



Effective Simulation in PT Education on Students' Perception of Diabetes Treatment

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Background

- While patient simulation has been widely implemented in the instruction of medical students, it has been underutilized in physical therapy education programs.
- Simulations provide real experiences in a guided and interactive manner to prepare students for real-life patient encounters.
- Standardized patients (SPs) are commonly employed to portray patient case scenarios in simulations.

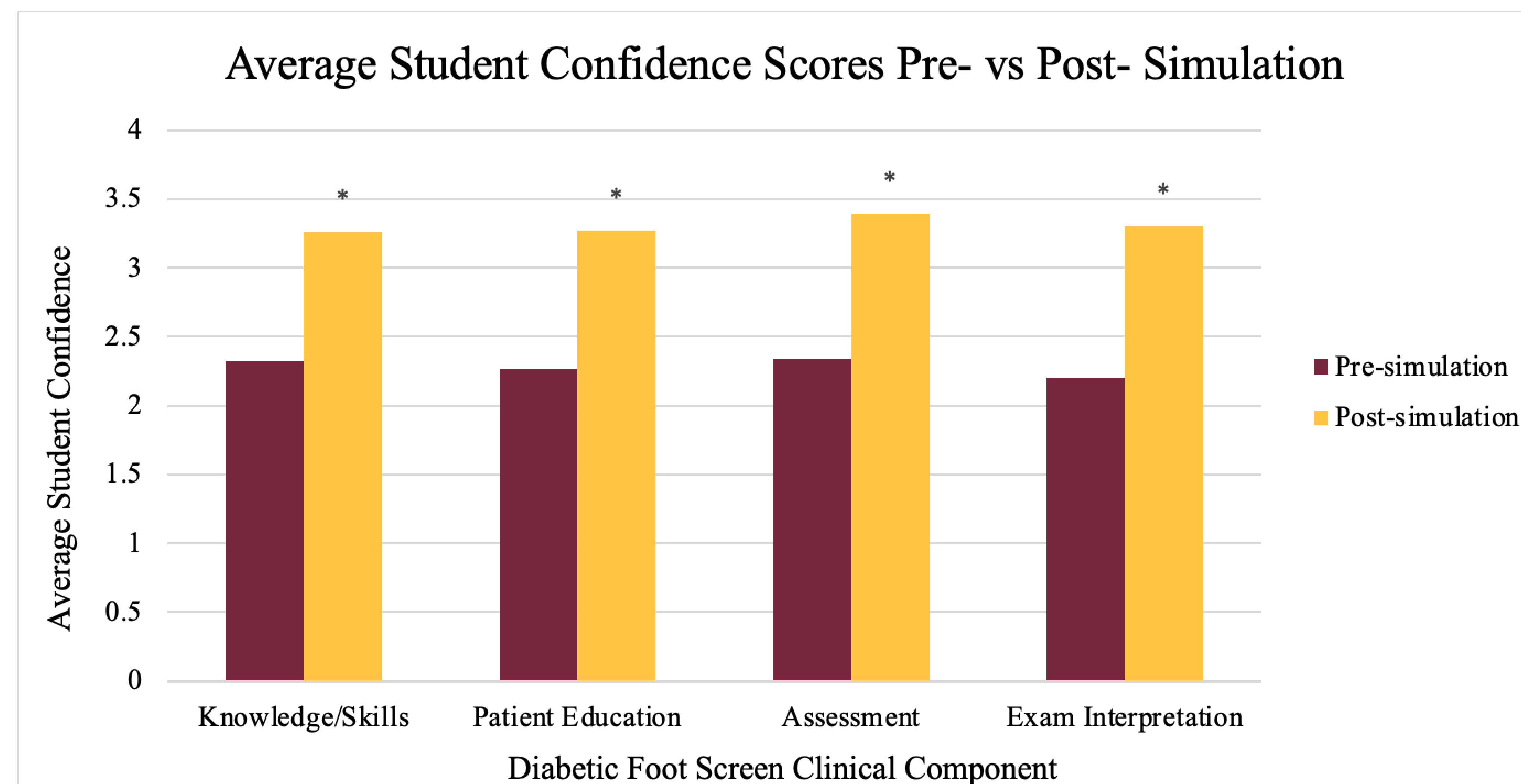
Purpose

- This research aims to investigate whether simulations can assist in the education of physical therapy students and improve student confidence in the treatment and management of diabetes mellitus.

Methods

- 49 physical therapy students were recruited in the spring of 2022 while enrolled in the second year of their entry-level physical therapy education program at CMU.
- 6 standardized patients were commissioned from the Interprofessional Education (IPE) Simulation Center Standardized Patient Pool.
- Prior to the experience, SPs were trained by course instructors on patient case scenarios for a duration of two hours. Post training, each SP engaged in patient simulation for six hours total.
- Students worked in groups of 3 to 4, pre-determined by course administrators, each group met with their assigned SP in the CMU IPE simulation center.
- Students were instructed to collect subjective history, perform a balance assessment, and administer a foot screen. Students provided SPs with education on regular foot care and disease management to conclude each simulation.
- Foot screens involved a skin and sensory assessment and were conducted according to guidelines set by the Comprehensive Diabetes Lower Extremity Amputation Prevention Program.
- Students completed a pre- and post-confidence survey before and after the simulation to assess any changes in their confidence performing diabetic foot screens.
- An additional post-simulation survey evaluated the students' perception of the IPE experience.
- Confidence was rated on a scale of 1 to 4 (not confident to very confident) and reported in individual subscales to appraise various clinical components of diabetic foot screens.

Pre- and Post- Confidence Survey Results

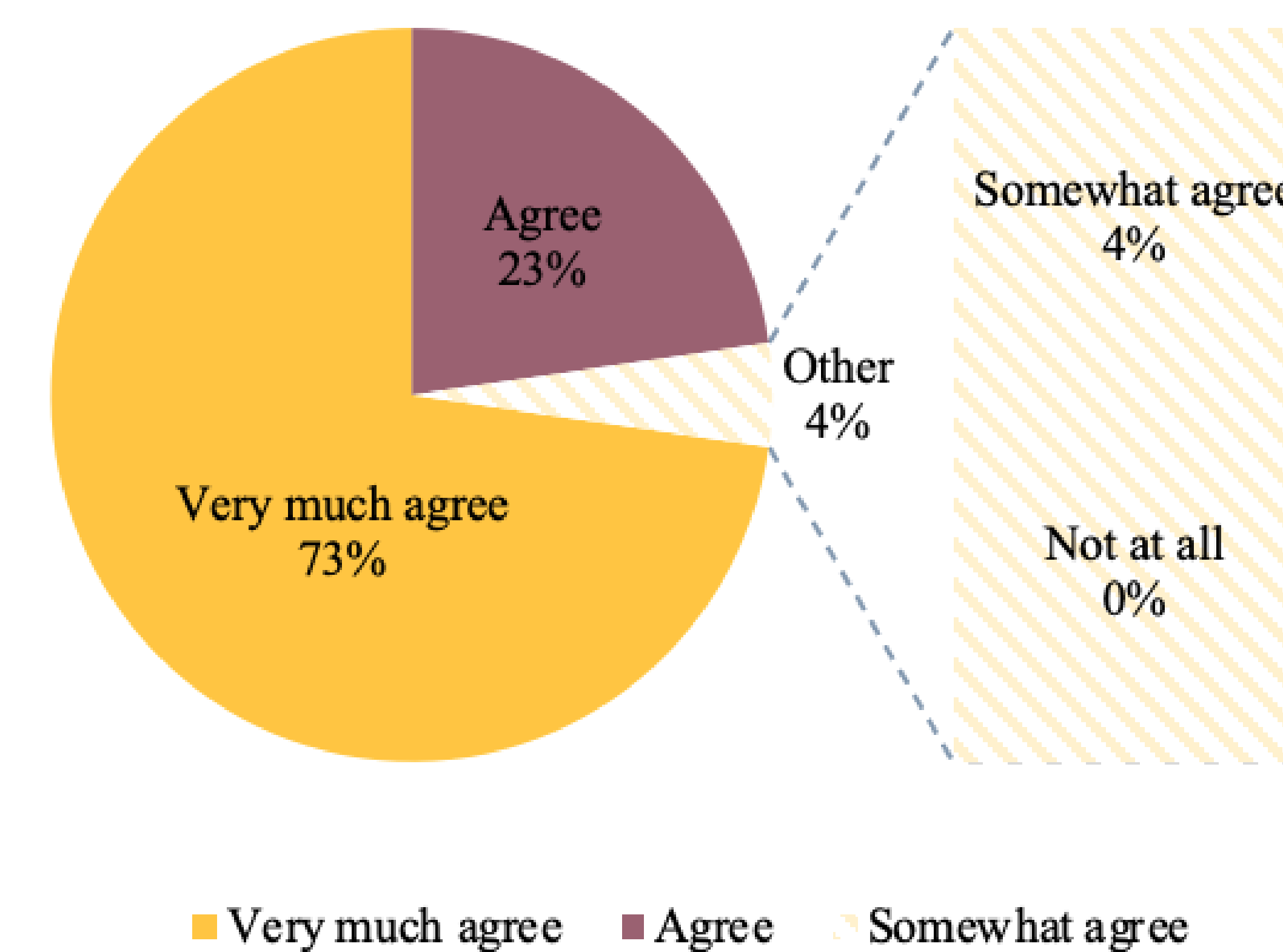


Outcomes

- Prior to the experience, students rated their confidence in exam interpretation as a 2.20 +/- .668 out of 4 on average which increased to a 3.30 +/- .668 (109%, $p < .001$) after the simulation was finished.
- Students' confidence in their knowledge and skills increased 84% ($p < .001$) from 2.23 +/- .708 to 3.16 +/- .608 post-simulation.
- Student confidence improved in both patient assessment (2.34 +/- .608 versus 3.39 +/- .579, pre-confidence versus post-confidence survey, $p < .001$) and patient education (2.27 +/- .660 versus 3.27 +/- .660, pre-confidence versus post-confidence survey, $p < .001$) as well.
- 32 out of 44 participants (72%) indicated that they "very much" agreed (3.68 out of 4, post-simulation survey) that the experience was beneficial to their learning by providing a real-life patient experience.
- The average student reported that they "agreed" (3.43 out of 4, post-simulation survey) that their experience with a standardized patient improved their ability to complete a diabetic foot screen.

Post-simulation Survey Results

Student Agreement with Widespread Use of Patient Simulation in Physical Therapy Curriculum



Discussion

- There was a significant improvement seen in student confidence observed across all subscales on the post-confidence survey.
- Student confidence in exam interpretation improved the most out of all foot screen components whereas student confidence in knowledge and skills demonstrated the least improvement.
- Findings suggested most students were satisfied with the experience as an educational tool.
- The results of this study suggest that patient simulation may assist in the education of physical therapy students on diabetes mellitus and its management as well as improve student confidence in their clinical skills.
- This model can be used to compare the various methods of patient simulation and experiential learning to identify best practice and allocation of student resources.
- This study serves as a cost comparison for physical therapy education programs hoping to incorporate patient simulation and standardized patients into their curriculum.
- Prospective research should incorporate multiple physical therapy education programs to obtain a larger sample size and utilize more object measures for evaluating student confidence, understanding of course content, or competence in clinical skills long-term.