patient encounter, self-reflect, and analyze what could be done differently for enhanced learning and future application with client interactions in clinical settings (Dearmon et al., 2013). Theoretical constructs of experiential learning provide support for the use of clinical simulation, as an instructional methodology in health care professions' programs, emphasizing learning as a holistic, continuous process.

Benefits of experiential learning. Experiential learning methods incorporated in occupational therapy didactic coursework can enhance learning of skill sets (Sperling et al., 2013) and development of clinical reasoning through active participation in experiences designed to assist students with application of knowledge to real-life patient contexts (Karimi et al., 2010; Knecht-Sabres, 2010) in a safe environment (Herge et al., 2013). Benson and Witchger (2007) found that the use of a living lab experience enhanced student "content knowledge, clinical reasoning skills, and professional growth" (p. 91). Positive benefits of experiential learning as an instructional method in didactic coursework have been found to enhance student perceptions of learned occupational therapy skill sets and clinical reasoning preparatory to Level II fieldwork (Coker, 2010; Knecht-Sabres, 2010).

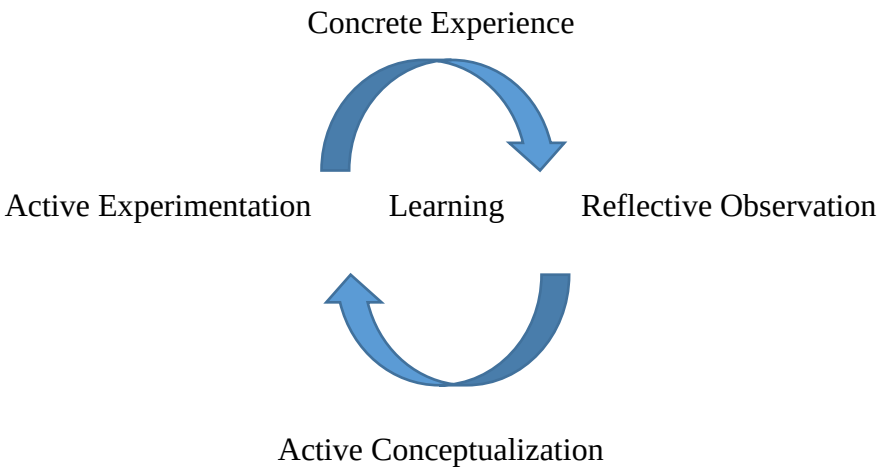
The use of clinical simulation, as an instructional method, can enhance clinical reasoning through provision of a guided encounter with a standardized patient and help students connect material and develop critical thinking skills which are necessary for effective patient care (Herge et al., 2013). This type of instruction provides students with the opportunity to practice skill sets in a safe learning environment, allowing feedback and self-reflection, prior to actual patient interactions on Level II fieldwork (Herge et al, 2013).

Learning Cycle. The experiential model of learning, depicted by Kolb's Learning Cycle, is often associated with the process of learning in health care professions fieldwork education curriculum (Miller, Kovacs, Wright, Corcoran & Rosenblum, 2005; Titiloye, & Scott, 2001) and depicts the components of clinical simulation utilized for student learning (Dearmon et al., 2013). Kolb's model consists of four stages in the learning process including

- "concrete experience (CE);
- reflective observation (RO);

- abstract conceptualization (AC); and
- active experimentation (AE)" (Kolb, 1984, p.30).

As depicted in Figure 1, the stages of learning, as explained by experiential learning theory represent the interactive process of learning which includes diverse experiences enhancing knowledge development. These learning stages incorporate an experience, such as clinical simulation, in which a student actively participates, as well as the opportunity to self-reflect on the experience to enrich learning and facilitate clinical reasoning skills for application with future patient interactions (Kolb, 1984).



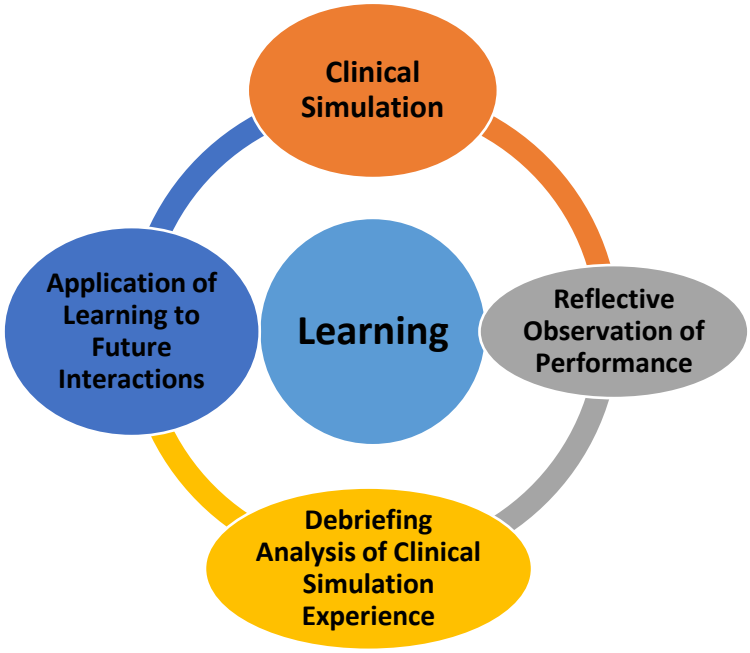
Kolb, D. A. (1984). Experiential learning: Experience as a source of learning and development. New York, New York: Pearson Education, Inc. Reprinted by permission of Pearson Education, Inc.

Figure 1: Kolb's Experiential Learning

This knowledge development is influenced by individual learning styles, with preferences toward certain methods or strategies to enhance knowledge acquisition and skill sets necessary for occupational therapy students to effectively manage diverse patient care needs. Use of clinical simulation, as an instructional methodology in occupational therapy curriculum provides

a multi modal delivery option for faculty to address diverse student learning needs to enrich learning.

Dearmon et al. (2013) connected clinical simulation components with the four stages of the learning process identified by Kolb (1984), as the simulation experience, student reflection, debriefing through analysis of experience, and then application to future patient interactions. These components of simulation address student learning needs through multi modal delivery, allowing students to integrate diverse learning preferences based on principles of experiential learning theory. Figure 2 provides a conceptual representation of the components of clinical simulation utilizing the experiential learning theory as a theoretical support for educational use.



Adapted from Dearmon et al. (2013). Effectiveness of simulation-based orientation of baccalaureate nursing students preparing for their first clinical experience. *Journal of Nursing Education, 52*(1), 29-38. doi:http://dx.doi.org/10.3928/01484834-20121212-02

Kolb, D. A. (1984). Experiential learning: Experience as a source of learning and development. New York, New York: Pearson Education, Inc. Reprinted by permission of Pearson Education, Inc.

Figure 2: Conceptual Model of Clinical Simulation Based on Experiential Learning Theory

Learning Styles. Student learning style preferences are suggested based on the individual's comprehensive use of all four stages or focused use of certain stages in Kolb's learning cycle (Brown, Cosgriff, & French, 2008). The Kolb Learning Style Inventory (LSI) consisting of twelve questions can be utilized to determine individual preferred learning modes depicted in the cycle. Based on identified learning preferences, individuals are classified as one of the following learning style types: divergers (CE and RO), assimilators (AC and RO), convergers (AC and AE), or accommodators (CE and AE) and instructional methodology can be adjusted accordingly to enhance student learning (Kolb, 1984; Titiloye & Scott, 2001).

The LSI was utilized by Titiloye and Scott (2001) to examine the learning styles of 201 junior occupational therapy students over a ten year period and the results applied to curricular delivery methods and fieldwork placements to optimize student learning. The two dominant student learning styles found were *convergers* and *assimilators* characterized by preferred learning modes of active experimentation, abstract conceptualization, and reflective observation which are integral components of evaluation and treatment interventions utilized in fieldwork education through the supervisory process. The Academic Fieldwork Coordinator at this academic institution utilized information gained from the LSI to "match students with clinical supervisors and settings" in an attempt to enhance the learning experience and successful fieldwork outcomes (Titiloye & Scott, 2001, p. 153). Although findings from a study by Hauer, Straub, and Wolf (2005) of allied health student learning styles, utilizing the LSI, indicated no significant difference in learning styles between students enrolled in the following professional programs at a Midwestern university: nursing, physician assistant, occupational therapy, physical therapy, and speech language pathology, a preference for AE and RO modes of learning was found for occupational therapy students. In a comparative study, Brown et al., (2008) utilized

the Kolb Learning Style Inventory (LSI) and the VARK questionnaire to assess first year, occupational therapy, physiotherapy, and speech pathology student learning styles at an Australian university. The VARK, developed by Fleming, is a questionnaire utilized to identify student preferred instructional delivery methods as "visual, aural, read/write, kinesthetic or multi-modal," enabling educators to improve teaching effectiveness through integration of varied pedagogical tools (Brown et al., 2008, p. 2). The results from this comparative study were consistent with the study conducted by Hauer, Straub and Wolf (2005) and did not find any significant differences in learning styles between the students enrolled in allied health professions programs (Brown et al., 2008).

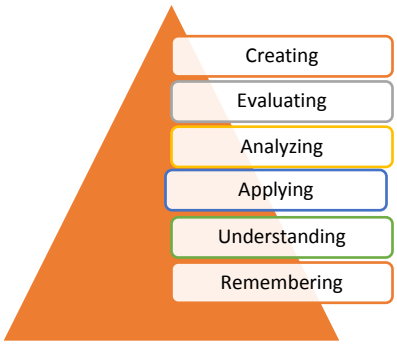
Research indicates that academic institutions with health care professions curriculums attract a diverse student demographic with varied learning styles to be addressed throughout the educational process, necessitating integration of multiple teaching methodologies to support student learning (French, Cosgriff, & Brown, 2008). Instructional methodologies utilized should align with curricular sequence and learning objectives leveled for appropriate skill development. Student skill development objectives can be graded based on expectations of student at current level in educational program based on revised Bloom's taxonomy.

Revised Bloom's Taxonomy

Revised Bloom's taxonomy provides educators a framework to structure leveled learning objectives reflective of desired outcomes (Anderson et al., 2001). Instructional objectives should be developed based on student educational level and include cognitive, affective, and psychomotor domains for comprehensive learning enriched through multi modal delivery. Panzarella and Manyon (2008) designed instructional objectives based on Bloom's taxonomy for a clinical assessment of competency skill sets in a Doctorate of Physical Therapy program. These

objectives were designed to measure student critical thinking skills and were leveled reflective of Bloom's cognitive domain, providing desired outcomes of the clinical simulation assessment (Panzarella & Manyon, 2008). Aspects of the clinical simulation included assessment of foundational knowledge with preliminary assessment of a standardized patient, as well as integrating and applying this knowledge in a physical examination of the standardized patient incorporating leveled skill sets consistent with Bloom's taxonomy (Panzarella & Manyon, 2008). Furthermore, Black and Marcoux, (2002), examined development of clinical skill sets of physical therapy students consistent with the psychomotor domain of revised Bloom's taxonomy. Incorporation of psychomotor, cognitive, and affective domains with clinical simulation in occupational therapy curriculum can address the multi-faceted nature of learning and student development to prepare students for patient care interactions.

Domain and Learning Objective Levels. Revised Bloom's taxonomy provides a hierarchical structure for development of learning objectives to guide instructional delivery and integration of higher level cognitive skill sets, as students progress through curriculum. Instructional and assessment methodologies can be planned with learning objectives expressed with verbs reflecting the concept that learning is an active process (Anderson et al., 2014). As shown in Figure 3, the hierarchy depicts development of higher level cognitive skills, culminating in creating which incorporates basic and advanced cognitive thinking. Higher level cognitive skill sets utilized for complex problem solving and clinical reasoning are necessary for health care professionals to address changing patient care needs in a dynamic health care environment.



Adapted from: Anderson, L. W., Krathwohl, D., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., & Wittrock, M. C. (Eds.). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York, NY: Longman.

Figure 3: Revised Bloom's Taxonomy

Implementation of structured learning objectives, reflective of student level in the program, provides a measurement of expected outcomes needed to ensure occupational therapy students have basic foundational skill sets necessary to transition to fieldwork. This includes what students must know, as well as psychomotor skill sets that are required for safe patient care. Utilizing revised Bloom's taxonomy as a framework to develop objectives aligns with constructs of constructivism and experiential learning theory by emphasizing the role of the student as an active participant in the learning process and recognizing the importance of past knowledge in the construction of new knowledge acquisition (Anderson et al., 2014, Kolb, 1984; Merriam et al., 2007), as well as development of clinical reasoning skill sets necessary for clinical practice.

Clinical Reasoning

Clinical reasoning is imperative to effective, safe patient care in a dynamic, fast paced health care environment. Fostering development of these skill sets in occupational therapy students prior to fieldwork is critical, and educators are challenged with implementing effective instructional methods to enhance development of clinical reasoning in students.

Clinical reasoning is defined as "a complex and multi-faceted process and comprises interactive, scientific, narrative, pragmatic, ethical, and conditional reasoning skills" (deBeer & Vorster, 2012, p. 21). It involves the cognitive skill sets utilized in "the thinking processes associated with conducting clinical practice" (Unsworth, 2001, p. 163). Health care professionals have to make decisions regarding patient care needs considering the medical priority of identified problems, client contexts including environmental and social supports, as well as, integrate problem solving skills to address unique patient circumstances, in order to plan and direct effective patient care in a time effective manner. Clinical reasoning is a complex multi-faceted process imperative for effective, client centered patient care, and improved medical outcomes. It entails comprehensively gathering information regarding the clinical situation, as well as incorporating clinical experience with problem solving based on client response, in order to determine the most appropriate intervention to facilitate progress toward improved client outcomes (Kuipers & Grice, 2009; Rogers, 1983).

This "decision making process," which health care professionals utilize to make informed practice decisions in patient care delivery, is a skill set that is developed through knowledge acquisition, clinical experience, and higher level cognitive processes and is integrated into clinical reasoning with all patient interactions (Fondiller, Rosage, & Neuhaus, 1990, p.42). Clinical reasoning is the integration of knowledge and clinical experience contributing to sound, rationale decision making and problem solving to effectively address patient care needs (deBeer & Vorster, 2012; Fondiller et al., 1990; Unsworth, 2001). Clinical reasoning encompasses judgments based on pragmatic components of situations and ethical considerations with service delivery (Coker, 2010; deBeer & Vorster, 2012). Various forms of clinical reasoning are utilized to provide comprehensive, client-centered patient care including scientific, narrative, conditional,

pragmatic, ethical, and dialectical reasoning (Edwards, Jones, Carr, Braunack-Mayer, & Jensen, 2004; Liu, Chan, & Hui-Chan, 2000; de Beer & Vorster, 2012). Development of clinical reasoning skill sets begins in health care professions' curriculum with instructional delivery methods providing students with the opportunity to analyze case scenarios to emphasize critical application to clinical practice needs with consideration of individual patient contexts.

Types of Clinical Reasoning

Scientific reasoning is implemented in health care practice with problem definition or identification of the underlying patient diagnoses, often referred to as diagnostic reasoning, (Edwards et al., 2004; de Beer & Vorster, 2012) with "the process used to maximize clients' functioning" termed procedural reasoning (Liu et al., 2000, p. 174). Health care professionals expand on this reasoning to gain further insight into a client's needs through narrative reasoning, which entails "understanding the patient's life stories in order to gain insight into their experiences of disability or pain and their subsequent beliefs, feelings, and health behaviors" (Edwards et al., 2004, pp. 314-315). In addition, conditional reasoning is utilized to gain insight into the impact "of the clients' disabilities in specific life contexts" (Liu et al., 2000, p. 174). These forms of reasoning are not often used independently, but integrally as a component of comprehensive client-centered patient care. Banning (2008) describes this holistic approach and view as dialectic reasoning skills involving consideration of the strengths and weaknesses of a client to determine appropriate interventions, rather than limiting focus to known impairments. Pragmatic reasoning considers the realistic implications involved with patient care, including costs, available resources, or length of patient stay, that impact intervention plans and discharge recommendations (de Beer & Vorster, 2012). With changes in health care reimbursement and cost containment efforts, health care professionals have experienced increased expectations to

work harder with less resources necessitating strong ethical reasoning. This includes consideration of what should be done to best address patient care needs and can sometimes be challenging for health care professionals due to the pragmatic aspects of changes in the health care delivery system (de Beer & Vorster, 2012; Zoltan, 2007). Integration of higher level cognitive skill sets and various types of reasoning skills, including scientific, conditional, pragmatic and ethical, are defining characteristics of the necessary clinical reasoning skills utilized to address unique patient care needs. Faculty in occupational therapy programs are challenged to address instructional methodologies to facilitate development of these crucial clinical reasoning skills in students preparatory to entry level practice.

Clinical Reasoning Development

Clinical reasoning skills may be developed thorough experiential learning opportunities in health care professions curriculum and through advanced clinical experience (Coker, 2010; Liu et al., 2000; Scott, Altenburger, & Kean, 2011; Yuan, Williams, & Man, 2014). In a quantitative, quasi experimental research study, Coker (2010) examined the change in twenty-five occupational therapy students' clinical reasoning scores after participating in a one week experiential learning program. This program included the provision of constraint induced movement therapy for six hours per day to children with hemiplegia by the occupational therapy students. Students completed the Self-Assessment of Clinical Reflection and Reasoning (SACRR) pre-and post-participation in the experiential program. Results indicated statistically significant improvements in 22 of the 26 items on the SACRR, however, limitations of this study include the self-reported data obtained from the assessment tool. In a quantitative research study, Vogel et al. (2009) examined thirteen occupational therapy students and thirty-seven physical therapy students' scores on the Watson Glaser Thinking Appraisal Test which was given when

the students first started the curriculum and then again at the conclusion of the Master's program to determine any impact of curriculum on development of critical thinking skills. "Critical thinking is a basic component of clinical reasoning" (Vogel et al., 2009, p. 152). Although no significant differences were found between occupational therapy student and physical therapy students pretest and posttest scores, statistically significant findings of $p = 0.007$ were found between occupational therapy student pretest and posttest scores supporting development of student critical thinking skills in the curriculum. Limitations of this study included a small sample size and tool use that is not discipline specific. Clinical reasoning skills are developed through experiential learning in curriculum and enhanced through clinical practice experience. Instructional methodologies to support development of student clinical reasoning skills are critical, as poor clinical reasoning is a commonly cited contributing factor to failure of occupational therapy student Level II fieldwork experiences (James & Musselman, 2005). Use of clinical simulation throughout occupational therapy curricula may provide opportunity to foster the development of clinical reasoning through simulated patient encounters incorporating unforeseen challenges to create experiences to guide reflective learning.

Impact of experience level on clinical reasoning. Experience level of the therapist impacts clinical reasoning skills with distinctions made between novice and expert occupational therapist clinical reasoning skill sets (Kuipers & Grice, 2009; Liu et al., 2000). Liu et al. (2000) found that occupational therapists use different types of clinical reasoning skills based on years of clinical experience. This qualitative, exploratory study investigated the clinical reasoning of twelve occupational therapists with varied clinical experience, who graduated from the same academic institution to determine if there were differences in the type of clinical reasoning utilized to address identified client problems based on the Canadian Occupational Performance

Measure. Study findings indicated that 74% of the more experienced occupational therapists utilized conditional reasoning compared to 10% of the therapists in the less experienced group with an average of 1.7 years of experience (Liu et al., 2000). Similarly, Unsworth (2011) examined the differences between novice occupational therapists defined as less than two months of experience and expert occupational therapists, who had more than five years of clinical experience, clinical reasoning processes. Treatment sessions were recorded by a portable, head mounted camera. The video recorded sessions were viewed afterward by the therapist and researcher with probing interview questions utilized to gain additional insight into the thinking processes occurring in the sessions. Findings indicated that 17.9% of expert therapists utilized procedural and interactive reasoning compared to 12% of novice therapists. It was also found that 64% of novice therapists utilized procedural reasoning, which was higher than 52.6% of expert therapist (Unsworth, 2011). Research studies indicate that occupational therapy experience levels impact the types of clinical reasoning skills utilized with treatment plan development, thus provision of clinical simulation with standardized patients in occupational therapy curricula may provide students with opportunity to develop clinical reasoning skill sets prior to actual patient interactions on fieldwork.

In addition to years of clinical experience that impact clinical reasoning skills, therapists have preexisting values that may contribute to the clinical reasoning process. Fondiller et al. (1990) completed an exploratory, qualitative research study examining the influence of values on occupational therapists' clinical reasoning, noting that clinicians have unique preexisting value systems that contribute to their reasoning processes with patient care. These values may be reflective of the clinician's prior life and work experiences and impact patient care decision making. Student learning can be enhanced through increased understanding of diverse

perspectives contributing to individual decision making with shared experiences related to problem solving complex simulated patient situations.

Clinical Simulation

Clinical simulation is defined as "the artificial representation of a phenomenon or activity," utilized as a teaching methodology to help health professions' students practice skill sets in a safe environment prior to actual patient interactions (Larew et al., 2006, p.17). Clinical simulation is utilized in health care professions programs to facilitate development of critical thinking, problem solving (Vyas et al., 2011), decision making (Guhde, 2010), therapeutic communication skills (Lee, Chang, Chou, Boscardin, & Hauer, 2011; Velde et al., 2009), and physical skill sets necessary for effective, safe patient care (Bethea et al., 2014; Herge et. al., 2013). The use of clinical simulation in educational programs allows students to practice skill sets and integrate reflection of experiences to enhance learning in a safe, controlled environment prior to actual patient interactions on fieldwork, providing the opportunity for feedback allowing the student to develop without patient risk (Bethea et al., 2014; Dearmon et al., 2013; Harder, 2010). The effectiveness of clinical simulation, as an instructional methodology, requires development of specific student learning objectives to be achieved through participation in the simulated patient encounter, consisting of a pre-simulation preparation, the simulation experience, followed by a debriefing for reflective learning.

Components of Simulation

Educational simulation experiences involve pre-simulation preparation and introduction of students to the simulation process (Herge et al., 2013; Wu & Shea, 2009), the simulation experience, and then culminate with a debriefing reflection of student performance for further development (Grant, Dawkins, Molhook, Keltner, & Vance, 2014; Vyas et al., 2011). The pre-

simulation experience, simulation encounter, and post simulation debriefing are all necessary components of the clinical simulation experience to enhance student learning and provide a meaningful simulated clinical encounter in a safe environment designed to meet educational objectives.

Pre-simulation experience. Prior to the clinical simulation encounter, the methodologies need to be carefully considered to address student learning objectives and the logistics of clinical simulation development need to be considered including the environmental set-up, equipment needs, number of standardized patients needed, as well as faculty workload to effectively implement the clinical simulation encounter for student learning (Herge et al., 2013). The pre simulation experience involves case study development (Vyas et al., 2011), establishment of learning objectives for the simulation (Wu & Shea, 2009), staging the clinical scenario, and device set-up or training of standardized patients to replicate patient care scenarios (Herge et al., 2013;Yeung, Dubrowski, & Carnahan, 2013). When using standardized patients for clinical simulation, an important aspect of the pre-simulation involves the recruitment of standardized patients for clinical simulation which may include networking with local health care professionals, the use of student actors in the academic institution's theater department, or the use of faculty in the role of the standardized patient. Standardized patients need to be trained to replicate the characteristics typically exhibited by a client with a specified diagnosis for educational purposes during the clinical simulation (Giles et al., 2014; Shoemaker et al., 2011).

Simulation experience. The "simulation refers to a person, device, or set of conditions that attempts to authentically present education and evaluation problems" (Herge et al., 2013, p. 229). This authentication of the simulation experience is expressed as either low or high fidelity, indicating how representative or realistic the simulation is depicting an actual case scenario and

requiring the skills needed to address the patient care needs (Herge et al., 2013; Shoemaker et al., 2011; Yeung et al., 2013). In addition, presentation of simulated case scenarios in a consistent manner though appropriate training of standardized patients or provision of simulated encounters utilizing technology or case studies provides a fair, accurate representation, improving fidelity of the experience (Ragan, 2013).

Clinical simulations are described as low or high fidelity based on how closely the clinical simulation replicates a real client encounter (Shoemaker et al., 2011); the use of trained standardized patients is considered a high fidelity clinical simulation method allowing students the opportunity to interact with an individual trained to depict characteristics consistent with clinical practice in order to prepare students for future patient encounters in a safe supervised environment. Silberman, Litwin, Panzarella, and Fernandez-Fernandez (2016) found that the use of high fidelity human simulation in physical therapy curriculum resulted in a significant increase in self-efficacy prior to clinical experiences, as well as, development of clinical reasoning skills to address unforeseen changing medical needs in a safe environment. Furthermore, Baird et al. (2015) describe the use of SimMan, a high-fidelity manikin, as a teaching methodology in occupational therapy curriculum to educate students on proper, safe functional transfers with a simulated acute care patient. Incorporation of an unforeseen medical event during the clinical experience provided additional learning opportunities for occupational therapy students to facilitate clinical reasoning without risk to a patient in preparation for future patient interactions (Baird, Raina, Rogers, O'Donnell, & Holm, 2015). Reflective analysis of the simulated encounter through post simulation debriefing can further enrich student learning.

Debriefing. Post simulation learning is enhanced through debriefing, including student reflection on performance and discussion of feedback from faculty, individuals acting in the role

as standardized patients, and in some cases peers involved in clinical observation of the simulated process (Wu & Shea, 2014). Debriefing after the clinical simulation process is considered an integral component for enhancing student learning which may help students create meaning from the experience in order to foster clinical reasoning (Dreifuerst, 2012). The debriefing may include faculty facilitated small group discussion related to components of the simulation that went well, encountered student challenges and surprises during the clinical simulation, and reflective analysis of video recorded simulations to allow for student self-critique of performance for development (Grant et al., 2014; Larew et al., 2006; Tosterud, Hall-Lord, Petzäll, & Hedelin, 2014). Learning through simulation can be enhanced through video recording of the student participation in the simulation to provide opportunity for self-reflection to increase awareness of areas for growth and additional practical insights related to the simulated patient encounter for future consideration (Festa, Baliko, Mangiafico, & Jarosinski, 2000). Following the simulation experience, faculty guided debriefing can provide help with clinical decision making (Guhde, 2010) and clinical reasoning applicable to future skill set development (Kelly, Hager, & Gallagher, 2014).

Larew et al. (2006) describe a simulation protocol utilizing reflective debriefing with ten novice intensive care nurses after a high fidelity human patient simulation encounter with a computerized manikin. Debriefing of the experience occurred in a small group to allow for sharing of perceptions and recognition of unique influences of emotions and contexts influence on outcomes. Reported finding indicated valuable learning from the debriefing process to enhance understanding of decision making process, areas for improvement, and critical assessment of patient care organization. Similarly, Tosterud et al. (2014) found students perceived that debriefing after human patient simulation was the most valuable component of the

simulation process, despite student reported fear of vulnerability with possible revelation of lack of knowledge.

Debriefing after clinical simulation is a critical component of clinical simulation regardless of method of simulation implemented. This study focused on clinical simulation with the use of standardized patients which will provide students the unique opportunity to debrief with simulated patients to gain further insight into how their skill sets were perceived by the patient to enhance learning.

Methods. There are a number of clinical simulation methods utilized in health care professions programs for student learning including human patient simulation utilizing high technology simulated manikins, standardized patient simulation, as well as video case studies (Becker, Rose, Berg, Park, & Shatzer, 2006; Bethea et al., 2014; Festa et al., 2000; Yoo & Yoo, 2003). Bethea et al. (2014) examined survey responses from 245 occupational therapy and occupational therapy assistant programs in the United States related to the use of simulation in curricula and types of methods utilized. The primary methods of simulation being implemented in occupational therapy and occupational therapy assistant programs involves human simulation (75%) or use of video case studies (69%) (Bethea et al., 2014). Despite 71% of responding programs indicating use of some form of simulation in the curricula, there remains limited research related to clinical simulation with standardized patients in occupational therapy programs and impact on student learning (Bethea et al., 2014).

Standardized patients are individuals who have been trained to accurately portray characteristics typically exhibited by a client with a specified diagnosis for educational objectives (Giles et al., 2014; Shoemaker et al., 2011). Training of standardized patients may include comprehensive review of the clinical case to be depicted in writing and through verbal

instruction, viewing of video recorded simulations, or demonstration of simulated encounter for consistency of standardized patient depiction of case study (Herge et al., 2013; Panzarella & Manyon, 2008). Castillo (2011) integrated the use of clinical simulation with standardized patients to provide students the opportunity to complete an occupational therapy evaluation with a mock patient. Simulated experiences with standardized patients allow students to practice skill sets, gain insight into professional communication for therapeutic rapport, develop clinical reasoning, as well as provide faculty with insight into student skill sets to guide future instructional delivery (Castillo, 2011; Giles et al., 2014; Herge et al., 2013).

Alternate methods of simulation utilized as teaching methods to enhance student learning with minimized risk include simulated virtual environments to represent potential patient encounters (Sabus, Sabata, & Antonacci, 2011; Seibert et al., 2004). Advances in technology have enabled faculty to simulate clinical scenarios as a component of distance education (Seibert et al., 2004) or implement low technology options of DVD simulations for teaching and student development of clinical observation skills for clinical preparation (Williams, Brown, Scholes, French, & Archer, 2010). Seibert et al. (2004) examined differences in knowledge outcomes of two groups of nurses enrolled in a Master's practitioner certificate course. The experimental group received a one hour clinical simulation integration via satellite technology to supplement lecture course content with findings indicating significantly higher topic knowledge and integration mean test scores than the control group (Seibert et al., 2004). Different methods of simulation have been utilized to provide health care professions students the opportunity to gain insight into the roles and unique contributions of each member of the interprofessional team to cultivate future collaboration with patient care in the health care environment.

Interprofessional Education

Students in health care professions programs need to be prepared to work collaboratively, as interprofessional team members, in a changing health care environment "An interdisciplinary approach in healthcare involves different professions contributing to patient care for a common goal" (Dillon et al., 2009, p. 87). Interprofessional clinical simulation has been used as a method to facilitate collaboration among health care professions students, as a means to foster increased understanding of different role and responsibilities of interprofessional team members and the unique contributions to address patient care needs (Koo, et al., 2014), as well as improve collaborative communication for effective patient care delivery (King, et al., 2014).

Dillon et al., (2009) investigated the use of clinical simulation, as an interprofessional educational experience for nursing and medical student collaboration. The perceptions of 31 fourth year nursing students and 9 medical students were analyzed utilizing the Jefferson Scale of Attitude Toward Physician-Nurse Collaboration pre and post interprofessional clinical simulation. Findings indicated significant differences in medical student perceptions related to collaboration ($p = .03$) and autonomy of nurses ($p = .025$) supporting the value of the use of clinical simulation as an instructional methodology to improve understanding of different health care professionals' roles in patient care interactions (Dillon et al., 2009). Furthermore, Shoemaker et al. (2011) found occupational and physical therapy students collaborated well with delivery of comprehensive evaluations of simulated clients, however noted some discomfort with communication due to lack of experience with patient interactions and interprofessional intervention planning. Interprofessional education opportunities through clinical simulation can improve student confidence (Koo et al., 2014), understanding of role delineations (Kraft, Wise, Jacques, & Burik, 2013), communicative team approach (King et al., 2014), and assist with

decision making to best meet patient care needs which can be facilitated through integration of a time in time out technique (Koo et al., 2013) and provision of tiered feedback (Koo et al., 2013). Assigned student roles within the interprofessional simulated experience may ensure student participation and foster a collaborative approach to educational learning (Koo et al., 2013).

Furthermore, Koo et al. (2014) found pharmacy and nursing students reported realism of the educational learning during simulation experience, improved understanding of interprofessional roles, and increased confidence after the standardized patient encounter. In addition, inclusion of the time in time out technique can allow students the opportunity to gain additional feedback from peers or faculty to guide decision making process when there is uncertainty. Interprofessional simulations can be designed to facilitate independent student decision making with assigned roles during the simulation process. This design was utilized in a pilot interprofessional education simulation with 30 nurse practitioner students which included community health care professional volunteers to increase the reality of the interprofessional experience (Koo et al., 2013).

Interprofessional communication is essential for patient discharge planning. In a mixed methods research study, Kraft et al. (2013) examined use of interprofessional simulation education, as a method to educate health care professions students on discharge planning, as an important aspect of patient treatment. Post simulation survey results examining perceptions of occupational therapy, physician assistant and physical therapy students' roles in a simulated discharge planning patient scenario indicated the experience provided students increased insight into the complexity of discharge planning for 88.6% of the students; $p = .001$. Interprofessional simulated educational experiences can contribute to student learning and individual development, providing guided insight into appropriate roles and delineations within the

interprofessional team, as well as provide an instructional method to foster collaborative learning through shared experiences.

Individual and Collaborative Student Learning

In addition to the use of clinical simulation as a method to facilitate interprofessional collaboration, research studies have also examined the use of clinical simulation as a method to enhance student learning utilizing both individual and small group clinical simulation encounters. Clinical simulation has been positively identified by health care professional students as a teaching method that provides enriched learning through "seemingly real life clinical encounters" (Gibbons et al., 2002, p. 215). Similarly, Velde et al. (2009) examined the perceptions of 23 occupational therapy students to assess how the use of standardized patients as an instructional methodology in occupational therapy curriculum compared to other teaching methods, including lecture, presentations, role play, paper and video cases. Students strongly preferred the use of standardized patient for simulated learning experiences with a mean average score of 3.86 on a 4 point scale. This was followed by video cases with a mean average score of 3.14.

Studies indicate that the use of clinical simulation can enhance student knowledge and confidence (Ohtake, Lazarus, Schillo, & Rosen, 2013; Silberman, Panzarella, & Melzer, 2013; Thomas & Mackey, 2012). Dearmon et al. (2013) investigated the knowledge assessment scores of 50 nursing students divided into small groups of 10-12, who participated in a two day simulation based orientation prior to clinical. Students were provided a pre and posttest utilizing a faculty developed tool of knowledge assessment. Posttest findings indicated a significantly higher mean average score of knowledge assessment; $p = .0007$. Additionally, Linden (2008) found statistically significant differences between mean scores of two groups of nursing students,

one group received content delivery with traditional lecture and audiovisual materials and the other group received traditional delivery and participated in a clinical simulation experience. Findings indicated that nursing students whose instruction included clinical simulation had higher mean test scores; $p < 0.000$ (Linden, 2008). Results from this study support the use of clinical simulation as an effective instructional method to improve nursing student learning outcomes.

The use of clinical simulation as an instructional method is perceived as a valuable tool as indicated in a study by Wu and Shea (2009). After completion of a simulated experience designed to improve student learning of intensive care practice, 100% of the 24 occupational therapy students completed a survey with reported responses denoting the process was valuable to their learning. Herge et al., (2013) reported similar survey findings with 69 out of 69 occupational therapy students reporting that participation in the simulation process was beneficial to learning.

Assessment of Student Learning

Clinical simulation has been used in health care professions programs to assess student skill levels and preparedness for clinical and fieldwork experiences (Giles et al., 2014). Assessment methods utilized vary between educational programs with some using clinical simulation as a formative assessment for learning with provision of feedback from faculty, peers, and/or standardized patients (Herge et al., 2013; Velde et al., 2009).

Giles et al. (2014) examined the perceptions of occupational therapy students regarding the use of clinical simulation with reflective video analysis, as comprehensive practical exam prior to fieldwork. Findings indicated that 93% of the students found the comprehensive practical examination, utilizing standardized patients to simulate patient encounters valuable to their

learning and fieldwork preparation with 71% indicating that the experience increased confidence levels. The use of clinical simulation as an assessment of student skill sets prior to clinicals or fieldwork has been helpful in identifying needed areas for development.

Self- reflection of performance after a clinical simulation encounter may provide the student with additional insight into areas for further skill set development and introduce them to an aspect of reflective practice that will further enhance clinical reasoning with patient care interactions. "As opposed to reflection (thinking about thoughts), reflective practice is critically linked to experience (thinking about experience) and to efforts to improve the experience" (Giles et al., 2014, p. S58), which is a benefit of the use of clinical simulation for student assessment to allow opportunity for growth prior to patient interactions and integration of reflective thinking. Student reflective analysis of personal performance during a simulated patient encounter assists with identification of strengths and areas for development preparatory to actual patient interactions during clinical experiences (Giles et al., 2014; Panzarella, & Manyon, 2008). Despite student reported anxiety with clinical simulation use as a skills assessment (Panzarella & Manyon, 2008), research findings have indicated increased confidence levels of students (Ohtake et al., 2013; Silberman et al., 2013; Thomas & Mackey, 2012) and overall satisfaction (Ragan et al., 2013), as a result of the process.

Assessment Methods

Integration of multiple assessment methods into the clinical simulation can result in enhanced student learning from the experience. Gibbons et al. (2002) integrated multiple forms of evaluation in a clinical simulation utilizing standardized patients and to enhance nursing student learning. Findings supported benefit of student self-evaluation of performance, peer observational feedback, in addition to faculty feedback, as valued components of the learning

process. Care must be taken to establish consistent standards of evaluation of student performance during clinical simulation experiences when multiple faculty evaluators are proctoring high stakes assessments (Costello, Plack, & Maring, 2011; Stevens, Henderson, Hawthorne, & Carlson, 2013) providing "behavior based evidence that skills have been mastered" (Gardner, Stowe, & Hopkins, 2001, p. 238).

Additional uses of clinical simulation include preparation and training of clinical instructors on how to provide constructive student feedback. Recker-Hughes, Dungey, Miller, Walton, and Lazarski (2015) developed a clinical instructor training module, having 25 physical therapy clinical instructors from the community observe student interactions with standardized patients followed by interactive discussions about student performance to help clinical instructors develop strategies and methods of providing constructive feedback to facilitate student learning and aid students with successful clinical decision making. The use of open ended questioning to facilitate student clinical reasoning was emphasized in the training session with clinical instructors provided the opportunity to role play potential interactions with physical therapy students, as well as, observe a physical therapy student complete an evaluation of a standardized patient allowing the clinical instructors to implement strategies learned with feedback after the evaluation (Recker-Hughes et al., 2015). These strategies were utilized to assist clinical instructors with improving effectiveness of future teaching moments in the clinical setting with physical therapy students. Twenty-three participants completed a course evaluation indicating training session content provided valuable learning for clinical instructors to prepare for future facilitation of physical therapy student decision making in a clinical setting (Recker-Hughes et al., 2015).

Curricular Development

The use of clinical simulation in health care professions programs can be challenging due to faculty workload and labor intensiveness for simulation development and execution, as well as, require associated costs for technology, equipment needs, and compensation for standardized patients (Bethea et al., 2014). Faculty play a critical role in simulation design and development for effective student outcomes (Dillard et al., 2009). The use of clinical simulation in health professions programs has grown in the recent years with some institutions exploring possibilities of use of clinical simulations, as alternative to traditional clinical or fieldwork hours due to increased challenges with acquiring an adequate number of placements to meet academic needs (Bethea et al., 2014; Richardson, Goldsamt, Simmons, Gilmartin, & Jeffries, 2014). Clinical simulation, as an instructional and assessment method in health care professions programs, may provide valuable student learning opportunities and contribute to development of necessary higher level cognitive skill sets needed by students to transition successfully to clinical or fieldwork experiences.

Summary

Theoretical constructs of constructivism, experiential learning theory, and revised Bloom's taxonomy support the use of clinical simulation, as an instructional method. Clinical simulation can vary in design and implementation from low to high fidelity, and involve video case studies, virtual technology, human patient simulation with high technology manikins, or use standardized patients to depict typical characteristics of specified conditions based on a case study scenario. Due to the changing health care environment, health care professionals, including occupational therapists are treating more medically complex patients necessitating strong clinical reasoning and critical thinking skills for entry level practice. Integration of multiple methods of

evaluative feedback after student participation in clinical simulation experiences can enrich learning and assist with identification of growth opportunities in a safe environment prior to actual patient encounters (Gibbons et al., 2002; Herge et al., 2013). Despite the reported incident of 71% of 245 responding occupational programs indicating use of some form of simulation in the curricula, there remains limited research related to clinical simulation with standardized patients in occupational therapy programs and impact on student learning (Bethea et al., 2014). Dynamic changes in the health care environment necessitate appropriate changes in the instructional methods utilized in occupational therapy curricula in order to best prepare occupational therapy students to effectively meet the demands of clinical practice. The purpose of this study was to investigate the effect of clinical simulation with the use of standardized patients, as an instructional methodology, on graduate occupational therapy student preparation for Level II fieldwork.

Chapter 3: Research Design and Methodology

This quantitative, retrospective research study examined the effects of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork. This chapter will discuss the research design, sample participants including inclusion and exclusion criteria, as well as the research setting. Data collection instruments, collection procedures, and analysis of data obtained retrospectively, from a graduate occupational therapy course; Transition to Level II fieldwork, will be described.

Research Questions

Central Research Question

What were the effects of clinical simulation with the use of a standardized patient on graduate occupational therapy student preparation for Level II fieldwork in a Midwest occupational therapy program?

Subsidiary Research Questions

1. What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student clinical reflection and reasoning utilizing the Self-Assessment of Clinical Reflection and Reasoning tool, in a Midwest occupational therapy program?
2. What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student learning, in a Midwest occupational therapy program?
3. What components of the clinical simulation process did graduate occupational therapy students enrolled in a Master of Occupational Therapy program in the Midwest, find most valuable to their learning prior to Level II fieldwork?

Clinical Simulation for Educational Preparation

Clinical simulation with the use of standardized patients was utilized in a graduate occupational therapy course, Transition to Level II Fieldwork, taught by the researcher to assess student skill sets preparatory to Level II fieldwork and to assist students with identification of potential areas for additional review prior to Level II fieldwork. Transition to Level II Fieldwork is a one credit hour required course in the last semester of graduate, didactic coursework and precedes occupational therapy student participation in Level II fieldwork. As a course requirement, all occupational therapy students participated in two clinical simulations, completing an occupational therapy evaluation of a standardized patient initially in a small group and then individually three to four weeks after the group clinical simulation experience. The clinical simulation experiences were designed to provide graduate occupational therapy students the opportunity to complete an occupational therapy evaluation on a standardized patient with evaluation components provided to the student on the Clinical Skills Assessment Rubric (Appendix B) within established time guidelines to prepare students for Level II fieldwork. Time guidelines were designed to help prepare occupational therapy students for clinical expectations on Level II fieldwork based on feedback received from fieldwork educators supervising Level II fieldwork students in rehabilitation settings. Each clinical simulation experience consisted of the following components:

- Student pre-simulation preparation with assigned reading and identified content areas for review.
- Students had 15 minutes to complete a medical chart review to obtain relevant information from the patient medical history and gather any

necessary equipment that student anticipated that she may need during the evaluation process.

- Students had 30 minutes to complete an occupational profile and assess cognition, complete a visual screen, upper and lower body dressing, functional transfers, bed mobility, and upper extremity range of motion/strength with a standardized patient.
- After the clinical simulation experience students had 15 minutes to document the session.
- Debriefing with course instructor and classmates was completed after clinical simulation experiences.

Group Clinical Simulation

Prior to participating in the initial group clinical simulation, each student was required to complete the Self-Assessment of Clinical Reflection and Reasoning (Appendix A) and submit it electronically in an established online drop box for the course. For the group clinical simulation, students were assigned specific roles in the occupational therapy evaluation process and worked collaboratively in groups of three to five to complete an occupational therapy evaluation with a standardized patient. Individual assigned student roles within the occupational therapy process included environmental set-up and infection control procedures, completion of an occupational therapy profile, basic visual screening, upper extremity assessment including range of motion and strength, assessment of upper and lower body dressing, functional transfer from bed to chair, and bed mobility. Documentation of the evaluation was completed collaboratively by all students with a treatment plan and goals submitted for formative feedback from the course instructor. The formative feedback was not graded and was provided to each student based on their own

individual performance in assigned role within the group clinical simulation utilizing the Clinical Skills Assessment Rubric (Appendix B). Formative non-graded feedback was provided to all students prior to the students completing the individual clinical simulation. Students also participated in a debriefing after the group clinical simulation with the course instructor and classmates in their assigned course section. The group clinical simulation was designed to provide students formative, non-graded feedback related to performance before the students completed the clinical simulation with a standardized patient individually for a course grade. In addition to formative feedback from the course instructor, students were assigned to watch the video recorded group clinical simulations, grade their own performance utilizing the instructor developed Clinical Skills Assessment Rubric (Appendix B), and submit a typed self-analysis of performance identifying key learning, what was most surprising about the clinical simulation experience, the most valuable aspect of the simulation process to student learning, and what the student would change with future encounters.

Three to four weeks after participating in a group clinical simulation with standardized patient, each student completed the occupational evaluation process with a standardized patient individually. After completion of the individual clinical simulation experience with a standardized patient, the students completed the Self-Assessment of Clinical Reflection and Reasoning again, as a posttest. Data obtained from graduate occupational therapy student participation in clinical simulation with standardized patients was examined retrospectively after approval from the Institutional Review Board to examine the effects of clinical simulation with the use of a standardized patient on graduate occupational therapy student preparation for Level II fieldwork in a Midwest occupational therapy program.

Standardized Patients for Clinical Simulation

The standardized patients for the clinical simulation experiences were health care professionals, who were prepared to depict characteristics typical of specified diagnoses. Case studies were emailed to the standardized patients for review at least one week prior to the scheduled simulation. The course instructor also met with each health care professional acting in the role of a standardized patient one hour prior to the simulation to review the case, clarify any questions, and provide an overview of expectations for continuity of experiences between student groups. Standardized patients were trained to portray characteristics typically exhibited by individuals with primary medical diagnoses commonly seen in physical rehabilitation settings including total hip arthroplasty (THA), cerebrovascular accident (CVA), total knee arthroplasty (TKA), or generalized weakness.

Research Design

A quantitative one group pretest posttest design was utilized to determine what effect the use of clinical simulation with the use of standardized patients had on graduate occupational therapy student preparation for Level II fieldwork. This research design is intended to be used to assess if a change has taken place in a single group after implementation of a specified intervention based on comparison of pretest and posttest data (Kielhofner, 2006; Leedy & Ormrod, 2013).

For purposes of this study, occupational therapy students enrolled in a Level II fieldwork preparation course participated in two separate clinical simulation experiences with a standardized patient in which they completed an occupational therapy evaluation consisting of components outlined on the Clinical Skills Assessment Rubric. These clinical simulation experiences occurred within a five week period during the course of the semester. All students

completed the Self-Assessment of Clinical Reflection and Reasoning (SACRR) prior to participation in a clinical simulation experience with a standardized patient portraying the characteristics typically exhibited by a patient with a specified diagnosis and again after the last clinical simulation experience.

Student performance was evaluated during each clinical simulation experience by the course instructor, a full-time faculty member in the occupational therapy department or one of two adjunct faculty members hired by the university to assist with evaluation of occupational therapy students during individual clinical simulations. A Clinical Skills Assessment Rubric (see Appendix B) developed by the course instructor, based on the seven component performance areas in the American Occupational Therapy Association Fieldwork Performance Evaluation of the Occupational Therapy Student, which is used by fieldwork educators to evaluate occupational therapy student entry level competency development during Level II fieldwork, was utilized to assess student skill sets during each clinical simulation experience (American Occupational Therapy Association, 2002).

During the first clinical simulation experience, occupational therapy students completed an occupational therapy evaluation with a standardized patient in a small group with assigned roles within the evaluation process. Student performance during the clinical simulation was video recorded. The course instructor, who is also the researcher, evaluated each student's performance utilizing the Clinical Skills Assessment Rubric in person during the group clinical simulation experience. Two adjunct faculty independently viewed the recorded group clinical simulation experience and assessed performance utilizing the same tool. The researcher's and adjunct faculty scores of two of the student small groups' performance were compared to determine inter rater consistency of the assessment tool utilized.

Students received feedback regarding performance during the group clinical simulation experience, debriefed on the experience with the researcher and classmates, and self-analyzed their recorded performance during the group clinical simulation utilizing the Clinical Skills Assessment Rubric. Students individually participated in a second clinical simulation with a standardized patient three to four weeks later in which each student was provided 15 minutes to review a medical chart to obtain relevant background information on the patient, 30 minutes to complete an occupational therapy evaluation, and 15 minute to document the session. Student performance was assessed utilizing the course instructor developed rubric by either the course instructor or one of two adjunct faculty members. All feedback and scores were reviewed by the course instructor for consistency with the course instructor providing the final assessment grade. Clinical Skills Assessment Rubric data was collected, scanned, stored on a university password protected computer system and coded for anonymity by an individual hired by the researcher after IRB approval to retrospectively examine the data.

Quantitative research is appropriate to answer the research questions with statistical analysis of the pretest posttest SACRR scores to determine if there was a significant difference in SACRR scores in occupational therapy students after the clinical simulation experiences. Data was analyzed utilizing the Statistical Package for Social Scientists (SPSS) to compare pretest and posttest scores with a dependent sample t tests. Student performance during the clinical simulation experience utilizing the course instructor developed rubric was also analyzed to assess changes in scores reflective of learning. Qualitative research was not appropriate for this research study, as the variables were known to the researcher and a clear purpose was identified to examine the effect of clinical simulation with standardized patients on graduate occupational therapy student preparation for Level II fieldwork (Leedy & Ormond, 2013).

Sample Participants and Procedures

For purposes of this study, a convenience sample of 49 full-time graduate occupational therapy students enrolled in a Level II fieldwork preparation course offered in the last semester of didactic coursework prior to attending Level II fieldwork at a private Midwestern, Catholic women's university, was utilized. This sample represented all full-time graduate occupational therapy students in the program enrolled in the researcher's Level II fieldwork preparation course, providing accessibility, consistent with convenience sampling (Urdan, 2010). Due to the full-time graduate occupational therapy student enrollment number of 49, the sample size included the entire population to represent all full-time graduate occupational therapy students in the program to reduce risk of sampling error and obtain greatest effect (Patten, 2009). Sample size should be inclusive of "the largest sample possible" in quantitative research to maximize effect of results (Kielhofner, 2006, p. 524).

Inclusion Criteria.

In order to participate in this study, students needed to meet the following inclusion criteria.

1. Students were currently enrolled, full-time occupational therapy graduate students in the final semester of didactic coursework.
2. Students had a Bachelor's degree and completed all prerequisite occupational therapy coursework.

Exclusion Criteria.

For purposes of this study, graduate occupational therapy students with the following criteria were excluded.

1. Students were not included in this study if they were part-time in the occupational therapy program.

2. Students were not included if they were retaking the course due to prior course failure.

Research Setting

The research setting was a Master of Occupational Therapy program at a private Midwestern, Catholic, women's university. Clinical simulation experiences took place in designated occupational therapy lab spaces on the university campus.

Data Collection Instruments

Multiple research instruments were utilized to answer the central research question of this study: What were the effects of clinical simulation with the use of a standardized patient on graduate occupational therapy student preparation for Level II fieldwork in a Midwest occupational therapy program?

Self-Assessment of Clinical Reflection and Reasoning

The Self-Assessment of Clinical Reflection and Reasoning (SACRR) was utilized to examine the effect participation in clinical simulation with a standardized patient prior to Level II fieldwork had on graduate occupational therapy student clinical reasoning (Appendix A). Internal consistency reliability of the tool utilizing a Cronbach's alpha was ".87 for the pretest and, 92 for the posttest" in a study conducted by the developer of the SACRR (Royeen,et al., 2000, p. 110). The first section of the SACRR provided student demographic data including age, educational background, and any previous healthcare experience to gain insight into possible confounding variables that may impact student clinical reasoning development. In addition, the student responded to 26 statements, utilizing a five point Likert scale, pre and post implementation of clinical simulation experience with a standardized patient to determine the effect on graduate occupational therapy student clinical reasoning development.

Clinical Skills Assessment Rubric

Course instructor developed Clinical Skills Assessment Rubric was utilized to assess student performance during the group and individual clinical simulations with a standardized patient (Appendix B). The rubric incorporated seven performance areas utilized to assess occupational therapy student skill sets during Level II fieldwork based on the American Occupational Therapy Association Fieldwork Performance Evaluation for the Occupational Therapy Student (American Occupational Therapy Association, 2002). These areas are identified by the American Occupational Therapy Association, as performance assessment areas to develop entry level competency skill sets for successful completion of Level II fieldwork, providing a basis for content validity for the researcher developed rubric (Leedy & Ormond, 2013). This rubric was developed for use in a Transition to Level II Fieldwork course to assess skill sets of graduate occupational therapy students during a simulated occupational therapy evaluation with a standardized patient in the last semester of didactic coursework prior to Level II fieldwork.

Clinical Simulation Experience Survey

A Clinical Simulation Experience Survey (Appendix C) developed by the course instructor was provided to all of the graduate occupational therapy students enrolled the instructor's Transition to Level II fieldwork course at the end of the semester. The Clinical Simulation Experience Survey included a list of different components of clinical simulation experiences with a standardized patient including the pre-simulation, simulation experience, and debriefing based on educational clinical simulations (Dreifuerst, 2012; Festa et al., 2000; Grant et al., 2014; Herge et al., 2013; Vyas et al., 2011; Wu & Shea, 2009), that students encountered during the semester, as part of their coursework. Clinical simulation components were rated by students utilizing a five point Likert scale to identify most valuable aspects of the simulation

process on individual student learning. Any components of the simulation process that students found valuable, but were not captured by the listed items were indicated in a space designated for additional comments.

Data Collection Procedures

Data was collected as a component of graduate occupational therapy student enrollment in a Transition to Level II Fieldwork course in the curriculum. Students completed the Self-Assessment of Clinical Reflection and Reasoning (SACRR) pre/post participation in two clinical simulations with a standardized patient portraying a primary medical diagnosis of either a cerebrovascular accident (CVA), total hip arthroplasty (THA), total knee arthroplasty (TKA), or generalized weakness. All students submitted the SACRR electronically into a course drop box which was stored on a password protected computer system the day before participation in the group clinical simulation with a standardized patient and within one week of completion of the final individual clinical simulation. Demographic survey data, including student age, prior educational degrees, and previous healthcare experience not including fieldwork, as well as, the student self- reported data on the SACRR forms (see Appendix A) were collected, scanned, saved on a university password protected computer. After IRB approval was obtained, the data was coded for confidentiality and anonymity of the student by an individual hired by the researcher.

Graduate occupational therapy students participated in two different clinical simulation experiences with a standardized patient over a five week period as a course requirement. The first clinical simulation experience with a standardized patient was completed in small groups of four to five students with each student having a minimum of two assigned roles within the occupational therapy evaluation process. Roles included the evaluation recorder, also responsible for environmental set-up and infection control procedures, completion of an occupational profile

including medical chart review, basic visual screening, upper extremity assessment, activities of daily living assessment, functional transfer assessment, bed mobility, and documentation of recommendations for plan of care. Group clinical simulations were audio and video recorded for student self-reflection and analysis of performance with a requirement for each student to grade themselves utilizing the rubric and submit the completed rubric with a self-reflection of the experience. The course instructor, a full time occupational faculty member provided quantitative and qualitative formative feedback based on individual assigned roles within the group clinical simulation.

The Clinical Simulation Experience Survey was provided electronically to all graduate occupational therapy students enrolled in a Transition to Level II fieldwork course at the end of the semester. Students submitted the Clinical Simulation Experience Survey electronically in a course drop box with gathered information stored on a password protected university computer.

Data Quality Measures

Prior to individual student performance assessment by the course instructor or one of two adjunct faculty members hired by the university to assist with evaluation of occupational therapy students, all faculty members individually watched the video and audio recorded group clinical simulations and independently assessed student performance based on the student assigned role in the occupational therapy evaluation of the standardized patient utilizing the course instructor developed rubric to establish inter rater consistency between faculty assessment of student performance. Faculty numerical ratings of student performance and qualitative comments to support ratings were reviewed by the course instructor and used to establish guidelines for key student skill set expectations for proctors to assess based on the rubric during individual clinical simulation experience. Each individual student rubric was reviewed by the course instructor for

consistency with point distribution and all student documentation graded by the course instructor. Rubrics were scanned and saved on a password protected university computer system. Collected data was stored on a password protected university computer until approval was received from the university's Institutional Review Board for analysis. Student names were removed from all collected data for anonymity and students randomly assigned a number for data coding. The researcher developed a code book with coding definitions which was provided to an individual hired by the researcher to code data obtained retrospectively from student Clinical Skills Assessment Rubrics, pre/post Self-Assessment of Clinical Reflection and Reasoning (SACRR) scores, Clinical Simulation Experience Survey, and demographic data provided on the SACRR.

Data Analysis Procedures

A dependent sample t test was utilized to compare differences in pretest and posttest ratings on the Self-Assessment of Clinical Reflection and Reasoning (SACRR). The researcher input coded data collected from the rubrics and simulation experience survey into Statistical Package for Social Scientists (SPSS) with descriptive statistics utilized to determine the mean, range, and mode of changes in scores on rubrics reflective of student learning, as well as, student reported value of clinical simulation components to learning. Dependent t tests were utilized to compare the mean scores between the two student performance ratings during each of the clinical simulation experiences with a standardized patient based on the course instructor developed clinical simulation skills assessment rubric. Dependent or paired sample t tests are appropriate "to compare mean scores on a single dependent variable", in this case comparing the mean student performance scores of two clinical simulations with standardized patients (Urdan, 2010, p. 94). Independent sample t tests of demographic data gathered from the Self-Assessment of Clinical Reflection and Reasoning tool were utilized to "compare the means of two independent

samples on a given variable" specifically educational degrees and previous health care experience, not including fieldwork within the curriculum, on differences in clinical reasoning scores on the SACRR pre and post participation in clinical simulations (Urdan, 2010, p.93).

Ethical Considerations

The researcher obtained approval from the Division Chair of Health Professions and the Program Director of the occupational therapy department to retrospectively examine data collected, as a component of a Transition to Level II fieldwork course taught by the researcher. No data was analyzed prior to obtaining university administration approval and permission from the Institutional Review Board (IRB). Due to the retrospective nature of this study, informed consent of participants was not possible, as the data was collected for educational purposes while participants were enrolled in a required occupational therapy course during the last semester of didactic coursework prior to Level II fieldwork.

For the protection of each participant, all data was stored on a password protected university hard drive. Anonymity of participants was maintained with collected data and names removed from data sources, protecting participants from potential harm caused by unfavorable responses made about simulation learning experiences or self-reported assessment of clinical reasoning by faculty or future employers.

Summary

The methodology and design, for this retrospective, quantitative research study to examine the effects of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork, was discussed in this chapter. This included the study's central and subsidiary research questions, as well as, a background for study based on the use of clinical simulation for occupational therapy student educational preparation in a

Midwest occupational therapy program. Data collection instruments, procedures, and analysis were described in addition to ethical considerations due to the retrospective nature of this study. Results of data analysis will be discussed in Chapter 4

Chapter 4: Results

The purpose of this retrospective, quantitative research study was to examine the effects of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork. This chapter will discuss descriptive statistics related to background characteristics of the sample, as well as findings from statistical tests of data obtained from the Self-Assessment of Clinical Reasoning and Reflection tool, Clinical Skills Assessment Rubric, and Clinical Simulation Experience Survey utilized to address central and subsidiary research questions. The statistical significance level was set at $p < .05$.

Sample Demographics

The convenience sample included 49 full-time occupational therapy students enrolled in Transition to Level II Fieldwork which was a required course in the final semester of didactic coursework in the occupational therapy curriculum prior to Level II fieldwork, at a private Midwestern, Catholic women's university. Age of occupational therapy students ranged from 22-37, with 44 students between the ages of 22-29 and five occupational therapy students 30 years of age or older. Educational background of the occupational students varied, with 21 out of the 49 of the occupational therapy students obtaining a Bachelor's degree prior to enrolling in the combined Bachelor of Rehabilitation Studies (BRS)/Master of Occupational Therapy (MOT) program. In addition, 51% of the graduate occupational therapy students reported prior healthcare experience, not including fieldwork experiences in the occupational therapy curriculum as depicted in Figure 4.

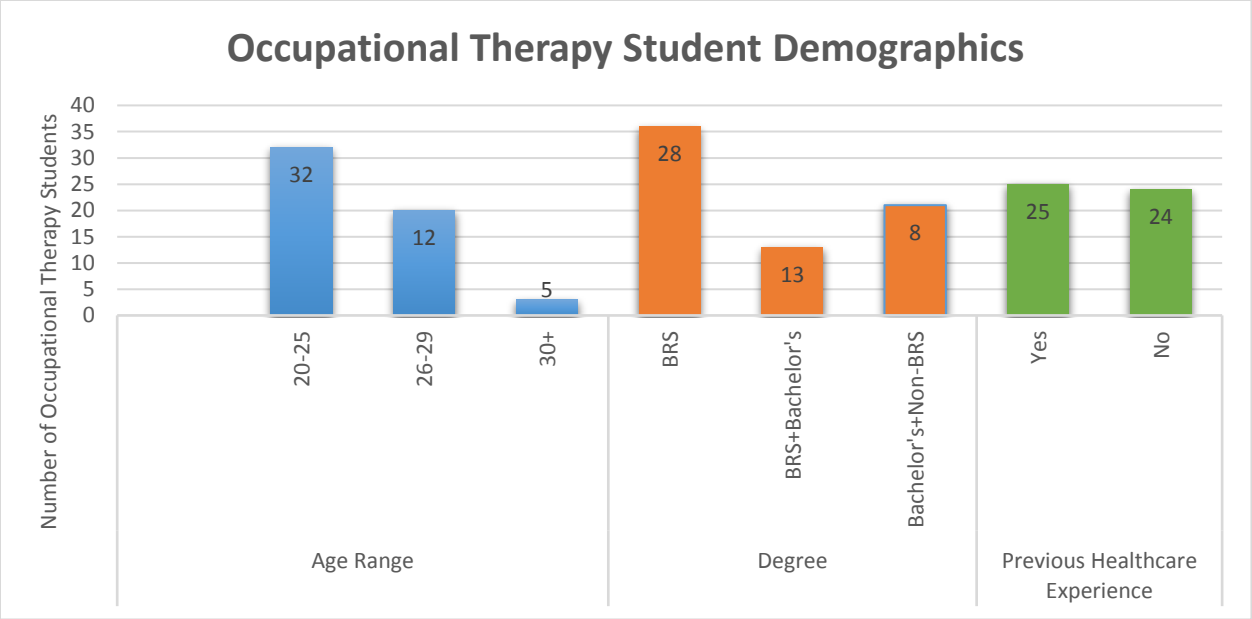
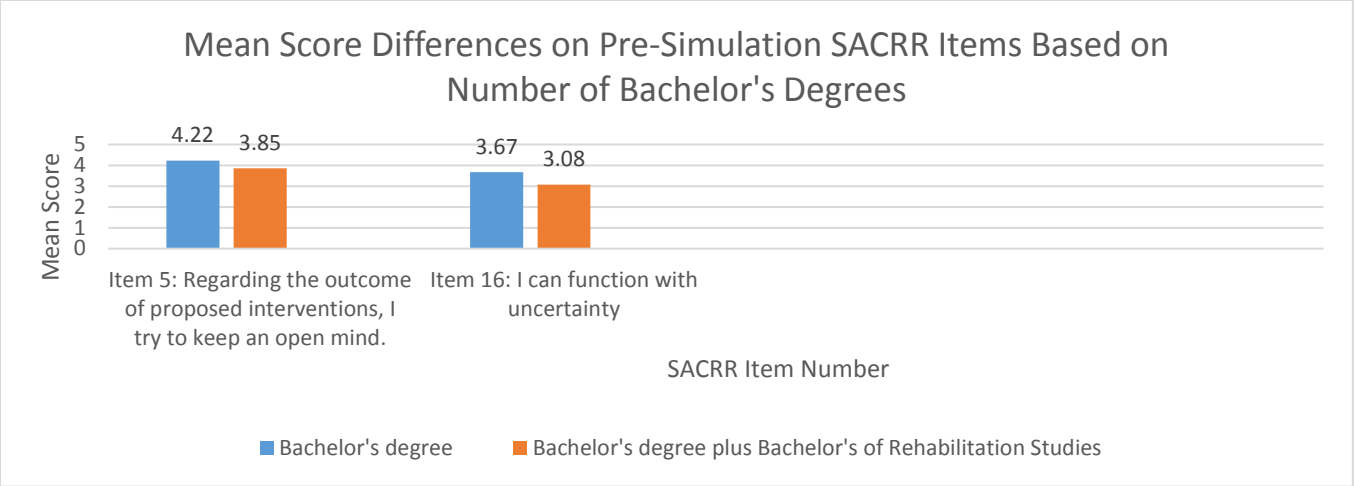


Figure 4 Occupational Therapy Student Demographics

Educational Degree

Demographic data was analyzed using independent samples t tests to compare the difference in pre-and post-scores on each item of the Self-Assessment of Clinical Reflection and Reasoning Tool (SACRR) based on the number of Bachelor's degrees earned by each student prior to occupational therapy graduate coursework. Graduate occupational therapy students with only one Bachelor's degree had statistically higher significant differences between pre-simulation self-reported ratings on the SACRR (see Appendix A) compared to graduate occupational therapy students with two Bachelor's degrees on item numbers five and sixteen. Findings indicate a statistically significant group difference in mean scores on item number five, "*Regarding the outcomes of proposed interventions, I try to keep an open mind,"* based on number of degrees ($t(47) = 2.14$, $p = .038$) as depicted in Figure 5. Graduate occupational therapy students with only one Bachelor's degree had significantly higher pre-simulation mean scores on SACRR item number sixteen, "*I can function with uncertainty*," than those with more than one Bachelor's degree ($t(47) = 2.25$, $p = .029$) as depicted in Figure 5.



The mean difference is significant at $p < .05$

Figure 5: Mean Score Difference on Pre-Simulation SACRR Items Based on Number of Bachelor's Degrees

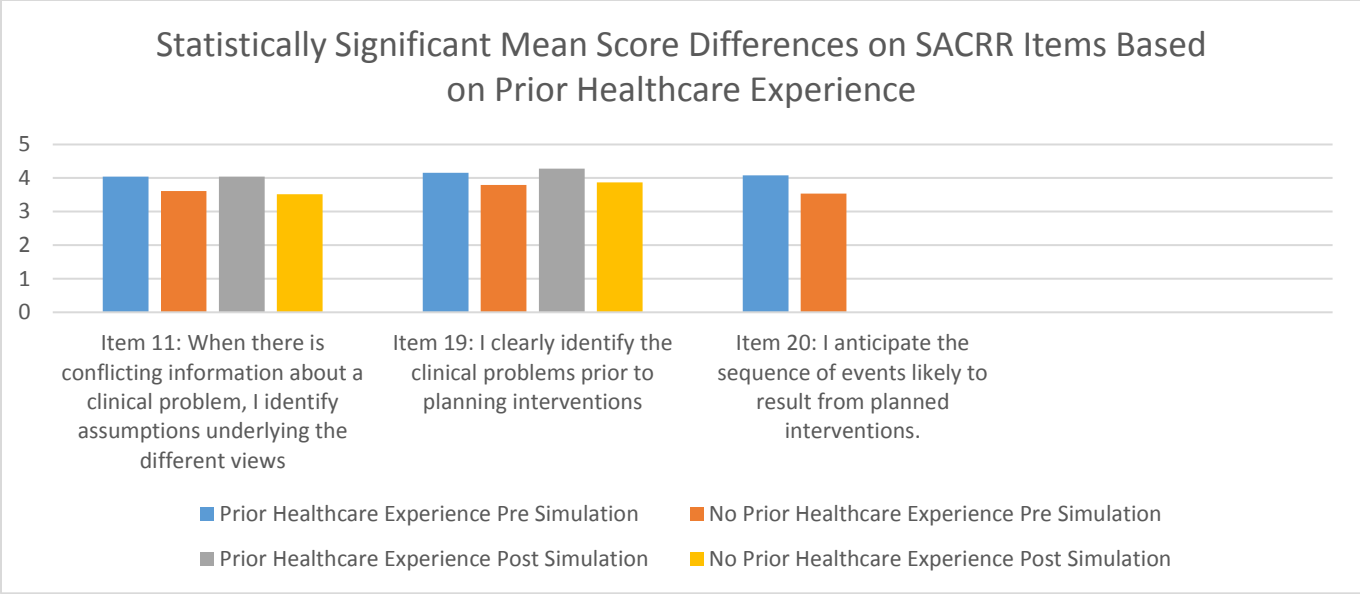
Healthcare Experience

Independent samples t-tests were utilized to determine whether there were group differences on each item on the SACRR (see Appendix A) between students who had previous healthcare experience, not including fieldwork experiences within the occupational therapy curriculum and those who did not have any prior healthcare experience. Forty-nine students completed the SACRR pre-simulation and 48 completed the survey post-simulation. One student did not submit the post-simulation survey in an accessible format to open for analysis. Figure 6 depicts findings indicating statistically significant differences in mean scores between pre-and post-simulation ratings on items 11 and 19, and a statistically significant difference in mean scores on pre-simulation item number 20 based on identified prior level of healthcare experience.

Findings indicated that graduate occupational therapy students who had prior health care experience had statistically higher mean differences on pre ($M = 4.04$, $SD = .68$) and

post (*M* = 4.04, *SD* = .46) SACRR ratings for item eleven than graduate occupational therapy students pre (*M* = 3.61, *SD* = .72) and post (*M* = 3.52, *SD* = .73) who only had health care experience through fieldwork in the occupational therapy curriculum. Graduate occupational therapy students who had prior health care experience had significantly higher pre-simulation mean scores on SACRR item eleven, "*when there is conflicting information about a clinical problem, I identify assumptions underlying the different views*," (*t*(46) = 2.14, *p* = .038) and post-simulation mean scores (*t*(46) = 2.98, *p* = .005) on this item compared to occupational therapy students without healthcare experience outside of the curriculum.

Additionally, there was a statistically significant difference in mean scores between graduate occupational therapy students with healthcare experience and graduate occupational therapy students without prior healthcare experience on pre-simulation (*t*(47) = 2.12, *p* = .039) and post-simulation SACRR item number nineteen, "*I clearly identify the clinical problems prior to planning interventions,*" (*t*(46) = 2.44, *p* = .019), as well as, pre simulation scores for item twenty (*t*(47) = 2.29, *p* = .027). Graduate occupational therapy students with prior healthcare experience had higher mean scores (*M* = 4.08, *SD* = .86) than students who did not have prior healthcare experience (*M* = 3.54, *SD* = .78) on pre simulation ratings for item number twenty which stated "*I anticipate the sequence of events likely to result from planned interventions,"* but not on post simulation ratings for this item.



The mean difference is significant at $p < .05$

Figure 6: Statistically Significant Mean Score Differences on SACRR Items Based on Prior Healthcare Experience

Data Analysis

Quantitative data coded for anonymity by an individual hired by the researcher was entered into the Statistical Package for the Social Sciences (SPSS) for analysis to address the central research question: What were the effects of clinical simulation with the use of a standardized patient on graduate occupational therapy student preparation for Level II fieldwork in a Midwest occupational therapy program? The following subsidiary research questions were developed to answer the central research question.

Research Questions

Research Subsidiary Question 1

What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student clinical reflection and

reasoning utilizing the Self-Assessment of Clinical Reflection and Reasoning tool, in a Midwest occupational therapy program?

A dependent paired samples t test was utilized to compare differences in pretest and posttest ratings on the Self-Assessment of Clinical Reflection and Reasoning (SACRR) to determine if there was an effect on occupational therapy student mean scores after participation in a group and individual clinical simulation during Transition to Level II Fieldwork course prior to Level II fieldwork. Statistically significant differences were found on 7 of the 26 items on the SACRR suggesting participation in clinical simulation effected graduate occupational therapy student clinical reflection and reasoning,

Occupational therapy student post test scores were significantly higher than pre-test scores on the Self-Assessment of Clinical Reasoning and Reflection item number three, "*I don't make judgements until I have sufficient data,*" ($t(47) = -2.79$, $p = .008$). Significantly higher post test scores were found on item number seven, "I look to theory for understanding client's problems and propose solutions to them," ($t(47) = -2.45$, $p = .018$), as well as, item number thirteen, "*I ask colleagues' ideas and viewpoints*,"

($t(47) =- 2.14$, $p = .038$). Post simulation scores for item number sixteen, "*I can function with uncertainty*," were found to be significantly higher than pre test scores for this item ($t(47) = -2.02$, $p = .049$). In addition, item number seventeen, "*I regularly hypothesize about the reasons for my client's problems*," ($t(47) = -2.28$, $p = .027$), item number eighteen, "*I must validate clinical hypotheses through my own experience*," ($t(47) = -2.84$, $p = .007$), and item number twenty-three, "*Regarding a particular intervention strategy, I think "what makes it work?*"

($t(47) = -2.48$, $p = .017$) had significantly higher post simulation mean scores than pre simulation scores. Table 1 depicts the mean differences between pre-and post-ratings for all items on the SACRR.

Table 1

Self-Assessment of Clinical Reflection and Reasoning Comparison of Pre/Post Simulation Items

	Pre Simulation Mean (SD)	Post Simulation Mean (SD)
1. I questions how, what and why I do things	4.02 (1.00)	4.06 (.76)
2. I ask myself and others questions as a way of learning.	4.35 (.60)	4.48(.50)
3. I don't make judgments until I have sufficient data.	3.44(.85)	3.83(.63)***
4. Prior to acting, I seek various solutions.	3.81(.61)	3.99(.51)
5. Regarding the outcome of proposed interventions, I try to keep an open mind.	4.10(.56)	4.15(.58)
6. I think in terms of comparing and contrasting information about a client's problems and propose solutions to them.	3.75(.70)	3.87(.66)
7. I look to theory for understanding client's problems and propose solutions to them.	3.23(.91)	3.5(.77)*
8. I look to frames of reference for planning intervention strategy.	3.42(.82)	3.35(.89)
9. I use theory to understand treatment techniques.	3.35(.79)	3.54(.74)
10. I try to understand clinical problems by using a variety of frames of reference.	3.44(.92)	3.52(.87)
11. When there is conflicting information about a clinical problem, I identify assumptions underlying the different views.	3.81(.71)	3.80(.65)
12. When planning intervention strategies, I ask, "what if?" for a variety of problems.	4.02(.70)	4.15(.74)

Table 1

Self-Assessment of Clinical Reflection and Reasoning Comparison of Pre/Post Simulation Items

	Pre Simulation Mean (SD)	Post Simulation Mean (SD)
13. I ask colleagues' ideas and viewpoints.	4.35(.60)	4.54(.58)*
14. I ask for the viewpoints of clients' family members.	3.92(.71)	4.10(.69)
15. I cope well with change.	3.58(.87)	3.80(.71)
16. I can function with uncertainty.	3.5(.85)	3.81(.76)*
17. I regularly hypothesize about the reasons for my client's problems.	3.77(.72)	4.06(.60)*
18. I must validate clinical hypotheses through my own experience.	3.44(.85)	3.79(.65)***
19. I clearly identify the clinical problems prior to planning intervention.	3.98(.64)	4.08(.61)
20. I anticipate the sequence of events likely to result from planned interventions.	3.87(.82)	4.03(.69)
21. Regarding a proposed interventions strategy, I think, "what makes it work?"	3.70(.87)	3.93(.73)
22. Regarding a particular intervention, I ask, "In what context would it work?"	3.81(.79)	3.96(.68)
23. Regarding a particular intervention with a particular client, I determine whether it worked.	3.94(.67)	4.15(.71)*
24. I use clinical protocols for most of my treatment.	3.67(.69)	3.69(.72)
25. I make decisions about practice based on my experience.	3.5(.74)	3.98(.67)
26. I use theory to understand intervention strategies.	3.5(.74)	3.56(.65)

*The mean difference is significant at $p < .05$ ***The mean difference is significant at $p < .01$

Research Subsidiary Question 2

What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student learning, in a Midwest occupational therapy program?

Dependent t tests were utilized to compare the mean scores between the two student performance ratings on the course instructor developed clinical simulation skills assessment rubric from each of the clinical simulation experiences with a standardized patient. Graduate occupational therapy students had statistically significant higher mean scores on the performance areas of basic tenets and evaluation on the summative Clinical Skills Assessment Rubric (see Appendix B). There was a statistically significant difference between the mean scores on the performance area of basic tenets ($t(23) = 2.15$, $p = .043$) and evaluation ($t(43) = 3.25$, $p = .002$).

Findings indicate higher mean scores on the final graded rubric in the area of basic tenets of occupational therapy ($M = 3.00$, $SD = .000$) compared to mean scores on the Clinical Skills Assessment Rubric completed earlier in the semester with formative feedback provided by the course instructor based on the student's assigned roles within the clinical simulation experience ($M = 2.83$, $SD = .38$). Students were individually graded on their assigned roles during the group simulation and these ratings compared with performance in the same areas on the individual clinical simulation three to four weeks later in the semester. Twenty-four graduate occupational therapy students mean scores were compared on this performance area of the rubric due to students only receiving feedback on assigned roles and corresponding performance areas on the Clinical Skills Assessment Rubric during the group clinical simulation. The mean scores for forty-four graduate occupational therapy students were also higher in the performance area of evaluation on the Clinical Skills Assessment Rubric ($M = 2.36$, $SD = .57$) from the individual

clinical simulation compared to mean scores in this same area completed three to four weeks prior as a formative assessment (M = 1.91, SD = .77). Mean scores of student performance ratings from participation in the group clinical simulation with individual assigned roles in the occupational therapy evaluation process and the means scores from the individual clinical simulation with a standardized patient are depicted in Table 2.

Table 2

Clinical Skills Assessment Rubric Comparison of Student Performance Ratings

Performance Area	N	Group Simulation Mean (SD)	Individual Simulation Mean(SD)
Fundamentals of Practice	38	2.50(.51)	2.26(.69)
Basic Tenets	24	2.83(.38)	3.00(.00)*
Evaluation	44	1.91(.77)	2.36(.57)***
Communication	32	2.41(.61)	2.41(.50)
Professional Behaviors	49	3.00(.00)	2.98(.14)

*The mean difference is significant at $p < .05$

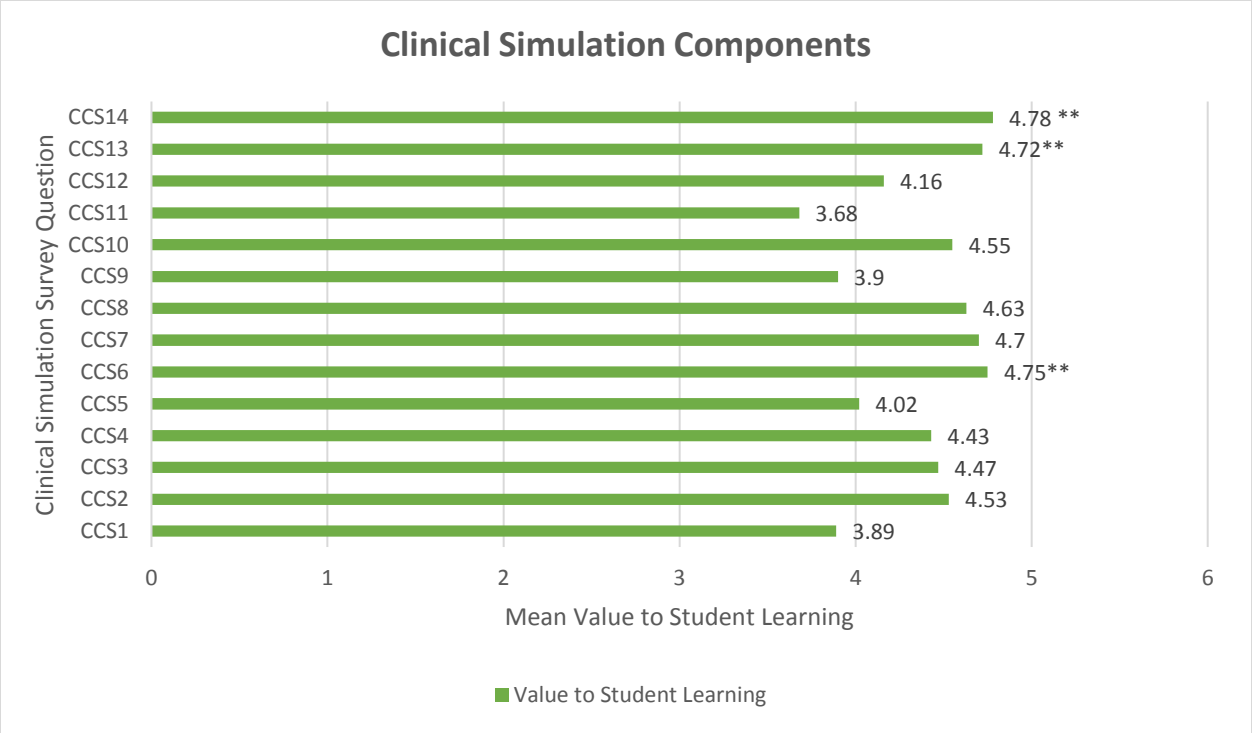
***The mean difference is significant at $p <. 01$

Research Subsidiary Question 3

What components of the clinical simulation process did graduate occupational therapy students enrolled in a Master of Occupational Therapy program in the Midwest, find most valuable to their learning prior to Level II fieldwork?

Forty-nine graduate occupational therapy students completed the Clinical Simulation Experience Survey (Appendix D) after participating in two clinical simulation experiences with a standardized patient, as part of a course requirement for a fieldwork preparation course titled

Transition to Level II Fieldwork in the occupational therapy curriculum. Students rated components of clinical simulation utilizing a five point Likert scale to identify most valuable aspects of the simulation process on individual student learning. Findings indicated that occupational therapy students found completion of an occupational therapy evaluation with a standardized patient individually, $M = 4.78$, completing an occupational therapy evaluation on a standardized patient, $M = 4.75$, and opportunities to respond to or adjust to unforeseen changes in patient needs during the clinical simulation process with a standardized patient, $M = 4.72$, most valuable to their learning. The least valued clinical simulation component to student learning was self-analysis of performance through self- completion of the Clinical Skills Assessment Rubric, $M = 3.68$. In addition, completion of pre-simulation readings and education on simulation expectations was the second least valued aspect of the clinical simulation experience to student learning, $M = 3.89$. Figure 7 depicts mean scores of student ratings for all aspects of the clinical simulation process identified in the Clinical Simulation Experience Survey related to student perceived value to individual learning.



****** indicates most valued components of clinical simulation to student learning

Figure 7: Occupational Therapy Student Perceived Value of Aspects of Clinical Simulation Process to Individual Learning

Summary

The results from data analysis for this retrospective, quantitative research study to examine the effects of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork, were discussed in this chapter. Significant differences were found between pre-and post-participation in clinical simulation on specified Self-Assessment of Clinical Reflection and Reasoning items. In addition, significant differences were found between mean scores of two clinical simulation experiences on two performance areas on the Clinical Skills Assessment Rubric. Analysis of the Clinical Simulation Experience Survey identified most valued aspects of clinical simulation to occupational therapy student individual learning. Interpretation of these findings will be discussed in Chapter 5.

Chapter 5: Conclusion

The purpose of this retrospective, quantitative research study was to investigate the effect of clinical simulation with the use of standardized patients on graduate occupational therapy student preparation for Level II fieldwork. This chapter provides discussion of the research question findings from data analysis, correlation to literature, limitations of the research study, application of findings to occupational therapy curriculum, as well as, recommendations for future research.

Discussion of Findings and Correlation to Literature

Clinical simulation, as an instructional method, has been used in health care professions programs to foster development of critical thinking, problem solving (Vyas et al., 2011), decision making (Guhde, 2010), therapeutic communication skills (Lee, Chang, Chou, Boscardin, & Hauer, 2011; Velde et al., 2009), and physical skill sets necessary for effective, safe patient care (Bethea et al., 2014; Herge et. al., 2013). The focus of this research study was to investigate the effect of the use of clinical simulation with standardized patients, as an instructional methodology, on occupational therapy student preparation for Level II fieldwork. Although clinical simulation has been utilized as an effective instructional method in other health care professions (Dillon et al., 2009; Koo et. al., 2014; Seibert et al., 2004), there is limited research on the use of clinical simulation with standardized patients in occupational therapy curriculum, as a method to enhance student preparation for Level II fieldwork. The use of standardized patients as a comprehensive practical for occupational therapy students prior to Level II fieldwork has been found to be a beneficial method to identify strengths and growth opportunities to assist with fieldwork preparation (Giles et al., 2014).

This research study retrospectively examined quantitative data collected, as a component of a Level II fieldwork preparation course, titled Transition to Level II Fieldwork, in a gradate occupational therapy program. Data collected from the Self-Assessment of Clinical Reflection and Reasoning tool (Appendix A), Clinical Skills Assessment Rubric (Appendix B), and Clinical Simulation Experience Survey (Appendix C) was analyzed to answer central and subsidiary research questions to gain insight into the effect of participation in clinical simulation with a standardized patient on student preparation for Level II fieldwork. Subsidiary research questions considered the effect of clinical simulation with the use of standardized patients on student clinical reflection and reasoning, as well as, student learning including most valued aspects of the simulation process. In addition, student demographics including prior health care experience and education level were independently analyzed to determine effect on mean differences in student ratings on each item of the Self-Assessment of Clinical Reflection and Reasoning (SACRR) tool.

Occupational Therapy Student Demographics

Independent analysis of student demographics including previous healthcare experience, excluding fieldwork experiences within the occupational therapy curriculum, and educational background indicated by the number of Bachelor's degrees the occupational therapy student earned prior to starting graduate coursework, was completed to determine if there were mean differences in pre-and post-ratings for each item of the SACRR. Data analysis found statistically significant differences between pre-and post-mean scores on two items of the SACRR with pre-simulation means for students who had one Bachelor's degree higher compared to students who had more than one Bachelor's degree. SACRR items with higher mean scores pre-simulation for occupational therapy student with one Bachelor's degree included item number five, "*regarding the outcome of proposed interventions, I try to keep an open mind*" and item number sixteen, "*I*

can function with uncertainty." Interpretation of findings may suggest that introspective abilities of students with only one Bachelor's degree may not be as strong resulting in an over estimation of one's abilities prior to participation in the clinical simulation experience with the standardized patient. Reflective learning is utilized in health care education with simulated encounters to enrich insight into opportunities for further development through student self-reflection of experiences, as well as, reflection on faculty provided feedback to enhance learning (Giles et al., 2014; Shoemaker et al., 2011; Velde et al., 2009). Thus, students with less education may have less experience to draw from for reflective purposes which may have contributed to initial higher self-ratings in these areas.

In addition, graduate occupational therapy students, who had prior health care experience, not including fieldwork experiences within the curriculum had statistical higher pre- and post-simulation differences in mean scores between pre-and post-simulation ratings on items 11, "*when there is conflicting information about a clinical problem, I identify assumptions underlying the different view*," and 19, "*I clearly identify clinical problems prior to planning interventions*," and a statistically significant difference in mean scores on pre-simulation item number 20, "*I anticipate the sequence of events likely to result from planned interventions*." These findings indicate that increased exposure to healthcare scenarios provides tangible experiential learning to facilitate the development of clinical reasoning skill sets. Thus, suggesting that incorporation of clinical simulation with standardized patients in occupational therapy curriculum may provide opportunities to practice and develop skills sets in a safe environment, allowing students to clinically reason through unforeseen circumstances that arise with patient care to prepare occupational therapy students to best meet patient care needs in a dynamic health care environment during Level II fieldwork.

Furthermore, findings indicate that graduate occupational therapy students who had prior healthcare experience self-identified greater ability to consider different aspects of patient care needs through reflection and clinical reasoning to assist with intervention planning than occupational therapy students who did not have any additional health care experience beyond fieldwork in the curriculum. Provision of diverse clinical simulation experiences with standardized patients, as an instructional method, may facilitate development of clinical reasoning (Seif, Brown, Annan-Coultas, 2013), decision making (Gulhde, 2010), confidence (Dearmon et al., 2013; Ohtake et al.; Silberman et al., 2013), and physical skill sets for safe effective patient care (Bethea et al., Herge et al., 2013) which are all important components of occupational therapy student preparation for Level II fieldwork.

Research Subsidiary Question 1

The first research question was "What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student clinical reflection and reasoning utilizing the Self-Assessment of Clinical Reflection and Reasoning tool, in a Midwest occupational therapy program?" The Self-Assessment of Clinical Reflection and Reasoning tool was utilized to measure the effect of clinical simulation, as an instructional methodology on graduate occupational therapy student clinical reflection and reasoning. Statistically significant differences were found on 7 of the 26 items on the SACRR suggesting participation in clinical simulation positively affected graduate occupational therapy student perceptions of clinical reflection and reasoning. Although, these changes may not be exclusively due to clinical simulation, it is worth noting that student perceptions of their clinical reflection and reasoning, as indicated in the mean change in scores, improved after participation in two clinical simulation experience with a standardized patient indicating that there was value

to aspects of the clinical simulation with a standardized patient contributing to development of these skill sets which is consistent with research findings. Seif et al. (2013) utilized the SACRR to measure physical therapy student perception of clinical reasoning development based on participation in an educational learning opportunity designed to facilitate development of these critical skill sets for clinical practice and found statistically significant higher mean scores on 17 of 26 items. Coker (2010) also found statistical significant higher clinical reasoning mean scores on 22 of 26 items on the SACRR after occupational therapy student participation in an experiential learning one week day camp with children, who had cerebral palsy. It was expected that there would be more items on the SACRR that were significantly significant in this research study, suggesting the need for replication of this study with future occupational therapy cohorts to determine if these results were attributed to unique characteristics of research study participants. However, information gained from this study may be used to guide instructional delivery and inform curriculum development in occupational therapy programs. Findings from this research study provide further support for the need to integrate clinical simulation with standardized patients, as an instructional methodology in occupational therapy curriculum in order to facilitate development of higher level thinking and clinical reasoning skills in occupational therapy students to prepare for successful transition to Level II fieldwork.

Research Subsidiary Question 2

The second research question asked was "What effect did participation in clinical simulation with a standardized patient prior to Level II fieldwork have on graduate occupational therapy student learning, in a Midwest occupational therapy program?" Statistically significant differences were found in student mean scores on two of seven assessment areas on the Clinical Skills Assessment Rubric (Appendix B), basic tenets and evaluation. Basic tenets components

consisted of student ability to explain the purpose of occupational therapy to the standardized patient in layman terms, provide clear instructions for the occupational assessments throughout the simulation encounter, and answer any questions posed by standardized patient in an appropriate manner. The evaluation section included assessment of student performance skills completing all components of the occupational evaluation with a standardized patient including: an occupational profile, assessment of cognition, vision screen, upper and lower body dressing, functional transfers, bed mobility, and upper extremity range of motion/strength with a standardized patient. Students were assigned specific roles during the small group simulation with a standardized patient, and completed all of the assigned roles with the individual clinical simulation later in the semester. Based on the student level in the occupational therapy program in their final semester of didactic coursework, it was expected that there would not be a significant growth in fundamentals of practice, communication, or professional growth based on the design of the clinical simulation experience, as well as, outlined expectations for professional behaviors.

Statistically significant mean differences were found in student performance scores for basic tenets, which included the student's ability to explain the purpose of occupational therapy to the standardized patient in layman terms, and answer any questions posed by patient appropriately. This provides insight into the need for feedback from faculty to enhance student ability to not only be able to understand and apply occupational therapy knowledge, but to be able translate it into language that is understandable for effective client education in a clinical setting. The use of standardized patients can further enhance student learning through provision of feedback from the patient perspective related to student responsiveness to needs, accuracy of

assessment, as well as, ability to clearly explain purpose of occupational therapy and answer questions posed (Gibbons et al., 2002).

In addition, statistically significant higher mean scores were found in the area of evaluation which included the following assessment areas: environmental set-up for safety, infection control procedures, upper and lower body dressing, functional transfer, bed mobility, cognition, basic vision screen, and upper extremity range of motion/strength. This research study provided quantitative data related to positive student performance outcomes in identified area on the Clinical Skills Assessment rubric suggesting learning from clinical simulation with standardized patient encounters, as well as, supporting the value of completion of a comprehensive occupational therapy evaluation with a standardized patient to learning and skill set development preparatory to Level II fieldwork.

The clinical simulation experience with a standardized patient was designed to provide students with the opportunity to complete an occupational therapy evaluation within established time guidelines to help prepare occupational therapy students for clinical expectations on Level II fieldwork and assist with identifying growth opportunities, as well as, areas for focused review to best prepare for successful transition to Level II fieldwork. Students were assigned different roles within the occupational therapy evaluation during the group simulation and then had to complete all assigned roles individually during the second clinical simulation experience.

Findings suggest that participation in a group clinical simulation with formative feedback provided on the Clinical Skills Assessment Rubric prior to participation in an individual clinical simulation to complete an occupational therapy evaluation on a standardized patient positively impacted student learning with statistically significant higher mean scores in basic tenets and evaluation after completing the individual clinical simulation encounter. In addition, the group

format of the initial clinical simulation experience may have further contributed to student development, allowing students the opportunity for peer learning based on different assigned roles in the completion of an occupational therapy evaluation. Provision of diverse feedback for growth during the group clinical simulation encounter including formative faculty non-graded feedback, as well as, peer and standardized patient feedback may have further impacted student learning through guided practice decision making (Velde et al., 2009).

Integration of reflective analysis of the video recorded group clinical simulation performance prior to participation in an individual clinical simulation with a standardized patient for a course grade may have further enhanced student learning from the simulation experience (Giles et al., 2014). Research study findings support use of clinical simulation with a standardized patient, as an instructional method increasing the realism of educational learning while providing an opportunity for provision of feedback from peers and faculty in a safe environment to enhance learning and prepare students for Level II fieldwork (Gibbons et al., 2002; Koo et al., 2014).

Research Subsidiary Question 3

Research question number three asked, "What components of the clinical simulation process did graduate occupational therapy students enrolled in a Master of Occupational Therapy program in the Midwest, find most valuable to their learning prior to Level II fieldwork?" Findings indicated that students found completion of an occupational therapy evaluation with a standardized patient most valuable to their learning, however mean scores of all identified aspects of the clinical simulation experience with a standardized patient denoted value to student learning. This is consistent with research by Velde et al. (2009), which found that occupational therapy students preferred the use of live simulated clients with mean scores higher than other

instructional methodologies including lecture, role play, video, and paper case studies utilized in the occupational therapy curriculum related to how students perceived methods to enhance learning. This research study further expanded on this examining the components of the clinical simulation process itself and which aspects students found most valuable to their learning to further inform educational practice.

The mean scores of all items on the Clinical Simulation Experience Survey were above neutral, indicating a net positive value to student learning. The most valued aspects of the clinical simulation experience to student learning included completion of an occupational therapy evaluation with a standardized patient overall and individually, as well as the opportunity to be able to respond or adjust to unforeseen changes in patient needs in real time consistent with clinical practice. These findings provide valuable insight to inform educational learning opportunities for occupational therapy students in academic programs in order to prepare students to address patient care needs in a dynamic, fast paced health care environment. Provision of more clinical simulations experiences can increase student opportunity to apply diverse skill sets and clinically reason through unpredictable patient care scenarios that mimic clinical practice to help students feel more prepared for Level II fieldwork.

Although there was a net positive value noted for all surveyed aspects of the clinical simulation process, insight gained into most valued aspects can provide support for integration of clinical simulation with standardized patients in occupational therapy curriculum, as a method to foster development of clinical reasoning and reflection skills by providing students the opportunity to practice adjusting and reflecting in action prior to actual patient care interactions on Level II fieldwork. Findings from this research study indicated that occupational therapy students valued the opportunity to integrate knowledge and skill sets gained in the curriculum

comprehensively through completion of an occupational therapy evaluation with a standardized patient including medical chart review, occupational profile, cognitive assessment, visual screen, upper and lower body dressing, functional transfer ability, bed mobility, and documentation within one hour timeframe, consistent with clinical practice prior to Level II fieldwork. In addition, occupational therapy students valued being challenged with unforeseen circumstances during the clinical simulation with the standardized patients necessitating adjustment of approach to meet client needs more accurately depicting real life client interactions. This research study confirmed that graduate occupational therapy students found clinical simulation with the use of standardized patients valuable to their learning consistent with similar findings reported in the literature (Giles et al., 20014; Herge et al., 2013; Wu & Shea, 2009) and further expanded on current literature denoting components of the clinical simulation process that graduate occupational therapy students found most valuable to their learning to prepare for Level II fieldwork.

Limitations of Study

Due to the retrospective nature of this research, this study was limited to a convenience sample of 49 female graduate, occupational therapy students at a Midwestern, Catholic woman's university. As a result, the convenience sample may not be representative of the occupational therapy student demographics including age, ethnicity, educational background, and work experience. The research sample eliminated representation of male occupational therapy students accounting for approximately 11% of enrolled master's level occupational therapy students (Harvinson, 2014). In addition, data gathered from the Self-Assessment of Critical Reflection and Reasoning tool pre-and post-participation in clinical simulations with a standardized patient was self-reported which may have been impacted by the graduate occupational therapy student

introspective ability and clear understanding of meaning of each item on the tool for self-assessment purposes. The assessment tool utilized to measure student learning was faculty developed and not standardized, however, performance areas included on the assessment rubric were based off of performance areas identified on the American Occupational Therapy Fieldwork Performance Evaluation utilized to assess entry level competency skill sets on Level II fieldwork providing a basis for content validity. Furthermore, there was no control group in this research study for comparison of effects of clinical simulation with a standardized patient as an instructional method to alternative methodologies.

Application of Clinical Simulation to Occupational Therapy Curriculum

Findings from this research study indicate that implementation of clinical simulation with the use of standardized patients in occupational therapy curriculum may effectively contribute to the development of clinical reflection and reasoning, performance skills necessary for completion of occupational therapy evaluations, communication with clients, and learning through simulated encounters allowing students to develop these skill sets with provision of multi-faceted feedback from peers, faculty, and self-reflection to foster growth in these areas to assist with success on Level II fieldwork. Commonly cited factors contributing to failure of occupational therapy student Level II fieldwork experiences include “poor problem solving skills, poor clinical reasoning skills, and difficulty getting the big picture” which may be further developed preparatory to Level II fieldwork participation with integrated clinical simulation experiences that allow students to comprehensively examine client care needs versus isolated skill development, in occupational therapy curriculum (James & Musselman, 2005, p. 67). Use of clinical simulation with standardized patients threaded throughout curriculum, with objectives developed appropriate to expectations of student based on level in occupational therapy

curriculum, allows multiple opportunities to receive faculty feedback to further develop skill sets with integration of learning in a safe environment and prepare occupational therapy students for transition to Level II fieldwork (Becker et al., 2006). This research study contributes to occupational therapy's body of knowledge on the effectiveness of the use of clinical simulation with standardized patients, with statistically significant findings indicating improved student perceptions of clinical reflection and reasoning, as well as, improved learning outcomes from participation in two clinical simulations with a standardized patient, as well as, highlighted areas for focused student review through provision of self-reflective analysis of video recorded group clinical simulation and provision of peer and faculty feedback to support successful transition to Level II fieldwork, as depicted in Figure 8.

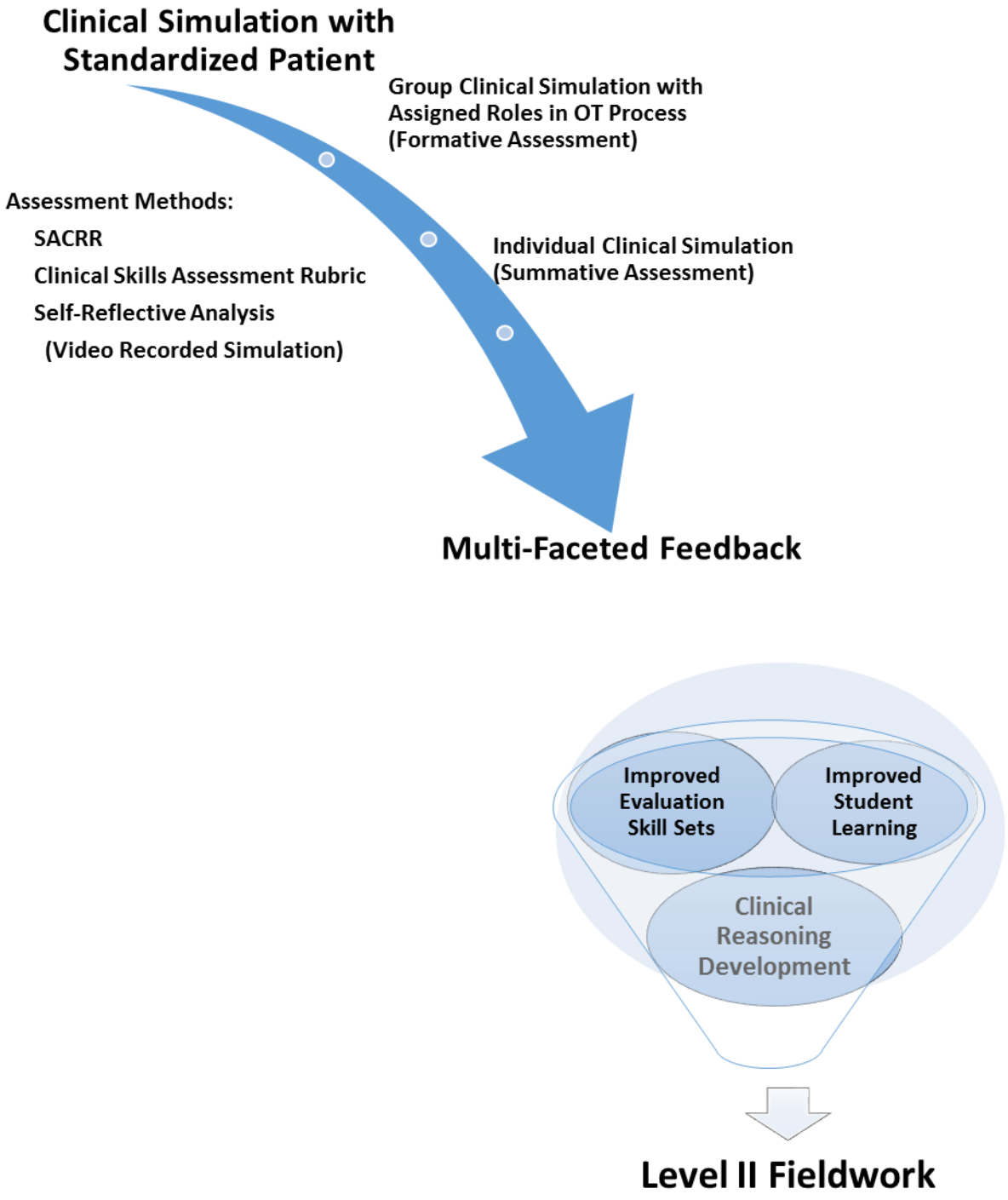


Figure 8: Hoppe Model of Clinical Simulation for Level II Fieldwork Preparation

As the health care environment continues to evolve with increased cost containment efforts and productivity demands, occupational therapy students need to be prepared to meet the demands of the health care environment, incorporating strong clinical reasoning and problem solving skills emphasizing evidence based practice to appropriately addressing client care needs in an outcome driven health care environment. Faculty in occupational therapy education need to adjust educational practices reflective of the changing health care environment and implement effective instructional methodologies based on research, consistent with expectations of evidence based practice in occupational therapy to best prepare occupational therapy students for Level II fieldwork.

In order to be able to effectively integrate clinical simulation with standardized patients into occupational therapy curriculum, faculty need to consider the workload needs, including time allocation for simulation development, training of faculty for clinical simulation implementation, faculty support needed during and after the simulation encounter to assess student performance and debrief on the experience to enhance student learning. Occupational therapy faculty need to be able to justify the need for additional workload to administration, clearly related to student learning outcomes for successful transition to Level II fieldwork. Space and equipment needs including moulage consisting of items utilized to increase the realism of the simulation are important budgetary considerations with clinical simulation to improve the fidelity of the simulation by replicating a patient clinical scenario as close to real life as possible (Herge et al., 2013). Clinical simulation development and implementation for this research study was time intensive, yet the value to student learning was evident in the research findings.

In a productivity, outcomes driven health care environment, occupational therapists need to be able to clinically reason and problem solve to appropriately address complex client care

needs within fiscal constraints, including decreased allocated time with client due to changes in reimbursement. As a result, incorporating clinical simulation with standardized patients within occupational therapy curriculum can also provide additional opportunities for student learning and development of "high risk/low frequency clinical events," such as effective line management for safety with activities of daily living without actual patient risk, thus increasing student preparedness for clinical practice, as well as confidence with future patient interactions (Herge et al., 2013; Sabus & Macauley, 2016, p.3). Integration of clinical simulation experiences with standardized patients in the curriculum provide a controlled, safe environment for student learning with depiction of clinical problems presented in a consistent manner to all students allowing for equivalent simulated client encounters for training, as well as, assessment of performance skills prior to actual patient interactions on Level II fieldwork (Becker et al., 2006; Herge et al., 2013).

Recommendations for Future Research

The results of this study have highlighted areas for future research to further expand the occupational therapy body of knowledge related to the effectiveness of the use of clinical simulation in occupational therapy curriculum. Replication of this study with use of a control group may provide further compelling support for the implementation of clinical simulation in curricula including measurable student learning outcomes attributed to this methodology in preparation for Level II fieldwork. Furthermore, this research may be expanded to include correlational research between student performance ratings on Clinical Skills Assessment Rubric from individual participation in a clinical simulation with a standardized patient to complete an occupational therapy evaluation at the conclusion of graduate coursework with midterm Fieldwork Performance Evaluation performance scores on Level II fieldwork. This would

provide additional insight into the effectiveness of this instructional methodology for preparation of occupational therapy students and transfer of learning from didactic coursework to practice on Level II fieldwork. Expansion of clinical simulation research to include collaboration among occupational therapy programs at different academic institutions would be beneficial to increase the generalizability of findings to guide educational practices in the preparation of future occupational therapy practitioners.

Conclusion

In summary, despite recent research reporting an increased use of clinical simulation in occupational therapy programs, there remains a gap in the literature related to the effectiveness of clinical simulation, as an instructional methodology in occupational therapy curriculum (Bethea et al., 2014). This research study contributes to occupational therapy's body of knowledge related to clinical simulation use in occupational therapy curriculum providing insight into student development of clinical reasoning skills, and integration of learning from occupational therapy coursework through completion of an occupational therapy evaluation on a standardized patient. There remains a need for continued research into the effective use of clinical simulation and impact on student learning outcomes, in order to best prepare the next generations of occupational therapy practitioners.

The dynamics of the health care environment continue to evolve with greater expectations placed on entry level occupational therapists to meet medically complex patient care needs within fiscal constraints and productivity demands, thus necessitating strong clinical reasoning and critical thinking skills of occupational therapy students for successful transition to Level II fieldwork (Coker, 2010; Scaffa, & Smith, 2004; Vogel, Geelhoed, Grice, & Murphy, 2009). Faculty in occupational therapy curriculum are challenged to integrate effective

instructional methodologies in occupational therapy education in response to changing health care demands, using research to support best educational practices. Research study findings indicate that increased exposure to healthcare scenarios provide tangible experiential learning opportunities for occupational therapy students to facilitate the development of clinical reasoning skill sets and application of knowledge to enhance learning. Thus, suggesting that incorporation of clinical simulation with standardized patients in occupational therapy curriculum may provide opportunities to practice and develop skills sets in a safe environment, allowing students to clinically reason through unforeseen circumstances that are a daily reality in clinical practice.

This research study provides statistically significant findings supporting the use of clinical simulation with the use of standardized patients in occupational therapy curriculum. Findings included statistically significant higher mean differences on 7 out of 26 items on the Self-Assessment of Clinical Reflection and Reasoning Tool post graduate occupational therapy participation in clinical simulation with a standardized patient, significant higher mean scores in the areas of basic tenets and evaluation on the clinical skills assessment rubric, as well as, a reported net positive mean value to all surveyed aspects of the simulation process. Although there are challenges with faculty workload, allocation of necessary resources, and budget considerations with clinical simulation implementation in occupational therapy curriculum, findings from this research study indicate that the incorporation of clinical simulation with standardized patients provides valuable student learning opportunities to practice and develop skills sets in a safe environment with provision of feedback to support development of skill sets in preparation for transition to Level II fieldwork..

This retrospective, quantitative research study provides insight into the effectiveness of the use of clinical simulation with standardized patients on occupational therapy student

preparedness for Level II fieldwork. Further research is indicated to inform educational practices and curriculum design to best prepare future occupational therapy professionals.

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Appendix A: Self-Assessment of Clinical Reflection and Reasoning

Self-Assessment of Clinical Reflection and Reasoning (SACRR) Pre-test

Student Name: _____ Date: _____

Age in years: _____Prior Educational Degrees: ☐BRS ☐ Other (please specify) _____

Prior Healthcare Experience: ☐Yes Please specify: _____ ☐No

Response Key: SD=strongly disagree. D=disagree, U=undecided, A=agree, SA=strongly agree

	SD	D	U	A	SA
1. I questions how, what and why I do things	☐	☐	☐	☐	☐
2. I ask myself and others questions as a way of learning.	☐	☐	☐	☐	☐
3. I don't make judgments until I have sufficient data.	☐	☐	☐	☐	☐
4. Prior to acting, I seek various solutions.	☐	☐	☐	☐	☐
5. Regarding the outcome of proposed interventions, I try to keep an open mind.	☐	☐	☐	☐	☐
6. I think in terms of comparing and contrasting information about a client's problems and propose solutions to them.	☐	☐	☐	☐	☐
7. I look to theory for understanding client's problems and propose solutions to them.	☐	☐	☐	☐	☐
8. I look to frames of reference for planning intervention strategy.	☐	☐	☐	☐	☐
9. I use theory to understand treatment techniques.	☐	☐	☐	☐	☐
10. I try to understand clinical problems by using a variety of frames of reference.	☐	☐	☐	☐	☐
11. When there is conflicting information about a clinical problem, I identify assumptions underlying the different views.	☐	☐	☐	☐	☐

Response Key: SD=strongly disagree. D=disagree, U=undecided, A=agree, SA=strongly agree

	SD	D	U	A	SA
12. When planning intervention strategies, I ask, "what if?" for a variety of problems.	☐	☐	☐	☐	☐
13. I ask colleagues' ideas and viewpoints.	☐	☐	☐	☐	☐
14. I ask for the viewpoints of clients' family members.	☐	☐	☐	☐	☐
15. I cope well with change.	☐	☐	☐	☐	☐
16. I can function with uncertainty.	☐	☐	☐	☐	☐
17. I regularly hypothesize about the reasons for my client's problems.	☐	☐	☐	☐	☐
18. I must validate clinical hypotheses through my own experience.	☐	☐	☐	☐	☐
19. I clearly identify the clinical problems prior to planning intervention.	☐	☐	☐	☐	☐
20. I anticipate the sequence of events likely to result from planned interventions.	☐	☐	☐	☐	☐
21. Regarding a proposed interventions strategy, I think, "what makes it work?"	☐	☐	☐	☐	☐
22. Regarding a particular intervention, I ask, "In what context would it work?"	☐	☐	☐	☐	☐
23. Regarding a particular intervention with a particular client, I determine whether it worked.	☐	☐	☐	☐	☐
24. I use clinical protocols for most of my treatment.	☐	☐	☐	☐	☐
25. I make decisions about practice based on my experience.	☐	☐	☐	☐	☐
26. I use theory to understand intervention strategies.	☐	☐	☐	☐	☐

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Royeen, C. B., Mu, K. Barrett, K. & Luebben, A. J. (2000) Pilot investigation: Evaluation of clinical reflection and reasoning before and after workshop intervention. In Crist, P. (Ed.). Innovations in occupational therapy education (pp. 107-115).

Appendix B: Clinical Skills Assessment Rubric

Clinical Skills Assessment Rubric
OTH 573

Fieldwork Performance Area	**Meets Expectations (92-100%)**	**Emerging Competence (83-91%)**	**Needs improvement (82% or below)**	**Comments**	**Points**
Fundamentals of Practice: • Infection Control • Environmental Set-up • Patient preparation: anticipate patient needs	Student able to obtain relevant information from medical chart, anticipate patient needs based on medical diagnoses/patient response, and set-up environment safely and appropriately. **(14-15pts)**	Student able to obtain relevant information from medical chart, anticipate patient needs based on medical diagnoses/patient response, and set-up environment safely and appropriately with verbal prompt or with self-corrections. **(12-13pts)**	Student unable to obtain relevant information from medical chart, anticipate patient needs based on medical diagnoses/patient response, and set-up environment safely and appropriately with verbal prompt or self-correction. **(11 or below)**		
Basic Tenets: • Explain OT relevant to patient needs and setting • Able to answer any questions posed by patient and family appropriately	Student effectively explains OT and purpose to client. Able to answer any questions posed by client or "family member" in layman terms. **(14-15pts)**	Student explains OT and purpose to client. Able to answer most questions posed by client or "family member" in layman terms. **(12-13pts)**	Student unable to effectively explain OT and purpose to client. Difficulty answering questions posed by client or "family member" completely or not in layman terms. **(11 or below)**		

Evaluation and Screening • Able to identify 2 formal assessments and how results may impact plan of care (to instructor).	Student able to identify 2 formal assessments that would be appropriate to provide additional information relevant to the identified deficit areas and how the results may impact plan of care. **(5 points)**	Student able to identify formal assessments that would be appropriate to provide additional information relevant to the identified deficit areas. Student had minimal difficulty clearly articulating how the results may impact plan of care. **(4 points)**	Student unable to identify 2 formal assessments that would be appropriate to provide additional information relevant to the identified deficit areas and/or the student unable to articulate how the results may impact plan of care. **(3 or below)**		
Fieldwork Performance Area	**Meets Expectations (92-100%)**	**Emerging Competence (83-91%)**	**Needs improvement (82% or below)**	**Comments**	**Points**
Evaluation: • Basic ADL assessment (UBD or LBD) • Functional transfer assessment • Cognitive assessment • UE assessment	Student gathers necessary equipment, educates client appropriately on process, and demonstrates appropriate technique with assessments. Student demonstrates ability to respond to patient needs. **(19-20pts)**	Student gathers necessary equipment, educates client appropriately on process, and demonstrates appropriate technique with assessments with minimal self-correction or verbal cues. Student demonstrates ability to respond to patient needs without difficulty most of the time. **(16-18pts)**	Student does not gather necessary equipment, educate client appropriately on process, and/or demonstrates appropriate technique with assessments. Student does not respond to patient needs during the assessment process. **(15 or below)**		
Management of OT Services • Discuss how you would collaborate with the COTA who is scheduled to see this patient for the next treatment session. • Evaluation completed within established guidelines.	Student able to clearly articulate roles and appropriate responsibilities of COTA for this client. **(10 points)**	Student able to articulate roles and responsibilities of COTA for this client with self-correction or verbal prompt. **(8-9 points)**	Student unable to clearly articulate roles and appropriate responsibilities of COTA for this client. (**7 or below)**		

Communication • Verbal and nonverbal interactions appropriate • Language is clear and understandable for patient and/or family member • Documentation: clear and concise SOAP note completed within 15 minutes	Student verbal and nonverbal communication with client and "family members" is positive and appropriate. Student exhibits confidence with interactions and communication. Written SOAP clear, concise, and includes all components with appropriate medical terminology/abbreviations within 15 minutes. **(19-20pts)**	Student verbal and nonverbal communication with client and "family members" is positive and appropriate. Written SOAP clear, concise, and includes most components with minimal correction needed for appropriate medical terminology/ abbreviations. **(16-18pts)**	Student verbal and nonverbal communication with client and "family members" is inappropriate or awkward at times. SOAP note does not include all components with appropriate medical terminology /abbreviations. **(15 or below)**		
Fieldwork Performance Area	**Meets Expectations (92-100%)**	**Emerging Competence (83-91%)**	**Needs improvement (82% or below)**	**Comments**	**Points**
Professional Behaviors • Professional Appearance: OT polo/khakis/nametag, additional requirements per OT student manual • Time management (able to manage time appropriately to complete skills assessment check within established timeframes) • Able to utilize positive interpersonal to develop rapport with patient.	Student demonstrates professionalism with interactions and attempts to develop rapport with client. Student is dressed professionally per department dress code and able to complete evaluation within the established time guidelines for each station. **(14-15 pts)**	Student demonstrates professionalism with interactions, minimal attempts made to develop rapport with client. Student is dressed professionally per department dress code and able to complete evaluation within the established time guidelines for each station. **(12-13pts)**	Student demonstrates professionalism with most interactions, difficulty with client rapport and/or student is not dressed professionally per department dress code and/or able to complete evaluation within the established time guidelines for each station. **(11 or below)**		
Total:					

Adapted from American Occupational Therapy Association (2002). *Fieldwork performance evaluation for the occupational therapy student*. Bethesda, MD: American Occupational Therapy Association, Inc. This rubric was developed for use in a Transition to Level II Fieldwork course to assess skill sets of graduate occupational therapy students during a simulated occupational therapy evaluation with a standardized patient.

Appendix C: Clinical Simulation Experience Survey

Occupational Therapy Clinical Simulation Experience Survey

Please use the following scale of 1-5, where 1 indicates not valuable and 5 indicates very valuable to identify the perceived value of each aspect of the clinical simulation process to your individual learning.

Not Valuable	Minimal Value	Neutral	Valuable	Very Valuable
1	2	3	4	5

1. Pre-simulation readings and simulation expectations.
   1☐ 2☐ 3☐ 4☐ 5☐
2. Completion of an occupational therapy evaluation with a standardized patient in a group format with non-graded feedback.
   1☐ 2☐ 3☐ 4☐ 5☐
3. Participation in a clinical simulation in a group format with assigned roles.
   1☐ 2☐ 3☐ 4☐ 5☐
4. Peer learning through small group clinical simulation.
   1☐ 2☐ 3☐ 4☐ 5☐
5. Self- reflection of performance through video recording.
   1☐ 2☐ 3☐ 4☐ 5☐
6. Completing an occupational therapy evaluation on a standardized patient.
   1☐ 2☐ 3☐ 4☐ 5☐
7. Completion of a medical chart review as a component of the occupational therapy process.
   1☐ 2☐ 3☐ 4☐ 5☐
8. Completion of an occupational profile with a standardized patient.
   1☐ 2☐ 3☐ 4☐ 5☐
9. Documentation of the occupational therapy process as a group.
   1☐ 2☐ 3☐ 4☐ 5☐
10. Documentation of an occupational therapy session individually.
    1☐ 2☐ 3☐ 4☐ 5☐

Not Valuable	Minimal Value	Neutral	Valuable	Very Valuable
1	2	3	4	5

11. Self-analysis of performance through self-completion of Clinical Skills Assessment Rubric
    1☐ 2☐ 3☐ 4☐ 5☐

12. Debriefing with peers and course instructor after completion of clinical simulation process.
    1☐ 2☐ 3☐ 4☐ 5☐
13. Opportunities to respond or adjust to unforeseen changes in patient needs during the clinical simulation process with a standardized patient.
    1☐ 2☐ 3☐ 4☐ 5☐

14. Completion of an occupational therapy evaluation with a standardized patient individually.

    1☐ 2☐ 3☐ 4☐ 5☐

Any additional comments:

Appendix D: Permissions

Permission to Include Experiential Learning Theory

PEARSON

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Content to be included is:
Page 42 Figure 3.1 "Kolb's Learning Cycle"

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Annie Winston, Permissions Administrator

Permission to Utilize Self-Assessment of Clinical Reflection and Reasoning

Dear Dr. Royeen, Thank you very much for your reply and permission to use the SACRR for my research. I appreciate it. I hope your semester is off to a good start. Have a nice weekend!

Maureen Hoppe, Ed.D(c), MA, OTR/L
Assistant Professor of Occupational Therapy
Academic Fieldwork Coordinator
College of Saint Mary
7000 Mercy Road
Omaha, NE 68106
Office: 402-399-6284
Fax: 402-399-2654
mhoppe@csm.edu

From: Charlotte L Royeen [mailto:Charlotte_L_Royeen@rush.edu]
Sent: Friday, September 11, 2015 11:10 AM
To: Maureen Hoppe
Cc: MaryLisa Gauldin
Subject: RE: Self-Assessment of Clinical Reflection and Reasoning Tool (SACRR)

Hello. You have my full permission to use the SACRR for your research. Is there anything else you were asking?

Charlotte royeen

From: Maureen Hoppe [mailto:mhoppe@CSM.edu]
Sent: Friday, September 11, 2015 9:00 AM
To: Charlotte L Royeen
Subject: Self-Assessment of Clinical Reflection and Reasoning Tool (SACRR)

Dear Dr. Royeen, I'm writing to you as a doctoral student to inquire about the permission to use the Self-Assessment of Clinical Reflection and Reasoning (SACRR) tool, as a component of my dissertation research involving the use of clinical simulation. I was involved in a virtual meeting this summer regarding clinical simulation and the SACRR was discussed. I have searched to find the developer of the tool to obtain permission for use, which has led me to you. I hope that you can assist me with this endeavor or possibly steer me in the right direction. I look forward to hearing from you.

Thank you for your time and consideration!

Maureen Hoppe, Ed.D(c), MA, OTR/L

Appendix E: Institutional Review Board Approval Letter

COLLEGE OF SAINT MARY

September 16, 2016

Dear Ms. Hoppe,

Congratulations! The Institutional Review Board at College of Saint Mary has granted approval of your study titled *Effectiveness of Clinical Simulation in Occupational Therapy Level II Fieldwork Preparation*.

Your CSM research approval number is **CSM 1611**. It is important that you include this research number on all correspondence regarding your study. Approval for your study is effective through October 1, 2017. If your research extends beyond that date, please submit a "Change of Protocol/Extension" form which can be found in Appendix B at the end of the College of Saint Mary Application Guidelines posted on the IRB Community site.

Please submit a closing the study form (Appendix C of the IRB Guidebook) when you have completed your study.

Good luck with your research! If you have any questions or I can assist in any way, please feel free to contact me.

Sincerely,

Vicky Morgan

Dr. Vicky Morgan
Director of Teaching and Learning Center
Chair, Institutional Review Board * irb@csm.edu