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Assessing Learning In Simulation Experiences In Graduate Programs For Speech-Language Pathology: A Phenomenological Study

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ASSESSING LEARNING IN SIMULATION EXPERIENCES IN GRADUATE PROGRAMS FOR SPEECH-LANGUAGE PATHOLOGY: A PHENOMENOLOGICAL STUDY

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Robyn Gail Walker

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Abstract

Simulation learning experiences have become an accepted form of andragogy in speech-language pathology following a revision of the 2016 American Speech-Language-Hearing Association (ASHA) Standards allowing students to count simulation hours towards their required hours for graduation. There is a lack of research in the field of speech-language pathology in assessment of student learning in simulation learning experiences used to meet these clinical hours. The purpose of this study was to use qualitative inquiry to further explore how faculty assess student learning in clinical simulation learning experiences used to demonstrate clinical competence in graduate programs in Communication Sciences and Disorders: Speech-Language Pathology (CSD:SLP). The following research questions were addressed: How do faculty experience the assessment of learning in simulation learning experiences? In what ways do faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards? What, if any, effect has the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards? A total of 22 interviews were conducted in 20 different ASHA certified institutions in the US. Key findings included assessment of graduate student learning in simulation learning experiences in graduate CSD:SLP programs is unstructured and inconsistent, programs need more guidance, professional development and structure to maximize student learning, and COVID-19 had significant impacts on the amount and type of simulation experiences offered in graduate CSD:SLP programs. Further research should focus on comparing competency in specific clinical skills to determine competency skills that are best suited for replacement by simulation learning experiences. Ideally, the outcome of this research would be the development of a best practice policy that

outlines, based on research outcomes, specifically which clinical skills can be met with

simulation learning experiences, and how to integrate and assess student learning in simulation

learning experiences used to meet clinical competency standards.

Chapter 1

Introduction

The primary goal of graduate programs in Communication Sciences and Disorders: Speech-Language Pathology (CSD: SLP) is to prepare graduate students with entry level skills in the field of speech-language pathology. These entry level skills include assessment and intervention skills in the areas of speech sound production, fluency, voice, hearing, swallowing, cognition, social aspects and augmentative and alternative communication (Appendix A). Like many other allied health professions, speech-language pathology faces many challenges related to professional preparation (American Speech-Language-Hearing Association (ASHA), 2007). Specifically, according to the Bureau of Labor and Statistics, U.S. Department of Labor, speech language pathologists can expect a 29% increase in employment opportunities between 2020 and 2030 with the number of jobs in 2020 at 158,100 and a projected increase of 45,500 jobs (2021). The goal of professional preparation in speech-language pathology is defined by two sets of standards required in every ASHA accredited program. According to ASHA (2020) "The standards for certification for audiology and speech-language pathology are established by audiologists and speech-language pathologists, respectively, who are members of ASHA's Council for Clinical Certification in Audiology and Speech-Language Pathology (CFCC)" (para. 2). The standards for certification address required professional knowledge and demonstration of clinical skill.

The Council of Academic Programs in Communication Sciences and Disorders (CAPCSD) appointed a task force in 2013 to examine the use of alternative clinical education methods, including simulation, to meet some of the growing challenges facing CSD:SLP programs. In addition to the increasing demand for speech-language pathologists, graduate

programs face clinical placement challenges due to an "expanding scope of practice, program expansion, limited availability of off-campus supervisors and preceptors, and expectations for interprofessional education (IPE) within the context of increasingly complex service delivery systems" (Dudding & Ingram, 2018, p. 71).

The task force recognized the simulation learning activities as a viable alternative education option in meeting some of these challenges (CAPCSD, 2019). Based on recommendations from this task force, ASHA's Council for Clinical Certification (CFCC) in Audiology and Speech-Language Pathology modified the 2014 Standards March 1, 2016 with implementation language for Speech-Language Pathology Standard V-B to allow up to 20% of the required 375 direct clinical hours to be obtained through simulation (CAPCSD, 2019). Standard V-B is essential in the program of study to ensure applicants demonstrate adequate entry level clinical skills in the areas of assessment and intervention across the nine areas of clinical practice in speech-language pathology. These nine areas of clinical practice include: speech sound, language, voice, fluency, augmentative and alternative communication, hearing, swallowing, cognition, and social aspects. A complete description of the breadth and depth of competency in these nine clinical practice areas is available in Appendix A. As a result of these changes, clinical simulation experiences can now account for up to 75 of 375 required direct clinical hours for certification (20%), and may include use of "standardized patients, virtual patients, digitized mannequins, immersive reality, task trainers, and computer-based interactive (software)" (ASHA, 2016). Per the CFCC, the revisions "regarding alternative clinical education and clinical clock hours came in response to concerns about the challenges of meeting the needs of students and the profession" (Clinard & Dudding, 2019, p. 136).

In a survey of 136 faculty from ASHA accredited CSD programs on the use of simulation in speech-language pathology university programs in the United States, Dudding and Nottingham (2018) found that 51% (n=69) of respondents reported they used some form of simulation in their programs, 84% (n=58) use simulation at the graduate level, and 30% (n=21) at the undergraduate level. The same study also found that clinical simulation was most often used to address assessment skills (82%, n=55) versus intervention skills (56%, n=44). Simulation learning experiences included standardized patients and computer-based simulations. According to the authors, the faculty perceived uses of clinical simulations in communication sciences and disorders included: serve as remediation tools 95%, provide opportunity for interprofessional education 79%, obtain clinical competencies 78%, serve as formative assessment 76%, obtain observation hours 59%, serve as summative assessment 49%, obtain clinical contact hours 46% (Dudding & Nottingham, 2018). When it came to assessing student learning from the simulation learning experiences "results were mixed" (Dudding & Nottingham, 2018, p. 76). Reported grading methods in the study included a pass/fail rating system (28%, n=19), number or letter grade (32%, n=22), and no grade (41%, n=28) (Dudding & Nottingham, 2018). The researchers went on to suggest "there is a lack of consensus and indeed missing evidence on which to base the decision, how, if at all, to grade these student experiences" (p. 76). This was the first study to address the assessment of student learning in the use of simulation learning experiences specific to speech-language pathology.

Simulation learning experiences, as a technique, were developed to meet the learning objectives set forth for the learner. In speech-language pathology the overall program learning objectives are clearly defined in the learning standards developed by the CFCC. Traditionally, the development of clinical skills was assessed during direct clinical interactions with clients in

practicum experiences, and more recently with the addition of simulation learning experiences. According to Dudding and Nottingham, "the majority of programs (85%, n=59) began implementing the educational technique in the last 5 years, which suggests a "growing trend" (2018, p. 74). The learner outcomes, or standards, established by the CFCC essentially provide the clinical instructor and the student with a guide of expectations of student learning in relation to clinical skills. These learning standards are consistent for direct clinical experiences and simulation learning experiences. However, very limited research specific to the field of speech-language pathology currently exists that compares clinical competency of skills practiced through simulation learning experiences and those practiced in face to face traditional clinical settings.

Students who attend an ASHA accredited academic program in speech-language pathology participate in clinical opportunities to meet the clinical competency standards addressed by standard V-B (Appendix A). Assessment of competency is completed for each clinical experience by an ASHA certified speech-language pathology supervisor. The AHSA standards are assessed using the grading scale unique to each program and are tracked throughout the graduate experience. In order to graduate, the candidate must demonstrate a minimum competency in each of the nine clinical practice areas for each standard. This is both a form of formative and summative assessment and includes a reflective component. According to Dunning and Nottingham's study (2018), 78% (n=106) of programs use simulation learning experiences for this purpose.

ASHA considers certified faculty, clinical instructors, and supervisors all clinical educators. Supervision of graduate students for clinical hours and competency hours must be provided by clinical educators who have completed a "(1) a minimum of 9 months of full-time

clinical experiences, and (2) a minimum of 2 hours of professional development in clinical instruction/supervision" (ASHA, 2020) after earning their certification in the field. Graduate programs in CSD:SLP consist of faculty who both teach in the content area as well as supervise clinical experiences, and clinical instructors who provide mainly clinical supervision. Speech-language pathologists in the field who provide clinical supervision at off-site practicum experiences are often referred to as clinical supervisors. All must meet the same ASHA standards in order to provide the required supervision and assess clinical competency.

The role of assessment in the development of clinical skills in CSD: SLP graduate programs is to determine level of proficiency in each clinic skill set forth by the CFCC. As a form of summative assessment, individual CSD:SLP programs offer their own rating scales to reflect this level of performance of each required skill (Sadler, 1998). As a feedback tool for students in their progression of mastery, formative assessments allow students to improve in a specific skill area (Sadler, 1998). Further, "The use of simulation can allow students to monitor incremental improvement in skill (formative assessment), and faculty can assess clinical proficiency in that skill (summative assessment) and determine if remediation is required" (Dudding et al., 2018). In the study by Dudding and Nottingham (2018) however, the methods for grading the use of simulation learning experiences were inconsistent. Some programs assigned a grade (32%, n=22), other programs offered a pass/fail option (28%, n=19), and the remaining 41% (n=28) assigned no grade at all (Dudding & Nottingham, 2018, p. 76). This would suggest that there are different grading criteria and options used based on how CSD:SLP programs implement simulation learning into the program.

Statement of the Problem

Simulation learning experiences are used for many different reasons in CSD: SLP graduate programs including: deliberate, repeated practice; remediation and assessment of skill; practice in a safe risk-free environment; access to a broader range of experiences and diversity of disorders across the lifespan; supporting clinical decision making in a risk-free environment; re-enforcement of content required in the curriculum (Jansen, 2015); they provide opportunities for interprofessional education; obtain clinical contact hours; obtain clinical observation hours; and serve as both formative and summative assessment (Dudding & Nottingham, 2018). Assessment of learning in some form is needed to show that students have met criteria for competency of the content and clinical standards defined by the CFCC in all uses of simulation learning experiences. The limited available research in the assessment of CSD:SLP graduate student learning in simulation learning experiences suggests inconsistencies in the assessment practice. The aim of this study was to further explore these inconsistencies.

Study Purpose

The purpose of this study was to use qualitative inquiry to explore how faculty assess graduate student learning in clinical simulation experiences in Communication Sciences and Disorders: Speech-Language Pathology graduate programs. In this study the term faculty refers to ASHA certified clinical educators including faculty, clinical instructors, supervisors. Simulation learning experiences have become an accepted form of andragogy in speech-language pathology, assessment of student learning outcomes using simulation learning experiences will ultimately lead to the development of high-quality simulation opportunities, population and patient specific simulations, and provide guidance in how to best incorporate simulation into the current curriculum.

An integrative learning approach in speech-language pathology focuses on the application of theory into clinical practice. Well sequenced clinical opportunities offer graduate students in CSD: SLP programs the opportunity to apply the theory they are learning in content courses in clinical experiences. Pedagogies such as problem-based learning and simulation exercises focused on actual problems encountered in clinical practice will encourage the integration of clinical concepts, promote problem solving and clinical reasoning, and better prepare students to manage the complex situation they encounter in a student-centered approach (Benner et al., 2010., Murphy, et al., 2011).

This study addressed how faculty responsible for the clinical education of graduate students in speech-language pathology assess student learning in simulation learning experiences. The framework of phenomenology encourages the collection of experiences of those living the experience, including simulation experiences. Constructivist learning in the preparation of speech-language pathologist involves the interactions of CSD: SLP graduate students as they construct their knowledge from their graduate school experiences, in the social, situated learning experiences created and offered by the graduate faculty. What remains unclear, is how is learning assessed and competency determined as new pedagogical experiences are added to the curriculum. This phenomenological study approach explored how those living the graduate faculty role, using simulation learning experiences in their program, are in fact evaluating student learning.

Research Questions

This study addressed the following questions: How do CSD: SLP graduate faculty assess student learning in simulation learning experiences used to address clinical competency standards?

(1) How do faculty experience the assessment of learning in simulation learning experiences?

(2) In what ways do faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards?

(3) What, if any, effect has the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards?

Significance of the Study

From the faculty standpoint, affecting the development of new clinical simulation options with consideration of integration into the curriculum would contribute to student centered learning in CSD:SLP programs, and meet the growing needs of professional preparation. The implications have the potential to influence assessment options for graduate faculty, as well as faculty development for curriculum integration. From the perspective of an adult learner and certified speech-language pathologist, creating simulation learning experiences that truly contribute in the development of clinically competent entry level clinicians is essential. The employment opportunities in the field of speech-language pathology are increasingly diverse. Students must be adequately prepared for an entry level position for the current profession with fewer resources than ever before. The aim of this study was to explore the experiences of faculty

in graduate CSD: SLP programs in the assessment of student learning in simulation learning experiences at the graduate level.

Assumptions, Limitations, and Delimitations

One assumption of this study is that all volunteer participants were open and honest in their responses to the interview questions. Questions were written to encourage a description of the experience rather than an opinion of the experience. A second assumption is that the simulation learning experiences being discussed were designed to replicated real life experiences in the field of speech-language pathology. Limitations of this study included availability of interviewees as only volunteers were interviewed. Given increased limitations and demands on graduate CSD: SLP programs with COVID-19, participation was limited to one interview per participant. The interviews were conducted via zoom and recorded for data analysis. This study was limited to interviews of graduate faculty with experiences assessing student learning in simulation learning experiences in the CSD:SLP graduate curriculum.

Framework

The National League for Nursing (NLN) Jeffries Simulation Theory provides the theoretical framework for this research. Following the initial theory development in 2005, a systematic review of all literature was completed in 2016 and again in 2021 and reveals that this framework is appropriate for interdisciplinary simulation experiences in allied health fields (Jeffries, 2016). The constructivist learning theory, experiential learning, and cognitive apprenticeship theory were all used to support the development of the NLN Jeffries Simulation Theory. These theories re-enforce current practices in simulation learning experiences in graduate CSD:SLP programs including the need for deliberate integration and practice,

professional facilitators or apprentices, reflective learning, feedback to the learner, and a well-designed curriculum.

Figure 1
Image Depicting the NLN Jeffries Simulation Framework

The NLN Jeffries Simulation Framework

Adapted from: National League of Nursing Jeffries Simulation Theory

The NLN Jeffries Simulation Theory summarizes the complexity associated with introducing a new learning modality with adults. The essential components of the model for simulation learning experiences and their rationale for inclusion provide a checklist of sorts for consideration. However, it also acknowledges the personal factors both facilitator and the participant bring to the experience (Jeffries, 2016). The introduction of COVID-19 in 2020 potentially effected the learning experience starting with the background, the design, the environment, and all communication. This study focused specifically on the effects of COVID - 19 on simulation learning experiences in graduate CSD:SLP programs, as well as faculty experiences in the assessment of student learning within this model.

By definition, learning refers to a process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences (Gross, 2012). The role of assessment in this process is that of evaluating this learning. Simulation learning experiences, a teaching and learning modality, is incorporated into many learning theories including constructivism, experiential learning theory and situated cognition. Experiential learning experiences offer students an opportunity to practice what they are learning in content courses and apply it in highly structured, supervised clinical experiences. These clinical experiences are designed to reflect the professional career post-graduation in an environment with colleagues, supervision, and feedback to shape the learning experience. Graduate CSD: SLP programs use a combination of these theories as the basis for their curriculum to meet the competencies required in content area standards and clinical practice standards. According to Dudding and Nottingham (2018) simulation learning experiences are currently bring incorporated in CSD: SLP graduate programs in both content and clinical competency areas contributing to the experiential learning in a contextual setting.

Constructivism

According to Bruner, learning is an active process where the learner constructs new knowledge from past knowledge and experiences (Bruner, 1961). The teacher acts as the facilitator and encourages new learning by allowing the students to learn as they participate in carefully orchestrated learning experiences. Personalized instruction, sequenced content and structure, and appropriate feedback in the learning process are essential in the construction of new knowledge (Bruner, 1961).

Experiential Learning Theory

As a form of experiential learning and a constructivist learning opportunity, direct clinical experiences are required in ASHA certified CSD: SLP graduate programs. Communication Sciences and Disorders: Speech-Language Pathology graduate students construct their knowledge and expertise through carefully monitored experiential learning opportunities in real clinical settings and, since 2016, simulated learning in the development of their clinical skills. Simulation learning experiences such as standardized patients, task trainers, and computer-based simulations "abstract key elements from reality and allow students to live out the hypothesis and implications of theories, giving them intense emotional, cognitive, and behavioral experiences that they otherwise never have" (Nilson, 2016, p. 171). With the changes to the CFCC guidelines in 2016, these simulation learning experiences are created to fill the role of the direct clinical experiences. Many components of current simulation learning experiences in CSD: SLP graduate programs are reflected in Kolb's experiential learning model including reflective observation, abstract conceptualization, and active experimentation when paired with an experiential learning experience (Kolb, 1984). Simulation learning experiences require students to reflect on the learning experience, and many online simulation programs have an embedded reflection component in the debrief process. In working through the simulation learning experience, the learner is required to apply their content knowledge and make appropriate selections in the assessment and treatment of the simulation client. In this way, they are conceptualizing the presented disorder and applying their content knowledge in application.

David Kolb describes learning as a process, "whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38). Kolb goes on to describe a four-stage model that learners progress through in the process of learning including concrete experience, reflective

observation, abstract conceptualization, and active experimentation (Kolb, 1984). Simulation

learning experiences in the form of computer-based simulations and standardized patients act as

the concrete experiences in this learning model. According to the theory of constructivism, it is

through these experiential learning opportunities, in social learning environments, that CSD: SLP

graduate students "construct meaning" (Merriam & Bierema, 2014, p. 36).

It is through Kolb's four-stage learning model that students learn the process of assessing

their own learning. Students participate in a concrete experience through both the face to face

clinical experience and simulation experience. Both experiences require a reflective component

during which students reflect on their experience. "Simulation-based education is a

comprehensive, student-centered teaching paradigm that promotes experiential learning and

reflective practice, both of which are critical to transfer of learning from the classroom to the

clinic" (Motola et al., 2013). These reflective components are often written reflections prompted

by faculty led reflective questions. This reflective practice requires the learner to critically

analyze the experience. In face to face clinical experiences students develop therapy sessions

incorporating what they learned in content courses and previous therapy sessions then apply in

the next session through active experimentation. Simulation learning experiences would allow

students to propose changes, and when the opportunity arises in face to face experiences, the

opportunity for active experimentation. Each of these areas are assessed by an ASHA certified

supervisor that provides feedback though out the learning process.

Cognitive Apprenticeship

Cognitive apprenticeship is a theory, that when applied to constructive learning theory,

describes the role of the faculty. The faculty in this model acts as the master, while the learner is

the apprentice. According to Merrian and Bierema (2014),

Cognitive apprenticeship is an instructional strategy solidly grounded in the situated cognition framework. That is, it posts that learning is a function of the context in which it takes place, the tolls in the context, and the social interaction between master (educator) and apprentice (learner)" (p. 120).

The faculty's role, according to the theory of cognitive apprenticeship, in simulated learning would be to demonstrate and role model the decision-making process, clinical problem solving, and judgement applied through the case presented. Merriam and Bierema (2014) state,

In cognitive apprenticeship, one needs to deliberately bring the thinking to the surface, to make it visible, whether it's in reading, writing, or problem solving. The teacher's thinking must be made visible to the students and the student's thinking must be made visible to the teacher. That is the most important difference between traditional apprenticeship and cognitive apprenticeship" (p. 119).

These adult learning theories require the demonstration of skill as reflection of learning.

The NLN Jeffries simulation theory provides a framework that combines these theories and identifies the required components for simulation learning experiences. The simulation experience provides an environment that is "experiential, interactive, collaborative, and learner centered" (Jeffries et al., 2015, p. 1) based on "the established trust; both the facilitator and participant share responsibility" (Jeffries et al., 2015, p. 1). The outcomes focus on the participant or graduate student, the patient, and the system. The participant, CSD:SLP graduate student, outcomes include reaction, learning, and behavior (Jeffries et al., 2015). For the purposes of this study, the research related to participant learning, specifically skill development, will be explored.

COVID-19

The COVID-19 pandemic started affecting ASHA accredited SLP:CSD programs in the United States in February and March 2020. Programs began to transition to online learning, and clinical sites were either closed or students were pulled from their clinical sites to protect them from the virus and preserve precious PPE for frontline workers. In response, SLP:CSD programs increased the use of simulation learning experiences to provide their students with a safe, available, method of accruing clinical contact hours for an on time graduation. Prior to COVID-19 in the study by Dudding and Nottingham (2018), 51% (n=69) of respondents reported using some form of simulation learning experiences, 27% (n=37) were standardized patients, 23% (n=31) were computer-based simulation (p. 74). As of January 13, 2021, ASHA maintained that the maximum number of hours accrued through simulation learning in graduate SLP:CSD programs would not increase above 75 hours, or 20%, as previously outlined in the standards (ASHA, 2020).

Summary

The use of simulated learning experiences in graduate CSD:SLP programs is growing as an accepted means of gaining clinical clock hours and competency standards for on-time graduation. Many simulation studies exist for other allied health professional, but the research specific to the field of speech-language pathology remains limited. Available research in the field primarily focuses on student perceptions. The NLN Jeffries simulation theory in nursing, based on constructivism, experimental learning theory, and cognitive apprenticeship offers a foundation to further develop an entire structured curriculum for simulation learning experiences in speech-language pathology.

Definition of Terms

Simulation learning experiences: experiences used "to replace or amplify real experience with guided experiences" (Gaba, 2004, p. 2). Simulation based learning is an education approach meant to replicate aspects of the real world and immerse learners in the experience (Gaba, 2004).

Experiential learning theory: suggests learning requires experiences influenced by the learner's cognition and emotions, and environmental factors followed by reflection on the experience (Kolb, 1984).

Cognitive Apprenticeship: focuses on "learning though guided experience on cognitive and metacognitive skills and processes" (Collins et al., 1989, p. 457) versus focusing on a specific craft or trade

Constructivist learning theory: Bruner's constructivist learning theory suggests learners are active in the process in constructing new knowledge rather than passive. Through these active experiences and reflections upon these experiences, people build their knowledge and incorporate new information into their pre-existing knowledge (Bruner, 1961). Social constructivism suggests that these active experiences need to be shared, social interactions with the teacher as a preceptor facilitates the experiences (Vygotsky, 1986).

NLN Jeffries Simulation Theory: Jeffries simulation model was developed on principals form constructivism, experiential learning theory, and cognitive apprenticeship. It includes a model for the implementation of simulation learning experiences into the curriculum (Jeffries 2021).

Phenomenological study: focuses on the "commonality of a lived experience within a particular group" (Creswell, 2013, p. 78).

Clinical competence: refers one's capability to apply or use a set of related knowledge, skills, and abilities to successfully perform a given task (Merriam-Webster, 2014).

Chapter 2

Literature Review

This chapter will discuss simulation learning, simulation learning in speech-language pathology, assessment of learning in simulation, and the integration of simulation learning experiences using the National League of Nursing Jeffries Simulation Framework and the following adult learning theories: constructivist learning, experiential learning, and the cognitive apprenticeship theory.

Simulation Learning Experiences

Graduate speech-language pathology programs incorporate a variety of student-centered andragogy in content area classes as well as clinical practicum opportunities. In other allied health professions, simulation learning experiences are an accepted form of pedagogy, while for speech-language pathology training programs the concept remains novel. Simulation learning experiences have been used in aviation and the military for centuries (Rutherford-Hemming, 2012), and in other allied healthcare fields for over 20 years (Foronda et al., 2013). They take on many different forms and "can be defined as a technique not a technology to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a full interactive manner" (Gaba, 2004, p. i2). Simulations are often described in terms of fidelity from low-fidelity to high-fidelity depending on the degree of interactivity and realism, not reliant on the technology. Jeffries (2016) emphasized the need to match fidelity with the context and learning objective of the simulation learning experience. In 2021, Jeffries further defined the levels of fidelity in simulation learning experiences based on three dimensions "conceptual, physical/environment, and psychological" (p.37). Healthcare simulations "create a situation or environment to allow persons to experience a representation of a real healthcare

event for the purpose of practice, learning, evaluation, testing, or to gain understanding of

systems or humans actions" (Lopreiato, 2016, p. 15). Lopreiato (2016) describes a number of

accepted forms of simulation used in many allied healthcare preparation programs including

standardized patients. See Table 1 for a summary of how these types of simulation are applied in

graduate training CSD:SLP programs.

Table 1

Definitions and Examples of Healthcare Simulations

Type of Simulation	Definition	Example in CSD
Standardized Patients	A person coached to simulate an actual patient in a realistic, standardized, and repeatable way.	A woman is trained to imitate the cognitive and linguistic impairments of a person with a traumatic brain injury.
Task Trainers	A device to train in a specific procedure or skill. Represents a part or region of a body.	An ear task trainer to practice cerumen management.
Mannequins	A life-sized-like simulator. Vary in fidelity. High-fidelity simulators include heart, lung, movement, and voice functioning. Controlled by computers and software.	A mannequin programmed with oxygen saturation values to teach tracheostomy and speaking valve management.
Computer-based Simulations	A simulation represented on a computer screen, often based on interactive gaming technologies.	Virtual case studies such as SimuCase.
Immersive Virtual Reality	A computer-based three-dimensional representation that has the feeling of immersion.	Avatars in surgery.

(Dudding & Nottingham, 2018; Lopreiato, 2016).

Simulation learning experiences offer students "an opportunity to practice allocation of

knowledge and skills in a safe, risk-free environment and to reflect on the experiences for

enhanced learning" (Grillo & Thomas, 2016, p. 4). In many educational programs, this means removing the human factor, allowing students to repeatedly practice a procedure or skill on a nonhuman subject. To be more specific, this deliberate, repeated practice has a task with a "well-defined objective, performance feedback for the learner, and the opportunity to reflect and refine task actions" (Jansen, 2015, p. 34). Because of the decreased risk to themselves and the patients, the simulation facilitator is therefore able to focus on the needs of the learner, rather than the client, without adverse client consequences (Alinier, 2007; Burns, 2015; Issenberg & Scalese, 2007). "A recent systematic review and meta-analysis concluded that, when used among healthcare professionals, technology enhanced stimulation training yields consistently positive outcomes with regards to the improvement of knowledge, skills and behaviors" (Madhavanprabhakaran et al., 2015, p. 106). Simulation learning experiences also expose the students to a wider range of clinical scenarios (Alinier, 2007). In addition, complex tasks can be broken down into components and adapted to the learning rate of the individual student (Issenberg & Scalese, 2007).

Nursing has established its own "Standards for Best Practice in Simulation" (Lioce et al., 2013) which include criteria for developing effective simulation learner outcomes as a basis for assessment of student learning. The establishment of these policies and procedures by the International Nursing Association for Clinical Simulation and Learning (INACSL) provide not only the regulatory policy, but guidance for faculty in implementation. As an allied health field, these criteria are applicable to the CSD: SLP graduate programs as well and are similar to the set of practice standards developed by a task force of the Council of Academic Programs in Communication Sciences and Disorders and published in 2019. The overlapping standards include: student learner outcomes must state the level of learning expected using Bloom's

taxonomy …set challenging yet attainable goals based on Vygotsky's Zone of Proximal Development…link to program outcomes….incorporate evidence based practice…reflect culturally competent care, and be achievable within a specific timeframe (Lioce et al., 2013).

Other allied health professions, such as nursing, have implemented simulation learning experiences in place of direct clinical contact. Although difficult to measure efficacy in clinical skill development with simulation learning experiences due to lack of a specific tool, other allied health professions have since studied student learning outcomes and compared these outcomes against those skills developed through traditional face to face learning opportunities. The findings of a study by Hayden et al., (2014) in nursing education compared clinical skills learned through simulation learning experiences and clinical skills learned through traditional face to face clinicals and found more than 660 nursing students from 10 programs revealed no significant between-group differences for clinical competency, critical thinking, or preparedness to practice as a registered nurse (Hayden et al., 2014, p. S37). They went on to recommend "that up to 50% of required clinical hours in pre-licensure nursing education programs could be replaced with simulation with no foreseen adverse effects on student training" (Hayden et al., 2014, p. S38). One of the limitations of this study was that those programs applying to participate in the research acknowledged they had access to the simulation resources needed possibly establishing a sampling bias.

Many of these simulation learning experiences have welcomed advances in technology as a way to enhance the simulation experience and provide learning opportunities that are as close to life-like as possible. The same landmark study of 660 nursing students across 10 programs in the use of simulation learning experiences in nursing by Hayden et al., in 2014 found no difference in the areas of clinical competency, critical thinking, and preparedness as measured by

supervising registered nurses between a control group that received all of their clinical education

through traditional means compared to a group that replaced 25% and another group that

replaced 50% with simulation experiences. In addition, the same nursing students passed their

national certification exam demonstrating content knowledge, clinical skills, clinical thinking,

and overall career readiness commiserate with peers who learned through traditional models of

clinical training (Hayden et al., 2014). In a similar study in physical therapy which is another

allied health profession, Watson et al. (2011) found that replacing up to 25% of traditional

clinical experiences with simulation learning experiences did not affect clinical competence. In

addition, a meta-analysis by Cook et al. (2011) of over 600 articles from medicine, nursing,

dentistry, and other allied health professions concluded "technology-enhanced simulation

training in health professions education is consistently associated with large effects for outcomes

of knowledge, skills, and behaviors and moderate effects for patient-related outcomes" (p. 978).

While these studies examined a variety of professions, findings overall suggest simulation

learning as a viable educational option.

Simulation Learning in Speech-Language Pathology

Simulations in speech-language pathology have traditionally been standardized patients,

who are people who have been trained to role play in a specific manner, or an actual patient

using their own experiences with a communication disorder, and would be considered mid-range

on the continuum of sophistication or fidelity. In addition, simulation experiences using

standardized patients are not necessarily standardized encounters so that different student

clinicians may experience different learning experiences (Adamo, 2003). Simulated patients and

task trainers are typically considered on the low end, while high-fidelity simulations are

technologically advanced and require "critical thinking and clinical judgement related to

synthesis of knowledge, technical and communication skills, and interdisciplinary team management of patients with complex problems" (Gutmann, 2016, p. 41). Well-constructed simulation learning experiences include components consistent with constructivist, experiential learning theory, and cognitive apprenticeship. "Best-practice in simulation learning opportunities include three parts: pre-brief, the scenario and the debrief" (ASHA, 2018, p. 12). These three parts encourage reflection during and after the experience and promote that evolution of reflective practice.

According to a study by Dudding and Nottingham (2018), CSD programs in the United States are currently using a variety of simulation learning experiences including standardized patients (37%), computer-based games (31%), digitized mannequins (20%), virtual reality (13%), task trainers (11%), other (7%) and immersive virtual reality (1%) (p. 75). This same study also reported that 84% (n=58) of respondents use simulation at the graduate level and 30% (n=21) incorporate simulation learning experiences at the undergraduate level (Dudding & Nottingham, 2018, p. 75). The same study by Dudding and Nottingham (2018) reported faculty perceived uses of simulation include: remediation, opportunities for interprofessional education, meet clinical competencies as defined by the CFCC, formative and summative assessment, to gain required observation hours and clinical contact hours (p. 77). The authors acknowledged that it was likely only programs using simulation learning experiences that responded to the survey (Dudding & Nottingham, 2018). A similar study in Australia by MacBean et al., (2013) found participants believed simulation learning experiences could also replace some of the traditional face to face clinical experiences for similar uses (MacBean et al., 2013).

A study by Grillo and Thomas (2016) using high fidelity mannequin simulations in an interdisciplinary experience with nursing students and speech-language pathology graduate

students proposed a template for simulation learning experiences. They concluded high-fidelity simulation mannequins "are an effective clinical education tool to encourage application of knowledge, skills, and attitudes" (Grillo & Thomas, 2016, p.13). Grillo and Thomas also suggested consulting the research in other allied health fields for the successful integration of this type of simulation learning experiences to maximize success.

Two separate studies by Hill, et al., (2013) and Zraick (2012) demonstrate the use of standardized patients serve as a viable instruction strategy. They do not describe exactly how the simulation experiences were integrated in the program, for example, as an instructional tool versus a clinical experience, or how student learning was assessed. Several other published articles also demonstrate the use of standardized patients as a viable instructional strategy (Alanazi, et al., 2017; Hill et al., 2013; Naeve-Velguth et al, 2013; Syder, 1996; Zraick, Zraick et al., 2003).

Benadom and Potter (2011) studied the use of part-task trainers in assessment protocols and found that these opportunities increased student reported comfort level with that specific task when they were presented with a real-life clinical experience. Estis, Rudd, Pruitt, and Wright (2015) studied the use of high-fidelity manikins in graduate programs for speech-language pathology and found that the experiences contributed to a foundational knowledge base when integrated into the content classes; clinical competency was not assessed. Other studies in CSD: SLP suggest the use of part-task trainers and high-fidelity manikins are a useful learning tool (Alanazi, et al., 2016; Estis et al., 2015; Potter & Allen, 2013; Ward et al., 2015).

A study by Clinard and Dudding (2019) explored the perceptions of graduate students in the process of diagnostic assessments in speech-language pathology in simulation compared to face to face assessments. Students were randomly assigned to simulation or face to face

diagnostic experiences. Qualitative findings suggest students identified strengths such as feedback during the debrief and pre-brief process, skill practice related to collection of case history and collaboration, exposure to a variety of patient populations, and ability to learn independently (Clinard & Dudding, 2019). Weaknesses identified by students related to simulation experiences included confusion related to logistics and expectations of the assignment, need for more practice and feedback from faculty in the process, program challenges specific to the technology, and a "gaming - mentality" (Clinard & Dudding, 2019, p. 144). The researchers concluded "those considering implementation of simulation are encouraged to seek training in such practices through attendance at conferences, webinars, and review of literature both within and external to CSD" (Clinard & Dudding, 2019, p. 146).

Current research suggests graduate CSD:SLP programs are integrating simulation learning experiences into the curriculum following the guideline changes from the CFCC. Studies have included standardized patients, computer simulations, and simulation mannequins. While positive outcomes related to clinical confidence and viability as a teaching tool were identified, no research presented clinical competency outcomes.

Assessment of Learning in Simulation Learning Experiences

The field of nursing has incorporated simulation learning into their curriculum for many decades and have also struggled with the assessment of student learning. Used as a means of performance-based assessment, simulations can also be used to identify gaps in the underlying curriculum and student learning that have resulted in inadequate clinical skills (Haydon et al., 1994). Assessment of student performance in simulation learning experiences provides insight for faculty into their overall program in clinical preparedness. "Nursing faculty base their evaluation of student performance in clinical simulation on an individual framework developed

from personal values, past experiences, standards of practice, and programmatic value/norms"
(Watts et al., 2017, p. 617). The Satisfaction with Simulation Experience (SSE) Scale was
developed to evaluate the impact of simulated patients in the development of clinical reasoning
in education nursing students. Levett-Jones et al., (2011) developed the tool and the
psychometric testing to support it as a useful tool for students to evaluate their learning
experience. It is an eighteen-point scale rating the simulation learning experience. The scale was
later validated in a study by Williams and Dousek (2012). Findings of the study from Levett-
Jones et al. (2011) indicated "simulation is highly valued by students, irrespective of the level of
fidelity" (p. 1).

The Objective Structured Clinical Examination or OSCE was developed by Harden,
Stevenson, Downie, and Wilson in 1975 and is a tool that can be utilized to assess health care
professional competency in a clinical or simulation clinical setting through direct observation. It
is most often used to assess student learning with standardized patients and has been used in a
variety of allied health disciplines (Hampl et al., 1999; Lindsey & Stritter, 1990; Logan et al.,
1999; Monaghan et al., 1998; Norton & Strube, 1998; Rounds-Riley, 1998; Sahni et al., 1997;
Stroud et al., 1999; Traina et al., 1994). Vu and Barrows (1994) report the OSCE appeal is that it
immerses the students in a simulation in which each interaction is mostly unscripted, open-ended
and standardized allowing a more authentic assessment of skills than is possible with paper and
pencil testing. Key elements of the tool require case development, training of standardized
patients, development of the competencies to be assessed by the OSCE, procedures for
completing the clinical scenario, recruitment and training of judges, and measurement and
evaluation (CAPCSD, 2019).

The OSCE is a method of evaluation requiring students to perform specific clinical task

in a highly structured encounter, usually within a prescribed period of time. Students'

skills in history taking, physical or other examination, and problem solving are evaluated,

as are their behaviors related to interpersonal and professional communication" (Zraick et

al., 2003, p. 237).

It would seem this tool could be adapted in the assessment of student learning in simulation

learning experiences in speech-language pathology.

Assessment of Student Learning Using Simulations in Speech-Language Pathology

The assessment of student learning in CSD:SLP programs is two-fold. Students must

demonstrate competency in the knowledge standards defined by the CFCC through ASHA, and

they must also demonstrate competency in the clinical standards defined by the CFCC through

ASHA. Most of the content areas assess student learning through the in-class assessment

activities such as tests, projects, or demonstrations of some description. Clinical skills are

assessed during clinical experiences either in an on-campus clinic or in offsite clinical

practicums. "These placements provide opportunities for students to apply information learned in

the classroom, and to develop interpersonal, clinical reasoning, and management sill that are

required for professional practice" (Zraick, 2012). Individual CSD:SLP graduate programs create

their own rating scales to grade students in both the content and clinical competency areas. Each

point on the scale includes a brief description of that numerical value. A minimum "passing"

grade is determined by the program and students are graded according in this outcomes-based

assessment style. The minimum criteria to define a passing grade are also determined within the

individual programs. According to Dudding and Nottingham (2018) a variety of grading

methods are used when grading simulation experiences in CSD:SLP. They include a pass/fail

rating system, assigning a number or letter grade, and no grade (p. 76). This would suggest that little consistency exists in the process and how simulation is being implemented in the program.

Like other allied health programs, practicum experiences are becoming more and more difficult to find. Hill et al. (2010) attribute staff shortages, lack of funding for clinical educator positions, an increase in the number of certified SLP programs, and an expanding scope of practice as underlying reasons. In addition, a shift to outcomes-based education means completion of a clinical practicum experience no longer equates to adequate professional skills (ASHA, 2009). Speech-language pathology is following other allied health educators are they are looking for creative solutions to fill these deficits, and creatively turning to simulation learning experiences as a way to ensure that students can demonstrate integration of prerequisite knowledge, skills, and apply them in a realistic setting (Rosen et al., 2009). The research related to student learning using simulations in CSD: SLP has primarily been limited to student perceptions.

There has been very little research published regarding the use and the assessment of simulation learning experiences in speech-language pathology. Putter-Katz, et al., (2017) conducted a survey study of graduate students in which they evaluated the simulation program implemented in their training program. The researchers found that "students reported significantly increased self-efficacy in a range of clinical skills and perceived the inclusion of simulated patients into a clinical skills program was valuable" (p. 113). They also found "a strong correlation between video-based debriefing and students' perception of the improvement in their professional and communication skills" (Putter-Katz et al., 2017, p. 113). Edwards et al. (2000) studied the use of standardized patients (SPs) at an undergraduate level and reported the use of standardized patients was "a powerful way for students to become aware of and learn to

critique their own reasoning" (p. 266). Another study by Syder (1996) studied the use of standardized patients in the area of voice disorders and fluency. Findings suggested that SPs (standardized patients) are an acceptable teaching tool, and that it was appropriate to introduce SPs in a group context at an early stage of clinical course and then develop further activities with individual application as students become more experienced" (Zraick, 2012, p. 116).

The first study to evaluate the use of the OSCE as a tool for evaluating student learning and clinical competence in speech-language pathology was by Zraick, Allen, and Johnson (2003). In their study they investigated the use of standardized patients portraying aphasia and the interpersonal skills of graduate students across a 16-week course. While the authors concluded that incorporating "standardized patients and the OSCE into a graduate course on disordered communication is possible, and acceptable to students" (Zraick et al., 2003, p. 244) further research is needed to explore how most successfully integrate this methodology across the curriculum (Zraick et al., 2003). "In a post-participation survey, 100% of the students agreed strongly that using SPs and OSCEs with students in speech-language pathology was appropriate, and nearly 90% felt that SPs and OSCEs should be incorporated into their future clinical disorders coursework" (Zraick et al., 2003, p. 244).

McGraw and O'Connor (1999) compared the interviewing skills of students who practiced in a traditional clinical situation to those who practiced with simulated patients and outcomes were equivalent. Botezatu et al., (2010) reported that before simulation learning experiences are used for assessment of skill, they must first be used for learning. Given the limited research of standardized patients in speech-language pathology clinical programs, Hill et al., (2011) further suggested "development and validation of relevant student assessment tools, which allow separation of interpersonal/communication and clinical skills, are required in order

to achieve accurate evaluation of SP use in speech-language pathology programs" (p.263).

Zraick et al. (2003) also concluded that "future investigations may wish to design SP teaching

and testing interactions with an equal focus on the "how" and "what" of clinical evaluation of

communication impairment" (p .244).

Carter (2019) compared the performance of four cohorts of students in a computer-based

simulation learning experience and a traditional learning experience. He concluded "the group

that was involved with the simulated learning environment outperformed the traditional

instruction group in several key areas" (Carter, 2019, p. 44). The simulation group utilized a

computer-based simulation, but he acknowledged that a significant unknown is whether an

improvement as measured on an unvalidated tool manifests as an improvement in clinical skill or

the increased amount of homework associated with the assignment.

As previously mentioned, the Council of Academic Programs in Communication

Sciences and Disorders created a task force to establish the "Best Practices in Healthcare

Simulations" which was published in 2019. In their report they also recommended using student

surveys as a means for gauging student impressions of simulated learning experiences. Published

scales and questionnaires borrowed from nursing included the Simulation Design Scale,

Educational Practices Questionnaire, and the Student Satisfaction and Self-Confidence in

Learning (Jeffries & Rizzolo, 2006). These scales, while useful for faculty in improving the

student experience, do not assess overall competency gained from a simulation learning

experience. The report went on to describe how both formative and summative evaluations of

student learning in simulation learning experiences were appropriate, it failed to provide specific

forms of either. The authors suggested a rubric as tool to define expectations for an assignment

or project associated with the experience, as well as several tools designed for nursing students that could be adapted to speech-language pathology.

Computer-based simulation learning programs offer ready-made and easy to access simulation learning experiences. Many graduate programs in CSD:SLP use computer based learning programs, such as SimuCase (2017), which provide students with immediate feedback as they work their way through the learning mode of the program. According to a study by Dudding and Nottingham (2018) 23% or n=31 of respondents used computer-based simulations in the CSD: SLP programs. They recommended further research in the area of assessment of student learning.

Integration of high-fidelity mannequins in speech-language pathology programs has been very limited in scope. "High fidelity mannequins are often employed to teach medical skills and tasks with appropriate physiological and physical responses produced and elicited by the mannequin based on the action of the learner (Singh et al., 2013). They offer the opportunity for repeated deliberate practice to perfect clinical skills. A study published by Grillo and Thomas (2016) describes a simulation learning experiences with the integration of a high-fidelity mannequin in collaboration with nursing. Virtual patients and high-fidelity mannequins have been used routinely in nursing education for years but rarely used and studied in educational programs for speech-language pathology (Foronda et al., 2013). Grillo and Thomas integrated the high-fidelity mannequin in a speaking valve assessment with a trach patient, a swallow evaluation with trach patient, and a cranial nerve examination. The scenarios were followed by a debrief as a component of best practice when implementing a simulation learning experience. Grillo and Thomas concluded simulations using high-fidelity mannequins in speech-language pathology "are an effective clinical educational tool to encourage application of knowledge,

skills, and attitude" (Grillo & Thomas, 2016, p.13). They also suggested integrating other professions into the simulation learning experience to increased effectiveness. In Dudding and Nottingham's 2018 study, only 1% of CSD:SLP programs that responded to their survey used virtual patients, the highest level of simulation patients available to CSD:SLP programs (p. 74). The integration of simulation-based learning experiences into CSD: SLP graduate programs represents an opportunity to increase the value, efficiency, and quality of client care in a student-centered approach to education that highlights evidence-based and reflective practice.

Dudding and Nottingham's study published in 2018 with an n=136, listed the perceived uses of simulation in graduate CSD:SLP programs. This offered some insight into the possible inconsistencies in assessment of student learning in simulation learning experiences in speech-language pathology.

Table 2

Perceived Uses of Simulations in Communication Sciences and Disorders Academic Programs

Perceived Uses	Agreed or Strongly Agreed
Serve as Remediation tools	95%
Provide opportunity for interprofessional practice	79%
Obtain clinical competencies	78%
Serve as formative assessment	76%
Obtain observation hours	59%
Serve as summative assessment	49%
Obtain clinical contact hours	49%

(Dudding & Nottingham, 2018, p. 77)

 Determining clinical competency and obtaining clinical contact hours are very different uses than when used as a form of formative assessment in a content class. As such assessment of student learning in each of those uses would be very different. The OSCE might be modified appropriately to determine clinical competency or to obtain clinical contact hours, however the SSE would not.

A study by Penman et al. (2021) explored the use of simulation learning experiences in the development of clinical skills in the area of fluency. One of the aims of the study was to investigate the validity in measuring student performance during simulation learning experiences (Penman et al., 2021). The tool used to measure the students' clinical skills was the Standardized Patient Interview Rating Scale- Stuttering (SPIRS-Stuttering) which is a tool developed and validated to assess students in the area of fluency (Hill et al., 2015). Findings suggest the inclusion of simulation learning experiences in academic coursework in the area fluency improved the clinical skills of the graduate CSD:SLP students (Penman et al., 2021). However, it was determined the SPIRS-Stuttering tool "was shown to have good content validity, low levels of inter-rater reliability and variable internal consistency" (Penman et al., 2021, p. 1341). Assessing student learning in simulation learning experiences in speech-language pathology continues to present a challenge in the current literature.

Adult Learning Theories

The constructivist learning theory, experiential learning theory, and the theory of cognitive apprenticeship are all adult learning theories that shape the CSD:SLP curriculum and the NLN Jeffries simulation theory. The curriculum consists of standards related to professional knowledge and a set of clinical competency skills that must reflect the application of that knowledge.

Constructivist Learning

Piaget's constructivist learning theory argues that people produce knowledge and form meaning based on their experiences (Driscoll, 2000; Merriam & Bierema, 2014; Newby et al., 1996). They then assimilate new experiences with old experiences and develop new learning or new knowledge in a way that truth and knowledge are always evolving. As faculty, we believe knowledge cannot be simply transmitted to students in a passive manner, rather students must interact with the content as they "manage" new information and experiences. In this way they are creating their own knowledge through participation in social, meaningful tasks (Bednar et al., 1992). The constructivist learning theory by design requires the learner to be active in the learning process as it is through these active learning experiences that they construct new knowledge (Merriam & Bierema, 2014; Phillips, 1995). Tam (2000) provides the following guiding principles of the constructivist learning theory:

- learning requires active engagement of the mind for example learners must reflect on their learning and actively pursue new experiences and learning opportunities,

- learning occurs in a social context,

- learning is contextual,

- intrinsic motivation is important in learning,

- learning takes time and requires review of new information in order for assimilation to occur.

According to Piaget's theory, the learner is central in the process of learning, however, Vygotsky adds that it is also through the collaboration of learners, their peers, and teachers that the learning environment is established (Vygotsky, 1986). Vygotsky (1986) emphasizes that the social interaction among students and faculty guides their thinking and formation of concepts. They test

those concepts with one another through discourse, question and answer, and sharing viewpoints. In addition, according to Clapper (2010) "For good learning to occur, the environment must be one that allows for experimentation and failure in the learning process without the risk of some sort of professional backlash" (p. e12). Faculty is responsible for creating learning opportunities within the environment that are authentic, afford opportunity for students to interact with each other and the content, and support student learning with feedback in the process (Nicaise & Barnes, 1996).

The curriculum for Communication Sciences and Disorders: Speech-Language Pathology reflects the pathway in which graduate students will meet the content and clinical learning outcomes established by the CFCC (2016). Because of the clinical learning outcomes in which the graduate students are required to demonstrate the clinical competency of an entry level clinician, the primary role of the required clinical education component is to produce practitioners who can perform effectively in the clinical situation upon graduation. "Constructivists employ authentic tasks so that learners become adept at applying their knowledge under conditions that are highly similar to naturally occurring situations" (Bednar et al., 1992). Students are admitted in cohorts, they experience the content together in a carefully orchestrated model which is both contextual and evidence based, and they complete structured clinical experiences. The combination of content area standards and clinical practice standards require a student-centered approach which provide authentic opportunities for students to apply and use knowledge (Bednar et al., 1992; Chi et al., 1981). For many programs, these clinical experiences now include simulation learning experiences. These learning experiences in content classes and clinical experiences require intrinsic motivation to assimilate new learning and generalize information into the clinical setting, as well as reflection upon learning. These

experiences are required for both accreditation of the graduate program with the CFCC and development of entry level professionals in speech-language pathology.

The literature linking constructivist andragogical approaches and speech-language pathology is limited to undergraduate programs. An article by Keegan et al., (2017) explored the timing and integration of problem-based learning and civic engagement at the undergraduate level to facilitate the transition of memorization of course content to the application the content which is expected at the graduate level (Keegan et al., 2012).

Cognitive Apprenticeship

The cognitive apprenticeship theory was proposed by Collins et al. (1989) as a model for faculty instruction. The goal of cognitive apprenticeship is to make the thinking processes, or reasoning, of a leaning activity visible to both the students and the faculty (Collins et al., 1989). In contrast to the constructivist learning theory which focuses on building knowledge through social, authentic learning experiences with peers and faculty, the instructor in this model acts as the master, while the learner is the apprentice. According to Merriam and Bierema (2014),

> Cognitive apprenticeship is an instructional strategy solidly grounded in the situated cognition framework. That is, it posts that learning is a function of the context in which it takes place, the tolls in the context, and the social interaction between master (educator) and apprentice (learner)" (p. 120).

The faculty's role, according to the theory of cognitive apprenticeship, in simulated learning would be to demonstrate and role model the decision-making process, clinical problem solving, and judgement applied through the case presented. Merriam and Bierema (2014) state,

> In cognitive apprenticeship, one needs to deliberately bring the thinking to the surface, to make it visible, whether it's in reading, writing, or problem solving. The teacher's

thinking must be made visible to the students and the student's thinking must be made

visible to the teacher. That is the most important difference between traditional

apprenticeship and cognitive apprenticeship" (p. 119).

This process including modeling, coaching, scaffolding, articulation, reflection and exploration

(Collins et al., 1989) reflects many of the learning opportunities already used in graduate speech-

language pathology programs such as learning labs and clinical practicums. Currently no

andragogy exists specifically linking cognitive apprenticeship and graduate programs in speech-

language pathology.

Experiential learning

Experiential learning (EL) is the process of learning through one's experiences. Theorists

describe experiential learning as a set of strategies designed to reflect real-life authentic

experiences (Merriam & Bierema, 2014). Kolb's experiential learning theory (1984) expands on

Piaget's constructivist learning theory and Vygotsky's social constructivism, and requires

learners to reflect on their learning, after and during the experience. Kolb's learning cycle

provides an explanation of learning by primary (senses) and secondary (mediated) experiences

(Jarvis, 2004). Reflection on these learning experiences is a key component of the learning

process. "Not only do people learn from reflecting on an experience, they learn in an experience"

(Merriam & Bierema, 2014, p. 136). The reflective process is prompted initially in the context of

the experience in the anticipation of generalization into a reflective practice after graduation.

Clinical experiences required by graduate students in CSD: SLP programs offer students

an opportunity to engage in authentic, real-life, social learning experiences. Simulated learning

experiences, as an alternative to face-to-face clinical opportunities, also offer students an

opportunity to apply their knowledge in a new situation and to rectify new information with old

knowledge. In the process of actively engaging in a simulated learning experience, students are engaging in a learning situation that closely resembles a real-world clinical experience. "Using an EL approach enables students to make links between theory and 'real world' applications, thus stimulating their motivation to learn, academic and professional efficacy and retention of learning" (Rosier et al., 2016, p. 488). Simulation-based learning experiences are a comprehensive, student-centered teaching paradigm that promote experiential learning and reflective practice, both of which are critical to transfer of learning of content in the classroom to the development of professional clinical skills (Motola et al., 2013). The graduate students must provide speech-language pathology services, under the supervision of a certified speech-language pathologist and reflect on their learning experiences. "Experience is the adult learners living textbook" (Lindeman, 1961, p. 7). This professional "socialization" is a steppingstone in the progression to professional independence.

Reflection supports learning and skill development (Dewey, 1991). Reflection-on-action and reflection-in-action are integral components of experiential learning. Reflection is integrated into experiential learning opportunities as faculty strive to develop speech-language pathologists who are reflective in their professional practice. Reflection-on-action is often part of a debriefing activity. "Reflective practice and situated cognition represent two other ways to think about the connection between experience and learning" (Merriam & Bierema, 2014, p.123). As Merriam and Bierema (2014) state,

> Reflection-on-action and reflection-in-action are two key concepts in reflective practice. Reflection-on-action is what we commonly think of in experiential learning-we have an experience and consciously think about it after it has happened. Reflection-in-action takes place as you engage in the experience – it is simultaneous with practice. This kind of

reflection reshapes what we are doing while we are doing it. Reflection-in-action is what

distinguishes the more expert practitioner from the novice (p. 116).

In nursing and other allied health professions that embrace experiential learning experiences, the

experience is followed by a debriefing activity. This debriefing provides opportunities for

students to analyze and begin to reflect upon their decisions, actions and results, and offers an

opportunity for feedback from the instructor (Lestander et al., 2016). In Lestander et al.'s study

the authors evaluated the effects of a three-step reflection model, and found that reflection

promotes self-confidence, decreases stress associated with the experiential learning opportunity,

and contributes to patient safety.

Experiential learning opportunities have two components as described by Ressmann

(2012) "An experiential learning experience is described as learning that includes theoretical

content followed by an active learning experience" (p. 165). Experiential learning, engaged

learning, and active learning, are all student-centered learning approaches that focus on student

engagement in the learning process, and teaching activities that promote this engagement.

Experiential learning is a "constructivist teaching method … with a focus on learning rather than

instruction" (Burda & Hageman, 2015, p. 47). The goal of experiential learning is to reach the

current student cohort of adult learners and engage them in higher order thinking tasks that

challenge them to higher levels of understanding and learning. Mann (2011) describes reflection

as a metacognitive skill that, in and of itself, is critical to learning. "Reflective learning involves

the critical analysis of experience to understand its broader context and integrate new learning

that has resulted" (Mann, 2011, p. 66). Reflective practice is primarily introduced in case-based

learning opportunities, including simulation learning experiences. Evidence-based case-based

learning opportunities promote experiential learning and reflective practice as students work

through the clinical process (McCabe et al., 2009). These activities that require critical thinking such as reflection, analysis, and synthesis require students to have a more thorough command of the classroom content in order to apply it face to face or simulation learning experiences.

Limited has been published linking andragogy in CSD:SLP graduate programs specially linking experiential learning and speech-language pathology. A small-scale case study by King et al., (2020) explored the development of interprofessional experiential learning opportunities through an aphasia camp for speech-language pathology, physical therapy, and occupational therapy graduate students. They determined through participant interviews with faculty supervisors that an understanding of the characteristics of experiential learning such as communication, modeling, believing learning is a process, and reflecting on experiences were essential when creating experiences for students to apply content and attain skills.

Another study by Bressmann and Eriks-Brophy in 2012 explored the perceptions of two separate cohorts of CSD:SLP graduate students who participated in a learning experience in managing difficult patient behavior. One cohort included five standardized patients as part of the experience while the other was limited to the presentation and group work. Both groups provided feedback to the investigators that the experience was worthwhile, however, "the inclusion of simulated patients in the experience did not result in better student evaluations" (p. 171) if the experience. A comparison of clinical skills following the experience was not completed.

All of these adult learning theories require the demonstration of skill as reflection of learning. This demonstration of skill must be evaluated for adequacy, specifically in this situation, skill competency.

NLN Jeffries Simulation Theory

Jeffries original model in 2005 was supported by the National League of Nurses (NLN) and Laerdal Corporation and "provided structure and essential support for a fledgling educational modality" (Cowperthwait, 2020, p. 12). A systematic review of the literature referencing NLN Jeffries Simulation Theory was conducted in 2016 and repeated in 2021 in the following core areas for the framework: context, background, design, educational practices, simulation experiences, and outcomes (Jeffries, 2021). This review of the literature, originally completed in 2016, provided a direction for "application and further research" (Jeffries, 2021, p.26) by identifying existing research and gaps in that research. Since the original theory was published in 2005, the International Nurses Association for Clinical Simulation and Learning and the Society of Simulation in Healthcare were established. Cowperthwait (2020, p. 13) summarizes the first five of the core areas of the NLN Jeffries Simulation theory framework as follows:

> Context is defined as the purpose, physical location, and evaluation criteria of the learning experience, providing the needed framework for each developed simulation. The background, embedded within the context, identifies learner expectations and overarching goals for the simulation, needed resources for the simulation, and how this SBE (simulation-based learning) supports the curriculum. Simulation design includes specific learning objectives, desired fidelity, learner role assignments, simulation flow, and strategies for pre-briefing/debriefing. Commencing from an environment of trust on the parts of both the facilitator and learners, the simulation experience is defined as interactive, learner centric, experiential, and collaborative. Wrapped within the simulation experience is the dynamic interaction between facilitator and participants via pre-briefing, simulation progression, cues, and debriefing.

The final core element, outcomes, is further described in terms of the "participant, patient, and system outcomes" (Jeffries et al., 2015, p. 292). It is this core element, participant outcomes, that this study will address, specifically learning outcomes which reflect a change in knowledge or skill. Within the field of nursing there is a growing body of literature that addresses participant outcomes, and patient outcomes.

Jeffries (2021) initially identified ten features in best-practice in simulation learning experiences in the 2016 publication that maximize student learning; "feedback, repetitive practice, curriculum integration, range of difficulty level, multiple learning strategies, capture clinical variation, controlled environment, individualized learning, defined outcomes or benchmarks, and simulator validity" (p. 39). This focus on the interactive learner is central in both the experiential and the constructivist learning theories. The constructivist learning theory with experiential learning experiences require the learner to be mindfully engaged in the learning experience, developing the ability to reflect in action. Additional best practices evolving from the research in nursing include the need for repeated exposure to simulation learning experience (Hardenberg et al., 2020), careful sequencing of clinical simulation experiences and deliberate practice (McGaghie & Harris, 2018). Also consistent with constructivism, a curriculum that integrates simulation experiences with consideration of context, skill development, and objectives that requires participants to reflect in and on their learning easy integrates into the NLN Jeffries Simulation Theory.

According to the NLN Jeffries framework, the facilitator "needs to embrace a learner-centered approach to facilitation" (Jeffries, 2016). In this way debriefs are primarily led by student participants not faculty, and faculty are positive, motivated and present with a high level of competence in their respected areas (Jeffries, 2016). This form of facilitation reflects the

cognitive apprenticeship theory in which the instructor is the facilitator and demonstrates the decision-making process, clinical problem solving, and judgement as appropriate through the simulation learning experience. The instructor is serving as the apprentice in the all aspects of the experience.

Research that explores the relationships between simulation learning and actual patient care are limited. McGaghie et al. (2014) found that long term effects of simulation learning experiences were positive for patient care, however, Finan et al. (2012) found that while students might improve within the simulation environment the skills did not necessarily translate to patient care. Assessment in each modality was based on OCSE and with a computer-based simulation software. Fisher and King (2013) suggest, even in nursing, longitudinal studies are needed to explore actual learning in simulation learning experiences. Triangulation of assessment points and outcome measures are currently needed to assess validity of outcomes measures in simulation learning experiences.

Simulation for Novice Learners

Simulation learning experiences are an established, effective training took in healthcare. Debriefing is the final step of the simulation learning experience. As an opportunity for after action reflection, the "underlying idea is to raise learner awareness of the gaps between their performance and the objective fixed by the trainer" (Secheresse et al., 2021, p.1). The reflectiveness is encouraged to promote acquisition of new knowledge and modification of existing knowledge and can be measured by the Debriefing Assessment for Simulation in Healthcare (DASH). According to Simon et al. (2011) the purpose of the tool was to develop effective debriefing skills. Another debriefing tool reportedly used in nursing is the Rapid Cycle Deliberate Practice which has also been proven effective for novice learners in nursing and other

healthcare fields (Cory et al., 2019). According to Hattie (2009, 2012), as cited in Secheresse et al., (2021) explicit techniques are beneficial for novice learners. The debriefing is a core component of constructivism and experimental learning, and is incorporated in the NLN Jeffries Simulation Theory in the educational strategies employed by the facilitator, and developed through the dynamic interaction between the facilitator and the participant.

COVID-19

The World Health Organization (WHO) declared the COVID-19 a pandemic on March 11, 2020 at which time it had spread across more than 217 countries and territories worldwide (WHO, 2020). COVID-19 affected how campuses across the globe offered their content instruction and clinical experiences and beginning in the US in the spring on 2020, graduate campuses closed and clinical experiences ended or transitioned to teletherapy. The COVID-19 pandemic necessitated a transition to digital and online education platforms for colleges and universities across all 50 states (Smalley, 2021) including most graduate CSD:SLP programs. In order to meet the clinical learning needs of their students, faculty relied on simulation learning experiences to fill the gap created by the termination of clinical experiences offered in face to face experiences. Many programs began either increasing or introducing the use of simulation learning experiences within the period of a few weeks. These simulation learning experiences were used to meet the clinical standards defined by the CFCC in order for students to graduate in the spring of 2020 and/or continue with their plan of study to meet graduation requirements. Now, more than ever, the demand for quality simulation learning experiences for graduate students in CSD: SLP programs was pivotal in their career preparation. The Council for Clinical Certification in Speech-Language Pathology (CFCC) acknowledged the situation however maintained:

After careful consultation with the CAA (Council for Academic Accreditation), the

CFCC is unable to reduce the number of clinical practicum hours since programs not only

need to meet ASHA certification standards but also those required by state or federal

organizations, such as state licensing boards, the U.S. Department of Education, and the

Council for Higher Education Accreditation (ASHA, 2022).

The influence of COVID-19 on clinical experiences and simulation, including the assessment of

learning, has not been explored and contributes to the assessment experience. This study also

explored the role of COVID-19 in the assessment of student learning during simulation learning

experiences.

Summary

In CSD:SLP programs, like other allied health fields, demonstration of skill occurs in the

practical experiences integrated into the program in the form of clinical practicums, including

simulation learning experiences. Clinical competency requires the graduate students to perform

this skill at a predetermined "competent" level. Graduate programs in speech-language pathology

do not currently use a specific tool to measure skill development or competence. Available

literature fails to provide structure for the integration of simulation learning in graduate

CSD:SLP programs and has not explored issues of integration specific to the field of speech-

language pathology.

Chapter 3

Methods

Phenomenology has been used in speech-language pathology (Ensslen, 2013) and other allied health professions to study graduate student experiences (van Manen, 2017). This chapter outlines the research design for this study. The purpose of this study was to use qualitative inquiry to explore how faculty assess graduate student learning in clinical simulation experiences in Communication Sciences and Disorders: Speech-Language Pathology graduate programs.

Simulation learning experiences have become an accepted form of andragogy in speech-language pathology. Assessment of student learning using simulation learning experiences will lead to the development of high-quality simulation opportunities, population and patient specific simulations, and guidance on how to best incorporate simulation into the current curriculum. This study addressed the following questions: How do CSD: SLP graduate faculty experience assessment of student learning in simulation learning experiences used to demonstrate clinical competence? What, if any, effect has COVID-19 had on this process?

Research Approach

A phenomenological design was chosen for this study as the goal of phenomenological research is to explore the experience of assessment of student learning as graduate faculty experience it. This exploration of experience was used to "arrive at a description of the nature of a particular phenomenon" (Creswell, 2013, p. 77) by addressing "what it is like to be, to have, or to live" (Sandelowski, 2008, p. 787). "Phenomenology aims at gaining a deeper understanding of the nature or meaning of our everyday experiences" (van Manen, 1990, p. 9); for graduate faculty the assessment of student learning is a primary phenomenon as they begin to integrate simulation learning experiences into the CSD:SLP graduate programs. The "phenomenological

process consists of extracting verbatim "significant statements from the data, formulating meanings about them through the researcher's interpretations, clustering these meanings into a series of organized themes, then elaborating on the themes through rich written description" (Saldana, 2016, p. 200). This study examined the phenomenon of assessing graduate student learning in simulation learning experiences used for a variety of purposes in CSD:SLP graduate programs. Themes were identified through the research process as explanations of the observed phenomenon. A theme is "the form of capturing the phenomenon one tries to understand" (van Manen, 1990, p. 87). This study identified themes associated with how faculty experience assessment of student learning in simulation learning experiences.

Study Design

A series of CSD: Speech-Language Pathology graduate faculty semi-structured phenomenological interviews were completed via Zoom. A series of open-ended questions were introduced to the interviewees as a guide for the interview. For the purposes of this study the term faculty referred to ASHA certified clinical educators including graduate faculty, clinical instructors, and supervisors. The role of the interviewer was simply to provide a supportive environment for the in-depth discussion to evolve. All interviews were recorded via Zoom and transcribed verbatim. All the interviewees were volunteer.

A phenomenological design was chosen for this study. A study that utilizes a phenomenological framework seeks to "describe the meaning for several individuals of their lived experiences of a concept or phenomenon" (Creswell, 2007, p. 57). Husserl's (1970) philosophy of phenomenology is not only a theoretical framework, but also a methodology. The purpose of phenomenology is to explore individual experiences with a phenomenon and condense them to a more concise description of the universal essence (vanManen, 1990). It is

associated with four philosophical perspectives: (1) traditional 56 goals of philosophy; (2) a lack of presupposition; (3) a focus on the intention of one's consciousness; and (4) an absence of a subject-object dichotomy (Creswell, 2013). As methodology, it is used by authors to describe feelings and behaviors of the participants. As a theoretical framework, it is used to describe the "lived experience" (Husserl, 1970) without influence from the interviewer. In other allied healthcare fields, phenomenological research has been used to assert "meaningful insight" (van Manen, 2017, p. 823) into an experience. In the allied health profession of physical therapy, phenomenological research has been used to explore the lived experiences of clients and therapist (Shaw & Connelly, 2013). In occupational therapy, a phenomenological framework has been used to research perceptions of practice (Chown et al., 2016). Nursing has used a phenomenological framework to explore the lived experience of becoming a preceptor to nursing students (Smedley, (2008).

In speech-language pathology, phenomenology has been used to research the experiences of graduate students in their pursuit of professional preparedness (Ensslen, 2013). This study compared the experiences of eight students in each of two programs relating to their experiences with supervision in clinic. The information was used to guide clinical instructors in how students prefer to receive feedback, the kind of supervision students prefer, and the kind of relationship the students want with their supervisors. Phenomenological research can help us explore what defines an individual's lived experience and how it has been interpreted by that individual. In this student, the experiences of the students served as the data points. This study explored the lived experiences of faculty as they assess student learning from simulation learning experiences for all of its perceived uses.

In addition, COVID-19 affected how most face to face campuses offered their content instruction and clinical experiences. When the virus became a pandemic, graduate campuses closed nationwide beginning in March 2020 (CDC, 2020). Clinical experiences ended or transitioned to teletherapy. Faculty struggled with meeting the clinical learning needs of their students and relied on simulation learning experiences to fill the gap created by the termination of clinical experiences offered in face to face experiences. Many programs began either increasing or introducing the use of simulation learning experiences within the period of a few weeks. These simulation learning experiences were used to meet the clinical standards defined by the CFCC in order for students to graduate this spring and/or continue with their plan of study to meet graduation requirements. Now, more than ever, the demand for quality simulation learning experiences for graduate students in CSD: SLP programs was pivotal in their career preparation. The influence of COVID-19 on clinical experiences and simulation, including the assessment of learning, has not been explored and contributes to the assessment experience of faculty responsible for determining clinical competency.

Recruitment and Selection

Graduate CSD: SLP faculty were recruited via the American Speech-Language-Hearing Association special interest groups and Basecamp which are online communities of professionals with similar clinical interests and professional affiliations. All faculty were either currently using or had used simulation learning experiences in their role. The ASHA Edfind function served to ensure all faculty were recruited from ASHA accredited graduate programs who use simulation in their programs. Edfind is an online directory of accredited undergraduate and graduate degree programs in Communication Sciences and Disorders. Edfind is maintained by ASHA using information provided by institutions in their annual education survey which is encouraged by all

accredited CSD programs. See Appendix B for posting for recruitment of volunteers. This posting was posted on special interest groups once and re-posted three times on Basecamp. Once volunteers contacted this investigator a follow up email was sent to answer any questions, a second email was sent containing the electronic consent.

Participants

Seven and a half percent of 290 different ASHA accredited graduate degree programs in Communication Sciences and Disorders in the United States were represented with 22 graduate faculty interviewed(ASHA Edfind, 2020). Interviews were not conducted at Minot State University where the researcher is currently employed. Interviews were conducted June 21, 2021 through November 02, 2021.

The participants represented many geographical regions in the United States to account for regional differences including regional norms and campus size. All 22 participants used simulation learning experiences in their face to face graduate programs. Two institutions were represented twice by two different faculty member interviews. Participants who volunteered were from the following states; Wisconsin, South Carolina, Missouri, North Carolina, Nebraska, Kentucky, Tennessee, Michigan, Illinois, North Dakota, Minnesota, and Pennsylvania with all but five representing the Midwest region. Years of experience was not factored into the research only that faculty had experience with simulation and their certificate of clinical competence verified through ASHA. One faculty was new to her role in higher education since the COVID-19 pandemic while another had recently retired. Gender identity and race were not considered as 95% of all speech-language pathologists in the U.S. identify as female and 91% identify as Caucasian (ASHA, 2020). Information regarding the size of the graduate cohort and whether or not the graduate program had an on-campus outpatient clinic was collecting for possible

correlation. Faculty with simulation use limited to undergraduate education were excluded from the study.

In phenomenological research, the number of participants is often dependent on the phenomenon being studied (Vagle, 2014). The number of participants needs to provide a sufficient sample and saturation of information (Seidman, 2006). Given the number of accredited programs in the United States, 290 as of July 2020 (ASHA, 2020), the sample size of 22 graduate faculty provided sufficient data for analysis and to facilitate generalization (Maxwell, 2013). See table 3 for a summary of the participants.

Table 3
Summary of Participants by Pseudonym

Pseudonym	Geographical Region of the U.S.	Admitting Annual Graduate Cohort Size
Wanda	Midwest	45
Sherry	Midwest	20
Sophia	Midwest	35-40
Stella	Southeastern	NA
Rose	Southeastern	30
Lily	Midwest	30
Layla	Southeastern	NA
Kora	Midwest	25
Karoline	Eastern	35
Katherine	Midwest	24
Kate	Midwest	35
Katelyn	Midwest	40
Julie	Midwest	20
Donna	Midwest	40
Dora	Northeastern	35
Connie	Midwest	14
Bella	Midwest	16
Beth	Midwest	30
Ashley	Midwest	30
Allison	Midwest	23
Sadie	Midwest	20
Ruby	Midwest	16

Data Collection

Institutional review board approval was received prior to initiation of the study, including numbers 0003450 and 2157. Each volunteer participant participated in a semi structured interview as the primary method for data collection along with observation notes made by the primary investigator during the interview process. The principal investigator conducted the interviews with the purpose of exposing the assessment experience of the interviewee. These interviews were conducted via Zoom as participant location and the COVID-19 pandemic did not allow for face to face interviews. Each 20-30 minute interview began with review of the electronic consent emailed prior to the interview and was recorded within Zoom. Recordings were downloaded into Sonix, an online transcription software that ensures privacy and confidentiality for transcription and review. These electronic forms served as the main evidence for analysis. Paper documents including the investigators notes taken during the interviews were stored in a locked office. All electronic materials were de-identified and pseudonyms were assigned to volunteer participants. All recorded interviews will be stored for no less than three years from the date of the interview. Themes were not presented or addressed prior to the interviews to avoid responses being influenced by the bias of this principal investigator. Specific topics addressed include: how simulation learning experiences are implemented within the curriculum, what types of simulation learning experiences are implemented into the curriculum, how the simulation learning experiences are used as assessment of student learning, and how student learning is assessed. All response transcriptions were reread and edited for accuracy by this principal investigator prior to data analysis. Transcripts were then reread multiple times for the identification of codes and patterns during the assessment process (Strauss & Corbin, 1994).

All data analysis was completed manually by the primary investigator once transcription was completed.

Interview Protocol

The following interview questions were used to guide the interview.

1. Describe your philosophy of evaluation related to student performance.

2. How do you assess student learning in simulation learning experiences?

3. Describe any training/faculty development in assessing student learning when integrating simulation learning into the curriculum in the area of clinical competency in your graduate CSD:SLP program. In general, how did you learn to assess student learning in simulated learning opportunities?

4. How would you compare student learning in simulation learning experiences versus hands on clinical opportunities? If you experienced a shift from clinical hands-on to simulation learning experiences, please describe that shift (how your assessment of student learning may have changed, your experiences, etc.)

5. How is your assessment of learning in the simulation learning experience summative and or formative?

6. What do you find most difficult or beneficial about assessing student learning in simulation learning experiences?

7. What feedback have you received from students about simulation learning? Give me an example.

8. What feedback/if any have you received from CIs about simulation learning? Give me an example.

9. Has COVID-19 affected how you assess student learning in simulation learning experiences? In what ways?

10. How could the integration of simulation opportunities be improved in CSD:SLP graduate programs to maximize student learning?

11. Is there anything else you would like to share about simulation learning in your graduate CSD:SLP program?

Data Analysis

Following transcription of the data, the interview transcripts and any documentation provided by the interviewees, was re-read multiple times by this principal investigator and compared for accuracy (Maxwell, 2013). Interview transcripts were randomly numbered and names of the interviewees were all removed. All were coded for analysis first with initial responses, or low-level coding as described by Carspecken (1996), then regrouped a second time for high-level coding and the development of categories from the initial codes; and finally a third time to identify themes. This 'in-vivo coding" (Straus, 1987, p.33) strategy served to draw out the meanings and perspectives that the interviewees have experienced in the assessment of student learning in simulation learning experiences. All data relevant to the research questions were coded following this format and the "themes" that evolved from the interviews were used to answer those research questions in Chapter 4. Table 4 provides an example of the in-vivo coding relevant to Research Question 1. How do faculty experience the assessment of learning in simulation learning experiences?

Table 4

Sample of Codes, Categories, and Themes for Research Question 1

Sample Quotes	Codes	Categories	Themes and Subthemes
Not structured, physical or required training. It was more of here are some resources from SimuCase that you can take advantage of.	Note structured training	Training	
Not ongoing, and that's something we are going to need to do because we have two new faculty	Training not ongoing, needs to be		Professional Development
We had our clinical director at the time did a whole SimuCase in-service.	SimuCase in-service	In-Services	
We didn't do any formal in-services	No formal in-services		
I used it (SimuCase) in the cognitive course.	Cognitive course	Content Classes	
Many cases now integrated into the content classes	Many content classes		Integration Into the Program
Clinical methods or clinical assessment class	Clinical methods & assessment	Clinical Methods	Subthemes: • Content Courses • Clinical Courses • Clinical Experiences
It's a clinical processes class	Processes class		

Sample Quotes	Codes	Categories	Themes and Subthemes
To supplement hours for chronic no shows	No shows		• Management of Requirements
Clients would cancel and we were concerned about getting hours	Cancelations	Practicum	
We tried to keep small groups	Small groups	Management	
New assignment every Friday then we debrief the next week	Weekly		
Oregon Trail for SLPs	Oregon Trail	Complaints	
Gaming their way to 90%	Video game		
Practice an assessment before they have to give it in clinic	Practice new assessment	Positive Feedback	Faculty Perspectives
Supplement the hours for graduation	Hours for grad		
Burned out	Negative		
Busy work	Negative	Complaints	Student Perspectives
Safe environment	Safe	Positive Feedback	
Learning tool	Learning tool		

Table 5 provides an example of the in-vivo coding relevant to Research Question 2. In what ways do faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards?

Table 5

Sample of Codes, Categories, and Themes for Research Question 2

Sample Quotes	Codes	Categories	Themes
It varies from instructor to instructor.	Variable by instructor	Assessing learning	
Basis for assessing learning	Base assessment		
I think with supplemental activities you might be able to use it	Supplemental	Supplemental activities	
Supplemental goals for intervention	Supplemental		Additional Assignments
We extend every case and have them write up an intervention or assessment report	Extend	Extended Assignments	
We have then repeat the oral mech exam on a peer	Extend with oral mech exam		
I used it (SimuCase) in the cognitive course.	Cognitive course	Assessment of learning	
Many cases now integrated into the content classes	Many content classes		

Sample Quotes	Codes	Categories	Themes
If they did something extra 4 then is missing something they give a 2	Extra		
We have our rubric that we developed that has a point system	Rubric	Rating Clinical Competence	Concerns Assessing Student Learning
It's sort of a personal issue with the C word	Competence		
What are they doing a CFY for it we're saying they're competent?	Competent	Assessment concerns	
We didn't really have a written rubric, but I think we sort of had an internalized rubric	Internal rubric	Rubrics	
We created an evaluation rubric and we put those numbered items in Calipso	Evaluation rubric		
We use the Calipso 1-5 rating scale.	1-5 scale		Rating Clinical Competency
I would give a rating for the percentage. So if you got a 90 percent, that might have been like a three point zero or whatever, 80 percent maybe was a 3.0	Scaled scoring	Scales	

Sample Quotes	Codes	Categories	Themes
But the SimuCases are more challenging and we use just a pass fail so they don't actually learn a letter grade it just pass or fail.	Pass/fail		
		Pass/Fail	
If they have to get like a three to pass, OK, because a three would be present skills	Criteria for pass/fail		

And finally, Table 6 provides an example of the in-vivo coding relevant to Research Question 3.

What, if any, effect has the COVID-19 pandemic had on the use of simulation learning

experiences and assessment of student learning used to address clinical competency standards?

Table 6

Sample of Codes, Categories, and Themes for Research Question 3

Sample Quotes	Codes	Categories	Themes
Pre-pandemic when SimuCase was more novel	Pre-pandemic		
	Base assessment	Before COVID	Simulation use during COVID shutdown
I mean only started at about the same time as COVID			

Sample Quotes	Codes	Categories	Themes
So then after COVID, like we're still doing hands on simulation	After, still doing simulation		
		After the COVID-19 shutdown	Simulation use post COVID shutdown
more pediatric than adults, especially now because the adults are aren't coming in	No adult clients now		

Validity

To avoid bias of the principal researcher, interviews were not conducted at Minot State University as faculty have engaged in discussion regarding this topic. Open-ended questions were reviewed with the dissertation committee prior to conducting the interviews to avoid interviewer reactivity (Maxwell, 2013).

Rich Details

Rich detailed data along with the verbatim interview transcripts provided the data base for analysis (Maxwell, 2013, p. 126). This provided the basis of the researchers understanding of the lived experiences of faculty assessing student learning in simulation learning experiences used to meet clinical competency standards. The detailed, thick descriptions and extensive use of direct quotes provided by interviewees supports the research findings and promotes whether the results of this study would apply to other graduate CSD:SLP faculty.

Peer Review

Another researcher reviewed the resulting transcriptions, code book including initial coding, categories and themes for accuracy and potential researcher bias. The peer reviewer was provided copies of the transcripts as well as a copy of the code book including established

categories and themes. This ensured personal bias and misunderstanding during analysis was not affecting research conclusions.

Triangulation of Data

Triangulation of data among interviews, including comparison between interviewees, and research of assessment in other allied health fields helped to substantiate findings and address validity threats (Maxwell, 2013). The twenty-two participants who volunteered their experiences and ideas during in-depth individual interviews, the collection of verbatim interview transcripts along with researcher notes, and the available research provide for triangulation of the data resulting in a more broad understanding of the topic. In addition, participation was limited to only those faculty using simulation experiences in their graduate CSD:SLP programs.

In March 2020, the global COVID-19 pandemic started effecting graduate CSD:SLP programs in the United States and their ability to meet the learning needs of their students. While this study was designed prior to the COVID-19 pandemic, it is the feeling of this investigator as a reflexive statement that this topic became even more interesting after living the same experiences as so many other graduate CSD:SLP faculty.

Chapter 4

This chapter presents the lived experiences of how faculty assess student learning in clinical

simulation learning experiences used to demonstrate clinical competence in graduate programs in

Communication Sciences and Disorders: Speech-Language Pathology (CSD:SLP). Through

semi-structured interviews, CSD: SLP graduate faculty share how they assess student learning to

address clinical competency standards using simulated learning experiences. The following

questions provided the basis for the interview discussions.

(1) How do faculty experience the assessment of learning in simulation learning

experiences?

(2) In what ways do faculty assess student learning in simulation learning experiences

specifically designed to meet clinical competency standards?

(3) What, if any, effect has the COVID-19 pandemic had on the use of simulation

learning experiences and assessment of student learning used to address clinical

competency standards?

Verbatim transcripts from 22 semi-structured interviews were synthesized using

qualitative thematic analysis. Findings are reported according to themes, derived from codes and

categories developed in the analysis process according to each research question. A complete list

of the codes, categories and themes is available in Appendix C. The findings for this study are

presented for each research question. Interestingly, every faculty member reported using the

same computer-based simulation software, SimuCase, thus most of the discussion relates

specifically to this program unless otherwise stated. An overview of the SimuCase software is

provided in Appendix E.

This chapter presents the themes and subthemes that emerged from the research interviews for each of the research questions. Table 7 is a summary of the themes and subthemes that emerged from the interviews according to each research question.

Table 7
Summary of Themes and Sub Themes

Research Question	Themes	Sub Themes
Q1. How do faculty experience the assessment of learning in simulation learning experiences?	Professional Development	
	Integration Into the Program	Content Coursework Clinical Coursework Clinical Experiences Management of Requirements
	Faculty Perspectives	
	Student Perspectives	
Q2. In what ways do faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards?	Additional Required Assignments	
	Concerns Assessing Student Learning	
	Rating Clinical Competency	
Q3. What, if any, effect has the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards?	Simulation use prior to COVID shutdown	
	Simulation use during COVID shutdown	
	Simulation use post COVID shutdown	

Research Question 1

Research Question 1 examines how faculty experience the assessment of student learning in simulation learning experiences. The interview discussion surrounding this question explored the lived experience of assessment as faculty, clinical instructors and supervisors integrate simulation learning experiences into their programs. The change in Council for Clinical Certification (CFCC) regulations allowing for students to count up to 75 hours of clinical simulation as part of their required 375 hours, and earn clinical competency standards during those hours prompted this discussion. Several themes emerged from the data related to this question including: (1) professional development related to andragogy specific to simulation learning experiences, (2) Integration Into the Program, (3) faculty perspectives regarding simulation learning experiences, and (4) student perspectives regarding simulation learning experiences.

Professional Development

All participants interviewed reported they used simulation learning experiences in their graduate CSD:SLP programs. One participant reported she had attended continuing education opportunities through the ASHA conference "presented by SimuCase," all of the other twenty-one participants reported they had either received no training in the integration of simulation learning, they had completed the training with SimuCase, or someone else from their program had given them an overview.

When asked about training, Wanda, whose program reported the largest cohort size, reported their faculty "got a crash course about a year and a half ago," so they completed the training offered through SimuCase specifically related to that software. Lily, from a program in the Midwest, reported their faulty collaborated with staff working with SimuCase "One of their

(SimuCase) representatives talked through how to use the platform and how we could measure competency." According to Dora, who is from a program in the northeast, her clinical director did an in-service specifically related to the SimuCase software. Layla, from a program in the southeast, reported they did the SimuCase training offered by the software company when COVID-19 initially started effecting college campuses in the U.S. but nothing "ongoing, and that's something we are going to need to do." Many participants including Ruby, Rose, and Sherry who reported varying cohort size and geographical locations, stated they did not receive any formal training, rather "I just taught myself." Not one faculty member reported they sought out andragogy related to best practices related to the integration of simulation learning experiences in graduate speech-language pathology curriculum. However, the majority of the participants also shared that this training was at the beginning of the pandemic when campuses and on-campus clinics were forced to close suddenly and faculty had very little time to transition to 100% online learning. Geographical location and program size were not confounding factors.

Annual professional development is an ongoing requirement for ASHA certified speech-language pathologists to maintain their certification. The continuing education completed and reported during this research study was reportedly very limited.

Integration Into the Program

Faculty described three distinct pathways for the integration of simulated learning experiences into graduate CSD:SLP programs including through content coursework, clinical coursework such as a diagnostic methods course, and clinical experiences. The effects of COVID-19 related to clinical pathways will be discussed further in another section. A couple of the programs represented reportedly developed a curriculum plan for the integration of simulation learning experiences with an emphasis on "intentional" integration in all three

pathways. For example, Sophia explained using simulation as a teaching tool "what I am finding with it is that we need to use it for novice student learning." Ruby, a faculty member of one of the two newly accredited graduate CSD:SLP programs reported "we use it pretty intentionally, we make sure that we use SimuCase very purposefully and intentionally." Based on their program experiences Ruby shared, "We use it pretty intentionally at this point because we've learned that this can actually be very helpful and useful, but we have to be very intentional about it." Other interviewees elaborated specifically how that intentionality is reflected in their curriculum, for instance, Katherine shared "…we have an integrated SimuCase curriculum, both in academic and in clinical courses. And then we also have a simulation center." Lily described how the curriculum has evolved since the initial integration of simulation learning experiences to improve the "quality" of the experiences students have.

Because CSD:SLP programs are complex with both academic and clinical requirements, it was necessary to consider subthemes. Within the main theme of Integration Into the Program, four sub-themes also emerged. These subthemes included integration into content coursework, integration into clinical coursework, integration into clinical practicum experiences, and management of clinical requirements.

Content Coursework. Most programs reported fragmented implementation of simulation learning experiences into the curriculum depending mostly on the preference of the faculty. Sherry reported "So this year, we are doing it primarily within courses. So there are like our voice disorders class, our diagnostic methods class, our child language intervention issues, all three of those this semester are using SimuCase." These academic courses were identified as areas within the clinical scope of practice that are difficult to find the required accompanying clinical experiences and often included the areas of voice, diagnostics, fluency disorders,

dysphagia. The use of SimuCase in these courses is used to "re-enforce the methods that they were teaching in class."

Nine of the 22 participants were among those that have integrated simulation learning experiences in their didactic clinical content courses. Ruby reported her program is trying to implement one or two SimuCase cases into each clinical course "so we have a clinical component" to each one. Kora also reported that "we try to adopt an assessment and an intervention simulation in the graduate courses if at all possible." Other programs are also considering adopting SimuCase assessment and intervention for each course. Donna reported at the time she retired, her program was exploring the possibility of integrating SimuCase into graduate content classes tied to content standards.

Integration into coursework is not without controversy. While some faculty, like Wanda and Rose, allow students to count the experience in the content class as clinical hours and address clinical competency standards, other participants reported faculty haven't had any training or andragogy related to best practice for the integration of simulated learning experiences. In addition, Bella reported that while faculty at her program have talked about integrating simulation learning experiences into their clinical courses their department had not yet done so. Neither Ruby nor Bella's departments allowed students to count the simulation learning experiences from their content classes for clinical competency standards and clinical hours. While these faculty both represented programs of similar size and geographical location, these factors were not unique to these two participants.

Overall, the integration of simulation learning experiences into content coursework is inconsistent in structure and format. The greatest difference amongst faculty interviewed was

whether students counted these experiences towards their clinical content hours and clinical competency hours, or was the experiences used simply as a teaching technique.

Clinical Coursework. In addition to the actual clinic setting, many faculty discussed how they integrated simulation learning experiences into clinical courses such as a clinical methods class or a diagnostic methods class. Wanda, Rose, Donna, Kora, Bella, and Sherry all reported they use SimuCase in their clinical methods courses by pairing SimuCase cases with the content of the lecture. Many of the participants discussed how they use SimuCase in their clinical methods classes. For instance, Wanda shared "there's a clinical processes class that's a one credit class that each student takes, at least twice," in which she embeds SimuCase cases as a teaching tool. Similarly, Sherry also uses SimuCase in her diagnostic methods class "I also use it. I use it in our clinical class to go along with teaching diagnostic procedures."

In addition to teaching diagnostic procedures, SimuCase is often used to teach other noteworthy skills. Rose uses SimuCase to teach interviewing skills in her clinical methods class and had the following to say about using SimuCase for clinical methods:

> So especially our clinical methods course we would have as we're working through
> talking about how you would conduct a patient interview, we would we use SimuCase so
> we would have the students go through to SimuCase as we're doing those specific
> lectures and have them do just the pieces on that one case.

Kora's program also uses SimuCase to integrate "specific disorders or treatment techniques or assessment strategies." It is clear that even beyond the clinical classes students must simultaneously participate in clinical experiences to gain those required clinical hours and meet clinical competency hours.

Clinical Experiences. The integration of simulation learning experiences into the curriculum was more consistent in the area of clinical coursework and required clinical experiences than content area coursework. There were a variety of other program uses reported related to clinical learning experiences. Wanda disclosed "some of this was driven to address competencies in those areas that are often lacking." In contrast, Karoline reported their graduate CSD:SLP students complete the simulations however, they are not used to meet clinical competency standards or required hours. Karoline also shared that they occasionally use it for "guided practice" when students are having difficulty with clinical practice. Katherine shared that some of their simulation experiences are used for remediation purposes while Stella's program uses SimuCase to supplement face to face clinical experiences when they are assigned a client in the on-campus clinic that fails to attend.

Like Wanda, Beth also reported that her program uses simulation learning experiences to meet the clinical competency standards for "low incidence populations" in the areas of AAC, dysphagia, and fluency. While their programs differed in size but number of students, both were from programs in the Midwest, and both had on campus clinics for students meet clinical competency hours and standards. However, Beth also disclosed there are some competency standards that students cannot meet with simulation alone in their program. Katherine also reported there are some clinical competency standards that she will not allow their graduate CSD:SLP students to meet with simulation experiences. According to Katherine the clinical competency standards related to adapting evaluation and treatment procedures could only be met in face to face clinical experiences.

Julie stated the graduate CSD:SLP students in her program have the opportunity to meet minimum competency for all of the clinical competency standards within the simulation learning

experiences and may or may not have a face to face clinical experience in all competency areas. Sophia's program uses SimuCase focused in the first semester of graduate school to get the majority of the "piddly stuff done" including voice, hearing, and fluency experiences so that when the students go off campus during their second year they have those "hard to find" competencies already met. She acknowledged this practice is "like a pad or a cushion if something happens and they don't get enough hours and we have too darn many snow days, they still get to graduate on time."

In addition to the simulation experiences described by most using SimuCase, Layla described clinical simulation experiences that included simulated patients. She reported that while these experiences are not used to meet specific competency standards or earn clock hours, they contribute to the overall learning experience. The students reportedly work in interdisciplinary teams in the simulation lab or with simulated patients. Karoline reported a similar simulation learning experience working with mannequins for students to gain experience with tracheostomies and Passy Muir Valves. Members of the interdisciplinary team include social work, nursing, physicians, pharmacy, psychology, audiology and speech-language pathology. Dora reported her program uses their interdisciplinary simulation lab in collaboration with the nursing department. They work on competencies related to pediatric feeding and swallowing, and tracheostomies. Of interest, Layla, Karoline and Dora were all from programs outside of the Midwest. In contrast, most of the faculty from programs in the Midwest reported using primarily SimuCase.

Every CSD:SLP student presents to their final practicum experience with different unmet clinical competency standards based on their previous clinical experiences. The same is true regarding how many hours they have left to earn towards the required 375 clinical contact hours.

Connie reported that by the time their students get to their final practicum experience they typically only need clinical contact hours and that all of their clinical competency hours have been met through face to face clinical experiences and simulation learning experiences. Conversely, many participants including Sophia, Stella, Julie, and Bella reported they use simulation learning experiences to meet the clinical competency standards or hours remaining at the end of a student's final practicum in order for the student to graduate.

The integration of simulation learning into clinical experiences was reportedly much more consistent in that most faculty used the simulation learning experiences to meet clinical competency standards and clinical contact hours. Other uses included remediation of clinical skills and as a teaching tool for teaching clinical methods.

Management of Requirements. According to the guidelines set forth by ASHA, simulation learning experiences have to include the components of a pre-brief, an opportunity for feedback during the experience, and a debrief. In addition, the size of the group of students participating is limited to encourage/allow all to participate. The logistics of managing these requirements proved challenging for many and fostered creativity. Some faculty provided examples of how they would manage the scheduling of the required pre-briefs and debriefs. Donna shared:

> On Monday, we would meet virtually as a group. I would go over what I expected of them in terms of of highlights about the case, I would provide them with links to other resources that I wanted them to look at or other articles that I wanted them to read so that we were pairing that kind of information. And then I would give them a list of of. I would give them a rough list of the discussion questions that they needed to be prepared to

answer when we met on Thursday. So they had from Friday to Thursday, they had a week

to complete both cases.

Similarly, Julie explained her program attempts to schedule the simulation learning experiences

on a weekly basis stating, we schedule "one case a week." Taking a slightly different stance,

Connie's program uses the approach of front loading their clinical experiences with simulation

learning experiences while the students are still on campus and before they leave campus for

their external placements. Connie explained:

What we've tried to do clinically is within that first year, we've tried to kind of knock

everything out within that first year. So then the second year, when they go into their full

time school placement and their full time medical placement each semester, they're very

well prepared for those two settings. So they have at least some experience, absolutely

before they go out.

Julie shared that when she attempted to debrief in groups that many of her students weren't

participating in any kind of a meaningful exchange so she tried using a video chat format but was

told by administration she wasn't allowed to do it that way. Both Bella and Ruby report their

programs are discussing possible options for the summer semester. Bella stated her program

considering the following scenario:

We've talked about next summer doing maybe like three or four weeks of clinic where it's

just SimuCase. And then getting a lot of new cases done in the summer in low incidence

areas or even areas, maybe they have competencies in, but they don't have many hours in

because they just had a few clients. So we are considering doing that next summer and

also incorporating it into courses.

Beth's program does something similar with a focus on front loading the clinical experiences with simulation learning:

> So we do in the first year, it's mostly to get some evaluation experience. And then the second year we use it, we have modules for the low incidence populations. And so everyone gets to meet the competency standards for voice AAC dysphagia and fluency.

Only one participant, Connie, reported her program had explored available virtual reality software with their IT department, specifically related to counseling as "That's something that our students really struggle with that counseling piece." However, "I can't justify the cost of that VR technology for one counseling module like that just wouldn't work. So we didn't get it."

The size of the groups established for the debriefing activity varied. SimuCase recommends a written debrief in addition to the discussion for groups larger than eight to ten students. Stella reported "We did them (debriefing) as small groups of maybe three clinicians, any more than that and it doesn't give everyone an opportunity to contribute." This concern regarding contribution time is not unique. Rose also stated "We tried to keep them to a small group" with the concern that more than four to five students would allow some students to "sit on the sidelines" and not participate. For Stella, and others including Kora, "small" was not quantified. Sadie reported "I debrief in groups of four or five" while Dora shared her groups each contain seven students. Ruby reported she debriefs with groups of seven or eight students at a time and requires written reflection regardless of the size of the group. In contrast Layla only debriefs with individual students, when asked about debriefing in groups she stated "I don't know how that would work." This variability did not seem to correlate with program size of geographical location, therefore it seems larger programs were not trying to debrief in larger groups and smaller programs in smaller groups.

Managing the requirements associated with simulation learning experiences proved challenging for most of the interviewees regardless of location and number of students. Recognizing the value of these required components, faculty were flexible and creative in their approaches while attempting to remain student centered at the same time. Again, the results suggest a lack of structure and guidance in the interpretation of guidelines as provided.

Faculty Perspectives

Faculty reported both benefits of simulation learning experiences and drawbacks from the faculty perspective. Wanda reported the one of the greatest benefits she saw was "now we can ensure that there are some common experiences that they all will have." She also stated, it has "helped some of our PhD faculty in teaching. I think it's really helped some of them incorporate a clinical component and more of an applied component into the coursework." Sherry agreed with Wanda that the idea of standardized patients was more positive than SimuCase. She stated, "I think there's great value, especially in those things I talked about where it's, you know, it could go seven different ways in that conversation for counseling, and that might be a really good place for using standardized patients."

When discussing SimuCase, many of the participants, including Ruby agreed with the statement that "It's a safe way to learn about things." Lily, Donna, Beth, Stella, and Sadie all reported they liked that "there are some disorders represented in SimuCase that we don't have in our clinic, or maybe we don't have many of those patients in our clinic." They also agreed SimuCase adds diversity and provides students with the exposure to low incidence populations. Karoline shared she appreciated that simulations "give students a safer space to question things because they're not questioning their supervisor they're questioning SimuCase." Donna and Dora

felt the repeated practice contributed to the development of confidence in the clinicians and was "a useful teaching tool."

Many of the faculty brought up concerns specifically related to SimuCase. Beth's concerns were related to best practice while Julie's concerns were related to incorrect assessment procedures used in a SimuCase related to hearing. Sadie shared that "there are very, very few that I would recommend after the experience (of trying them), we sort of investigated them all, but you know, they are not all created equal."

Some of the drawbacks faculty expressed included the lack of opportunity to work "on professionalism and communication style in our field that specializes in that." Other participants voiced concerns that "there are some unethical cases that force students to pick an unethical response to get their 90%" or that "it [a SimuCase simulation] was really poorly done." Other concerns included: "Some of the stuff is bad," and "I just thought that was like unethical. I was like, I don't think that's right," and "they don't even do the hearing screening correctly,"

Amid these concerns, one participant reported "I shouldn't say this a lot, but there are very, very few that I would recommend using after that experience, they are not all created equal," and that "I would love for there to be a competitor to SimuCase someday. It's great. But, boy, competition makes your better!" Another participant, Allison, also expressed concern related to the development of clinical reasoning in SimuCase;

> The more complex sort of using an AAC device and social skills work and executive function stuff and all of that that's require so much of the nuance of the in the moment and, and making them being responsive to what's happening in the moment versus traditional Arctic drill and those sorts of things.

All of the participants agreed, constructive feedback and professional reflection will serve to improve the learning experience and contribute to best practice.

Faculty, demonstrating reflective practice, still recognizes the value of the simulation learning experiences despite the concerns, recognizing an opportunity for improvement in both andragogy and execution of the simulation learning experience. Much of the frustration expressed during the research process was directly related to the nuances of the one software option available on the market and the underlying concern that they. As the faculty, were providing the best learning experience possible for the students.

Student Perspectives

Most faculty interviewed reported they collected feedback from students though their class evaluations or supervisor feedback, only two reported they solicited feedback from students specifically about simulation learning experiences. Many students offered feedback about simulation learning experiences through the course evaluations, others offered unsolicited feedback. The student perspectives shared by faculty represented data they had gathered previously from students. Wanda shared the following feedback from her students. "Many of them really appreciated the experience, the opportunity to get experience with more unique patients that they wouldn't have otherwise." Sherry's course reviews contained the following feedback from her students, "They wished that I had pushed, that we had done more SimuCase early on in the fall versus waiting until spring and summer." One of her students offered the following after her final externship "it was really helpful to have done X, Y and Z SimuCase cases because I saw that at my so and so now." Stella and Bella both reported that in general their students have shared that they liked the variety in SimuCase and that it offered opportunities with low incidence populations, at the same time "they weren't that excited about

it." Rose and Bella shared that they each had a student that completed an assessment task trainer in SimuCase and was able to "jump right in" when she needed to complete the assessment at her off-campus practicum because she practiced it in SimuCase which she considered a "safe environment." Beth and Kaitlyn's students also reported they felt like the software provided a safe place for them to practice. Donna's students shared with her that they "loved the additional practice computing standard scores, confidence intervals, those kind of technical things."

Unfortunately, SimuCase was not a positive learning experience for everyone. Kora shared her students reported it feels like "a video game," and is "hard to take serious." Karoline reported a student stating "it felt like Oregon Trail for SLP's." Dora's students complained they were "bunt out with SimuCase." Similarly, Sadie's students felt like SimuCase was busywork. Ruby and Belly both reported that once the students had more experience with face to face clinical experiences, they liked SimuCase even less.

Overall, the student feedback collected was constructive and may have also been affected by how the simulation learning experiences were integrated into the program, the emphasis on the experiences, and the skill of the faculty. The positive feedback provides re-enforcement for the using simulation learning experiences as a valuable tool, while the constructive feedback reflected what faculty already feared.

Summary of Research Question 1

When considering how faculty experience the assessment of student learning in simulation learning experiences, the overarching theme is that faculty see the value in simulation learning experiences integrated into academic coursework, clinical coursework, and clinical experiences. Currently the participants have mixed responses regarding what their various programs are implementing. Program location and number of students enrolled seemed to be

irrelevant. Some programs allow students to complete simulation learning for both clinical standards and clinical hours. Other programs allow simulation learning solely for remediation or those "hard-to-fill" experiences. None of the participants reported receiving specific ongoing training for assessment of simulated learning, and few received any purposeful training at all.

Many of the participants reported students also perceived simulation learning as valuable. Some reported students believed simulation learning was valuable until they went on their external practicum. Unfortunately, many other participants voiced concern about student feedback stating the students saw simulation learning as a game and not valuable.

Research Question 2

Research Question 2 explored the ways faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards. Three themes emerged from the data related to the research question including: (1) most faculty use supplemental assignments to improve and assess student learning when using simulation learning experiences to meet clinical competencies, (2) most faculty have concerns assessing student learning in simulation learning experiences used to meet clinical competency standards, and (3) faculty have created a variety of tools for rating student learning in relation to clinical competency standards. Through the experience of assessing student learning in simulation learning experiences the concerns related to the assessment process were exposed.

Additional Required Assignments

All participants reported they completed, in some variation a guided pre-brief, a simulated clinical session with performance feedback, and a small group debrief, regardless of the form of simulation learning experience. This included computer-based simulation in

SimuCase, the simulation lab, and with standardized patients. These components are the basis for rating competency and varied in structure for each faculty member interviewed.

SimuCase promotes the use of a pre-brief, a debrief, and depending on the size of the group, a written reflection. Most of the participants overwhelmingly reported they also used supplemental activities when they used simulation learning experiences to assess student learning for clinical competency standards. The supplemental activities discussed with the faculty referred to activities beyond the minimum required by SimuCase.

When asked about additional required activities, Wanda simply described these activities as "additional tasks, usually it's like a goal writing task." She explained that these tasks vary by instructor. She also expressed concern about the students who take seven tries to achieve a competency of 90% within SimuCase. This 90% accuracy level is used as a minimum competency for their clinical competency standards as well.

Sherry's program uses "supplemental activities" which include activities related to counseling, answering additional debrief questions, and collaboration which she feels are required clinical skills across the age continuum and should not be multiple choice. She states "out in the real world, we don't have multiple choice, right, unless you look at the directory in your building." Stella has her students write goals to "beef up" the experience. Lily reported she will extend the debrief questions when she feels like students are missing "key points" in the experience. Layla's program has their students for each SimuCase they complete. Kora's program, like Wanda's leaves it up to the individual faculty as to whether they add any additional assignments to the experience. Karoline reported she frequently has her students analyze a language sample or participate in role playing to practice interviewing. Kaitlyn also has her students write goals for treatment following an assessment, write assessment reports, and

lesson plans. Dora has her students write a follow up lesson plan after completing an intervention SimuCase. Also, Bella has her students write an assessment report following an assessment in SimuCase. She also shared she has tried a variety of different assignments and, like Beth, continue to "tweak" the assignments as these are deemed "critical in assessing competency." Sadie requires her students to individually answer additional questions orally during the debrief, and finally Ruby requires her student to write assessment and intervention reports to bolster clinical contact hours and rate competency. In this way, the faculty and students use the SimuCase case as a "launching pad," or "starting point" for these additional assignments. Faculty expressed the additional assignments helped ensure the graduate students "weren't missing any major knowledge" or "key points" and that the experience was clinically relevant.

These same assignments were purposefully built into simulations using standardized patients not just SimuCase. Though few actually used standardized patients in simulation learning experiences. Of those that reportedly used standardized patients, only Rose and Connie used the standardized patients to address clinical competency standards.

With the majority of the participants reporting they use additional assignments to meet clinical competency standards, very few were using the simulation alone. Type of additional assignments varied across program location regardless of program size. Though there was a variety of additional assignments reported, many were consistent with competency standards related to professional writing and clinical reasoning, both of which are essential for clinical practice.

Rating Clinical Competency

Faculty reported they use several different systems or tools for rating clinical competencies for students using simulation learning experiences to meet clinical competency

standards. Most programs interviewed use a program called "Calipso" to track requirements including content area standards and clinical competency standards. Lily was the only faculty that reported she use a similar system called "Typhon." Regardless of the tracking software or database used, faculty have to enter a competency level "rating" for each standard. These clinical competency standards all have to be met prior to graduation. Some interviewees reported they established competency on a straight pass or fail scale. Others that used the pass/fail option reportedly used a rating scale of one through five. For example, in Connie's program a pass was when a student earned "a three or above" and this would indicate that clinical competency had been met and this would be reflected in Calipso. Beth reported in their program "If they did something extra 4 then is missing something they give a 2." The process for determining what constituted a score within the one through five rating scale varied greatly between programs. Rating scales shared by the interviewees are in Appendix D. Donna, Allison, and Sherry described their program's attempted to standardize the rating scale by designing a rubric. Sherry reported "We have our rubric that we developed that has a point system." She also reported her faculty use the same rubric to assess for clinical competency in simulation experiences as they do for face to face experiences. In face to face clinical experiences and standardized patients the supervising faculty member decides which clinical competency standards apply to each client and grades them accordingly. In SimuCase, the software company has decided which clinical competency standards apply to each case. In Allison's program "if they did their reflection form thoroughly, they got the 80% or higher in SimuCase, and then they were thoughtful and responsive to the debrief process, then they get a three for those few EVAL items."

Not all programs used supplemental assignments. Connie stated when they use only SimuCase for a simulation learning experience "if they get 90 percent or above which they all

do, they get a three on their evaluation. So three and above is passing for that competency. And then we just award the competencies." Julie, on the other hand, doesn't necessarily assess every clinical competency SimuCase assigns to the case. Connie, who also used standardized patients and the simulation lab in addition to SimuCase reported different scoring expectations:

> As far as the hands on simulation, that's a little bit different. I do grade specific areas for each one on Calypso, and I grade those again, those are pass fail. So either you do it or you don't. It's a three or above, but I do, if students want that more than a three, so like I'll give them like a three point five or a four or four point twenty five, depending on how they interact with the family, how they educate like I do, grade them differently. So even though it's pass fail on the eval form and the scores of it is above a three sometimes, but I will not do that for SimuCase. So in SimuCase it's a straight three. That's what you get.

Concerns Assessing Student Learning in Simulation Learning Experiences

The same faculty that described their competency rating scales and assignments for simulation learning also expressed concerns with assigning a competency rating. Again, SimuCase was the most familiar platform of simulation learning experiences and all 22 faculty interviewed had used it. Despite using the SimuCase program, faculty also expressed many concerns with using it extensively to meet clinical hours and clinical competency standards for a variety of reasons. For example, others, like Stella, felt that the user guide provided by SimuCase for debrief was inadequate and expressed "I found I couldn't rely on the debriefing questions that SimuCase provides," and "I didn't find them very thought provoking or anything that fostered good conversation or problem solving for the clinicians." Other faculty, including Sherry, had issue with the limitations of the technology itself reporting "out in the real world we don't have multiple choice unless you look at the directory on your building." Kora expressed "I wish they

(cases in SimuCase) were more dynamic." Connie stated "they (students) were just so against SimuCase because it's like we didn't get in the field to do computer programs for 75 hours." Another limitation of the technology in the development of clinical reasoning skills is that it lacks the ability for the student to demonstrate clinical decision making in a session and per Allison, "making them be responsive to what's happening in the moment." Sadie felt that students "weren't engaging with SimuCase." Kora expressed concern her students were "just clicking through it," or were simply "gaming their way through SimuCase" to meet the minimum score of 90%. It was suggested by Katherine that the limitations of the software program itself lent students to believe speech therapy is "black and white because it's a program." While these concerns related specifically to SimuCase, there were many other concerns assessing the overall experience.

Most faculty expressed a level of difficulty in general in the experience of assessing student learning in simulation learning experiences. Stella expressed "It was really hard to provide any meaningful evaluation on their performance, un yeah, so I struggled with that." Kora agreed saying "it's really difficult, like you don't see them do it and you can't, I don't think, gauge their critical thinking." Many, including Donna, justified the addition of the extra assignments as a means to make the assessment experience more acceptable "So I actually felt better embedding more assignments." Despite the available assessment tools, Bella and others were left with unanswered questions "we struggle with like, do you, are you giving students super high competency ratings because they've just done this once in SimuCase and you haven't seen it in with a client?" and "Is that the right way to do it?" When asked about ratings, Dora questioned:

I don't know if anybody is researching that, but I think if somebody does, that would be a

great project because we look I would like to know, was it a valuable experience? How

are we going to asses this, Is this really what we want to be doing?

Sherry expressed concern that the "static answers" of simulated assessment, rather than dynamic

exchange of in-person assessment, limits the learning experience. She also worried that the skills

gained in simulation would not transfer to face to face clients. This concern was shared by

Donna when she stated:

No one said wow, after completing this case, I feel like I understand how to do dynamic

assessment or I feel like I would know exactly what tools to use when evaluating a

bilingual child. No one said anything like that. It was more about I feel better interpreting

standard scores, which in first semester, first eight-week students is probably OK. You

would not have wanted your second semester students to have that be the priority

Many participants expressed they struggled with the assessment because of the word

competency. Sadie divulged "this is sort of a, a personal issue with the C word, but a I have a

hard time with like the word competence, I mean, like, what are they doing a CFY for if we're

saying they're competent?" Kate shared a similar opinion, saying "I think it's hard to feel, I think

how kind of ambiguous a competency is, like saying somebody is competent, I think that's what's

hard." Like most programs Lily admitted "we had a little bit of variability amongst faculty." She

also shared, "some faculty felt like SimuCase is so introductory, I just can't give a competency

rating for this, I can't even say it's an emerging skill because its simulation."

In a similar view, Katherine stated she did not believe SimuCase "pushes the envelope to

allow students to think more outside of the box or more on their feet or what they would do in

the situation." Sadie also agreed with the challenges of assessing competency when she stated

"they spend an hour and then you check off all the assessment competencies in a particular area that makes me a little bit uncomfortable." Other participants reported similar concerns although some try to look on the brighter side with one participant reporting, "but I also, I also try to like take the perspective of. They have some exposure and they have worked through something and yeah, to set them up for success."

Donna disagreed that SimuCase provided exposure and set students up for success when she stated, SimuCase learning was "not the same as seeing a patient one on one and planning an individual treatment session, running it for 30 minutes to forty-five minutes and figuring out what to do when it's not going right." Donna went on to state:

> You know it just, it doesn't replace that, and so I do worry that this last cohort when they get out in practice, aren't going to have those same skills. I think they're smart enough that they'll get them, but they won't have them in a mentored way.

Many of the participants shared a concern that variable aspects of working with people cannot be replicated in simulation. For instance, Allison shared that she felt "like the treatment piece is really hard to replicate in simulation." Ruby profoundly agreed when she stated, "It is definitely not a substitute for direct client patient contact, obviously." While most concerns regarding the assessment of student learning were related to SimuCase, Donna compared the standardized patients to SimuCase:

> I think SimuCase has a place for exposing students to those low incidence disorders that they may or may not see during their clinical experiences. I think it gives them lots of opportunity to sort of practice. Scoring and listening and counting. I don't think it prepares them to do ongoing monitoring of a patient's performance and and altering your

treatment session or clarifying your comments, as you would if you were doing it with a

standardized patient.

Bella also described a situation in students were awarded clinical competency standards in

simulation learning experiences but not contact hours resulting in apparent competency but no

clinical contact hours in those competencies.

Many participants offered specific areas to improve or simplify the experience of

assessing student learning for clinical competencies including Kora' suggestion "I do wish there

were more sensitive measures to simulation" and perhaps "more guidance." Connie added "I just

think that ASHA, it would be good to kind of parse out different types of simulation, maybe cap

the hours on SimuCase." Katherine, who used a simulation lab primarily for clinical

competencies related to dysphagia, AAC, counseling, and intradisciplinary experiences reported

"we have a lot more control over the simulation center, right, so we can kind of push them a little

bit further than we can in SimuCase" making her feel better about rating competencies.

Two participants, Julie and Donna are both from midwest programs and both presented

the scenario where some of their faculty were not ASHA certified leaving others who were

ASHA certified to assess student learning. In one situation, the case was completed with faculty

not ASHA certified, including pre-brief, debrief, and feedback during the experience while

another ASHA certified faculty signed off on competency. In the other case, a faculty not

familiar with the content of the case presented the case for the non-ASHA certified member and

signed off on competency. In both cases no one was "comfortable with that situation." In another

program an interviewee, Ashley, reported she completed the SimuCase cases with the students

and recorded attendance at the pre-briefs and debriefs only, while another faculty member

assigned clinical competency ratings for those cases based on the attendance record.

Interestingly, Connie reported she recently defended her dissertation on the topic of simulation learning in speech language pathology. Her parting statement in her interview was:

So one thing that, like I said in my dissertation defense was like simulation does not equal simulation does not equal simulation like it's not all created equal, even though ASHA has this kind of umbrella term of simulation. It's not all created equal.

Faculty expressed legitimate concerns in the assessment of student learning in simulation learning experiences. At the very basic level, what constitutes competency and what level of competency is expected for the graduate student presented as ethical concerns for many. Because of the concerns presented, many faculty had ongoing concerns with the integration and assessment of student leaning in simulation learning experiences.

Summary of Research Question 2

In summary, participants expressed frustration and concern assessing student learning in simulation learning experiences. Most programs were using simulations, especially SimuCase, as only a component of a larger learning experience. This experience was supplemented with additional assignments and additional face to face clinical experiences in order to assess for clinical competency. Overall, the assessment of student learning varied from program to program and lacked a consistent structure.

Research Question 3

Research Question 3 explores what, if any, effects the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards. Three themes emerged from data analysis specifically (1) the use of simulation learning experiences prior to the lock down in March 2020, (2) during the lock

down period in 2020, and then (3) after the lockdown period lifted, timing varied by geographical region and institution.

Prior to COVID-19

Only a handful of faculty reported using any simulation learning experiences prior to COVID-19 and that included a combination of simulation lab experiences, standardized patients, and computer simulations, specifically SimuCase. Rose reported they started using SimuCase approximately four semesters prior to COVID-19. Connie reported "So before COVID, we had we did have simulation. We did mostly SimuCase, and then I was starting to build like hands on simulations even before COVID," Kora reported prior to COVID-19 their department was starting to work with the theater department and writing scripts for standardized patient. Karoline's department was "looking at SimuCase starting to use SimuCase case even before COVID." She reported "So we had just started and so we were already set up and the students were already working in SimuCase and had active subscriptions when we had to shut down." Julie, Kaitlyn, Connie, and Beth all reported their departments were using SimuCase prior to COVID-19. Connie stated they started using simulation learning experiences when:

> We got some feedback that our students just weren't ready for swallowing, getting into the field. They have the class, but then there's no hands-on application. So I use simulation to kind of bridge that gap. So that was even before COVID that we did that.

In addition, Lily stated:

> We use the SimuCase platform, and we used it only occasionally prior to the COVID-19 pandemic. We did not really have a need for it because most students were able to get all of their clinical experiences and their hours just through our on campus and off campus placements.

Other faculty reported that prior to the COVID-19 pandemic they had never used simulation learning in their programs. Sophia reported "so as far as our graduate students go, our graduate program was not using SimuCase until the shutdown." Kaitlyn also reported "So we had not used it." According to Ashley, they had used it but "Not to the extent that we're using them now." Regardless, COVID-19 affected how all programs used simulation learning experiences.

During the COVID-19 Campus Closures

All 22 participants unanimously reported that once the university campuses closed in March 2020, their programs depended on SimuCase to meet clinical hours and competency standards in order for students to graduate that spring. According to Wanda "we supplemented SimuCase both competencies and hours and standards," Sherry also shared:

> We totally supplemented that, the class that was graduating the spring when it hit, we
> figured out a way for them to get 75 hours in SimuCase. And so it was all about hours
> and skills at that point and the race to finish for graduation.

Julie disclosed that her program used SimuCase to get those who only needed a few hours for graduation "over the hump." Adding to that, she stated "I mean they recognized, the students recognize, that's not so meaningful, you know." Sophia hypothesized her faculty "Honestly, just threw it together. Do you know what I mean it was survival!" The simulation labs closed with the campuses for all of the interviewees so SimuCase was the only computer-based option for students to continue to earn clinical competencies and contact hours. Most programs hadn't fully transitioned their appropriate clients to telehealth until the summer of 2020 and the majority of the offsite students were sent home. Like many programs Donna's program focused on those students so close to graduation. When asked about graduation, Donna stated:

So our intent initially was to get those second year students who were out on externship

assignments the contact hours they needed to graduate, I mean, that was that was the first

overall push. And once we survived that, then the in the summer semester, by then in the

summer semester. So it was that 2020. We had some virtual clinical assignments in place,

and what we attempted to do was give everyone a virtual clinical placement and then they

would also have SimuCase assignments.

Faculty assumed significant responsibility in this transition in order to facilitate graduation and

continue to offer meaningful learning experiences to their students.

The first-year students also experienced an increase of SimuCase use, as a result many of

Sherry's students got really "burnt out" on SimuCase. "It was the perfect storm of entitled

students and us pushing a little too hard on hours, but we didn't know how long it would last."

Kaitlyn reported that despite her lack of expertise with simulation learning experiences "when

pandemic hit, we changed things a lot, and I actually, like my colleagues, were forced to be more

interested in simulations." Faculty were trying to be proactive without knowing when they could

re-open on campus clinics and send students to offsite clinical placements, as a result Sophia's

program, like many, tried to be proactive getting the students "at least a handful of hours."

Donna's program went even further planning for future semester needs as she explained:

We tried to be more proactive about prepping cases in the summer with a cohort that was

in its third semester and then being able to reuse those cases in the fall with the new

entering cohort, we sort of tried to be a little more organized that way.

All programs represented by the interview participants were back on campus, at least in a hybrid

model by fall 2020. This sudden closure of college campuses resulted in CSD:SLP graduate

faculty scrambling to facilitate graduate of their second-year students, learn how to use

simulation learning, and left little time to investigate best practices associated with integration into the curriculum.

A Return to Clinical Experiences After the COVID-19 Shutdown

All participants reported that by fall 2020 there were some returning "live" clinical experiences. Some on campus clinics were re-opening, some students were allowed to return to offsite clinical experiences, and some programs cut back on the required simulation learning despite ongoing uncertainty. Sherry's program "either assign or provide the option for sets of SimuCase cases that they could do for hours and to demonstrate skills" and it was also the last semester they used it methodically "to supplement campus clinic." Stella reported "then when we resumed providing therapy, we kept case simulations for extra practice and for getting more diagnostic experience." Luckily some programs reported return to normalcy at the time of the interview. Sophia reported that given their metropolitan location "We have plenty of clients. Our clinic is free. Our grad students didn't need to do SimuCases, they're getting their 400 hours with actual patients now." Lily, like many other interviewed, stated that "we're not using it to the same extent now" and it is only used on an as needed basis. Beth, Sophia, and Bella all reported that their programs now have a variety of "modules" developed for low incidence populations that they use on an as needed basis for clinical contact hours and to meet clinical competency standards. A few of the faculty also reported that since the COVID-19 shut down, their programs have increased the use of simulation learning as compared to use prior to the shutdown, for example Rose shared "so actually since COVID, we've had more of our professors that are teaching our courses start to implement the cases."

Anecdotally, a handful of the faculty reported "next step" ideas that their programs are working on including establishing a multidisciplinary simulation lab and purchasing their own

digitized mannequins primarily to implement in the content area coursework not necessarily for experiences to meet clinical competency standards.

Summary of Research Question 3

In summary, the COVID-19 pandemic has had a profound effect on all graduate CSD:SLP programs represented by the participants regardless of geographical region or program size. The majority of the programs relied on SimuCase to get the clinical contact hours and meet the clinical competency standards in order for their students to graduate in the spring of 2020. Since then programs have aspired to incorporate simulation learning experiences into the curriculum in a more intentional way. For many this has included adding simulation to content classes, and clinical experiences. For other this has meant a significant reduction in the amount of SimuCase being used.

Conclusion

In summary, the assessment of student learning in simulation learning experiences in graduate CSD:SLP programs is unstructured and lacks consistency, the integration of simulation learning experiences into graduate CSD:SLP programs provides a useful teaching tool, but the programs need more guidance, professional development, and structure to maximize student learning outcomes. Finally, the COVID-19 shutdown had significant effects on the amount and type of simulation learning experiences offered in graduate CSD:SLP programs. In the following chapter the essence of the interviews will be compared to the theoretical framework provided in Chapter 2 as a framework for best practice in the integration of simulation learning experiences into graduate CSD:SLP curriculum.

Chapter 5

In 2016 ASHA updated the standards proposed by the Council for Clinical Certification allowing up to 75 hours of simulation to count towards the required 375 clinical contact hours. Programs across the U.S. began integrating simulation learning experiences shortly thereafter (Dudding & Nottingham, 2018). The purpose of this study was to provide insight into the faculty experiences in the assessment of graduate student learning in simulation learning experiences in CSD:SLP graduate programs in the US, and the effects of COVID-19 on simulation learning experiences. This chapter presents the discussion of the thematic analysis of the research questions, the implications for practice, the study limitations, and the recommendations for future research.

The existing research regarding the integration and assessment of simulation learning experiences into graduate level speech-language pathology curriculum is limited. To review, 22 semi-structured interviews were conducted with volunteer graduate faculty from ASHA certified speech-language pathology programs. All interviews were recorded via Zoom, transcribed verbatim, and analyzed using a phenomenological process to identify themes across experiences. The research questions were:

(1) How do faculty experience the assessment of learning in simulation learning experiences?

(2) In what ways do faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards?

(3) What, if any, effect has the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards?

Summary of Findings and Discussion

The assessment of student learning in simulation learning experiences is an integral component of the learning process. The themes and assertions identified in the faculty interviews related to their experiences in assessment of student learning in simulation experiences are presented in Table 8. The faculty in this study described simulation learning experiences as a valuable tool, however, expressed a need for more guidance, professional development and structure for the implementation into the graduate curriculum in order to maximize and assess student learning outcomes. It was also revealed that the process of assessment lacks structure and consistency. And finally, every faculty interviewed reported changes in how simulation learning experiences were integrated into their graduate curriculum as a result of the COVID-19 pandemic.

Table 8
Research Themes and Assertions

Research Question	Themes	Sub Themes	Assertions
Q1. How do faculty experience the assessment of learning in simulation learning experiences?	Professional Development Integration Into the Program	Content Coursework Clinical Coursework Clinical Experiences Management of Requirements	Q1. The integration of simulation learning experiences into graduate CSD:SLP programs provides a useful learning tool, but the programs need more guidance, professional development, and structure to maximize student learning outcomes.
	Faculty Perspectives Student Perspectives		
Q2. In what ways do faculty assess student learning in simulation learning experiences specifically	Additional Required Assignments		Q2. Assessment of student learning in simulation learning experiences in graduate CSD:SLP programs is

designed to meet clinical competency standards?			unstructured and lacks consistency.
	Concerns Assessing Student Learning Rating Clinical Competency		
Q3. What, if any, effect has the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards?			Q3. The COVID-19 shutdown had significant effects on the amount and type of simulation learning experiences offered in graduate CSD:SLP programs.
	Sim use prior to COVID Sim use during COVID shutdown Sim use post COVID shutdown		

Research Question 1

The first research question explored how faculty experience the assessment of learning in simulation learning experiences. Four themes emerged from the research interviews in relation to the question: 1. professional development, 2. Integration Into the Program, 4. faculty perspectives, and 4. student perspectives. Within the theme of Integration Into the Program four sub-themes also emerged; content coursework, clinical coursework, clinical experiences, and management of requirements.

Professional Development

Consistent with the NLN Jeffries framework (2016), professional development is essential in the preparation by faculty unfamiliar with the andragogy, in order to maximize the learning experience. In 2018, Dudding and Nottingham recommended "expanding educational efforts and increasing opportunities for faculty training are essential in realizing the full potential of future professionals using simulations in CSD" (p. 71). Completed professional development, specifically related to the integration of simulation learning experiences into the graduate CSD:SLP curriculum, varied depending on the faculty member and the program. The faculty who were using simulation learning experiences prior to the COVID-19 shutdown reported a personal interest in the integration of simulation learning experiences and personally sought professional development in the area. In contrast, those faculty that were suddenly introduced to the use of simulation learning experiences as a result of the COVID-19 shutdown typically reported limited professional development in the andragogy of simulation learning experiences. The resulting professional development was limited to peer teaching amongst faculty and a tutorial from the software SimuCase. Simulation learning experiences implemented as a result of the COVID-19 shutdown were limited to computer-based simulation learning experiences, specifically, SimuCase. No faculty interviewed, regardless of when they completed their professional development, reported any specific professional development related to the assessment of student learning in simulation learning experiences.

The lack of faculty development available to interviewees was a repetitive theme in the research. According the National League of Nursing (NLN) Jeffries Simulation Framework (2016) successful integration includes consideration of the facilitator, the participant or the student, and the educational practices specifically related to planned integration into the

curriculum. This constructed learning experience is orchestrated by the faculty or facilitator. The role of facilitator is to:

> respond to emerging participant needs during the simulation experiences by adjusting educational strategies such as altering the planned progression and timing of activities and providing appropriate feedback in the form of cues (during) and debrief (toward the end) of the simulation experience (Jeffries et al., 2015, p. 292).

Many faculty interviewed expressed concern and frustration with their role as facilitator with very limited guidance provided with the sudden integration into the curriculum, as well as a wide variety of interest levels in simulation learning. Given that most faculty interviewed were either newly introduced to simulation learning or had significantly increased the amount of simulation learning as a direct result of COVID-19, it is reasonable to assume that there was very little time for faculty development with the sudden transition to online clinical experiences in May 2020. However, one would have also hoped for the development of more continuing education with the integration of simulation learning since the return to face to face clinical experiences.

According to the cognitive apprenticeship theory, the faculty's role in the simulation learning experience as a teaching technique (Gaba, 2004) is to model the clinical decision making and problem-solving associated with the experience (Collins, 1989). With a lack of guidance or professional development in best practice to achieve this, the whole experience may have lacked value as a learning experience. That was also perhaps reflected in the perspectives shared by students through their faculty. Using simulation learning experiences as a teaching technique in the content and clinical coursework where it is integrated as a tool to develop underlying knowledge and skill to is very different than the integration of simulations in clinical

experience where it is used to address clinical competency standards and clinical contact hours. When integrated in the clinical experiences it is reflective of summative assessment.

In summary, faculty reported they lacked the professional development in how to successfully use the technology available, primarily SimuCase, how to assess the value of the experience as a teaching tool, and how to assess student learning in the simulation learning experience when used to assess clinical competency. While many expressed further attempts to invest in professional development in the use of simulation learning experiences as a teaching technique, may expressed continued frustration with available programming for continuing education and concerns with using it as for of assessment of student learning.

Integration Into the Program

The integration of simulation learning experiences was reported by faculty as a concerted effort by some to improve the curriculum. These were most often the faculty who reportedly used simulation learning experiences prior to the COVID-19 shutdown as well as those faculty who have continued to use simulation learning experiences in their curriculum post COVID-19 shutdown. When Dudding and Nottingham completed their study in 2018, the most prevalent type of simulation reported was the use of standardized patients followed by computer-based games. This present study revealed, likely in response the COVID-19 pandemic, the computer-based simulation software, SimuCase, was the most frequently used type of simulation. Many of the faculty also reported a revolution in how they integrate simulation learning since the return to campus, as well as a desire to improve and expand the experiences to include simulation learning labs and standardized patients to improve learner outcomes. The learner outcomes, including development of content area knowledge, technical clinical skill development, learner

satisfaction, critical thinking skills, and self-confidence (Jeffries, 2016) are essential components in the development of a clinician.

Jeffries (2016) in the NLN Jeffries Simulation Framework emphasizes the importance of identifying the outcomes of the simulation learning experience prior to the beginning the simulation. He also emphasizes the importance of matching the learning outcomes with the skill level of the clinician and the fidelity of the simulation (2016). As one of the research participants of the current study stated "not all simulation is created equal." With intentional integration into the curriculum, including coursework and clinical experiences, the simulation learning experience could and should adequately address the learning outcomes.

Faculty reported they integrate simulation learning experiences in content area coursework such as dysphagia and speech sound disorders, clinical coursework such as diagnostic methods classes, and clinical practicum experiences. The integration of simulation learning experiences into content area coursework often reflected more a teaching technique than an assessment for clinical competency. The integration of simulation learning experiences into clinical experiences was most often reported to supplement clinical clock hours and missing competency standards to facilitate graduation. In that sense the simulation learning experiences were used as a summative assessment of clinical competency. This was reportedly the primary focus for the cohort set to graduate the spring of 2020 most affected by the COVID-19 shutdown not only to ensure graduation but specifically an on-time graduation.

Consistent with the research by MacBean et al. (2013), faculty highlighted the benefits of repeated practice, exposure to wider range of disorders and clients, a safe environment to practice, and as a tool for remediation. The opportunity for feedback during the learning experience, also supported by the current literature (Gaba, 2014), was reportedly more

challenging. Faculty acknowledged the importance of the feedback in the learning process but Establishing a structure that allowed for faculty to meet the needs of the individual learner and provide meaning feedback was discussed in most of the interviews.

Management of the requirements including pre-brief, structured feedback during the simulation experience, and de-brief reportedly proved to be a struggle for many of the faculty interviewed. It is important to note that many of the faculty interviewed were clinical coordinators recruited through a list serve of clinical coordinators. In that, it is their responsibility to coordinate all clinical experiences so during the COVID-19 shutdown it would have been their responsibility to manage and schedule these required components of simulation learning experiences. In addition, these faculty were also responsible for guaranteeing the students experiences in all nine clinical areas of speech-language pathology for graduation. These students were originally planning to gain these experiences during their final practicums which were ended in March 2020 due to COVID-19.

In summary, faculty are integrating simulation learning experiences in coursework and clinical experiences. With the COVID-19 pandemic they were more widely used to supplement clinical contact hours and clinical competency standards. Using simulation learning experiences in this way proved challenging for many faculty with a continued lack of quality professional development with an emphasis on integration and assessment of student learning in the use of simulation learning experiences to meet clinical competencies.

Faculty Perspectives

During the interview process the faculty reported positive outcomes related to simulation experiences. These included, for example, the opportunity for repeated practice for novice learners, and a safe learning environment to question the simulation instead of the faculty.

Faculty also reported constructive feedback related to simulation learning experiences such as the concern that not all simulation learning experiences offer the same caliber of learning experience, the gaming mentality associated with the experiences in order to achieve 90%, and the poor reflection of best practice. Clinard and Dudding (2019) also hypothesized that students were not engaging as they viewed SimuCase with a "gaming mentality" (p. 141). Overall, the research findings indicate while faculty consider simulation learning experiences are a useful learning tool, they would like more guidance and professional development in program integration and assessment of student learning to maximize student learning.

The integration of simulation learning experiences in content coursework, clinical coursework and practicum experiences reflects available research in the value of simulation learning experiences. In this way students have the opportunity for repeated practice (Grillo & Thomas, 2016) with a decreased risk to themselves and their clients (Alinier, 2007; Burns, 2015; Issenberg & Scalese, 2007). They can learn at their own rate (Issenberg & Scalese, 2007) and are exposed to a wider range of clinical scenarios (Alinier, 2007). These examples reflect best practice related to the integration of simulation learning experiences as a learning tool not as an assessment of clinical competency. Speech-language pathology still lacks the level of evidence needed to make the decision to replace face to face learning experiences with simulation learning experiences as a measure of clinical competency. Specifically, as an assessment of student learning and clinical competency, which technical competency standards would be most appropriately replaced with simulation learning experiences versus those competency standards that require the nuance of the interaction in order to demonstrate competency.

In summary, faculty recognize the value the simulation learning experiences in content coursework, but continue to express concern the with lack of research supporting the

replacement of face to face clinical competency standards with those met with simulation learning experiences.

Student Perspectives

Student perspectives gathered and presented by the faculty interviewed regarding simulation learning experiences often reflected that of faculty. Overall, students reportedly valued the learning experiences as well. Again, it is important to note that the student perspectives were gathered by faculty prior to the interviews, and then shared by the faculty not directly from the students. The feedback collected by the faculty from students also indicated they appreciated the extra practice and the safe learning environment, however, they also expressed concerns regarding the gaming aspects specifically related to SimuCase and that they like the face to face experiences better. This is also consistent with the findings from Clinard and Dudding (2019). This information was based primarily on feedback gathered from course evaluations or anecdotally. This revealed students' discussion of the "game-like" interactions with SimuCase and clicking through the choices to achieve their required 90%. These comments showcase the need to evaluate if the simulation learning experience is actually a valuable experience, and if not, which aspects of the NLN Jeffries Simulation Theory (2016) background and design are missing? It is also necessary to consider if the simulation learning experience was actually designed to meet the desired objectives.

Feedback from students is the most researched area in the field of speech-language pathology related to simulation learning. Specifically, students' perceptions of confidence and self-efficacy (Grillo & Thomas, 2016; Jeffires & Rizzolo, 2006; Putter-Katz et al. 2017). The NLN Jeffries Simulation Theory (2016) identifies learner satisfaction as one of the outcomes

within the framework, however, since this has already identified, the outcome related to skill performance and critical thinking remain vague.

Consistent with the available literature in speech-language pathology, students reportedly recognized the value of simulation learning experiences. As in the study by Clinard and Dudding (2019), feedback gathered and shared by faculty in the research interviews indicated both positive and negative findings. Students echoed the gaming mentality and the limitation of the software as concerns, and the availability to feedback throughout the experiences as well as an exposure to an increased variety of patients as positive feedback. This does suggest skill level of the faculty in the integration and management of the simulation learning experiences has a significant influence on the value of the overall experience.

In order for students to truly construct the knowledge required to demonstrate skill, they must engage in authentic simulation experiences (Bednar et al., 1999). The simulation learning experiences integrated into clinical and content area coursework could potentially contribute to their construction of knowledge before they are used to assess clinical skill. However, without the appropriate structure, professional development and faculty skill with integrating these experiences into the curriculum they fall short. The lack of social interaction within the computer based simulation learning experiences does not support the social constructivist theory that would imply students are working with peers and faculty in addition to their clients in the experience.

In summary, students also see some value in simulation learning experiences, more so, when the faculty are skilled in the integration. As students, are not necessarily able to compare anything other than their own confidence in their skills. This is consistent with previous research.

Summary of Research Question 1

In summary, both faculty and students value simulation learning experiences in the development of content area knowledge and development of clinical competency standards. However, there remains a lack of structure in the establishment and dissemination of best practices related to the establishment and integration of simulation learning experiences into the curriculum. This study exposes a continued lack of research that supports the replacement of face to face clinical experiences with simulation learning experiences.

Research Question 2

The second research question explored the ways faculty assess student learning in simulation learning experiences specifically designed to meet clinical competency standards. Three themes emerged from the research interviews including:

1) most faculty use supplemental assignments to improve and assess student learning when using simulation learning experiences to meet clinical competencies,

2) faculty have created a variety of tools for rating student learning in relation to clinical competency standards, and

3) most faculty have concerns assessing student learning in simulation learning experiences used to meet clinical competency standards.

Ultimately, these findings suggest an overall lack of structure and consistency in the assessment of student learning in simulation learning experiences designed to meet clinical competency standards.

Additional Required Assignments

Faculty using simulation learning experiences in content area classes and clinical methods classes as a teaching tool described the learning experiences as a component of the

coursework, sometimes even as a remediation tool. All faculty interviewed reported the implementation of the pre-brief, feedback during the experience, and a de-brief following the simulation learning experience. For those using simulation learning experiences within their content area or clinical methods coursework, these components were integrated directly into the coursework. As a teaching tool, they were often described as only a component of the lesson. For the majority of the faculty interviewed, these simulation learning experiences were used to meet content area standards, not clinical competency standards or clinical clock hours.

Many faculty also described using simulation learning experiences within their clinical practicum experiences. In these cases, the simulation learning experiences were used primarily to meet clinical competency standards and clinical clock hour requirements. Only two faculty reported their students would also complete face to face experiences in those same competency areas, all other reported that many of the clinical competency standards were only addressed using simulation learning experiences. Two faculty also reported using simulation learning experiences as a tool to remediate clinical skills. The majority of the 22 faculty interviewed reported they used supplemental assignments to meet the clinical competency standards identified by SimuCase as standards students would meet upon completion of the simulation learning experience alone.

The addition of supplemental assignments used to assess student learning and clinical competence not only explores the outcomes of the simulation experience but supports a student-centered approach. While ASHA has provided accredited programs with guidelines for the best practices in the integration of simulation learning experiences into the graduate CSD:SLP curriculum, which now include 75 hours of clinical simulation, they have not provided guidance or curriculum support outlining which clinical competency standards would be most

appropriately met with simulation learning experiences (CAPCSD, 2019). For example, technical skills such as scoring a protocol versus interpreting clinical results or adapting or modifying a treatment session based on client response.

The variety of supplemental assignments reported was extensive and up to the discretion of the faculty in charge of the experience. For example, the SimuCase guide states that a specific case will meet the following assessment standards: V-B 1b, V-B 1d, and V-B 1e which state:

> b. Collect case history information and integrate information from clients/patients, family, caregivers, teachers, and relevant others, including other professionals, d. Adapt evaluation procedures to meet the needs of individuals receiving services, and e. Interpret, integrate, and synthesize all information to develop diagnoses and make appropriate recommendations for intervention (ASHA, 2020).

A limited number of faculty interviewed reported that if their students completed the SimuCase experience and earned a 90% within the system they would mark the clinical competencies defined by SimuCase as "met." The majority reported they would also assign additional requirements to meet those same clinical competency standards including an assessment report, a role play of the client intake interview, or the first 2 lesson plans. This results in obvious significant discrepancies when it comes to assessing student learning.

As described by Jeffries et al., (2015), the NLN Jeffries Simulation Theory suggests that contextual factors and background provide the starting points for designing and evaluating simulation learning. The context offers the "overarching purpose of the simulation" (p. 292) while the background for the case "includes specific goals of the simulation and specific expectations or benchmarks that influence the design of the simulation" (p. 292). These resources contribute to the design of the experience. According to Jeffries et al., (2015) "The

design includes the specific learning objectives that guide the development or selection of activities and scenario(s) with appropriate content and problem-solving complexity" (p. 292). This would suggest that the added assignments faculty talked about in the interviews contribute towards a thoughtful design if they are contributing to the overall learner outcomes of the experience. After the 2021 literature review, Jeffries reported current research "emphasizes the need for higher levels of evidence demonstrating the effectiveness of simulation in contrast with the over-reliance on measure of satisfaction and confidence" (Jeffries, 2021, p.34). Although Jeffries is referring to the field of nursing interviewees for this study would concur.

Rating Clinical Competency

In the absence of one, faculty are attempting to create and use a tool for grading student learning and clinical competency. Hypothetically, a tool would increase inter-rater reliability and provide structure and consistency in the grading process. Faculty identified a variety of tools including scales, a pass or fail option, and a rubric that they had created. This is consistent with the findings of Dudding and Nottingham (2018). These tools were faculty or program dependent, lacked inter-rater reliability, and had not been standardized or validated.

The Objective Structured Clinical Examination (OSCE) developed by Harden et al., (1975) was specifically developed to evaluate clinical skills, primarily standardized patients. While some of the faculty interviewed reported they used standardized patients, all of the participants interviewed reported using computer-based simulation. The *Satisfaction with Simulation Experience (SSE) Scale* was developed by nursing and validated to assess the impact of simulated patients in the development of clinical reasoning. No interviewed faculty reported using the SSE or the OSCE and both tools would need to be modified (Zraick, 2003).

Concerns Assessing Student Learning

In general, faculty expressed concern with a lack of a standardized tool for assessing student learning in simulation learning experiences, specifically related to clinical competency. Many faculty reported they had attempted to use the resources provided by SimuCase, again as the only available computer-based simulation program in speech-language pathology, but felt they were inadequate. Most expressed the de-brief section was the only section to assess individual performance as SimuCase lacked the technical capability for dynamic interaction.

The greatest concern expressed by faculty related specifically to the word competency. Faculty wondered what level of clinical skills actually defined an acceptable competency level for a graduate CSD:SLP program wondering if it should vary by experience, fidelity of the simulation, and definition of demonstration. They also repeatedly expressed ethical concerns approving clinical hours and assessing clinical competency standards with the current structure. The CSD:SLP programs have access to a limited range of simulation options including one software company with computer-based simulations, adapted simulation labs, and trained simulated patients. This lack of fidelity may be more appropriate for novice student learners in undergraduate programs or beginning graduate programs, but not for determining clinical competency as these low to mid fidelity options limit clinical reasoning.

Simulation learning experiences are valuable learning experiences for novice learners. They offer the opportunity for repeated practice in a risk-free environment, with the opportunity for feedback and reflection in the learning process (Grillo & Thomas, 2016; Jansen, 2015). Faculty concerns regarding assessment of student learning using simulation learning for competency specifically relate to the lack of assessment structure. While nursing has developed

specific learner outcomes related to simulation experiences, speech-language pathology is relying on information provided by an individual software program to provide those outcomes.

Another aspect to consider for student learning and competency is the need for consistency. This study supported the earlier findings find by Dudding and Nottingham (2018) when analysis of the interviews indicated the methods for grading the use of simulation learning experiences were inconsistent. The lack of a grading tool also suggests poor design (Dudding & Nottingham, 2018). Without clearly defined objectives for the simulated learning experience, assessment of skills performance is difficult.

Summary of Research Question 2

As simulation learning experiences are often the first opportunity students have to demonstrate knowledge and clinical skill development, the skill level of the faculty in orchestrating this formative assessment is essential. As it is when stimulation learning experiences are used for summative assessment. Faculty expressed repeatedly that simulation learning experiences could and should not be used as a form of summative assessment for clinical competency.

Research Question 3

The third research question explored what, if any, effect the COVID-19 pandemic had on the use of simulation learning experiences and assessment of student learning used to address clinical competency standards. The three themes that emerged related to research question three included: simulation use prior to COVID-19, during the pandemic shutdown, and return to clinic post shutdown. Overall, the research findings indicate the COVID-19 shutdown had significant effects on the amount and type of simulation learning experiences offered in graduate CSD:SLP programs.

Simulation Use Prior to the COVID-19 Shutdown

Prior to the COVID-19 shutdown some faculty reported they were using simulation learning experiences including standardized patients, simulation labs, and the computer-based software. Prior to the COVID-19 shutdown uses of simulation learning were described more to enhance the student learning experiences than to meet clinical competency standards and clinical hours. One program was reportedly using the SimuCase as an introduction to clinical practicum, but those students also experienced face to face clinical opportunities that addressed every clinical competency standard. Prior to the COVID-19 shutdown programs were implementing simulation learning based on the faculty interest and skill level with integrating it into the program. Those faculty that were using simulation learning experiences prior to COVID-19 may have had a slight advantage over the faculty that were not in that they were at least familiar with the technology. These are the same faculty that reported they were providing tutorials to those faculty suddenly thrown into the online learning platform with the campus shutdowns.

Simulation Use During the COVID-19 Shutdown

Integration of simulation learning experiences, specifically SimuCase, happened in a very short time period in response to the COVID-19 shutdown. Within days of campus shutdowns across the nation, students transitioned to remote learning. Graduate CSD:SLP programs lost access to their practicum sites, simulation labs and standardized patients, forcing faculty to rely on the computer-based simulations (Smalley, 2021). Faculty reported they were required to implement SimuCase without the opportunity to participate in faculty development that focused on best practice in order for the students to acquire the last hours and competency standards required to graduate. Faculty also had to rely on the limited pedagogy already developed as there was not time to wait for the development of new opportunities. As a result, faculty that were

experienced in implementing simulation learning experiences were left to guide others in the process. Clinard and Dudding (2019) stressed the importance of orienting students to technology by stating, "Training was necessary to orient users to the technology, communicate expectations, and ensure fidelity" (p. 139). The pivot to online learning due to the COVID-19 pandemic may not have incorporated sufficient training sessions to ensure the users, both faculty and students, were comfortable navigating the programs prior to initiating the simulation program.

Continuing education opportunities during the COVID-19 shutdown were reduced. Many face to face continuing education opportunities were cancelled or shifted to virtual in a very short period of time. Limited continuing education was actually created during the shutdown as nationally everyone transitioned to a virtual workforce and developing continuing education was not a priority. More resources are available now through ASHA and other online providers such as SpeechPathology.com including courses specifically related to SimuCase, simulation labs and virtual reality. While these resources address a wide range in fidelity, they do not necessarily address the specific learning outcomes associated with the experience or the skill level of the student.

Simulation Use After the COVID-19 Shutdown

All faculty interviewed reported a return to face to face clinical experiences beginning in the fall of 2020. At that point, faculty reported they either transitioned entirely back to the face to face clinic experiences to meet clinical competency standards or used a combination of face to face and simulation learning experiences. Of those that reported using a combination, some were only using the simulation learning experiences to cover when clients cancelled, when students presented with gaps in their clinical competency standards or clinical competency hours in order to graduate, or when to supplement clinical hours and competency standards with the decrease in

caseload. Many programs reported continued use or increased interest in implementing

simulation learning experiences in their content area coursework as a teaching technique. A

limited number of participants reported they had taken further professional development to

establish best practice. Another small group of participants were reported their departments were

exploring assessment options.

Summary of Research Question 3

The COVID-19 pandemic beginning in the spring of 2020 significantly affected how face

to face graduate CSD:SLP programs delivered their coursework and clinical experiences. The

positive outcome of this pandemic for these programs is that the faculty are now all familiar with

computer-based simulation learning experiences, including their shortcomings and their benefits.

Unfortunately, it would seem that the one computer-based program on the market has been

overly relied on, and is no longer seen as just one teaching technique as a simulation learning

experience but an expert in andragogy and a means to facilitate the graduation of CSD:SLP

graduate students. The COVID-19 pandemic has highlighted the dilemma of assessing CSD:SLP

graduate student learning in simulation learning experiences.

Implications for Practice

This study explored faculty experiences in the assessment of student learning in

simulation learning experiences, and the effects of COVID-19 on this process. The research

revealed several findings that necessitate further research and attention in relation to simulation

learning experiences in graduate CSD:SLP programs.

Recommendations for ASHA

While ASHA now allows for up to 75 hours of simulation learning to count towards the

required 375 clinical contact hours for graduation, faculty feel a need for guidance in the

implementation to align the standards with current practice. The majority of the faculty interviewed recognize significant value in simulation learning experiences particularly in the content area standards. However, disagreement continues in the replacement of face to face experiences for clinical competency standards. Participants repeatedly expressed concern in the assessment of clinical competency through simulation learning experiences, and the need for best practices anchored in research within the field.

Integration Into the Program

The first recommendation for ASHA is that they should consider identifying specific clinical competencies most appropriately met through simulation learning experiences. These competencies would include the more technical skills within a larger standard including scoring protocols and calculating standardized scores versus competencies that rely on clinical reasoning within the moment such as adjusting an assessment or intervention plan in response to the client to meet their clinical needs. Simulation learning experiences are not equal in fidelity or experience and assessment must reflect this.

Using computer-based simulation experiences, standardized patients, and digital mannequins, to address clinical competency standards in the area of assessment, the following standards might reflect technical skills:

V-B 1b. Collect case history information and integrate information from clients/patients, family, caregivers, teachers, and relevant others, including other professionals, V-B 1c. Select and administer appropriate evaluation procedures, such as behavioral observations, non-standardized and standardized tests, and instrumental procedures, V-B 1f. Complete administrative and reporting functions necessary to support evaluation, and V-B 1g. Refer clients/patients for appropriate services(ASHA, 2020).

The following clinical competency standards in assessment standards require the student to implement clinical judgement and reasoning in the moment, a more dynamic assessment, and should continue to require face to face experiences in order to demonstrate competency.

V-B 1c. Select and administer appropriate evaluation procedures, such as behavioral observations, non-standardized and standardized tests, and instrumental procedures, V-B 1d. Adapt evaluation procedures to meet the needs of individuals receiving services, and V-B 1e. Interpret, integrate, and synthesize all information to develop diagnoses and make appropriate recommendations for intervention (ASHA, 2020)

Using computer-based simulation experiences, standardized patients, and digital mannequins, to address clinical competency standards in the area of intervention, the following standards reflect more technical skills:

V-B 2a. Develop setting-appropriate intervention plans with measurable and achievable goals that meet clients'/patients' needs. Collaborate with clients/patients and relevant others in the planning process, V-B 2c. Select or develop and use appropriate materials and instrumentation for prevention and intervention, V-B 2f. f. Complete administrative and reporting functions necessary to support intervention, and V-B 2 g. Identify and refer clients/patients for services, as appropriate (ASHA 2020).

The following clinical competency standards require the student to implement their clinical reasoning skills and respond within the nuance of the moment.

V-B 2b. Implement intervention plans that involve clients/patients and relevant others in the intervention process, V-B 2d. Measure and evaluate clients'/patients' performance and progress, and V-B 2e. Modify intervention plans, strategies, materials, or instrumentation as appropriate to meet the needs of clients/patients" (ASHA, 2020).

These clinical standards should continue to require face to face experiences in order to assess clinical competency. It is reasonable to consider standards "V-B 2d. Measure and evaluate clients'/patients' performance and progress, and V-B 2e. Modify intervention plans, strategies, materials, or instrumentation as appropriate to meet the needs of clients/patients" when assessing learning in experiences with standardized patients. However, training of these standardized patients will require specific instruction to meet these standards.

Clinical competency standards in interaction and personal qualities require communication with the client and other professionals therefore, competency should not be met with current options for computer-based simulation learning experiences. These include:

V-B 3a. a. Communicate effectively, recognizing the needs, values, preferred mode of communication, and cultural/linguistic background of the individual(s) receiving services, family, caregivers, and relevant others, V-B 3b. Manage the care of individuals receiving services to ensure an interprofessional, team-based collaborative practice, and V-B 3c. Provide counseling regarding communication and swallowing disorders to clients/patients, family, caregivers, and relevant others (ASHA, 2020).

Rating Clinical Competency

Another recommendation for ASHA is that ideally, ASHA and faculty, with a vested interest in using simulation learning experiences, need to first define the expected minimal level of competency required to meet clinical competency standards, and then work to develop and validate a tool to assess this competency. By definition, clinical competence refers to one's capability to apply or use a set of related knowledge, skills, and abilities to successfully perform a given task (Merriam-Webster, 2014). Therefore, is competency an opportunity to work through a computer-based simulation experience answering 90% of the multiple-choice questions correct

and talking about clinical reasoning during the debrief process, or, is it the opportunity to demonstrate clinical reasoning with a face to face client. This clarification and a valid rating tool would improve faculty confidence in the assessment process and also improve inter-rater reliability within departments and between programs setting a unified standard of competency required for graduation.

A rating tools such as rubric that describes expected competency, once defined, would be very useful. Essentially, the rubric would describe the expected skills of the clinician performing that skill. Table 9 is an example rubric for assessing clinical competency with additional assignments related to clinical writing for clinical competency standards in intervention "V-B 2f Complete administrative and reporting functions necessary to support intervention" (ASHA, 2020). In addition to defining expected competency, it outlines the expected skills including documentation within the O and A sections of the SOAP note.

Table 9
Sample Rubric for Grading Competency for V-B 2f

	Meets Expectations	Does Not Meet Expectations
Reporting function - SOAP notes	Consistently: • Documents data & progress in the O section of the SOAP note • Synthesizes data in A section of the SOAP note	Consistently requires feedback to: • Document data and progress in the O section of the SOAP note • synthesize data in the A section of the SOAP note

In summary, programs would like further guidance from ASHA in identifying those clinical standards most appropriately met with simulation learning experiences in recognition that not all simulation experiences are created equal. In addition, by defining competency and

providing a tool for rating competency, ASHA would also be providing an expectation for an entry level skill set as well as a tool to increase inter-rater reliability.

Recommendations for Graduate CSD:SLP Programs

As most programs have been able to move past the campus closures and return to clinical practicum sites for clinical hours and to address clinical competency hours, many programs are continuing to use simulation learning experiences to supplement and replace previous traditional face to face clinical experiences.

Integration Into the Program

The first recommendation for graduate CSD:SLP programs is that they need to identify one faculty member with the responsibility of coordinating the integration of simulation learning experiences into the graduate curriculum with a focus in content area coursework as a teaching tool. This study re-iterated that simulation learning experiences are a valuable teaching tool, concerns exist primarily when using simulation learning experiences to replace face to face clinical requirement for clinical hours and to meet clinical competency standards. This program facilitator, working within the NLN Jeffries simulation, framework, would ensure the experiences align with learning goals assigned to the class, encourage professional development in implementing the experience to maximize student learning outcomes, and seek feedback from students about the integration of the experience in the construction of new knowledge (Jeffries, 2016). Without further guidance from ASHA, it is also recommended each program identify which clinical competency standards would be appropriately met with simulation learning experiences.

Another recommendation to encourage meaningful experiences in the construction on knowledge would be for those programs that have only used SimuCase to expand their

simulation options. Unfortunately, program options are severely limited as there is still only one computer-based simulation software program available for speech-language pathology. As one interviewee pointed out "competition is an opportunity." Prior to COVID many programs were using or considering standardized patients in simulation learning experiences. Again, as a teaching tool and not as an assessment tool, this option might address the concerns that students were isolated in their learning rather than learning in a social context, the students would be required to react to the nuances within the client interaction, and would be afforded opportunities to repeat and practice within an experience (Benner et al. 2010; Tam, 2000).

Rating Clinical Competency

A final recommendation is that programs need to define competency and develop a rating tool in the continued absence of either. If programs are going to continue to rely on simulation learning experiences to meet clinical competency standards and earn clinical contact hours, they need to first develop a consistent rating tool for all faculty to use and determine an acceptable definition of "competence." High expectations for the students is important within a well-designed constructive learning experience (Jeffries, 2016). Without a validated option available, a consistent tool within the program would at least set forth the expectations of the experience for the student and identify the desired level of competency by the program. The rubric example provided in Table 9 would provide a starting point for programs in the continued absence of a validated tool. Given the assumption that the simulations reflect real- life experiences, the department should select learning experiences that are most consistent with face to face options traditionally used to meet those clinical hours and competency standards. Most faculty interviewed reported they consistently assigned additional requirements and assignments, therefore, programs need to identify the minimum requirement for each competency standard.

The idea of modules is appealing as it would allow students to explore content with peers at their own rate, of which one component is a simulation learning experience, with assessment consisting of more than a score in the software (Bednar, 1992). A module in the area of hearing assessment might include: a SimuCase simulation learning experience related to hearing screening, demonstration of a hearing screening, demonstration of checking hearing aid batteries with the hearing aid in the ear and out of the ear and include replacement of batteries, demonstration of tympanometry, demonstration of test of otoacoustic emissions, written documentation of the results for each test with recommendations and education for classroom modifications of students with a hearing impairment. This combination of a simulation learning experience and face to face experiences would be used to meet clinical competency standards in the area of hearing including:

V-B 1a. Conduct screening and prevention procedures, including prevention activities.

V-B 1b. Collect case history information and integrate information from clients/patients, family, caregivers, teachers, and relevant others, including other professionals.

V-B 1c. Select and administer appropriate evaluation procedures, such as behavioral observations, non-standardized and standardized tests, and instrumental procedures.

V-B 1d. Adapt evaluation procedures to meet the needs of individuals receiving services.

V-B 1e. Interpret, integrate, and synthesize all information to develop diagnoses and make appropriate recommendations for intervention. V-B 1f. Complete administrative and reporting functions necessary to support evaluation. V-B 1g. Refer clients/patients for appropriate services (ASHA, 2020).

In summary, in the continued absence of guidance from ASHA, graduate programs in CSD:SLP need to establish their own definitions and competency rating tools. Many programs must also consider alternative options to the computer-based software currently available.

Recommendations for Faculty

Professional Development

Ultimately, faculty are responsible for preparing graduate student clinicians for clinical practice and simulation learning experiences are a valuable teaching tool in that process. The first recommendation for faculty is they must invest in quality professional development. Faculty must embrace the active learning technique and seek reputable professional development to ensure they are optimizing the experience within their content coursework. Professional development should focus on strategies and techniques that would maximize learning outcomes and remain student centered. Interview participants discussed the benefits of incorporating simulation learning experiences into coursework, including faculty without a clinical connection. The facilitator of the simulation learning experience should be active in the experience with the learner providing feedback, altering the experience if appropriate to meet the needs of each individual learning (Jeffries et al., 2015). Many faculty need andragogy in best practices related to this idea.

Integration Into the Program

Faculty need to match the experience with the associated learning outcomes; all simulation experiences are not equal. If the learning outcomes are associated with content area standards and addressed in coursework the simulation experience should look and feel very different than if the learning outcomes are a demonstration of clinical competency. While academic freedom allows faculty to determine how they teach content, including whether or not

they use simulation learning experiences as a tool, it does not discount the required content area knowledge and the clinical competency skills needed to graduate from the program. Students have to construct the knowledge before they can be expected to demonstrate skills. Again, professional development in the best practices in integrating simulation learning experiences into the program would be beneficial, even if the focus of the experience was constructing knowledge rather than the assessment of skill.

Rating Clinical Competency

Finally, without more guidance from ASHA and a validated rating tool, faculty need to participate within their departments in establishing a definition of acceptable minimum competency and developing a consistent rating tool. Again, without a validated option, consistency within the department is beneficial. All faculty should also consider participating in research to validate the tool they are using within their programs, and more importantly, research that compares clinical competency established though simulation learning experiences and face to face clinical experiences. This would identify specific standards most appropriately assessed through simulation learning experiences. Ultimately, the responsibility of establishing an acceptable baseline competency, a rating tool, and competent clinicians falls on the faculty.

Limitations

Participants in this study were faculty volunteers primarily from the Midwest and represented 7.5% of the 290 different accredited graduate degree programs in Communication Sciences and Disorders in the United States; while adequate for this study, this may represent a limitation. Participants represented face to face graduate faculty of CSD:SLP programs so findings do not necessarily transfer to the nineteen online graduate CSD:SLP programs in the

US. Regional variances may not be accounted for in the research data as only twelve of the US states were represented by the research participants.

Recommendations for Future Research

This research was designed to contribute to the very limited available research related to the assessment of student learning in simulation learning experiences in graduate CSD:SLP programs, and the effects of the COVID-19 pandemic on simulation learning in graduate CSD:SLP programs. As the world attempts to prepare for the next wave of COVID-19 variants, and establish a new normal, graduate faculty will continue to strive for excellence in the education and training of future speech language pathologists. In truth, a comparison of clinical competency from traditional clinical experiences and simulation learning experiences is needed.

Future research needs to focus on comparing competency in specific clinical skills to determine those competency skills that are best suited replaced by simulation learning experiences. Ideally, the outcome of this research would be the development of a "best practice" policy that outlines, based on research outcomes, specifically which clinical skills would be appropriately met with simulation learning experiences, and to how integrate simulation learning experiences into the curriculum in the content areas to maximize competent skill development.

In addition, future research needs to focus on establishing a valid assessment tool for assessing student learning from simulation learning experiences used to meet clinical competency standards. This validated tool would ensure graduates would be able to demonstrate a consistent minimum level of competency upon graduation. With the literature in nursing reporting a replacement of up to 50% of traditional face to face learning opportunities with simulation learning experiences without an impact on knowledge, competency, and critical thinking for nursing students (Hayden et al., 2014), and the challenges facing graduate CSD:SLP

programs today, it is reasonable to assume as an allied health field, that speech-language pathology will also continue to explore this trend.

Finally, additional research that compares program size, geographical region, and how the program integrates simulation learning experiences into the curriculum would provide a guideline for programs of expectations. For example, for programs with cohorts ranging in size of 17-20 graduate students admitted per year, with limited off campus placements, it is reasonable to expect students to supplement their clinical hours with 20 hours of simulation learning experiences in order to meet the required 400 clinical hours.

Summary

This qualitative study explored how faculty assess student learning in clinical simulation learning experiences used to demonstrate clinical competency in graduate CSD:SLP programs. The following themes were identified: overall lack of structure and consistency exists in the assessment of student learning in simulation learning experiences designed to meet clinical competency standards indicate faculty believe while simulation learning experiences are a useful learning tool, they would like more guidance and professional development in program integration and assessment of student progress to maximize student learning, and the COVID-19 shutdown had significant effects on the amount and type of simulation learning experiences offered in graduate CSD:SLP programs. The results from this study contribute to the existing knowledge reported by previous studies (Clinard & Dudding, 2019; Dudding & Nottingham, 2018; MacBean et al., 2013) and suggest further research is needed comparing clinical competency skills in traditional clinical practicum opportunities with those in simulation learning experiences to establish best practices in the implementation of simulation learning experiences in CSD:SLP graduate programs, and in developing a validated assessment tool for faculty to

use in the assessment of student learning in simulation learning experiences designed to meet

clinical competency standards.

References

Adamo, G. (2003). Simulated and standardized patients in OSCEs: Achievements and challenges 1992-2003. *Med Teach* 25(3), 262-270.

Alanazi, A. A., Nicholson, N., Atcherson, S. R., Franklin, C., Anders, M., Nagaraj, N. K., & Franklin, J., & Highley, P. (2016). Use of baby isao simulator and standardized parents in hearing screening and parent counseling education. American Journal of Audiology, 25, 211-223.

Alanazi, A. A., Nicholson, N., Atcherson, S. R., Franklin, C., Nagaraj, N. K., & Anders, M. & Smith-Olinde, L. (2017). Audiology students' perception of hybrid simulation experiences: Qualitative evaluation of debriefing sessions. Journal of Early Hearing Detection and Intervention, 2(1), 12-28.

Alinier, G., (2007). A typology of educationally focused medical simulation tools. *Medical Teacher,* 29(8), 243-250.

American Speech-Language-Hearing Association. (2007). *How ASHA and others are addressing the greatest challenges facing clinical educators in audiology and speech-language pathology today.* Retrieved from http://www.asha.org/Articles/ChallengesFacing-Clinical-Educators/

American Speech-Language Hearing Association. (2016). 2014 Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology. https://www.asha.org/Certification/2014-Speech-Language-Pathology-Certification-Standards/

American Speech-Language Hearing Association. (2020). 2020 Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology. https://www.asha.org/Certification/2020-SLP-Certification-Standards/

American Speech-Language-Hearing Association. (2020a). Certification standards for speech-language pathology frequently asked questions: Clinical simulation. ASHA. Retrieved from https://www.asha.org/Certification/Certification-Standards-forSLP--Clinical-Simulation/

American Speech-Language Hearing Association. (2020). *Member and affiliate profile year-end.* ASHA. Retrieved from https://www.asha.org/siteassets/surveys/2020-member-and-affiliate-profile.pdf.

American Speech-Language Hearing Association. (2022). *COVID-10: Guidance for graduate programs, students, and clinical fellows*. Retrieved April 3, 2022 from https://www.asha.org/certification/covid-19-guidance-from-cfcc/

Bednar, A. K., Cunningham, D., Duffy, T. M., & Perry, J. D. (1992). Theory into practice: How do we link? In G. J. Anglin (Ed.), Instructional technology: Fast, present, and future (pp. 88-101). Englewood, CO: Libraries Unlimited.

Benadom, E. M., & Potter, N. L. (2011). The use of simulation in training graduate students to perform transnasal endoscopy. *Dysphagia, 26,*352–360. doi: 10.1007/s00455-010-9316-y

Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). Educating nurses: A call for radical transformation. San Francisco, CA: Jossey-Bass

Botezatu, M., Hult, H., Tessema, M., & Fors, U. (2010). Virtual patient simulation: Knowledge gain or knowledge loss? *Medical Teacher,* 32: 562-568.

Bressmann, T., & Eriks-Brophy, A. (2012). Use of simulated patients for a student learning experience on managing difficult patient behavior in speech-language pathology contexts. *International Journal of Speech-Language Pathology,* 14(2), 165-173.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of

    learning. *Educational researcher*, *18*(1), 32-42.

Bruner, J. S. (1961). The act of discovery. Harvard Educational Review, 31(1), 21-32.

Burda, A. N., & Hageman, C. F. (2015). Problem-based learning in speech-language pathology:

    Format and feedback. *Contemporary Issues in Communication Science and Disorders,*

    42, 42-71.

Burns, C. L., (2015). Using debriefing and feedback in simulation to improve participant

    performance: an educator's perspective. *International Journal of Medical Education*, 6,

    118–120.

Bureau of Labor Statistics, U.S. Department of Labor. (2021). *Occupational outlook handbook*

    2021 edition, speech-language pathologists. Retrieved May 1, 2022 from

    https://www.bls.gov/ooh/healthcare/speech-language-pathologists.htm.

Carspecken, F. P. (1996). Critical Ethnography in Educational Research: A Theoretical and

    Practical Guide [Kindle Reader version]. New York, NY: Routledge. Retrieved from

    http://www.amazon.com/Critical-Ethnography-Educational-Research-

    Theoreticalebook/dp/B00FDR4P74/ref=tmm_kin_title_0?_encoding=UTF8&sr=8-

    1&qid=1419264649

Carter, M. D. (2019). The effects of computer-based simulations on speech-language pathology

    student performance. *Journal of Communication Disorders,* 77, 44–55. Retrieved from

    https://doi.org/10.1016/j.jcomdis.2018.12.006

Centers for Disease Control (CDC). (2020). COVID-19. Retrieved from:

    https://www.cdc.gov/coronavirus/2019-ncov/index.html.

Chown, G., Soley, T., Moczydlowski, S., Chimento, C., & Smoyer, A. (2016). A

    phenomenological study on the perception of occupational therapists practicing in the

    emergency department. *The Open Journal of Occupational Therapy,* 4(1). 1-15.

Chi, M., Feltovich, P., & Glaser, R. (1981). Categorization and representation of physics

    problems by experts and novices. *Cognitive Science,* 5, 121-152.

Cioffi, J. (2001). Clinical simulations: Development and validation. Nurse Education Today, 21,

    477-486. doi:10.1054/nedt.2001.0584

Clapper, T. (2010). Creating the safe learning environment. *Pailal Newsletter, (3). 1-6.*

Clinard, E. S., & Dudding, C. C. (2019). Integrating simulations into communication sciences

    and disorders clinical curriculum: Impact of student perceptions. *American journal of*

    Speech-Language Pathology, 28, 136-147.

Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts

    of reading, writing, and mathematics. In Resnick L. B. (Ed.), Knowing, learning, and

    instruction: essays in honor of Robert Glaser. Hillsdale, NJ: Lawrence Erlbaum

    Associates, Publishers, 453-494.

Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web- or

    Internet-based surveys. Educational and Psychological Measurement, 60(6), 821–836.

    https:// doi.org/10.1177/00131640021970934

Cook, D. A., Hatala, R., Brydges, R., Szostek, J. H., Wang, A. T., Erwin, P. J., & Hamstra, S. J.

    (2011). Technology-enhanced simulation for health progressions education: A systematic

    review and meta-analysis. Journal of the American Medical Association, 306(9), 978–

    988.

Cory, M. J., Colman, N., McCracken, C. E., & Hebbar, K. B. (2019). Rapid cycle deliberate practice versus reflective debriefing for pediatric septic shock training. *Pediatric Critical Care Medicine*, *20*(5), 481-489.

Council for Academic Programs in Communication Sciences and Disorders [CAPCSD]. (2019). Best Practices in Healthcare Simulations Communication Sciences and Disorders. ASHA. https://growthzonesitesprod.azureedge.net/wp-content/uploads/sites/1023/2020/03/Best-Practices-in-CSD.pdf

Council for Clinical Certification in Audiology and Speech-Language Pathology [CFCC]. (2020). 2020 Standards for the Certificate of Clinical Competence in Speech-Language Pathology. ASHA. https://www.asha.org/certification/2020-SLP-Certification-Standards.

Council for Clinical Certification in Audiology and Speech-Language Pathology [CFCC]. (2016). 2014 Standards for the Certificate of Clinical Competence in Speech-Language Pathology. ASHA. https://www.asha.org/certification/2014-SLP-Certification-Standards.

Cowperthwait, A. (2020, May). NLN Jeffries simulation framework for simulated participant methodology. Clinical Simulation in Nursing, 42(C), 12-21. https://doi.org/10.1016/j.ecns.2019.12.009

Creswell, J. W. (2007). Qualitative inquiry and research design: Choosing among five approaches (2nd ed.). Sage Publications, Inc

Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing Among the Five Approaches.* Thousand Oaks, CA: SAGE Publications, Inc. (pp. 77-83)

Dewey, J. (1991). *How we think.* Buffalo, NY: Prometheus Books.

Driscoll, & Marcy. (2000). Psychology of Learning for Instruction. Boston: Allyn& Bacon.

Dudding, C., Brown, D., Estis, J., Szymanski, C., Zraick, R., & Morner, E. (2019). *Best Practices in healthcare Simulations: Communication Sciences and Disorders A Task Force of the Council of Academic Programs in Communication Sciences and Disorders. CAPCSD*

Dudding, C., & Ingram, S. (2018). Health care simulation in clinical education. *ASHA Journal Academy.* Retrieved from https://academy.pubs.asha.org/2018/08/health-care-simulation-in-clinical-education/

Dudding, C., & Nottingham, E. (2018). A national survey of simulation use in university programs in communication sciences and disorders. *American Journal of speech-Language Pathology,* 27, 71-81.

Edfind. (2021). Retrieved from: https://www.asha.org/edfind/

Edwards H, Franke M, McGuiness, B. (2000) Using simulated patients to teach clinical reasoning. In Higgs J, Jones M, eds. Clinical reasoning in the health professions. Oxford: ButterworthHeinemann; 1995: pp 69–278.

Ensslen, A. (2013). Experiences of speech-language pathology graduate students: An exploratory phenomenological study [Doctoral dissertation, University of Kentucky]. https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1004&context=edl_etds

Estis, J. M., Rudd, A. B., Pruitt, B., & Wright, T. (2015). Interprofessional simulation-based education enhances student knowledge of health professional roles and care of patients with tracheostomies and Passy-Muir® valves. *Journal of Nursing Education and Practice, 5*(6), 123–128. doi:10.5430/jnep.v5n6p123

Finan, E., Bismilla, Z., Campbell, C., LeBlanc, V., Jefferies, A., & Whyte, H. E. (2012). Improved procedural performance following a simulation training session may not be transferable to the clinical environment. *Journal of Perinatology*, 32(7), 539-544. doi:10.1038/jp.2011.141

Fisher, D., & King, L. (2013). An integrative literature review on preparing nursing students through simulation to recognize and respond to the deteriorating patient. Journal of Advanced Nursing, 69(11), 2375-2388. doi:10.1111/jan.12174

Foronda, C., Liu, S., & Bauman, E. B. (2013). Evaluation of simulation in undergraduate nurse education: An integrative review. Clinical Simulation in Nursing, 9, 409–416.from https://www.asha.org/articles/challenges-facing-clinical-educators/.

Gaba, D. M. (2004). The future vision of simulation in health care. *Quality and Safety in Health Care,* 13(1), 2-10.

Grillo, R. U., & Thomas, C. M. (2016). Using high-fidelity simulation to facilitate graduate student clinical learning. *Perspectives,* 10(1). 4-15.

Gross, R. (2012). Psychology: The Science of Mind and Behaviour (6), ISBN 978-1-4441-6436-7.

Gutmann, M. (2016). Use of simulation with standardized patients in AAC Pre-Service Training: Potentiating practical learning. *Perspectives,* (1). 41-47.

Hampl, J. S., Herbold, N.H., Schneider, M.A. & Sheeley, A.E. (1999). Using standardized patients to train and evaluate dietetics students. Journal of the American Dietetics Association 99: 1094– 1097.

Hardenberg, J., Rana, I., & Tori, K. (2020, November). Evaluating impact of repeated exposure to high fidelity simulation: Skills acquisition and stress levels in postgraduate critical care nursing students. *Clinical Simulation in Nursing*, 48(C), 96-102. https://doi.org/10.1016/j.ecns.2020.06.002.

Harden, R. M., Stevenson, M., Downie, W.W. & Wilson, G.M. (1975). Assessment of clinical competence using objective structured clinical examinations. *British Medical Journal* 1: 447–451

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.

Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBSN National Simulation Study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2), S4–S41.

Haydon, R., Donnelly. M., Schwartz, R., Strodel, W., & Jones, R. (1994). Use of standardized patients to identity deficits in student performance and curriculum effectiveness. *The American Journal of Surgery,* 168(1). 57-65.

Hewat, S., Penman, A., Davidson, B., Baldac, S., Howells, S., Walters, J.,… & Hill, A. E. (2020). A framework to support the development of quality simulation-based learning programmes in speech–language pathology. International Journal of Language & Communication Disorders, 55(2), 287–300. Retrieved from https://doi.org/10.1111/1460-6984.12515

Hill, A. E., Davidson, B. J., & Theodoros, D. G. (2010). A review of standardized patients in clinical education: Implications for speech-language pathology programs. *International Journal of Speech-Language Pathology* 12(3), 259-270.

Hill, A. E., Davidson, B. J., & Theodoros, D. G. (2013). The performance of standardized patients in portraying clinical scenarios in speech-language therapy. *International Journal of Language and Communication Disorders, 48,* 613–624. doi: 10.1111/1460-6984.12034

Husserl, E. (1970). The crisis of European sciences and transcendental phenomenology: An introduction to a pure phenomenology [Transl. F. Kirsten, & M. Nijoff]. Chicago, IL: Northwestern University Press.

Issenberg, S. and Scalese, R. J. (2007). Best evidence on high fidelity simulation: what clinical teachers need to know. Clinical Teacher, 4(2), 73–77.

Jansen, L. (2015). The benefits of simulation-based education. *Perspectives on Issues in Higher Education,* (18). 32-42.

Jarvis, P. (2004). Adult education and lifelong learning (3rd ed.). London: Routledge Falmer.

Jeffries, P. R., & Rizzolo, M.A. (2006). Design and implementing models for the innovative use of simulation to teach nursing care of ill adults and children: A national, multi-site, multi-method study. Retrieved March 18, 2021 from http://www.nln.org/research/LaerdalReport.pdf

Jeffries, P. R., & Rogers, B., & Adamson, K. (2015). NLN Jeffries simulation theory: Brief narrative description. *Nursing education perspectives.* September/October, 292-294.

Jeffries, P. R. (Ed.). (2016, 2021). The NLN Jeffries simulation theory. Philadelphia, PA: Wolters Kluwer.

Keegan L. C., Losardo A., McCullough K. C. (2017). Problem-based learning and civic engagement in undergraduate education. *Communication Disorders Quarterly*, 39(1), 312-319. doi:10.1177/1525740116685184

Kolb, D. A. (1984). Experiential Learning: Experience as the Source of Learning and Development. Prentice-Hall Englewood Cliffs, NJ

King, S., Wether, K., Ruelling, A., & Kim, E. (2020) Taking the classroom to camp: The

facilitators' role in creating an impactful interprofessional experiential learning

opportunity/ *Journal of Interprofessional Care, 34(6), 791-798.*

Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation.

Cambridge, UK: Cambridge University Press.

Levett-Jones, T., McCoy, M., Lapkin, S., Noble, D., Hoffman, K., Dempsey, J., Arthur, C., &

Roche, J. (2011). The development and psychometric testing of the satisfaction with

simulation experience scale. *Nurse Education Today*, (31): 705-710.

Lestander, O., Lehto, N., & Engstrom, A. (2016). Nursing students' perceptions of learning after

high fidelity simulation: Effects of a three-step post-simulation reflection model. *Nursing*

Education Today, 40. 219-224.

Lindeman, E. (1961). The meaning of life. Harvest House: Montreal.

Lindsey, A. A. & Stritter, F. (1990). Use of an OSCE in education for radiation therapists.

Radiologic Technology 62(1): 36–41.

Lioce, L., Reed, C. C., Lemon, D., King, M. A., Martinez, P. A., Franklin, A. E., Boese, T.,

Decker, S., Sando, C. R., Gloe, D., Meakim, C., & Borum, J. C. (2013). Standards of

Best Practice: Simulation Standard III: Participant Objectives. Clinical Simulation in

Nursing, 9(6S), S15-S18. http://dx.doi.org/10.1016/j.ecns.2013.04.005

Logan, H. L., Muller, P.J., Edwards, Y. & Jakobsen, J.R. (1999). Using standardized patients to

assess presentation of a dental treatment plan. Journal of Dental Education 63: 729–737.

Lopreiato, J. O. (2016). Healthcare Simulation Dictionary (AHRQ Publication No. 16(17)-0043).

Rockville, MD: Agency for Healthcare Research and Quality.

MacBean, N., Theodoros, D., Davidson, B., & Hill, A. E. (2013). Simulated learning

environments in speech-language pathology: An australian response. International

Journal of Speech-Language Pathology, 15(3), 345–357. Retrieved from
https://doi.org/10.3109/17549507.2013.779024

Madhavanprabhakaran, G., Al-Khasawneh, E., & Wittmann, L. (2015). Perceived benefits of
pre-clinical simulation-based training on clinical learning outcomes among Omani
undergraduate nursing students. *Sultan Qaboos University,* 15(1).

Mann, K. V. (2011). Theoretical perspectives in medical education: Past experience and future
possibilities. Medical Education, 45(1), 60–68

Maxwell, J. (2013). Qualitative Research Design: An Interactive Approach. Los Angeles, CA:
SAGE

McCabe, P., Purcell, A., Baker, E., Madill, C., & Trembath, D. (2009). Case-based learning: One
route to evidence-based practice. Evidence-Based Communication Assessment and
Intervention, 3(4), 208–219

McGaghie, W. C., & Harris, I. B. (2018). Learning theory foundations of simulation-based
mastery learning. Simulations in Healthcare, 13(3S Suppl 1),S15-S20.
doi10.1097/SIH.0000000000000279

McGaghie, W. C., Issenberg, S. B., Barsuk, J. H., & Wayne, D. B. (2014). A critical review of
simulation-based mastery learning with translational outcomes. *Medical Education,*
48(4), 375-385. doi:10.1111/medu.12391

McGraw, R. C., & O'Conner, H. M. (1999). Standardized patients in the early acquisition of
clinical skills. Medical Education, 33; 572-578.

Merriam, S. B., & Bierema, L. L. (2014). Adult Learning: Linking Theory and Practice. San
Francisco, CA: Jossey-Bass.

Merriam-Webster's Collegiate Dictionary (2014). Retrieved from:

https://www.merriamwebster.com

Monaghan, M., Allen, R.M., Heard, J. K., Cantrell, M., Vanderbush, R. & Randall, J. (1998). Standardized patient use outside of academic medicine: Opportunities for collaboration between medicine and pharmacy. Teaching and Learning in Medicine 10: 178–182.

Motola, I., Devine, L., Chung, H., Sullivan, J., & Issenberg, S. (2013). Simulation in healthcare education: A best evidence practical guide. Medical Teacher, 35(10), E1511–E1530.

Murphy, S., Hartigan, I., Walshe, N., Flynn, A. V., & O'Brien, S. (2011). Merging problem-based learning and simulation as an innovative pedagogy in nurse education. Clinical Simulation in Nursing, 7(4), e141-e148. doi:10.1016/j.ecns.2010.01.003.

Naeve-Velguth, S., Christensen, S.A., & Woods, S. (2013). Simulated patients in audiology education: Student reports. *Journal of the American Academy of Audiology*, 24(8), 740-746.

Nicaise, M., Barnes, D. (1996). The union of technology, constructivism, and teacher education. *The Journal of Teacher Education,* 44(3), . *205-212.*

Newby, T. J., Stepich, D. A., Lehman, J. D., and Russell, J. D. (1996). Instructional technology for teaching and learning: designing instruction, integrating computers, and using media, NJ: Prentice Hall.

Nilson, L. B. (2016). Teaching at its Best. Jossey-Bass: San Francisco

Norton, B. J. & Strube, M.J. (1998). The influence of experience with a set of simulated patients on diagnosis of simulated patients not previously diagnosed. *Physical Therapy* 78(4), 375–385.

Penman, A., Hill, A., Hewat, S., & Scarinci, N. (2021). Does a simulation-based learning programme assist with the development of speech-language pathology students' clinical skills in stuttering management? *International Journal of Language and communication Disorders,* 56, 1334-1346.

Phillips, D. C. (1995). The good, the bad, and the ugly: The many faces of constructivism. *Educational Researcher,* 24 (7), 5-12.

Potter, N. L., & Allen, M. (2013). Clinical swallow exam for dysphagia: A speech pathology and nursing simulation experience. Clinical Simulation in Nursing, 9(10), e461-e464. http://doi.org/10.1016/j. ecns.2012.08.001

Putter-Katz, H., Gvion, A., Wechsler-Kashi, D., A Adi-Bed Daid, L., Yaacobi, H., Feldman, I., Shalomson, O., & and Ziv, A. (2017) Students evaluation of simulation-based training in a communication sciences and disorders program. *Journal of allied Health,* 47(2). 113-120.

Ressmann, T. B., & Eriks-Brophy, A. (2012). Use of simulated patients for a student learning experience on managing difficult patient behaviour in speech-language pathology contexts. *International Journal of Speech-Language Pathology*, *14*(2), 165–173.

Roehl, A., Reddy & Shannon, J. (2013). The flipped classroom: An opportunity to engage millennial students through active learning strategies. *Journal of Family and Consumer Sciences*, *105(2),* 44-49.

Rosen, K., McBride, J., & Drake, R. (2009). The use of simulation in medical education to enhance students' understanding of basic sciences. Med Teach, 31(9), 842-846.

Rosier, J., Slade, C., Perkins. T., Baldwin, C., Coiacetto, E., Budge, T., & Harwood, A. (2016). The benefits of embedding experiential learning in the education of planners. Planning, Practice & Research, 31(5). 486-499.

Rounds-Riley, J. (1998). Use of objective structured clinical examinations (OSCEs) in training and evaluating community health aides. International Journal of Circumpolar Health 57: 103–105

Rutherford-Hemming, T. (2012). Simulation methodology in nursing education and adult learning theory. Adult Learning, 23, 129–137. Retrieved from https://doi.org/10.1177/1045159512452848

Sadler, D. R. (1998). Formative assessment: Revisiting the territory. Assessment in Education, 5:77-84.

Sahni, R., Menegazzi, J. J. & Mosesso, V.N., (1997). Paramedic evaluation of clinical indicators of cervical spinal injury. *Prehospital Emergency Care,* 1: 16–18.

Saldana, J. (2016). The coding manual for qualitative researchers. SAGE: Los Angeles.

Sandelowski, M. (2008). Research question. In L.M. Given (Ed,). *The Sage cyclopedia of qualitative research methods*, (2), 786-787. Thousand Oaks, CA: Sage.

Secheresse, T., Lima, L., & Pansu, P. (2021) Focusing on explicit debriefing for novice learners in healthcare simulations: A randomized prospective study. Nurse Education in Practice, 51, 1-6.

Seidman, I. (2006). Interviewing as qualitative research: A guide for researchers in education and social sciences (3rd Ed.). Teachers College Press. New York, NY.

Shaw, J., & Connelly, D. (2013). Phenomenology and physiotherapy: meaning in research and practice, *Physical Therapy Reviews*, 17:6, 398-408.

Simon, R., Raemer, D.B., & Rudolph, J.W. (2011). Debriefing assessment for simulation in

    Healthcare. *Center for Medical Simulation*, https://harvardmedsim.org/wp-

    content/uploads/2017/01/DASH.RV.ShortScoresheet.2011.

    pdf.

SimuCase. (2017). SimuCase [Computer software]. Retrieved from http://simucase.com/

Singh, H., Kalani, M., Acosta-Torres, S., Ahmadieh, T., Loya, J., & Ganju, A. (2013). History of

    simulation in medicine: From Resusci Annie to Ann Myers Medical Center. Neurosurgery,

    73, s9–s14.

Smalley, A. (2021). Higher education responses to coronavirus (COVID-19). National

    Conference of State Legislatures, retrieved April 3, 2022 from

    https://www.ncsl.org/research/education/higher-education-responses-to-coronavirus-

    covid-19.aspx

Smedley, A. (2008). Becoming and being a preceptor: A phenomenological study. *The Journal*

    of Continuing Education in Nursing, 39(4). 185-191.

Straus, A. (1987). *Qualitative analysis for social scientists.* Cambridge, England: Cambridge

    University Press.

Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin

    & Y. S. Lincoln (Eds.), Strategies of qualitative inquiry (pp. 158–183). SAGE.

Stroud, S. D., Smith, C.A., Edlund, B.J. & Erkel, E.A. (1999). Evaluating clinical decision-

    making skills of nurse practitioner students. Clinical Excellence of Nurse Practitioners 3:

    230–237.

Stawicki, S. P., Jeanmonod, R., Miller, A. C., Paladino, L., Gaieski, D. F., Yaffee, A. Q., De

    Wulf, A., Grover, J., Papadimos, T. J., Bloem, C., Galwankar, S. C., Chauhan, V.,

Firstenberg, M. S., Di Somma, S., Jeanmonod, D., Garg, S. M., Tucci, V., Anderson, H. L., Fatimah, L., . . . Garg, M. (2020). The 2019–2020 novel coronavirus (severe acute respiratory syndrome coronavirus 2) pandemic: A joint American college of academic international medicine-world academic council of emergency medicine multidisciplinary COVID-19 working group consensus paper. Journal of Global Infectious Diseases, 12(2), 47–93. https://doi.org/10.4103/ jgid.jgid_86_20.

Syder, D. (1996). The use of simulated clients to develop the clinical skills of speech and language therapy students. European Journal of Disorders of Communication, 31, 181–192.

Tam, M. (2000). Constructivism, Instructional Design, and Technology: Implications for Transforming Distance Learning. *Educational Technology and Society*, 3 (2).

Traina, A. D., Gour, N.M. & Traina, T.M. (1994). The use of standardized patients in chiropractic education. Journal of Manipulative Physiological Therapy 17: 489–494.

Vagle, M. D. (2014). Crafting phenomenological research. Routledge.

Van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. Albany, NY: SUNY Press.

Van Manen, M. (2017). But is it phenomenology? *Qualitative Health Research*, 27(6), 775-779.

Vu, N. V. & Barrows, H. (1994). Use of standardized patients in clinical assessments: Recent developments and measurement findings. Educational Research 23: 23–20.

Vygotsky, L. S. (1986). Language and thought, Cambridge, Mass.: MIT Press.

Ward, E. C., Hill, A. E., Nund, R. L., Rumbach, A. F., Walker-Smith, K., Wright, S. E., & Dodrill, P. (2015). Developing clinical skills in paediatric dysphagia management using

human patient simulation (HPS). International Journal of Speech-Language Pathology, 17(3),230–240.

Watson, K., Wright, A., Morris, N., McMeeken, J., Rivett, D., Blackstock, F., . . . Jull, G. (2012). Can simulation replace part of clinical time? Two parallel randomised controlled trials. *Medical Education,* 46(7), 657–667. https://doi.org/10.1111/ j.1365-2923.2012.04295.x

Watts, O., Ivankova, N., & Moss, J. (2017). Faculty evaluation of undergraduate nursing simulation: A grounded theory model. *Clinical simulation in Nursing,* 13(12). 616-623.

Williams, B., & Dousek, S. (2012). The satisfaction with simulation experience scale (SSES): A validation study. *Journal of Nursing Education and Practice,* 2(3), 74-80.

World Health Organization. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19. Available online: **https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020** (accessed on 25 June 2020).

Zraick, R. (2002). The use of standardized patients in speech-language pathology. Perspectives on Issues in Higher Education, 5, 14-16. http://doi.org/10.1044/ihe5.1.14

Zraick, R. I. (2012). A review of the use of standardized patients in speech pathology clinical education. *International Journal of Therapy and Rehabilitation,19*(2), 112–118.

Zraick, R., Allen, R., & Johnson, S. (2003). The use of standardized patients to teach and test interpersonal and communication skills with students in speech-language pathology. Advances in Health Sciences Education, 8, 237-248. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/14574048

Appendix A

1. **Standard V-A The applicant must have demonstrated skills in oral and written or other forms of communication sufficient for entry into professional practice.**

2. **Standard V-B The applicant must have completed a program of study that included experiences sufficient in breadth and depth to achieve the following skills outcomes:**

1. Evaluation

   a. Conduct screening and prevention procedures, including prevention activities.

   b. Collect case history information and integrate information from clients/patients, family, caregivers, teachers, and relevant others, including other professionals.

   c. Select and administer appropriate evaluation procedures, such as behavioral observations, non-standardized and standardized tests, and instrumental procedures.

   d. Adapt evaluation procedures to meet the needs of individuals receiving services.

   e. Interpret, integrate, and synthesize all information to develop diagnoses and make appropriate recommendations for intervention.

   f. Complete administrative and reporting functions necessary to support evaluation.

   g. Refer clients/patients for appropriate services.

2. Intervention

   a. Develop setting-appropriate intervention plans with measurable and achievable goals that meet clients'/patients' needs. Collaborate with clients/patients and relevant others in the planning process.

b. Implement intervention plans that involve clients/patients and relevant others in the intervention process.

c. Select or develop and use appropriate materials and instrumentation for prevention and intervention.

d. Measure and evaluate clients'/patients' performance and progress.

e. Modify intervention plans, strategies, materials, or instrumentation as appropriate to meet the needs of clients/patients.

f. Complete administrative and reporting functions necessary to support intervention.

g. Identify and refer clients/patients for services, as appropriate.

3. Interaction and Personal Qualities

a. Communicate effectively, recognizing the needs, values, preferred mode of communication, and cultural/linguistic background of the individual(s) receiving services, family, caregivers, and relevant others.

b. Manage the care of individuals receiving services to ensure an interprofessional, team-based collaborative practice.

c. Provide counseling regarding communication and swallowing disorders to clients/patients, family, caregivers, and relevant others.

d. Adhere to the ASHA Code of Ethics, and behave professionally. (ASHA, 2016)

Appendix B

Hello,

I am an assistant professor at Minot State University in the Department of Communication
Sciences and Disorders. I teach speech-language pathology courses in the graduate program, and
I am currently pursuing a doctorate degree in Teaching and Learning: Higher Education at the
University of North Dakota.

For my dissertation, I am researching the phenomenon of assessment of student learning in
simulation learning experiences. My goal is to submit the research for publication following
completion of the degree.

I am hoping to recruit faculty that would be interested in participating in an interview regarding
their experiences assessing student learning in simulation learning experiences. Participants
should be using simulation learning as graduate faculty in an accredited Communication
Sciences & Disorders: Speech-Language Pathology program. I foresee collecting data as early
Spring 2021 with continued work in Summer 2021. If you are interested in participating in the
research, please feel free to contact me at robyn.walker@ndus.edu or 701-858-3181.

Thank you for your consideration

Appendix C

Research Question	Categories	Themes	Sub Themes	Assertions
Q1. How do faculty experience the assessment of learning in simulation learning opportunities?	training in-services Content Class Clinical Methods Practicum hours & competencies scheduling	Professional Development Integration Into the Program	Content Coursework Clinical Coursework Clinical Experiences Management of Requirements	Q1. The integration of simulation learning experiences into graduate CSD:SLP programs provides a useful learning tool, but the programs need more guidance, professional development, and structure to maximize student learning outcomes.
	Complaints Positive FB Complaints Positive FB	Faculty Perspectives Student Perspectives		
Q2. In what ways do faculty assess student learning in simulation learning opportunities specifically designed to meet clinical competency standards?	Ax of learning limited Supplemental Activities Extended assignments	Additional Required Assignments		Q2. Assessment of student learning in simulation learning opportunities in graduate CSD:SLP programs is unstructured and lacks consistency.
	Ax Concerns Competence Rubrics Scales P/F	Concerns Assessing Student Learning Rating Clinical Competency		
Q3. What, if any, effect has the COVID 19 pandemic had on the use of				Q3. The COVID-19 shutdown had significant effects on the amount and type of simulation

simulation learning opportunities and assessment of student learning used to address clinical competency standards?				learning experiences offered in graduate CSD:SLP programs.
	Before	Sim use prior to COVID		
	COVID	Sim use during COVID shutdown		
	Now	Sim use post COVID shutdown		

Appendix D

SimuCase Contingency 2020 Rubric   Student: _____

Case Set:

Carlson: Kara Lynn, Duane CELF—Screener, Duane CELF—Full, LeBron, Annie, Antoine, Hadley Assessment, Hadley Intervention

Criterion	Reflective—Mastering Skill--High Pass	Acceptable—Developing Skill—Pass	Rejected—Emerging Skill—No Pass	Total for Row
Completeness of Cases	Demonstrates thorough understanding, analysis, evaluation, recommendations. Scored 90% or above on all cases in set AND cases are completed within 1 hour of debriefing. **60 POINTS**	Demonstrates good analysis and understanding in most cases. All cases at 90%. Not all cases are completed within 1 hour of debriefing **50 POINTS**	Incomplete understanding of cases. Superficial analysis. Did not complete all cases at 90% or more. ((Allowed to participate in debriefing, but must repeat any missed cases and debriefing)) **15 POINTS**	Click or tap here to enter text.
Debriefing Participation	Frequent self-initiated involvement in debriefing with thoughtful comments. **20 POINTS**	Usually participates when prompted by leader with specific comments. **15 POINTS**	Requires frequent support or urging to add verbal comments in debriefing session. **10 POINTS**	Click or tap here to enter text.
Supplemental Activities (if applies)	Presents detailed, realistic and appropriate treatment plans/referrals/further evaluation suggestion supported by diagnosis and recommendations. **(Possible 20 points)**	Presents realistic plan but without specifics for cases or situations. **(Possible 15 points)**	Treatment plans/referrals/further evaluation is realistic but not supported by statement of diagnosis and recommendations (doesn't apply to this case). **(Possible 10 points)**	Click or tap here to enter text.
Professional Demeanor	Approaches assignments with mature attitude and work ethic. Asks appropriate questions. Respectful of supervisor and others in email and interactions. **20 POINTS**	Participates in cases and debriefings, but may do so with occasional negative attitude, asking for special consideration, may voice occasional complaints about case/assignments, etc.	Disrespectful of supervisors or others in email or other interactions, frequently asks for special consideration or complains about assignment to supervisor or classmates.	Click or tap here to enter text.

		15 POINTS	10 POINTS	
		Total Points for Case Set: **Check one:** ☐Pass (80-120 points) ☐ Fail (<80 points)		Click or tap here to enter text.

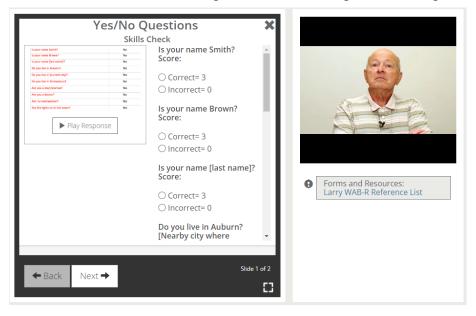Comments:Click or tap here to enter text.

Appendix E

1. Students and faculty select the case from a brief case description.

Larry- WAB-R Part 1 Part-Task Trainer (SLP)

Larry is a 76-year-old who is referred for an evaluation. You are assigned to complete the Western Aphasia Battery-Revised (WAB-R) with Larry and report your findings. This simulation is presented in partnership with NCS Pearson Inc. To learn more about Pearson's Training Partnership Program, click here.

Recommended time for completion is 90 minutes.

Download Prebrief Material and Curriculum Guide

Don- Intervention (SLP)

Don is a 59-year-old with Broca's aphasia. Don attends therapy sessions regularly to help him communicate with people that are important to him as well as improve his naming and reading skills. Don's long-term goals are to hold a job and to increase awareness so others know more about aphasia. You are assigned to complete Don's intervention session today.

Recommended time for completion is 120 minutes.

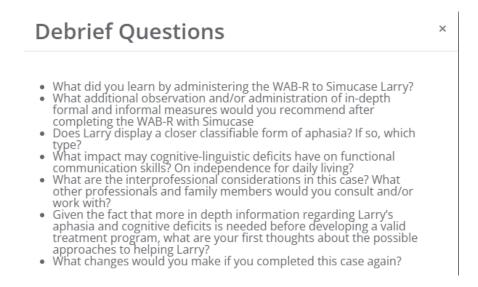Download Prebrief Material and Curriculum Guide

2. Students progress through the simulation beginning in the learning mode through the debrief mode.

Restart ✕

Learning Mode

Provides specific feedback regarding performance throughout the case to facilitate learning.

Restart in Learning Mode

Assessment Mode

Designed to assess your overall performance on the case. There is no specific feedback regarding your actions in the case.

Restart in Assessment Mode

Debrief Mode

Provides access to all correct answers, answer paths, and choice combinations for the entire case.

Start in Debrief Mode

Close

3. Within the simulation students select predetermined multiple-choice responses.

4. The following is an example of suggested debrief questions for faculty.

5. An example evaluation form that dictates the number of minutes/hours student can count towards their clinical hours.

simucase SLP Standards EVALUATION FORM

Simulation Name: Larry WAB-R Part 1 Part-Task Trainer (SLP)

Referral:

Larry is a 76-year-old who is referred for an evaluation. You are assigned to complete the Western Aphasia Battery-Revised (WAB-R) with Larry and report your findings.

Collaborators/IPE:

Supervising SLP

Time: 90 minutes

Age:

- ☐ Birth-3 (0-2)
- ☐ Child (3-12)
- ☐ Adolescent (13-17)
- ☐ Adult (18-64)
- ☑ Geriatric (65+)

6. An example of the Assessment standards that SimuCase states are met upon completion of this simulation learning experience.

Standard V-B: The applicant completed a program of study that included experiences sufficient in breadth and depth to achieve the following skills outcomes:

1. Evaluation

☑	a. Conduct screening and prevention procedures, including prevention activities.
☑	b. Collect case history information and integrate information from clients/patients, family, caregivers, teachers, and relevant others, including other professionals.
☑	c. Select and administer appropriate evaluation procedures, such as behavioral observations, nonstandardized and standardized tests, and instrumental procedures.
☑	d. Adapt evaluation procedures to meet the needs of individuals receiving services.
☑	e. Interpret, integrate, and synthesize all information to develop diagnoses and make appropriate recommendations for intervention.
☐	f. Complete administrative and reporting functions necessary to support evaluation.
☑	g. Refer clients/patients for appropriate services.