

# **Simulation Scaffolding in Occupational Therapy Curriculum: Development & Implementation**

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*The increasing complexity of the United States healthcare system and resulting demands on healthcare providers has diminished the role of practicing clinicians in the education of occupational therapy students. Students are expected to be ready to help treat complex patients, collaborate effectively as members of the healthcare team, and demonstrate entry level skills by the time they begin clinical fieldwork. These expectations have placed an increased demand on educational institutions to meet objectives previously facilitated by clinical educators. An example of how these objectives have been successfully scaffolded in healthcare curricula using high fidelity simulated learning experiences is presented.*

*Keywords: simulation, educational scaffolding, healthcare simulation, communication, occupational therapy*

## **INTRODUCTION**

There has been a decrease in the amount of time that practicing healthcare workers have available to train future clinicians. Some factors contributing to the reduction in available fieldwork sites include increased productivity requirements for therapists, decreased length of stay for patients in inpatient settings, and a reduction in the number of therapy visits allowed by insurance companies. The burden of teaching skills previously learned as part of clinical fieldwork has fallen on institutions of higher learning. Students must now learn complex communication and patient care skills during the didactic phase of their education to better prepare for clinical fieldwork.

Occupational therapists (OT) work with individuals of all ages and ability levels including critically ill clients who are mobilized in their fragile state to prevent the complications associated with immobility. In addition to clinical skills, OTs work with individuals across the lifespan and their caregivers to provide

education and training and as important members of the collaborative healthcare team. High-fidelity simulated learning (SIM) using standardized patients (SPs) provides students with the opportunity to practice the psychomotor and communication skills required to be competent OTs in complex environments without risking harm to clients.

SIM is a powerful tool that allows faculty to bridge the gap between the didactic portion of healthcare education and clinical fieldwork. Effectively scaffolding these learning experiences throughout healthcare curricula increases the depth and realism of student learning by allowing students to participate in increasingly complex skills. Literature to support the use of simulation in occupational therapy and simulation scaffolding in curricula will be shared. The process of creating resources to support faculty delivery of the experience and the creation of rich media to support realistic SIM experiences will be presented. Additionally, incorporation of scaffolded SIM using learning outcomes and accreditation standards will be described. Finally, the process for faculty training and implications for future educational practice is discussed.

## **LITERATURE REVIEW**

### **Simulation Use in Occupational Therapy**

Simulation is used in OT education to enhance student learning outcomes, prepare students for clinical practice, engage students in clinical fieldwork experiences, enhance fidelity using SPs, facilitate interprofessional education experiences, and create immersive virtual learning opportunities. According to Bethea et al. (2014), educational leadership and faculty expressed that realistic simulation scenarios improved outcomes that addressed clinical reasoning, creating a care plan, communication, and therapeutic use of self. In a mixed method study, Gibbs et al. (2017) showed that OT students had improved perceptions of confidence after experiencing an acute care high-fidelity simulation. Simulation has been used to improve outcomes in a variety of OT practice areas such as acute care, pediatrics, and the intensive care unit (Shea, 2015). In a mixed methods study with nursing, OT, and physical therapy students, Zamjahn et al. (2018) demonstrated that an interprofessional simulation improved student comprehension of procedures performed by other healthcare professions and teams.

Simulation experiences have also been used in OT for clinical fieldwork experiences. Bennett et al. (2017) reported that 20% of Australian OT fieldwork experiences were achieved using high-fidelity simulation and SPs. In a retrospective study by Ozelie et al. (2016), traditional and simulation-based fieldwork experiences were compared using the following criteria: fundamentals of practice, basic tenets, evaluations and screening, intervention, management of OT services, communication, and professional behaviors. The findings showed no differences between the groups which indicated that simulation may be an effective method for students to achieve OT clinical fieldwork experience. In a quantitative study by Walls et al. (2019), students expressed that simulations were more effective when SPs were used to improve the fidelity of the experience. Fu et al. (2017) reinforced this by reporting that OT students preferred an assessment method that used simulation using SPs over a written exam. Students expressed that the use of simulation improved their communication and clinical decision-making skills.

### **Scaffolding of Simulation in the Curriculum**

Scaffolding is a well-established educational strategy involving the provision of sufficient support at the appropriate level to promote learning. When skills are first introduced, more support is provided. Then, as the learner advances, support is gradually withdrawn to provide more of a challenge (Higginson & Williams, 2018). Intentionally scaffolded simulation-based learning provides an opportunity for scaffolded learning experiences that allow students at various learning levels to engage in the safe practice of clinical skills in a realistic learning environment at the appropriate skill level. In a meta-analysis, Chernikova et al. (2020) found that scaffolded simulation experiences were successful in facilitating the learning of complex skills at a variety of knowledge development phases. Typically, students in higher education programs are enrolled with the ultimate goal of preparing for their future profession. OT students often enter their programs as novice learners with limited clinical exposure and must demonstrate competency in a diverse

range of complex skills by the end of their educational journey. Scaffolded simulation experiences can aid in engaging students at the appropriate level of complexity. For example, complex concepts presented to novice learners may result in confusion. Alternatively, simplifying concepts for novice learners with specific, targeted learning outcomes and presenting complex problem-solving opportunities to more advanced learners may lead to an ideal learning environment for students of all levels to practice their skills (Chernikova et al., 2020).

Simulation in health care can be used to foster problem solving, safety awareness, communication skills, acknowledgement of scope of practice, and cultural awareness, among other key clinical skills. The key competency for this scaffolded simulation experience was communication. Communication is an extremely important aspect of healthcare education. Ineffective communication and poor teamwork impacts healthcare professionals' abilities to meet the needs of the complex patients currently served in our healthcare systems (Zook et al., 2018). Simulation is known to enhance communication, collaboration, psychomotor skills, and interprofessional practice (Chown & Horn, 2017; Gellis et al., 2018; Harris et al., 2016; Robertson & Bandali, 2008). More details will be provided later in this article focused on simulation development and the scaffolding of communication skills and expectations for learners.

## **DEVELOPMENT OF A SCAFFOLDED SIMULATION SERIES**

Based on the current literature supporting the effectiveness of scaffolded simulation in healthcare education, a scaffolded simulation experience was developed and integrated into occupational therapy curricula at a health sciences university at each of its five campuses across the United States. This simulation experience spanned four terms of a Doctor of Occupational Therapy program and addressed programmatic and course learning objectives tied to communication, documentation, and critical thinking skills. While the curriculum utilized case-based learning, it was noted that the students were not provided the opportunity to follow one patient through the continuum of care scaffolded through subsequent classes. Rather than teaching course content in silos, the decision was made to create an opportunity for the students to follow one patient with a chronic condition throughout her rehabilitation journey. Four different simulation experiences were developed based on the one patient. Learning objectives focused on communication and critical thinking were intentionally scaffolded to foster student learning at the appropriate level. For example, term one students are asked to introduce themselves to the client and describe the role of occupational therapy. In contrast, term three and four students are asked to engage with the client, family members, and interprofessional team members.

The following sections aim to highlight aspects of scaffolded simulation development that supported successful implementation and student outcomes. This includes the use of a media team to develop video pre-briefs and SP training videos, utilization of electronic medical records to aid in student learning, and the development of key supporting documents including SP scripts and a critical action checklist for each simulation.

### **Media Development and Technology**

Millennials and individuals from Generation X are accustomed to pervasive technology and prefer experiential and interactive learning opportunities (Phillips & Trainor, 2014). Both high quality synchronous and asynchronous video simulations accompanied by debriefing have been shown to enhance communication among healthcare professionals during unexpected situations (Vortman, 2020). Additionally, Rose (2009) found that faculty videos may be beneficial in both asynchronous and face to face learning environments. Therefore, the scaffolded simulation series was created to be versatile and implemented in a virtual or traditional setting. A media team was utilized to create a pre-brief video for students and a training video for SPs. High quality media enhances student engagement and provides an opportunity to connect with the client and the situation on a deeper level. The pre-brief video sets the tone of the educational experience by providing background information on the client, setting expectations for student performance, and reminding students that simulation is a safe space for learning. The SP training video offered a recorded example of the simulation scenario for the SP. In addition to media development,

a simulated electronic medical record system was incorporated into the second, third, and fourth term simulation to provide students with experience navigating and documenting in the patient's electronic medical chart.

### **Development of Supporting Materials**

#### *Debrief Guide for Faculty*

Research shows that healthcare educators face challenges integrating simulation at multiple levels throughout the curriculum (Herrington & Schneidereith, 2017). Therefore, every effort was made to make the process of simulation execution simple and straight-forward for faculty who would be facilitating the simulation experiences. A step-by-step implementation and debrief guide was created for faculty based on the Promoting Excellence and Reflective Learning in Simulation (PEARLS) framework with emphasis on learner self-assessment, facilitation of group discussion, and providing direct feedback to learners (Eppich & Cheng, 2015). This guide was distributed to all faculty involved with the simulation.

#### *Critical Action Checklist*

Additionally, a critical action checklist was developed for each SIM. The primary goal of the critical action checklist is two-fold. First, to provide clear and concise expectations for students to guide their participation in the SIM. Secondly, to be used by faculty as a checklist and guide for feedback to support the learning process. One checklist was created for each simulation experience based on applicable course learning objectives, programmatic learning objectives, and the objectives of the overall SIM. Critical actions were progressively scaffolded in subsequent SIMs. For example, in term one students are asked to introduce themselves and describe the role of occupational therapy to the client. The critical action checklist provides guidance to evaluate the effectiveness and clarity of verbal and non-verbal communication. In term two, students are asked to introduce themselves, describe occupational therapy, and collect subjective information from the client including interests, roles, and personal goals. The checklists describe what the student is supposed to do in the simulation scenario and provide details regarding quality expectations for a successful interaction.

## **PROGRESSION OF A SCAFFOLDED CASE ACROSS A CURRICULUM**

### **Overview of the Scaffolded Experience**

In this section, details of how SIM are scaffolded through each of the four trimesters of the didactic portion of a Doctor of Occupational Therapy program are provided. These scaffolded SIM experiences occur at a graduate health sciences university on each of its five campuses across the country. Bloom's taxonomy was used to create experiences that required the students to become increasingly immersed in their role as an OT and as a member of the healthcare team. Through these encompassing experiences, students grew in proficiency as OTs with focus on their communication and documentation skills.

In the first trimester of their graduate education, OT students are given the opportunity to interact with a client, Etta Rose, who has a chronic condition via a SIM. These novice students are asked to explain the role of occupational therapy when working with individuals who have chronic obstructive pulmonary disease (COPD) to Ms. Rose. During each trimester of the students' didactic education, they encounter Ms. Rose in a different treatment setting as the client experiences a deterioration of her condition. The students are expected to perform at higher levels of Bloom's taxonomy as they get to know their client over time and take on a greater role in the continuum of care. Each of these four SIMs is scaffolded using programmatic and regional accreditation guidelines. The scaffold case culminates in the final trimester of the didactic portion of the curriculum with the student creating a discharge plan for Ms. Rose in collaboration with the healthcare team. In the following paragraphs, we will take a closer look at each of the SIM experiences and examine how the students' learning deepens over the course of four trimesters.

### **The Inaugural Simulation Encounter**

Students meet Ms. Rose in an introduction to OT class during the first trimester of their didactic education. During the inaugural experience, students are asked to apply foundational knowledge that they have learned regarding OT practice and therapeutic use of self to a new patient encounter. The students meet Ms. Rose, who had been hospitalized for the first time for COPD. The patient was discharged from the hospital with a referral for outpatient OT services. Until her recent hospitalization, Ms. Rose worked full time and is anxious about how this new condition will affect her life. The client is confused about why she needs OT.

In the simulated outpatient clinic, the students must introduce themselves, explain the role of OT, clarify what they will be working on, obtain informed consent to evaluate the client, and answer any questions that the client has regarding OT. In this SIM students are working on verbal and non-verbal communication at an introductory level to help meet OT programmatic accreditation standards. Students are expected to be respectful, collaborative, and professional during their interaction with the client. This encounter takes about 10 minutes. It is preceded by a pre-brief and followed by debriefing for a total time of approximately 40 minutes.

### **Progression to a Needs Assessment**

The next SIM in the series occurs during the second trimester of the students' didactic education in the subsequent foundational OT class. In this scenario, it has been three months since the student encountered Ms. Rose in the outpatient clinic. The patient has been readmitted to the acute care hospital for an exacerbation of her condition and has been referred to OT services. The students are given a chart to review, including Ms. Rose's previous history, an OT referral, and the client's current vital signs.

The students must introduce themselves to the client, explain the role of OT in the acute care setting, and gather information for an occupational profile using professional and collaborative communication and therapeutic use of self. Then, the students must analyze the information from the chart and the client interview to compile an occupational profile, list of the client's strengths and limitations, and priorities for therapy in the client's chart. In this section, students progress from applying to analyzing client information and continue to work on professional collaborative verbal and non-verbal communication with the client. After this SIM, the learner is asked to add written communication through documentation in the client's medical record addressing programmatic documentation standards assessed by a rubric.

### **Continuation to Treatment**

The next encounter occurs during the students' third trimester. Ms. Rose returned to the acute care hospital for a COPD exacerbation and was discharged with home health occupational therapy. In this scenario, an OT named Emily performed the home health evaluation. The students will take over care as Ms. Rose's home health occupational therapist. The evaluating therapist left a voicemail for the students at the home health office expressing concerns about the client's mental health. Students are shown a professional video of the evaluating OT leaving a message regarding her encounter with Ms. Rose. In the video, Emily reports that she has noticed that Ms. Rose is not performing self-care or engaging in activities she enjoys. The evaluating OT is concerned that the client appeared lethargic and depressed. Emily recommends that the student OT who is taking over care perform a depression screen during the next visit. The evaluating OT also informs the students that the client's son lives nearby and would like to be present during the client's next visit.

The objectives for this experience are for the students to introduce themselves and describe the plan for the session to the patient and a family member, complete and interpret a depression screen, and implement one activity that addresses physical and psychosocial concerns. The students must utilize collaborative communication and therapeutic use of self throughout the experience. The students must then evaluate the information from the client's chart, the information from the evaluating OT, the discussion with the client and her son, results of the depression screen, and the client's performance on the intervention to develop a plan of care.

In this SIM, the students progress from analyzing client information to considering information from a variety of sources and performing an evaluation on the client. Students must collaborate with both the client and her son, increasing the complexity of the communication requirements for the task. Throughout the experience, the students must continue to demonstrate professional and collaborative verbal and nonverbal communication skills. The expectation for documentation also increases as the student is expected to fill out an OT evaluation in the client's record.

### **Advancement to Interprofessional Collaboration**

The final experience occurs in the fourth and final term of the students' didactic education just prior to their clinical fieldwork experience. In this scenario, Ms. Rose is a 69 y/o female who was diagnosed with COPD nine months ago. The students are reminded of the client's course of treatment through a review of her previous medical records and the use of high-quality video that helps them connect to Ms. Rose and her story.

Ms. Rose was admitted to the acute care hospital for another COPD exacerbation due to medication noncompliance that sent her back to the acute care hospital. She suffered from a hypoxic episode that resulted in some mild cognitive deficits. Ms. Rose was then discharged to a rehabilitation hospital where the student oversees her occupational therapy care. The students are shown a high-quality video of the overview of her treatment in the rehabilitative hospital. The students watch a video account of the client sharing her view of the current situation. Ms. Rose wants to return home and feels like her cognitive deficits are a result of the unfamiliar environment of the hospital. Ms. Rose thinks that most of her problems will resolve when she returns home. The students then view a video of Ms. Rose's son sharing concerns about his mother's decline in both physical and cognitive function and her lack of insight into her current condition. Ms. Rose's son is concerned about his mother being alone during the day, but is unable to be with her due to his work. The son shares that he has no one else who can be with Ms. Rose during the day and that he does not know what to do about her care moving forward.

For this experience, the students must create an OT discharge plan, taking into consideration the client's current function, prior level of function, past medical history, financial resources, family support, and the client and her son's preferences for safe discharge. To meet the objectives for this SIM, the students must consult with their fieldwork educator regarding plans for discharge for Ms. Rose, participate in a physician lead case conference scenario with the healthcare team regarding their discharge recommendations, clearly articulate discharge recommendations to the healthcare team, defend and provide a rationale for their recommendations, and modify their recommendations in collaboration with the healthcare team. The students must use collaborative and respectful communication throughout the experience. The learner must document the modified discharge plan that has been created with the healthcare team in the client's chart.

In this SIM, students must move from evaluating the client to creating a discharge plan in collaboration with the healthcare team. Students must consider information from a variety of sources and resolve conflicting information to create a plan of care. Communication expectations continue to grow as students are required to collaborate with members of the healthcare team who do not share their perspective to formulate the most appropriate plan for the client.

As students move through each SIM, they are expected to perform as an OT at higher levels of Bloom's taxonomy. The expectations for communication are greater with each encounter. Over the course of four trimesters, the student grows from struggling to define the role of an OT, to acting as a valuable member of the healthcare team with unique insights. These scaffolded learning experiences provide an opportunity for the students to get to know a client over time through a variety of settings. Students' understanding of the role of OTs in the care of a client and in the continuum of care deepens through active participation in these SIMs throughout their didactic education.

### **FACULTY TRAINING AND DISSEMINATION**

Targeted faculty training and comprehensive dissemination of content were two key factors leading to a successful implementation of the scaffolded simulation experience. Extensive planning, time, and

attention was dedicated to providing faculty training, as well as multiple multimodal supports to ensure the simulation not only met the needs of the institution's curriculum, but was easy for faculty to implement and integrate into the designated course shells.

Faculty were provided with two unique training opportunities to familiarize themselves with the concept of the threaded simulation as well as the supporting materials and unique way the threaded SIM was embedded into the specified courses. The entire simulation development team provided initial presentation of the topic during a trimester retreat. All members of the occupational therapy faculty across five campuses were presented with supporting materials via a virtual, live presentation given by the members of the threaded simulation development team. In addition to providing the faculty with the pedagogical background and curriculum mapping of the program, supporting materials were presented and reviewed in depth for each of the four developed simulations.

The second prong of faculty dissemination was targeted course team-specific training. Representatives from the simulation development team presented the course-specific materials to each teaching team in a smaller format that allowed for intimate exploration of developed materials and an open forum for questions and answers. This was also a time for faculty to provide feedback to the simulation development team to facilitate a seamless integration into the program's curriculum sequence.

From the original simulation development team, faculty champions were identified and designated for each one of the individual courses. These champions were members of both the development and teaching teams for the designated courses. After disseminating information to the course teams, these faculty were available to all members of the course teams to provide support for all aspects of simulation, from scheduling the simulation sessions, to accessing materials, to explaining how to incorporate the simulation experience into the classroom milieu. Faculty champions were available to problem solve issues as they arose as well as to provide adaptations to the simulations for both in-person and virtual experiences.

In addition to curricular and pedagogical support, logistical and technical supports were equally important to ensuring the success of the threaded simulation sequence. Each campus's training simulation support staff were essential for ensuring faculty could easily access materials and seamlessly integrate threaded simulation into their classroom. Simulation center support staff assisted with ensuring that faculty had access to all of the supporting materials, as well as located, trained, and scheduled appropriate SPs. Support staff also took the lead in reaching out to the lead faculty of the designated courses to ensure they reserved simulation suite space each term for a specified date and time. This ensured that the simulations were conducted across the four course span in order to maintain the intent of the simulation sequence and to provide an excellent student learning experience. Proactive scheduling also ensured a successful pilot project would occur on all five campuses. Involvement of the simulation center support staff also helped facilitate uniform data collection for further study of the efficacy of the threaded simulated learning experience.

## **IMPLICATIONS FOR FUTURE PRACTICE/EDUCATION**

As with any pilot project, there were several lessons learned that will be implemented in the future for further successful integration of threaded simulations into the curriculum. One of the areas that will require further focus continues to be the area of faculty development and training. Although explicit care was taken to provide multiple arenas for training, resources, and questions, faculty voiced a need to have a greater influence into the development of the simulation scenarios and where they were placed into the curriculum threads. In the future, involvement of an entire course teaching team from the time of development through implementation would be made a priority in order to ensure each faculty's unique experiences and viewpoints were considered. Involvement of an entire faculty throughout development may slow the development process down but it would also provide an essential check and balance in terms of how the curriculum changes to meet students' unique learning needs, as well as accrediting agencies' evolving educational requirements.

Other future consideration needs to be given to the ever-changing post-secondary learning environment. While this simulation series was created to be embedded in a hybrid program, many of the targeted classes

had weekly in-person learning laboratories in which the simulation would be utilized in a face-to-face manner. Due to the COVID-19 crisis, 95% of all learning transitioned to an online platform. While many of the materials were easily adapted to be utilized online, future considerations need to be made when developing a simulation series in regard to how it can be deployed both online and in-person for all scenarios. Additional consideration needs to be given to virtual debriefing. To increase engagement, faculty feedback dictated that smaller debrief groups in a virtual format better facilitate group process and situational learning. Faculty will also need to be provided with more training on how to deploy the simulations in an online format as well as how to facilitate a virtual debrief session.

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