Awakening AI to Healthcare "isms" by Leveraging AI-driven Simulation with Undergraduate Students

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Background

- Artificial Intelligence (AI) technologies are being rapidly adopted (Harder, 2023). Yet, there is skepticism because AI tools learn from historical data embedded with healthcare inequities and can perpetuate discrimination (Dankwa-Mullan, 2024).

- Nursing students have limited exposure to vulnerable groups such as older adults (Prete et al., 2024). Therefore, AI-generated simulations promise to provide exposure to marginalized groups and strengthen future nurses' knowledge, skills, and attitudes.

Purpose

- This study explored undergraduate nursing students' knowledge and attitudes toward older adults before and after the use of an AI-driven simulator that was integrated into a three-phased learning event (Table 1).

Methods

- A sample of 151 undergraduate senior-level nursing students enrolled in the community health course at a university in the Southeastern United States.

- The course utilized a three-phased approach to an Artificial Intelligence in Education (AIED) learning event (Table 1). The learning activities focused on Millie Larsen, a National League for Nursing (NLN) Advanced Care for Seniors (ACES) unfolding case (Reese, 2022).

- A convergent mixed-method design was used to measure the change in nursing students' knowledge and attitudes toward older adults, as measured by the Facts on Aging Quiz (Breytspraak & Badura, 2015), the UCLA Geriatrics Attitudes Survey (Ruben et al., 1998), and a Guided Reflection survey after participating in the AIED learning event.

NCSBN Clinical Judgment Model
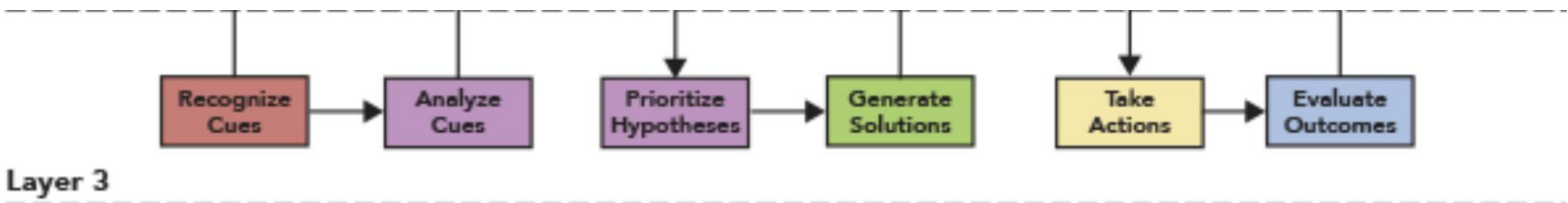
AI-Driven Simulator Interaction

Table 1: Instructional Teaching Methods

Phase One Pre-Simulation Activities	Phase Two Simulation Activities	Phase Three Post-Simulation Activities
Pre-class readings	AI-driven virtual non-immersive simulator experience	Guided Reflection survey/debrief
Interactive classroom session	Completion of OASIS form	NLN Simulation Design Scale completion
Pre-simulation electronic medical record review	Create report email to the multidisciplinary team	Post-intervention assessment
Pre-simulation knowledge survey		UCLA Geriatric Attitude Survey

Frameworks

- The study was guided by layer three of the NCSBN Clinical Judgment Model (NCSBN, 2019), which provided a structured approach to integrating AI into nursing education.

- The Healthcare Simulation Standards of Best Practice (INACSL, 2021) were utilized to support the learning activities' design, implementation, and evaluation.

Results

- Statistical Significance: The results demonstrated **statistical significance** in the improvement of **knowledge** (t = 5.05, p < 0.001) and **attitudes** (t = 1.88, p = 0.06), indicating that the intervention was effective.

Conclusions

- Transformative Impact of AI: Utilizing AI-driven technology in simulations can significantly enhance the learning experience and help students acquire essential skills in a safe and cost-effective environment.

- Positive Shift in Knowledge and Attitudes: The study revealed significant improvements in nursing students' knowledge and attitudes toward older adults after engaging in the AI-driven simulation. This suggests that AI technology can effectively combat ageism in healthcare education.

- Significance to Nursing Practice: Evaluating older adults' knowledge and attitudes before and after using AI-driven resources can positively transform the healthcare inequities inherent in these technologies by providing user feedback to adapt models dynamically based on user input.

References