

Integration of GenAI-Simulated Patient Pedagogy in Tutorials to Facilitate First-Year Occupational Therapy Students' Learning

Chi-Wen CHIEN¹

¹ Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hong Kong, China

Abstract

Generative artificial intelligence (GenAI), utilised as simulated patients, represents an emerging pedagogy for enhancing clinical skills in health professions education. This approach was integrated into the author's tutorials to facilitate learning among first-year occupational therapy students and to explore their engagement and satisfaction. A stroke case with minimal background information and three treatment notes was created and input into ChatGPT-4o. Students interacted with the GenAI-simulated patient to gather information, conduct assessments, and explain interventions sequentially across three tutorials. Qualitative analysis of the chat records demonstrated signs of student learning through these interactions. Learning gains included real-time adaptations of communication strategies and occupation-based reasoning. Of the 94 students, 30 indicated that the tutorials strongly facilitated their active learning (mean = 4.6). These findings suggest that integrating a GenAI-simulated case into tutorials is a promoting strategy for rehabilitation education, even for students with limited clinical experience.

Keywords: Occupational Therapy, Generative Artificial Intelligence, Simulated Patients

1. Introduction

Generative artificial intelligence (GenAI) is an emerging technology capable of creating new content and has recently been used as simulated patients to support students' learning in history-taking, interviewing, and clinical reasoning within health professions education (Pham et al., 2025). However, most such applications to date are concentrated in medical and nursing fields, highlighting the need to explore their relevance to other health professions, such as occupational therapy (OT).

OT is a rehabilitation profession grounded in client-centred practice, using everyday activities therapeutically to enable individuals to participate in mean-

ingful occupations. To design tailored interventions, occupational therapists must interview clients to gather their occupational history, values, patterns, and interests, as well as conduct assessments and explain treatment options. These tasks demand strong communication skills and clinical reasoning, typically learnt through small-group tutorials and clinical placements during training.

Teaching these communication and clinical skills is challenging, particularly for first-year OT students who have limited clinical exposure and professional knowledge. Existing research has demonstrated the potential of using GenAI in OT education. For example, Mansour and Wong (2024) found that GenAI could facilitate last-year students' generation of creative intervention ideas in case studies during fieldwork seminars. While their findings are promising, the usage of GenAI can be extended beyond paper-based case brainstorming to simulated patient interactions that enable students (especially novices) to practise interviewing, assessment reasoning, and intervention planning in a safe environment. Therefore, the author explored how GenAI-simulated patient pedagogy could be integrated to facilitate first-year OT students' learning of the fundamental therapy process during small-group tutorials. The two objectives were: (1) to explore students' learning from interacting with a GenAI-simulated patient; and (2) to investigate students' satisfaction with this approach.

2. Methodology

2.1 Implementation Design

The author adopted a three-tutorial learning design to implement the use of a GenAI-simulated patient in a fundamental subject on OT theory and process at a university in Hong Kong. These tutorials were regular learning activities embedded within the subject curriculum.

2.2 Participants and Educational Context

Participants were 94 first-year Bachelor of Science in Occupational Therapy students enrolled in the second semester of the 2024–2025 academic year. At this stage of their study, students had minimal to no clinical experience, and most had never interviewed a patient or conducted standardised assessments.

These students were divided into four tutorial groups of 24–25 students each. Every group attended six tutorials in total; three of which incorporated the GenAI-simulated patient pedagogy. These tutorials were aligned with corresponding lectures on the concepts of occupation, assessment, and intervention, delivered at Week 2, Week 9, and Week 11, respectively. They were intended to strengthen students' ability to apply knowledge and skills introduced in lectures.

2.3 Development of the GenAI-Simulated Patient

A single stroke case, “Mrs Felicia Scott,” was developed to serve as the basis for all three tutorials. This case described a 43-year-old woman who suffered a right-sided cerebrovascular accident two weeks earlier and was referred to rehabilitation services due to impaired motor control on the left side of her body. The author created a comprehensive yet concise case package, including:

- (a) a 1-page sheet introducing the case background;
- (b) a 2-page time-use profile describing her pre-stroke daily routines;
- (c) a 2-page initial note summarising her neuromuscular, cognitive-perceptual-motor, psychological, and self-care status;
- (d) summaries of her work history (98 words), hobbies and interests (52 words), and current performance across different services (253 words);
- (e) a 3-page document outlining what the client can and cannot do mid-way through rehabilitation; and
- (f) a 1-page 2-week progress note.

These materials were input into the ChatGPT-4o model using carefully crafted prompts for different tutorials (i.e., the first four materials for Tutorial 1 and the fifth and sixth materials for Tutorials 2 and 3, respectively). The prompts instructed the model to respond solely based on provided case information and, when asked questions beyond its scope, to either generate reasonable make-up responses or indicate that no ideas were available. This GenAI-simulated patient was designed to provide a realistic but safe learning environment where the AI acted in role as the client and responded dynamically to students.

2.4 Tutorial Contents

Table 1 shows the details of each tutorial. In Tutorial 1, students in each group first brainstormed potential interview questions. Three students were randomly selected by lucky draw to conduct the interview and pose these questions to the GenAI-simulated patient to obtain her responses. In Tutorial 2, another set of three randomly selected students verbally administered an assessment to the client using a tool they had identified. The GenAI-simulated patient described her performance (or inability to perform) according to the documented impairments. Subsequently, students communicated a proposed treatment goal to the client. If an unrealistic goal was proposed, the GenAI-simulated patient was prompted to gently decline and redirect students toward a more attainable goal.

In Tutorial 3, three randomly selected students articulated their selected treatment activities and explained the intervention processes, allowing the Ge-

nAI-simulated patient to respond with cooperation or questions. In the latter two tutorials, students interacted with the client using the same chat channel as previous sessions, with one group having its own dedicated channel. Alongside the GenAI-simulated patient, each tutorial included additional in-class activities that introduced further skills. Homework in the first two tutorials required students to identify assessments and interventions for reporting in later sessions.

Table 1: Structure and Details of the Three Tutorials

	Session Purpose	Structure (Time Spent)
Tutorial 1	Interviewing the client	- Guided discussion of trigger information (20 minutes) - Completion of a time-use profile worksheet (30 minutes) - Group-based brainstorming of interview questions (20 minutes) - Live interview with the GenAI-simulated patient (30 minutes) - Homework explanation (10 minutes)
Tutorial 2	Assessment and goal setting	- Teacher’s reporting of one assessment and demonstration of assessing the GenAI-simulated patient (20 minutes) - Students’ reporting of one assessment and one proposed goal, followed by conducting the assessment with the GenAI-simulated patient (30 minutes) - Participation in instructor-led debriefing activities on client progress (50 minutes)
Tutorial 3	Intervention planning	- Homework explanation (10 minutes) - Students’ reporting of treatment activities, followed by explaining these activities to the GenAI-simulated patient (40 minutes) - Teacher’s debriefing and demonstration of possible treatment activities (10 minutes) - Introduction of a self-management programme, followed by in-class activities (60 minutes)

2.5 Data Collection

All group interactions with the GenAI-simulated patient across three tutorials were automatically recorded in the author’s ChatGPT account. Additionally, one item was added to the subject’s electronic Student Feedback Questionnaire (eSFQ), asking students to rate how much the GenAI-simulated patient activity facilitated their active learning on a 5-point scale. Students also

provided written comments about which learning activity within this subject they liked most. The response rate of the eSFQ was 31.9% (30/94).

2.6 Data Analysis

Content analysis of the chat transcripts from all tutorial groups was conducted to identify themes related to students' learning. Descriptive analysis was used to summarise attendance rates and eSFQ rating scores, providing an overview of students' engagement and satisfaction with the GenAI-simulated patient pedagogy.

3. Results and Discussion

3.1 Themes and Examples Identified from Chat Interaction

One theme, *Learning from the GenAI's responses*, was identified from the chat transcripts of the four tutorial groups. For example, students demonstrated a learning pattern when interacting with the GenAI-simulated patient in Tutorial 1. They began by asking emotionally-oriented questions (e.g., "Are there any emotions or thoughts that stand out to you?") and gradually progressed to explore the client's occupational identity and environments (e.g., "What do you like to do in your leisure time?").

In Tutorial 3, one student provided a step-by-step explanation of constraint-induced movement therapy (i.e., restricting use of the unaffected hand to promote function of the affected hand). In response, the GenAI-simulated patient expressed concern about her current difficulty using the affected hand and suggested that the treatment might be too challenging at this stage. This feedback prompted the student to reconsider the intervention and explore more graded, achievable treatment activities. The examples indicate that students began to adopt more structured communication strategies and occupation-based reasoning. Although these transformative skills were still emerging among first-year students, developing them aligns with core OT competencies outlined in documents from major professional associations (American Occupational Therapy Association, 2015).

3.2 Students' Satisfaction

Among the 30 students who responded to the eSFQ, the mean perceived active-learning rating for the GenAI-simulated patient activity was 4.6 out of 5.0 (standard deviation = 0.5). More than half of these respondents (n=16) identified the interactive tutorials as the activity they liked most among all activities, excluding clinical visits. For example, one student commented: "I like how we can talk to Mrs Scott 'in-person' using ChatGPT. It was very creative and I

love it very much.” These responses indicate that students valued the safe, low-stakes practice opportunity offered by this innovative activity, highlighting the motivational benefits of learning.

3.3 General Discussion of the Findings

Overall, integrating the GenAI-simulated patient across multiple tutorials facilitated students’ reflective and self-directed learning. This was evident from students’ real-time adaptations to the AI’s feedback and completion of homework tasks. The GenAI also provided non-threatening responses when students showed communication insensitivity or proposed unrealistic intervention suggestions, providing a safe environment to refine their skills without fear of harming a real client or feeling embarrassed in front of peers. The finding aligns with simulation literature advocating psychological safety as a cornerstone of experiential learning (Madsgaard & Svellingen, 2025). Additionally, once developed, the GenAI-simulated patient could be reused across all tutorial groups, enhancing the sustainability and scalability of the approach in OT education.

3.4 Limitations

No formal evaluation surveys were conducted to examine students’ learning gains. The implementation of this approach also required substantial logistical preparation. In addition, students interacted with the GenAI-simulated patients only verbally and were unable to observe nonverbal communication cues or conduct physical assessments, which may have restricted opportunities for full skill practice.

4. Implications

The findings have important implications for OT education. GenAI-simulated patients may provide first-year students with a structured and low-risk opportunity to practise interviewing, explaining assessments, and developing early occupation-based clinical reasoning before real clinical exposure. This approach may help bridge the gap between classroom learning and practice, particularly for students with limited clinical experience. The case design and prompts developed in this study may also be adapted for use across subjects and in senior-year levels to support progressive development of communication and reasoning skills. In a global context, the GenAI-simulated patient approach may be especially relevant to other health professions education programmes seeking scalable, flexible, and cost-effective teaching strategies. As the materials can be tailored to different cultural, linguistic, and professional contexts, the teaching approach may be transferable across countries. Future work may explore the incorporation of physical agents and evaluate the impact on students’ learning outcomes.

Acknowledgements

None.

Ethical Declaration Statement

This study did not require formal ethical review because it analysed de-identified data derived from normal classroom activities and routine course evaluations (including engagement and eSFQ). No identifiable personal information was collected.

Generative AI Policy

The author(s) used ChatGPT-5.1 during the preparation of this work to improve the readability and language of the manuscript. After utilising the tool/service, the author(s) thoroughly reviewed and edited the content as necessary and assumed full responsibility for the publication's content.

References

- American Occupational Therapy Association. (2015). *Standards of practice for occupational therapy*. American Journal of Occupational Therapy, 69(Suppl. 3), 6913410057. <https://doi.org/10.5014/ajot.2015.696S06>
- Madsgaard, A., & Svellingen, A. (2025). The benefits and boundaries of psychological safety in simulation-based education: An integrative review. *BMC Nursing*, 24(1), 922. <https://doi.org/10.1186/s12912-025-03575-y>
- Mansour, T., & Wong, J. (2024). Enhancing fieldwork readiness in occupational therapy students with generative AI. *Frontiers in Medicine*, 11, Article 1485325. <https://doi.org/10.3389/fmed.2024.1485325>
- Pham, T. D., Karunaratne, N., Exintaris, B., Liu, D., Lay, T., Yuriev, E., & Lam, A. (2025). The impact of generative AI on health professional education: A systematic review in the context of student learning. *Medical Education*, 59(12), 1280–1289. <https://doi.org/10.1111/medu.15746>