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Sequential Simulations During Introductory Part-Time Fieldwork: Design, Implementation, and Student Satisfaction

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Sequential Simulations During Introductory Part-Time Fieldwork: Design, Implementation, and Student Satisfaction

Abstract

Background: Simulation is used in various ways in occupational therapy education and is recognized as a replacement for some conventional fieldwork hours. However, design and student satisfaction has had limited exploration.

Method: Sequential best practice simulations were designed for Level 1 fieldwork objectives in mental and musculoskeletal practice. The Satisfaction with Simulation Education scale (SSES) and qualitative feedback were used to assess student satisfaction. An exploratory factor analysis was used to validate the SSES in occupational therapy, and a three-factor repeated measures ANOVA was used to determine factors contributing to satisfaction across simulations.

Results: A three-factor model of clinical reasoning and ability, facilitator feedback, and reflection was derived. The qualitative data identified authenticity and relevance to clinical practice as two domains not captured by the SSES items. Repeated measures ANOVA revealed a significant interaction of case by SSES factor with mental health clinical reasoning and ability mean scores lower than musculoskeletal means.

Conclusion: Occupational therapy students reported high levels of satisfaction for design used to prepare for full-time fieldwork experiences. The SSES captured most contributors to satisfaction, but potential items to enhance the SSES validity in occupational therapy include those related to authenticity and relevance to practice.

Comments

The authors declare that they have no competing financial, professional, or personal interest that might have influenced the performance or presentation of the work described in this manuscript.

Keywords

simulation, design, occupational therapy, fieldwork, student satisfaction

Cover Page Footnote

We would like to thank the MScOT students whose participation and data contributed to this study.

Credentials Display

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Internationally, simulation is used in various ways in occupational therapy education (Grant et al., 2021). Simulation has been used to help prepare occupational therapy students for practice in a variety of areas, including mental health (Haracz et al., 2015), acute care (Gibbs et al., 2017), pediatrics (Springfield et al., 2018), stroke rehabilitation (MacKenzie et al., 2017), and interprofessional practice (Lewis et al., 2018; Mills et al., 2019). Although simulation may consist of various modalities, those involving simulated patients are common for developing assessment, communication, clinical reasoning, and collaboration skills (Bennett et al., 2017; Cahill, 2015). Because of these features, simulations with simulated patients are increasingly used to help prepare students for the complexities of practice (Gibbs et al., 2017). With the increasing use of simulation in occupational therapy, tools to evaluate student satisfaction with simulations designed for this professional context are required.

Literature Review

Simulation is beginning to be recognized as an alternative to some components of conventional fieldwork placements. In Australia, simulation can fulfill up to 20% of the 1000 required fieldwork hours (Occupational Therapy Council of Australia [OTC], 2020). The OTC (2020) drew on research by Rodger et al. (2010) to outline the components of simulation required to meet accreditation standards for fieldwork hours. In the United States, simulation can and has been used in place of Level 1 fieldwork (ACOTE, 2018; Harris et al., 2022).

Occupational therapy educators have explored unconventional ways of achieving fieldwork hours, including computer-based simulation (Harris et al., 2022; Mattila et al., 2020) and interprofessional simulation (de Sam Lazaro, 2021). Despite barriers to implementing simulations during the pandemic, including effective spaces for simulation, funding, access to simulated patients, and appropriate equipment (Make et al., 2022), studies indicate that fieldwork outcomes can be met using simulation in place of conventional occupational placements (de Sam Lazaro, 2021; Harris et al., 2022; Mattila et al., 2020). A randomized control trial involving students from six Australian occupational therapy programs demonstrated equivalent learning in students who participated in simulated and conventional occupational therapy placements (Imms et al., 2018).

The increased use of simulation in occupational therapy and its emerging role in replacing some aspects of conventional fieldwork has led to the development of guidelines for the implementation of effective simulations (Chu et al., 2019), including ensuring clinical authenticity, complexity requiring student engagement, immediacy to fieldwork, and multiple modalities (Chu et al., 2019; Rodger et al., 2010). Based on authentic learning and early career learning, Chu et al.'s (2019) conceptual framework describes simulations designed to involve case scenarios with simulated patients in authentic simulated environments under clinical supervision, debriefing, and reflection. Of note, they highlight the need for simulations occurring in place of conventional fieldwork to unfold over time rather than provide a single snapshot of highlighted practice (Chu et al., 2019).

Best practice guidelines for simulation in health care stipulate the use of pre brief, simulation design principles, and debrief during the simulation process (INACSL, 2021). Pre-brief occurs before the simulation experience to establish a psychologically safe learning environment by preparing learners for the content of the simulation and conveying ground rules for the simulation experience (INACSL, 2021). Chu et al.'s (2019) conceptual framework for designing simulated clinical placements in occupational therapy highlights the importance of the practice context, practice process, learner level, and learning outcomes. These standards are also used to meet the criteria for using simulation as fieldwork hours described by the OTC of Australia (2020). In addition, simulation should strive for authenticity (Grant et al., 2021) and occur with immediacy to practice experience (Chu et al., 2019; Rodger et al., 2010). These are echoed by best practice standards for simulation in health care (INACSL, 2021). Finally, the debriefing process is critical to learning and can include different components, such as feedback provided to the learners, bi-directional debriefing, and guided reflection (INACSL, 2021). The process aims to improve future performance, integrate knowledge, and assist in developing insight and reflection (INACSL, 2021).

In our university, occupational therapy fieldwork placements, predominantly located in established practice settings, were canceled or delayed, and/or new opportunities arose during the COVID-19 pandemic. While our MSc(OT) curriculum incorporates skilled learning in labs and exposure to simulated patient encounters, with the loss of face-to-face fieldwork preparatory placements, the demand and directive were clear that the simulated patient opportunities in first part-time fieldwork had to be designed and delivered to ensure students were prepared and competent to move forward to their first full-time fieldwork. This provided a unique opportunity to design and implement face-to-face sequential simulated clinical encounters to meet both the targeted introductory process of practice fieldwork objectives (Bossers et al., 2007) and the simulation standards outlined for fieldwork hours (OTC, 2020).

Given the change in curriculum delivery and loss of practice placements, there was particular interest in assessing student satisfaction with the face-to-face simulation design. The Satisfaction with Simulation Education Scale (SSES) (Levett-Jones et al., 2011) has been validated for construct validity for use evaluating simulations in nursing (Levett-Jones et al., 2011), midwifery (Vermeulen et al., 2021), and paramedicine (Williams & Dousek, 2012). However, it has yet to be assessed for use in occupational therapy simulation experiences. This study aimed to examine student satisfaction with a new sequential simulation design across two different practice cases to address objectives required for introductory fieldwork preparation. In addition, the validation of the SSES for use in occupational therapy was explored.

Method

This study used a concurrent embedded mixed-method cohort design using secondary data analysis (Castro et al., 2010; Glesbrecht et al., 2021) to address the question: What contributes to student satisfaction with simulation in the context of sequential simulations used as a component of Level 1 fieldwork, and does the SSES assess these factors? The University's Office of Human Research Ethics Administration reviewed and approved the study.

Participants

A convenience sample of first-year MScOT entry-to-practice students (N = 63) completed the sequential simulations. The students were in the final 4 weeks of their second term, just before their first full-time 8-week fieldwork placement. The students provided the data that contributed to this study voluntarily and anonymously. The students were informed on multiple occasions throughout the simulations that completing the SSES survey was to evaluate the simulations and did not contribute to or affect their course grades.

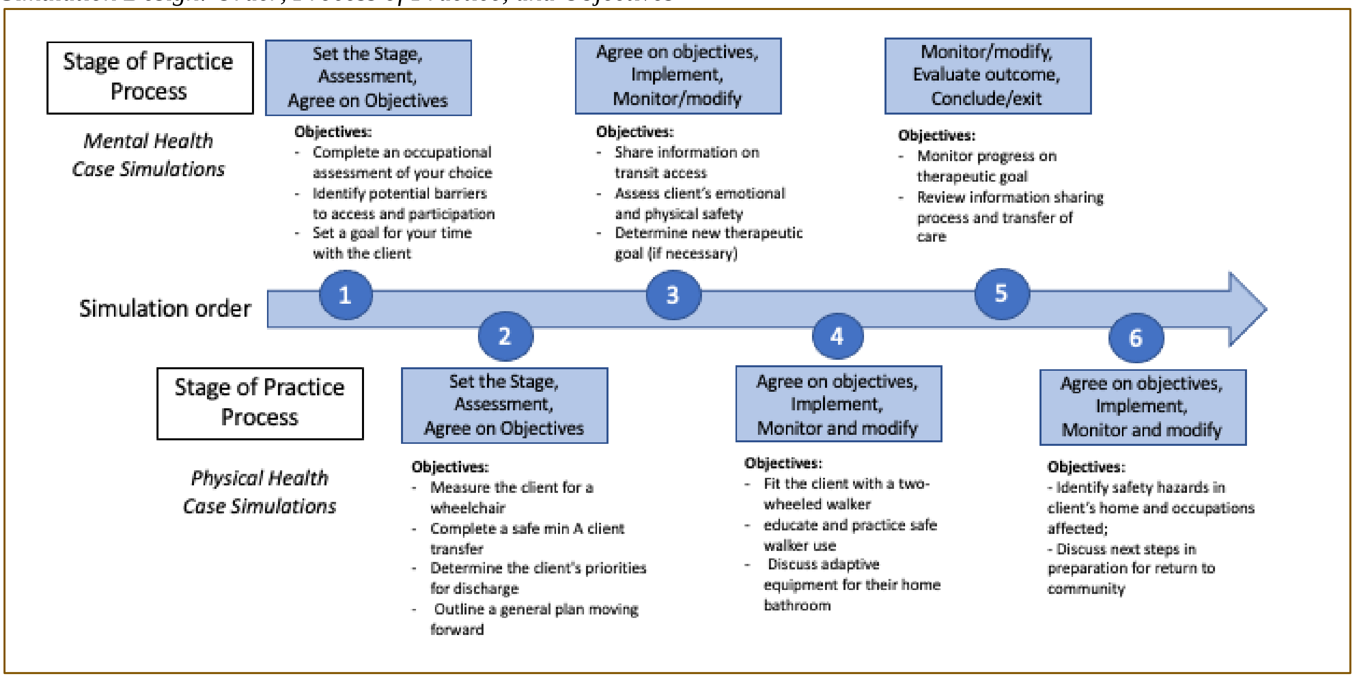
Simulation Design

Two cases, each consisting of three simulations, were designed to cover 30 hrs of clinical fieldwork experience. The simulations were designed to incorporate the various stages of the Canadian Practice Process Framework (CPPF) (Polatajko et al., 2013) and meet objectives of Level 1 fieldwork in Canada (Bossers et al., 2007), in line with best practices standards for outcomes and objectives in simulations (INACSL, 2021, September). The learning outcomes were designed to reflect Level 1 fieldwork objectives for facilitating change within the practice process, including assessment, intervention, reassessment, and discharge planning. Objectives included becoming familiar with and using assessments, educating using various teaching methods, evaluating client progress, determining appropriate discharge plans, and demonstrating analytical thinking in case discussions with occupational therapists (Bossers et al., 2007). The simulations were designed based on Chu et al.'s (2019) conceptual framework for designing simulations in occupational therapy.

At the time of the simulations, the students had completed their classroom-based learning in mental health and were completing their classroom-based learning in musculoskeletal occupational therapy. Consultation with instructors ensured the content reflected core knowledge and occupational therapy practice. All of the simulations took place in a simulated hospital environment for an authentic experience (Bennett et al., 2017). Figure 1 illustrates the order, process of practice stages, and objectives per simulation.

Figure 1

Simulation Design: Order, Process of Practice, and Objectives

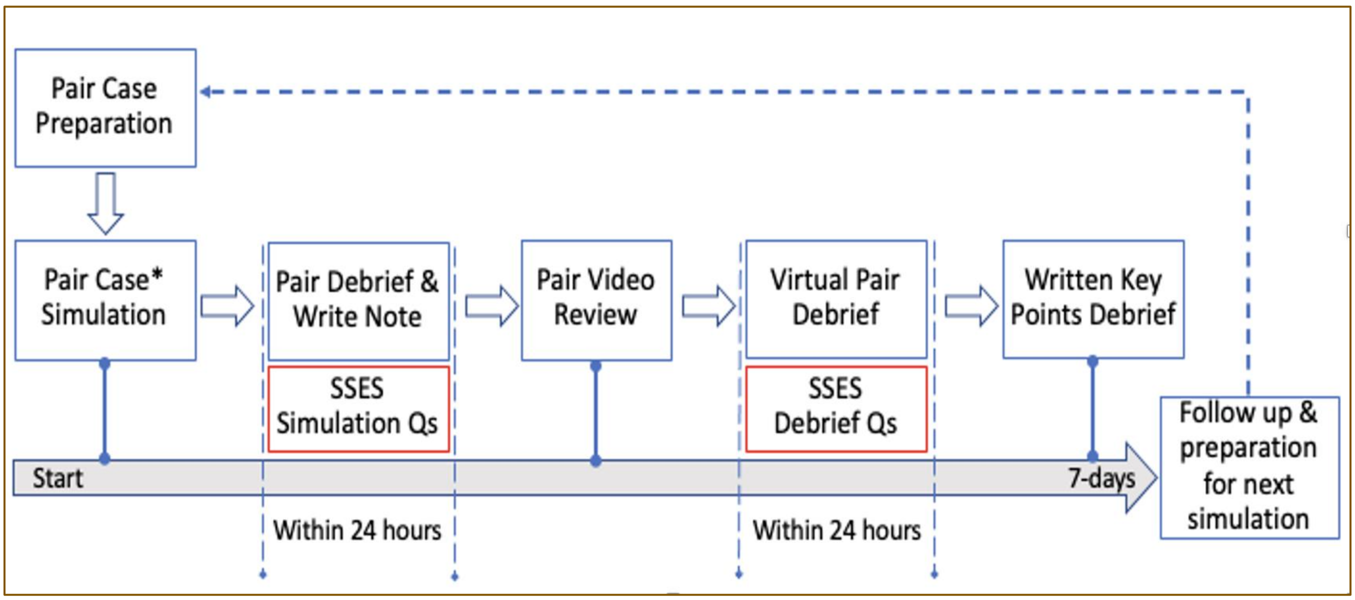


Procedure

Simulations were between 15 and 25 min long and involved an interaction with a trained simulated patient. The students completed the simulations in groups of two; however, because of COVID-19 restrictions, some groups of three were required. Figure 2 provides the outline of the simulation cycle for preparation, interaction, debrief, and the evaluation process. The preparation phase included reading client case files and progress notes, researching assessments, interventions, community supports, and supervising open lab time to practice assessment and intervention skills. All preparation information, including logistical schedules, was provided to students at least 3 days before the simulation.

A multi-stage debrief process was used after each simulation. All of the simulations were recorded and provided to the students and their preceptors for review. Simulation in conjunction with video reflection has also been shown to be effective for reflecting on mistakes and identifying areas for success and improvement (Giles et al., 2014). Pair-based post event self-guided debrief involved debriefing the encounter using the plus/delta framework (Sawyer et al., 2016). The preceptors then reviewed the recorded simulation and met virtually with students for 10 min to review each simulation within 1 week of its occurrence. The preceptors were trained to use the advocacy inquiry method of debriefing during these debriefs (Rudolph et al., 2006; 2007). The advocacy inquiry model uses observations as the starting point to probe for clinical reasoning (e.g., "I noticed that you placed the wheelchair at the foot of the bed for the transfer. Can you explain your decision to me?") (Rudolph et al., 2007). This model helps to uncover how the student framed the situation at the time of the action, acknowledging the student's perspective and pushing for alternative framings and deeper learning (Rudolph et al., 2007). The students were also provided written global feedback about the simulation before engaging in the next encounter for that case.

Figure 2
Simulation Case Cycle



Note. *Simulation Case Day: Consecutive Mondays (mental health) and Fridays (physical health).

Student Satisfaction Evaluation

Quantitative satisfaction data was gathered using the eighteen items on the SSES. The SSES has nine items that assess satisfaction with engaging in the simulation and nine that assess satisfaction with engaging in the debrief (Levett-Jones et al., 2011). A 5-point Likert scale is used to record responses, with 1 indicating *strongly disagree* and 5 indicating *strongly agree*. The students were asked to complete the nine items pertaining to the simulation within 24 hrs of completing the simulation and debrief, respectively. Although the SSES is typically delivered with all 18 items simultaneously at the end of the simulation and debrief, in this sequential simulation design, it was divided given the gap between the simulation and the facilitated virtual debrief. As such, the simulation and debrief were evaluated separately. An additional survey was conducted 1 week following the conclusion of all the simulations. The students were asked the open-ended question: "What would you like us to know about the simulation module?" All of the quantitative and qualitative data were voluntarily and anonymously submitted through an online learning platform.

Data Analysis

The anonymous SSES scores and free-text comments were exported from Brightspace into Microsoft Excel (2021) and cleaned. Quantitative data were exported to SPSS v. 27.0™ (SPSS Inc., 2020) for statistical analysis. Exploratory Factor Analysis (EFA) was used to examine the factor structure of the SESS when used to evaluate a serial simulation design for occupational therapy students to determine factors contributing to satisfaction captured by the SSES. Following the determination of factors and before a factorial repeated measures ANOVA, imputation for missing values was performed using the hotdeck procedure in Stata and then reimported to SPSS. Missing values were replaced by random values from the same variable using the Schonlau implementation for the Stata software (Schonlau, 2006). Hotdeck imputation is advantageous because it preserves the distributional characteristics of the variable and performs nearly as well as the more sophisticated imputation approaches (Roth, 1994).

For statistical analysis of the SSES Factor scores across the different simulations, a factorial repeated measures ANOVA was performed. A three-factorial repeated measures ANOVA was performed on the satisfaction scores across the sequential simulations in two cases (Wu & Leung, 2017). The three factors included the simulation case population attribute (mental health and musculoskeletal), simulation case order (1, 2, and 3), and SESS factor (Factor 1, Factor 2, and Factor 3). The dependent variable was the SSES factor score. For violation of sphericity assumption, the Greenhouse-Geisser correction is applied if $\varepsilon < .75$ and if $\varepsilon > 0.75$, the Huynh-Feldt correction for F-ratios and degrees of freedom is reported. An alpha threshold of .05 was used for all statistical analyses.

Qualitative descriptive design with content and thematic analysis was used to analyze and interpret the open-ended question regarding their experience (Doyle et al., 2020; Kim et al., 2017). Qualitative data were read and re-read for familiarity and coded based on strengths and challenges in the simulation experience by one researcher. Interpretation was confirmed by a second researcher to ensure credibility. Summary overarching themes were developed by integrating quantitative and qualitative findings (Creswell & Plano Clark, 2017) to address components the students reported contributed to satisfaction or dissatisfaction with the simulations.

Results

The completion of the SSES and open-ended survey response was voluntary, and not all students completed the SSES at all evaluation points across the two simulation cases. Of the 64 students enrolled in the course, 63 chose to complete at least one SSES and had data included in the initial factor analysis. The minimum amount of data for factor analysis was satisfied, with a final sample size of 222 (using listwise deletion). Table 1 contains the means and standard deviations from 222 submitted SSES scores. The Kaiser-Meyer-Olkin measure (KMO) was .88, which verified the sampling adequacy above the recommended .6 (Field, 2009). Bartlett's test of sphericity X^2 (136) = 2363.53, $p < .001$, indicated that relations between items were appropriate for principal component analysis (PCA). A PCA was conducted on 18 SSES items using a varimax rotation. The varimax rotation provided the best-defined factor structure. During PCA analysis, one item was eliminated because it did not contribute to a simple factor structure and failed to meet a minimum criterion of having a primary factor loading of .4 or above. Given the sample size, a cut-off loading for significance of 0.4 is recommended (Hair et al., 1998). Item 13, "The simulation helped me to recognize patient deterioration early," was removed, as it did not meet the correlation threshold (.18) and load above .3 on any factor. This was not surprising, given that the simulation cases did not contain content related to deterioration.

Table 1
Satisfaction with Simulation Experience Scale item scores

Items	Mean	*SD*	N
Debriefing and reflection			
1. The facilitator provided constructive criticism during the debriefing	4.60	0.59	267
2. The facilitator summarized important issues in the debriefing	4.66	0.58	267
3. I had the opportunity to reflect on and discuss my performance during the debriefing	4.75	0.59	267
4. The debriefing provided an opportunity to ask questions	4.69	0.65	267
5. The facilitator provided feedback that helped me to develop my clinical reasoning	4.70	0.58	266
6. Reflecting on and discussing the simulation enhanced my learning	4.75	0.50	267
7. The facilitator's questions helped me to learn	4.65	0.66	267
8. I received feedback during the debriefing that helped me to learn	4.72	0.57	267
9. The facilitator made me feel comfortable and at ease during the debriefing	4.77	0.59	266
Clinical Reasoning			
10. The simulation developed my clinical reasoning skills	4.22	0.69	299
11. The simulation developed my clinical decision-making skills	4.29	0.71	297
12. The simulation enabled me to demonstrate my clinical reasoning skills	4.28	0.79	294
Clinical Learning			
13. The simulation helped me to recognize patient deterioration early	3.27	1.18	297
14. This was a valuable learning experience	4.57	0.62	296
15. The simulation caused me to reflect on my clinical ability	4.56	0.62	297
16. The simulation tested my clinical ability	4.56	0.62	297
17. The simulation helped me to apply what I learned from the case study	4.38	0.76	295
18. The simulation helped me to recognize my clinical strengths and weaknesses	4.47	0.72	296

Note. *SD* = standard deviation; N = total number of ratings across six simulations.

An initial analysis was run to obtain eigen values for each component in the data. Three components obtained an eigen values over Kaiser's criteria of 1 and in combination explained 64.26% of the variance. The scree plot agreed with Kaiser's criterion on the three components retained for final analysis. All items had primary loadings over .5 and only one item had a cross loading above .4. All three factors had high reliabilities as noted by Cronbach's α values (Factor 1 = .90; Factor 2 = .91; Factor 3 = .81). Table 2 contains the factor loadings with slight revision of factors names for this analysis of occupational therapy student SSES scores across the sequential simulation design and delivery.

Table 2
Factor Loadings and Communalities Based on PCA with Varimax Rotation

	Factor loadings per latent variable [a]		
SSES Item	Factor 1: Clinical Reasoning and Ability	Factor 2: Facilitator Feedback	Factor 3: Reflection
1. The facilitator provided constructive criticism during the debriefing		0.81	
2. The facilitator summarized important issues in the debriefing		0.85	
3. I had the opportunity to reflect on and discuss my performance during the debriefing			0.77
4. The debriefing provided an opportunity to ask questions			0.76
5. The facilitator provided feedback that helped me to develop my clinical reasoning		0.81	
6. Reflecting on and discussing the simulation enhanced my learning		0.71	
7. The facilitator's questions helped me to learn		0.70	
8. I received feedback during the debriefing that helped me to learn		0.84	
9. The facilitator made me feel comfortable and at ease during the debriefing		0.47	0.70
10. The simulation developed my clinical reasoning skills	0.81		
11. The simulation developed my clinical decision-making skills	0.78		
12. The simulation enabled me to demonstrate my clinical reasoning skills	0.81		
14. This was a valuable learning experience	0.67		
15. The simulation caused me to reflect on my clinical ability	0.76		
16. The simulation tested my clinical ability	0.81		
17. The simulation helped me to apply what I learned from the case study	0.80		
18. The simulation helped me to recognize my clinical strengths and weaknesses	0.76		

Note: N = 222; [a] Factor loadings < .4 are suppressed.

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Repeated Measures ANOVA

Once the SSES factors were determined, a factorial repeated measures ANOVA was completed. To assess the relationship between cases, factors, and case order, the students who completed at least five out of six full SSES surveys were included, resulting in N = 22 responses included in the analysis missing 3.1% of the data. Table 3 contains the means and standard deviations per simulation case and simulation order.

Table 3

SSES Factor Means and Standard Deviations per Simulation Case and Simulation Order

		Factor 1		Factor 2		Factor 3	
Case Population	**Order**	***M***	***SD***	***M***	***SD***	***M***	***SD***
Mental Health	1	4.17	0.52	4.69	0.40	4.73	0.41
	2	4.33	0.74	4.73	0.39	4.82	0.46
	3	4.50	0.61	4.77	0.31	4.85	0.30
Musculoskeletal Health	1	4.60	0.42	4.73	0.33	4.80	0.35
	2	4.66	0.44	4.85	0.34	4.85	0.29
	3	4.47	0.62	4.79	0.40	4.83	0.38

Note. N = 22

The results from the factorial repeated measures ANOVA revealed significant main effects with type of Case type F(1, 21) = 8.65, p = .01, $\eta_p^2 = .29$ and Factor F(1.65, 34.60) = 17.42, p = .001, $\eta_p^2 = .45$. The overall mean was lower for the mental health case scores (M = 4.62, SE = .07) than for the musculoskeletal case scores (M = 4.73, SE = .06). Clinical reasoning and ability (Factor 1) scores (M = 4.46, SE = .09) were significantly different from those of facilitator feedback (Factor 2) scores (M = 4.76, SE = .06) and reflection (Factor 3) scores (M = 4.81, SE = .07).

A significant Case by SSES Factor effect was found F(1.29, 27.15) = 7.36, p = .01, $\eta_p^2 = .81$. The SSES factor scores across all three mental health cases were generally lower than those of the musculoskeletal factor ratings. Specifically, the clinical reasoning and ability mean scores for the mental health simulations (M = 4.33, SE = .11) was not only lower than in the musculoskeletal case simulations (M = 4.58, SE = .08), it was also the lowest overall mean across all factors regardless of case type. There were not meaningful differences between the facilitator feedback mean scores for the mental health case (M = 4.73, SE = .06) and musculoskeletal case (M = 4.76, SE = .06). Similarly, the reflection mean scores were similar between the mental health case (M = 4.90, SE = .07) and musculoskeletal case (M = 4.83, SE = .07).

Descriptive Findings

The post simulation open-ended question, What else would you like us to know about the simulation module? was anonymously completed by 31 students. Table 4 contains the emerging major themes with illustrative student quotes. The five themes and descriptions included: opportunities to practice clinical skills (reasoning integration with hands-on practice), authentic clinical experience (having it “feel real” by working with a client throughout the practice process, including building rapport over time, conducting a full clinical session, and observing clients change), effective feedback (feedback that clarified content, could be applied in the future, and that felt inclusive of student views), preparation for and relevance to clinical practice (having clarity to how the learning can be applied in the future to a clinical or fieldwork context), and reflection (ability to learn from mistakes, engage in the feedback process, and consider alternatives).

Overall, the students appreciated the simulation module as an opportunity to consolidate their knowledge and practice and integrate their skills when working with clients. Many of the students noted that having the opportunity to practice and receive feedback without being graded greatly contributed to their learning. Some of the students noted that while they appreciated getting to work with clients, preparation took more work than they anticipated. The students recommended that simulations be more frequently embedded in courses and spread out across the term to allow for deeper learning or condensed into a block of time with no other academic work:

> The simulations were helpful for us to apply knowledge we've learned in the program so far. However, I did find the simulation module did add a lot to our workload as it took a lot of time to prepare for each simulation.

Table 4
Qualitative Contributors to Satisfaction

Contributor	Student Feedback Quotations
Opportunities to Practice Clinical Skills	• I loved these simulations as it provided us with so much practice in applying our clinical reasoning skills that we have been building throughout this program thus far. • I have found the simulations to be the most practical application of occupational therapy practices of all my classes. • I appreciated having open practice sessions each Friday to ask questions and practice our skills. • I do believe seeing more examples of these [simulations that have progressions] in other courses . . . would have made the process more worthwhile, as it would have helped more with consolidating knowledge as opposed to just building knowledge.
Authentic Clinical Experience	• I think this was the best way to learn how to actually work like an occupational therapist and really taught me to listen and engage with the client's wishes and concerns rather than following what I presumed a rubric would want me to do. • I found it extremely helpful to finally be able to see a client more than just the one time and feel like we had developed real rapport, rather than just pretending we already have rapport. • The simulation module was very helpful with building my knowledge on the role of occupational therapy in progression with the same client over time. • It felt the most like what I expect fieldwork to be.
Effective Feedback	• Feedback from my preceptor was the most useful. Her feedback is pointed and specific, this has made it easy to apply the info into any future meetings and simulations. • I think that this was the most helpful, not only in exposure to client interaction, but also allowing us a time to not stress about the grade and giving us a safe place to mess up and get the feedback to change that.
Preparation for and Relevance to Clinical Practice	• It helped me gain confidence in my ability working with clients and better prepared me for fieldwork placements. • It was a very nice experience and having all the students doing the same simulations would allow us all to be on the same level heading into the first full-time fieldwork.
Reflection	• I appreciated that the experience is meant to be for learning and mistakes are encouraged to reflect on after with [my] partner and also with the preceptor. • It also allowed us to make mistakes and reflect on things that we could change going forward. It was also helpful to have debriefs with [preceptors].

Overall, the sequential nature of the simulation design and following a client throughout the practice process was reported to contribute to an authentic experience. A student described: "It felt more like practice where you see the same person multiple times, and being able to follow through and make appropriate changes was really interesting." The students also noted that they became more confident and comfortable as the simulations progressed: "I found we were generally very nervous for the first few but got more comfortable with it toward the end of the module." Some of the students noted that the limitations imposed by COVID-19 restrictions, such as needing to work in a group of three or working with a different simulated patient if one was absent, detracted from the authenticity of the simulations.

In general, the students noted that receiving feedback, reflecting, and having opportunities to apply feedback in future simulations facilitated their learning: “I really enjoyed the simulations as it gave a good opportunity to gain feedback and apply it right away!” In addition, many of the students described how participating in simulations before engaging in full-time fieldwork helped them build confidence and feel more prepared.

Discussion

The purpose of this study was to examine contributors to student satisfaction with a new sequential simulation design for Level 1 fieldwork and validate the SSES for use in occupational therapy simulations. Three components contributing to satisfaction were identified using the SSES: clinical reasoning and ability, facilitator feedback, and reflection. An additional two components, authenticity and preparation for and relevance to clinical practice, were identified in qualitative feedback. This suggests that there are five components of first-year occupational therapy students’ satisfaction with pre fieldwork sequential simulation. The high average scores on all relevant items on the SSES indicate that, overall, students were satisfied with the simulation module. This was echoed in their written feedback.

The exploratory factor analysis suggests that, when used in this context, three factors underlie the measurement of satisfaction in the SSES: clinical reasoning and ability, facilitator feedback, and reflection. While a three-factor structure was maintained, the items loading onto the factors were different than previous studies (Levett-Jones et al., 2011; Vermeulen et al., 2021; Williams & Dousek, 2012). The factor structure found in this analysis is likely related to how the SSES was implemented; eight of the nine items administered immediately after the simulation loaded to clinical reasoning and ability. Unlike the results of the factor analysis conducted by Levett-Jones et al. (2011) in nursing, the students did not separate clinical ability from clinical reasoning. This difference is most likely explained by clinical abilities expected of occupational therapy students at a Level 1 fieldwork level. The expectation is that students use interventions related to client education (Bossers et al., 2007), which often involve explaining clinical reasoning to clients in ways they can understand. Given this context, clinical reasoning and clinical ability are highly correlated and captured in a single factor.

The facilitator feedback and reflection factors emerged from the nine SSES items administered after the facilitator-led debrief. This is in contrast to the analyses conducted in nursing by Williams and Dousek (2012), who found a correlation between the learning-related items pertaining to both simulation and debrief, and those conducted by Levett-Jones et al. (2011), who found all debrief-related items loaded to a single factor.

The division found in this analysis between facilitator feedback and reflection may have occurred because of the advocacy inquiry method of debriefing used by the facilitators. This method of debriefing involves using intentional probing questions to encourage students to explain their clinical reasoning during the simulation without judgment (Rudolph et al., 2006; 2007). Reflection, which included items related to the students’ opportunities to discuss performance, ask questions, and feel comfortable, may reflect the use of this model of debrief. In contrast, facilitator feedback contains items related to the actions of the facilitator, such as giving constructive feedback and summarizing key issues, and, therefore, loaded separately from opportunities to reflect and contribute their reasoning to the debriefing conversation. Although Item 9, the facilitator made me feel comfortable and at ease during the debriefing, loaded more heavily on reflection, it loaded to facilitator feedback. This may be explained by the overlap in feeling comfortable sharing reflections and receiving constructive feedback. The students also described feeling more comfortable with simulations as they progressed, reflecting the upward trend in satisfaction scores for the clinical reasoning and skills factor.

The qualitative feedback suggests there are elements related to satisfaction with the simulation not captured by the SSES. The first key missing element addresses authenticity of the experience and its relevance to clinical practice. The students highlighted that components of authenticity included opportunities to experience the practice process, feeling like they built genuine rapport over time, and the opportunity to adopt the occupational therapist role. This supports Chu et al.'s (2019) argument that simulations used in place of fieldwork need to unfold over time. Using the CPPF as a guideline for structuring the sequence of the simulations helped to facilitate this authenticity (Polatajko et al., 2013). Previous research suggests the students at this point in their learning often have gaps in practice knowledge and the process of practice (MacKenzie et al., 2021). Sequential simulations with facilitated debriefs can address these gaps.

Proximity of the experience to their first full-time fieldwork placement was identified as another key element for satisfaction. Rodger et al. (2010) and Chu et al. (2019) both suggest that the placement of simulated learning experiences immediately before non-simulated fieldwork experiences helps students to "hit the ground running" during non-simulated fieldwork (Rodger, 2010; OTC, 2020). Student feedback frequently highlighted how they planned to apply the feedback they received not only in future simulations but also in fieldwork. This element of relevance to immediate practice may help explain the lower satisfaction scores on the mental health simulations in comparison to the musculoskeletal simulations. The students had previously completed their mental health practice course, whereas they were concurrently completing their musculoskeletal courses, and the simulations were immediately relevant to their course material and upcoming simulation-based exams.

As authenticity and proximity to fieldwork were important contributors to satisfaction that were not measured by the SSES, including items that reflect these domains may improve the validity of this assessment when used in similar simulation designs and practice content. Suggested items might include "This simulation resembled an authentic clinical experience," and "I understand how the clinical skills and reasoning used in this simulation are relevant to future clinical experiences." In addition, when the simulations do not involve deterioration, removing the deterioration item may be warranted.

The students also noted the importance of feedback from their debriefs in facilitating their learning and clinical reasoning skills. When administered in two parts, there is only one item of the nine pertaining specifically to debriefing that includes mention of clinical reasoning, and this pertains to the development of clinical reasoning as a result of facilitator feedback. Given that the opportunity to explain clinical reasoning is an important focus of the advocacy inquiry method of debriefing (Rudolph et al., 2006; 2007), including items such as "I had the opportunity to explain my clinical reasoning during the debrief" may capture this component of the debrief process. Including items such as "The facilitated debrief built on the pair-written debrief" and "Written feedback helped to develop my clinical reasoning" may assist in capturing satisfaction with the multiple stages of debriefs used in this sequential simulation design.

Limitations

The validation of the SSES was examined in one cohort of students on a specific simulation design, so generalizability is limited and will need further study. While the students rated the simulations highly on all domains of the SSES, it is possible that these high ratings are the result of the "halo effect," whereby the individual ratings of items were influenced by a positive perception of the experience as a whole

(Nisbitt and Wilson, 1977). While this is possible, the same contributors to satisfaction identified by the SSES were also noted in the end-of-program survey administered a week after the final simulation, along with the additional contributors of authenticity and applicability to clinical experience. It is, therefore, likely that the measurements obtained are still valid, regardless of the possibility of the halo effect. In addition, it is possible there was a response bias with those who had very positive or negative experiences choosing to complete more surveys and provide feedback. However, given that the intent is to use the data to determine contributors to satisfaction, and the bias may tend toward those most and least satisfied, these results may still be useful in designing future simulation educational experiences.

Conclusion

The students were satisfied with sequential simulations being used during their Level 1 fieldwork placement to prepare them for their first full-time fieldwork experience. Contributors to satisfaction included opportunities to practice clinical reasoning and skills, receiving constructive feedback, reflection, an authentic clinical experience, and perceived utility for future clinical experiences. Three elements, clinical reasoning and ability, constructive feedback, and reflection, emerged as significant factors in the factor analysis, even though the survey was administered in two parts. However, authenticity of experience and perceived utility to clinical practice were noted in qualitative feedback but not measured by the SSES. Adding items to reflect these domains may contribute to the validity of the SSES to measure satisfaction when administered to assess simulations used to prepare for full-time fieldwork experiences.

Implications for Occupational Therapy Education

Sequential simulations, designed in alignment with best practice simulation standards and to meet the objectives of Level 1 fieldwork experience, were well received by the students. The SSES is a valid measurement of satisfaction when used in this context, but it does not capture all elements of satisfaction important to students. Including items to assess satisfaction with authenticity and relevance to future clinical experiences may help to address this gap.

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