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Occupational Therapy Students' Perceived Value of Simulated Learning Experiences

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AIMS: The purpose of this quantitative pilot study was to examine occupational therapy students' perceived value of a simulated learning experience and to identify various components of simulation that were valued. **METHODS**: Students enrolled in an occupational therapy evaluation and intervention for the adult population course participated in a simulated experience using a standardized patient as part of course expectations. Participants completed an 18-item questionnaire following the simulation. **RESULTS**: Students perceived simulated learning as a positive experience. The components identified as positive included feedback from the instructor, professional attire, consistent role of the standardized patient, and group debriefing after the simulation. **CONCLUSION**: Occupational therapy students perceived interaction with standardized patients as valuable. Further research is needed to analyze effectiveness of simulation in preparing occupational therapy and other healthcare students for actual clinical experience. *J Allied Health* 2019; 48(1):e21–e25

THE NEED FOR collective understanding of educational methods used in the academic environment is apparent across all disciplines. A variety of fields have used simulation for training students. The medical community has long used simulation, ranging from models and manikins to high-fidelity human patient simulators.[1] In the field of occupational therapy education, a national survey indicated 71% of programs used simulated learning.[2] Multiple types of simulation were used in training of students, and each simulation experience offered various components that influenced learning opportunities.[2] Components of the simulated experience may include interaction between participant and simulated environment, realistic level of simulation, and follow-up debriefing of students. However, there remains a need for additional evidence of perceived value of the various components of simulation experiences. Movement from content-centered teaching toward student-centered teaching has occurred in the last few decades.[3] A desire to understand how students learn and the value students place on the learning process is of interest to the student-centered educator.

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Literature Review

In a systematic mapping review of 129 articles of educational approaches and teaching methods in occupational therapy education, experiential and active learning were the most cited approaches.[4] Types of simulation found in the literature by Bethea, Castillo, and Harvison[2] included standardized patient simulation, human patient simulation, computerized software simulation, virtual immersive-reality simulation, and simulated training equipment. Other components of simulated learning experience examined in literature included use of video for self-reflection, impression of professional attire, professional communication, debriefing, and patient safety.[5–9] As there are various forms of simulated learning being used in occupational therapy programs, it is vital to understand theoretical support and pedagogical benefits that this style of teaching provides.

Various learning theories can be supported by simulation. Cardoza[10] suggested activities such as simulation are action-oriented learning and promote the brain's biochemical energy; with this is an interconnection with emerging neurobiology theory. Conceptual system theories assume that with each new encounter, a student recalls memories and interprets its relation to the new situation, and it is with this situational analysis that the student's cognitive actions may stimulate brain chemistry.[10] Rutherford-Hemming[11] reported use of simulation has ties to adult learning theories of cognitive learning, social learning, and constructivist learning. The relationship of simulation to cognitive learning is reflected by information developed based on previous knowledge. Social learning is tied to simulation, as faculty can role model skills, and students have the opportunity to practice the skills in a life-like environment. And finally, simulation is linked to construc-

tivist learning in which developing knowledge is used in a current or future situation.[11] Larsen, Butler, Lawson, and Roediger[12] found repeated retrieval practice with standardized patients and written testing improved long-term retention. Svinicki and McKeachie[3] made the point that education, in general, is often criticized for students' inability to transfer learned information to real-world experiences, and therefore supports use of experiential learning. Simulation is a type of experiential learning and is used to promote the transfer of knowledge to real-world experiences.

The benefits of experiential learning are improved transfer of knowledge, realistic environment to practice real skills and activities, and opportunity to reflect on the experience.[3]

According to Bethea et al.,[2] benefits of implementing simulation were to increase critical reasoning, problem-solving, decision-making, and communication, while challenges were time, cost, and scheduling. The goal was to produce an experience for students which required clinical judgment in real time based on observed actions and behaviors of the simulated patient.

For students to feel immersed in simulation, the environment should be as realistic as possible. Requiring students to dress in professional attire can assist in developing a simulated environment. Bradley et al.[5] suggested wearing a uniform and identification as a way of promoting professional awareness during simulated learning. The standardized patient must be well prepared in order to create a more realistic environment. Faculty should consider pros and cons when deciding to use an unfamiliar individual or a faculty member as the patient. Bradley et al.[5] opted to use familiar individuals when developing their simulation in order to limit unpredictable behavior of the patient; however, they did acknowledge they would consider this possibility for future simulations.

Debriefing following simulated learning experiences offers value to learning. The primary goal of debriefing is to allow students to self-reflect and to evaluate their thought processes in order to improve their judgment and decision-making in future scenarios and with actual patients.[7] Fey, Scrandis, Daniels, and Haut[7] identified themes during debriefing based on comments made by students. The themes centered around an environment which was facilitated by a skillful leader creating a safe conversation, allowing students to expand reasoning, prompting feedback from a variety of sources, and developing group cohesiveness.

The intent of this study was to answer the following questions concerning occupational therapy students' perceived value of a simulated experience:

1. What components of a simulated learning experience are valued by occupational therapy students?
2. Was simulated learning perceived as an effective method to develop therapeutic skills in occupational therapy students?
3. Did occupational therapy students perceive they were prepared for the simulated learning experience?
4. How did students' perceived preparedness relate to their feelings of timing of the simulation in the curriculum?
5. How did students' perceived effectiveness of feedback relate to their feelings of the effectiveness of developing therapeutic skills?

Methods

Master's of Science in Occupational Therapy (MSOT) students from Abilene Christian University (ACU) were surveyed following a simulation activity to assess their perceived value of simulated learning. Teaching methods for patient interaction and treatment implementation in the curriculum include use of case-based studies, skill practice with classmates and faculty, analysis of videos of students completing assessments, observation of therapist treatment sessions, discussion groups, readings, and lecture. SurveyMonkey was used to conduct the questionnaire. This provided a secure website allowing anonymous responses. The Institutional Review Board (#19494) of Texas Woman's University approved this study, and an authorization agreement was signed by Abilene Christian University.

Participants and Procedures

Participants of the survey were 25 MSOT students from ACU during their second of five semesters in the occupational therapy program. All participants were enrolled in a course focused on occupational therapy evaluation and intervention for the adult population. The MSOT students were invited to join students from other healthcare programs for simulation experiences conducted at a local health science center in Abilene, Texas. Students were dressed in professional attire of a monogrammed polo and name badge.

MSOT students participated in 1 of the 2 simulation days conducted at the health science center. The first simulation day involved multiple scenarios for standardized patients. These included general orthopedic, neurological, and medical conditions. The second simulation day involved all standardized patients portraying an individual that suffered a stroke. The simulated scenario lasted approximately 80 min total, with two scenarios running both in the morning and afternoon. Time allotted for the MSOT students varied between 15–20 min, depending on the flow of other student interactions with the standardized patient. In both days, MSOT students were instructed to complete an interview and brief assessment. If time allowed, they were instructed to provide intervention, such as basic activities of daily living training, transfer training, or patient education. Prior to encountering standardized patients, MSOT students were to review the medical record and seek any needed clarification from other disciplines represented.

TABLE 1. Simulation Questionnaire

1.	Practicing with simulated patients is an effective method for developing communication skills.
2.	Practicing with simulated patients is an effective method for developing interviewing skills.
3.	Practicing new skills with simulated patients is anxiety provoking.
4.	Practicing communication skills with simulated patients is a more effective method than practicing with classmates.
5.	Wearing of professional attire promotes feelings of self-confidence concerning my performance with simulated patients.
6.	I feel this simulated experience should take place earlier in the curriculum.
7.	Receiving feedback about my simulated patient interaction from an instructor was an important component of the learning process.
8.	My attire did not influence my feelings of competency.
9.	Feedback about my interactions with simulated patients was not provided in a timely manner.
10.	I did not feel I possessed the adequate knowledge to perform well in the simulated experience.
11.	I feel this simulated experience should take place later in the curriculum.
12.	When practicing with simulated patients, instructor feedback provided "in the moment" was more useful than feedback provided "after the fact."
13.	Practicing intervention skills with simulated patients is a more effective method than practicing with classmates.
14.	Practicing assessment skills with simulated patients is a more effective method than practicing with classmates.
15.	I would not recommend the use of simulated patients in other courses.
16.	The simulated patient did not remain in their role throughout the duration of the interaction.
17.	The group debriefing session was instrumental in my learning.
18.	The overall experience of working with simulated patients is beneficial.

Response choices were "strongly disagree," "disagree," "agree," and "strongly agree." Some questions were adapted with permission from Giesbrecht et al.[13]

Capacity restrictions of the simulation lab determined the number of students participating in each simulation. Students were assigned a simulation lab based on availability in the schedule. The simulation experiences were part of the scheduled educational requirements for the enrolled course, while the study was to survey MSOT students who agreed to complete the questionnaire.

MSOT students were invited to complete the questionnaire with the understanding participation was voluntary and anonymous. During the development of the questionnaire, confidentiality was strengthened by applying the setting options allowing all respondents to be anonymous. Participants were sent an email providing a link to access the questionnaire. Email communication for the invitation was not sent by the course professor to limit the possibility of coercion. Questionnaire responses were accepted for 2 days following the simulation in order to accurately assess perception.

Instrumentation

An 18-item questionnaire was utilized to evaluate the MSOT students' perceived value of simulation as a learning tool. Survey question development was based on multiple readings from the investigator and advisor. Some questions were adapted by permission from a study conducted by Giesbrecht, Wener, and Pereira[13] which examined physical and occupational therapy students' perception of a standardized patient experience for learning and evaluation. Questions centered around the themes of: 1) effectiveness of working with a standardized patient in developing therapeutic skills, 2) influences that professional attire have in the simulation experience, 3) timing of the simulated experience in the curriculum, 4) effectiveness of feedback of the simulated experience, 5) feelings of preparedness for the simulated experience, and 6) overall views of the simulated experience. A 4-point Likert scale ranging from 1 = "strongly to 4 = "strongly agree" was used. Table 1 shows the questionnaire items used.

Results

All data analyses were completed using Statistical Package for the Social Sciences (SPSS) ver. 23 (IBM SPSS, Armonk, NY). Positive perceived values were defined as "strongly agree" (4) or "agree" (3) responses from the survey, and negative perceived values were defined as "disagree" (2) or "strongly disagree" (1) responses. Some questions were reframed and asked to assess the validity of the responses. The reframed questions were appropriately coded to reflect a positive or negative value prior to running analyses. Descriptive statistics were completed to report the students' responses. Spearman's rho correlation statistical analysis was used to analyze correlation of the variables to the overall student perception of simulation.

Responses to the survey from both simulation labs were combined. There were 26 responses submitted, with 1 disqualified. The mean response time to complete the survey was 6.02 minutes, and the disqualified response was 87.85 minutes. A total of 25 responses were analyzed. The use of the survey measured the students' perceived value of the experience. Table 2 summarizes the students' perception of the various components of the simulated learning experience.

Components with a mean of 3.0 or higher were determined to be viewed as beneficial by the students, whereas components with a mean of <3.0 were determined to be viewed as not beneficial by the students. The components of the simulated learning experience identified as beneficial by the students were: feedback from their instructor, ability of the standardized patient to remain in the patient role, professional attire promoting feelings of self-confidence, and group debriefing after the simulation. Students responded that the simulated learning was

TABLE 2. Students' Perception of Simulated Learning

Areas of Simulated Learning	Mean*	SD
Developing communication skills	3.96	0.200
Developing interview skills	3.92	0.277
Anxiety provoking	3.04	0.539
Practicing communication skills is more effective than with classmates	3.56	0.583
Professional attire promotes self-confidence	3.32	0.557
Should take place earlier in curriculum	2.44	0.768
Feedback was important part of learning process	3.60	0.500
Attire affected feeling of competency	2.96	0.676
Feedback was in a timely manner	3.44	0.651
Possessed adequate knowledge to perform well	3.04	0.676
Should take place later in curriculum	2.04	0.611
Feedback in the moment was more useful than after the moment	2.64	0.638
Practicing intervention skills is more effective than with classmates	3.48	0.586
Practicing assessment skills is more effective than with classmates	3.48	0.586
Would recommend use of simulated patient in other courses	3.84	0.374
Simulated patient remained in role	3.44	0.712
Group debriefing is instrumental for learning	3.44	0.583
Overall experience with simulated patients is beneficial	3.96	0.200

* Mean is based on 4-point Likert scale of 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree.

helpful to develop communication and interview skills. They also indicated communication, intervention, and assessment were more valued when engaged with simulated patients than when practicing with a classmate. Student response demonstrated support for use of simulated patients in other courses. There was a highly valued perception of the overall simulated experience, with a mean of 3.96 on the 4-point Likert scale.

While students perceived simulated learning as anxiety provoking, they felt they possessed adequate knowledge to perform well during the simulation. Timing of the simulated learning in the curriculum was addressed with questions of whether the simulation should take place earlier or later in the curriculum. Both survey items had means below the 3.0 range, suggesting the timing of this simulated experience was optimal. Using a Spearman's rho, there was a moderate correlation between the relationship of the feedback being an important aspect of the learning and the perception of development of assessment skills, $r = 0.54$, $p = 0.005$. However, this correlation was not seen when relating feedback to perceived skill development of patient communication, interview, and intervention. Spearman's rho demonstrated a weak to moderate correlation between the overall benefit of the simulated experience and the recommendation of the use of simulated patients in other courses, $r = 0.468$, $p = 0.018$.

The research questions posed for this study were answered by specific survey questions. The following paragraphs discuss the results of each research question.

What components of the simulated learning experience are valued by occupational therapy students? Feedback was reported as an important part of the learning process and was provided in a timely manner. Feedback provided during the simulation was not viewed as more beneficial than feedback provided after the simulation. However, students valued the time of debriefing that was provided at the end of the simulation. The ability of the standardized patient to remain in the patient role was deemed beneficial by students, and wearing professional attire was perceived to support the feeling of self-confidence.

Is simulated learning perceived as an effective method to develop therapeutic skills in occupational therapy students? All of the therapeutic skills addressed in the questionnaire were seen as positive. These included communication skills, interview skills, intervention skills, and assessment skills.

Did the students perceive they were prepared for the simulated learning experience? Responses indicated students felt they possessed the adequate knowledge to perform well in the simulated experience.

How does the occupational therapy students' perceived preparedness relate to their feelings of the timing of the simulation in the curriculum? While students reported feelings of preparedness and appropriate timing of the simulation, a correlation was not seen when a Spearman's rho was calculated by SPSS.

How does the students' perceived effectiveness of feedback relate to their feelings of the effectiveness of developing therapeutic skills? There was a moderate correlation between perceived effectiveness of feedback and developing the therapeutic skill of assessment when practicing with a simulated patient over a classmate.

Discussion

The intent of this study was to examine students' perception of the simulated learning experience and determine which components of this experience were viewed as important. Simulation is used in higher education for not only occupational therapy students but other health-related fields. Educators working from a student-centered model seek ways to understand student learning. Therefore, this study attempted to provide the perception students had in their learning environment. This knowledge can be used by educators in the creation of assignments and assessments. For example, assigning students the Canadian Occupational Performance Measure to administer to an individual would assist in developing communication and interview skills. Also, since feedback is a valued aspect of the simulation process; scheduling for lab practicums should allow for a time of feedback of the student's performance. These teaching approaches support student-centered learning.

In this study, results found that students perceived simulation as beneficial overall. Students need the

opportunity to practice therapeutic skills before entering the clinical setting. Skill development for communication, interview, assessment, and intervention were targeted in this simulation and students felt the teaching method of simulation was helpful. Communication and interview skills need to be effective in working with patients for evaluation and the therapeutic relationship. Simulation provides a realistic opportunity for students from all disciplines to practice using verbal and body language to communicate with patients and other healthcare providers. The skill of assessment and intervention is often practiced with peers when in school. Providing the students opportunities to perform with a standardized patient was more meaningful than with a classmate.

Completing the simulation is only one aspect of the learning experience. Feedback is essential for students to gain insight of their abilities. It was interesting that group debriefing was perceived as more beneficial than feedback in the moment. The aspect of group learning may have been more meaningful than individual feedback in the moment.

The decision of when to add simulation into the curriculum should be carefully considered. If the simulation occurs too early in the course program, it could be overwhelming for the student because of a lack of knowledge. If the simulation occurs too late in the course program, there is limited instructional time remaining for adjustments if the student needs corrections. The perception of the timing for this simulation was not too early or too late. Students also felt they possessed the adequate knowledge to perform well, even though they felt anxious.

Several limitations are present in this pilot study. The sample size was small and was limited to students from a private, faith-based university. It would be of interest to have results from a larger pool of students. It is also unknown if students from a faith-based school versus a public school would respond to the questionnaire differently. Validity of the instrument was compromised when questions were adapted from their previous wording. However, this was done to better suit this study design. The simulation was conducted in a facility that was not familiar to the occupational therapy students, which could heighten the feelings of anxiety and perceptions of competency. The study would be strengthened if there was a comparison group to analyze simulation to another teaching method. Additional research is needed for simulation use with occupational therapy and other healthcare students for perceived value and as a method to measure competency.

Conclusion

This study provided further support of students' favorable views of simulated learning. This simulated experience contained several components valued by students; however, it was the actual interaction between students and standardized patients that students highly valued. The interaction was more valued than their professional attire or feedback from instructors. As simulation continues to be used, educators need to promote experiences that are meaningful for students to develop clinical skills in healthcare. Simulation and other active learning experiences are meaningful to prepare healthcare students for patient encounters.

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