Artificial Intelligence in Nursing Education: Balancing Reluctance and Embracing Innovation

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Abstract

Integrating Artificial Intelligence (AI) into nursing education is an emerging trend that aligns with broader technological advancements in healthcare and academia. AI, the simulation of human intelligence in machines, offers significant opportunities to enhance personalized learning, competency-based assessments, and clinical reasoning development in nursing education. Tools such as the World Health Organization's AI assistant S.A.R.A.H., Microsoft Copilot, and generative AI platforms such as ChatGPT illustrate the potential of AI to support diverse learning needs and foster deeper engagement. Despite these advancements, many nursing educators express hesitation regarding AI integration, citing concerns about academic integrity, ethical dilemmas, and the potential erosion of the human aspect of nursing education. This essay explores the opportunities and challenges associated with the use of AI in nursing education. It highlights how AI can enhance learning outcomes, generate NCLEX-style questions, facilitate skill development, and support educators in administrative tasks. However, ethical concerns such as data privacy, algorithmic bias, and accountability warrant attention. The essay presents support for the argument that AI tools should complement traditional pedagogy by emphasizing the importance of human empathy and ethical judgment in nursing practice.

Keywords: artificial intelligence, nursing education, knowledge gap

Introduction

Artificial intelligence (AI) is "the capability of computer systems or algorithms to imitate intelligent human behavior" (Merriam-Webster, n.d.). It encompasses machines that simulate various aspects of human intelligence, including perception, learning, reasoning, problem-solving, language processing, and creative tasks (UNESCO, 2022). More broadly, AI is a branch of computer science focused on designing systems capable of mimicking and potentially enhancing human cognitive functions (Naqvi, 2020). Integrating AI into nursing education is a growing trend, reflecting the broader adoption of AI technologies across healthcare and educational sectors. AI offers promising resources for personalized learning, competency-based assessments, and development of clinical reasoning skills among learners (Ali, 2025). As nursing educators, we believe that examples such as the World Health Organization's (WHO) digital health assistant S.A.R.A.H. (Smart AI Resource Assistant for Health) and generative AI

 | https://doi.org/10.31542/tt20ky17 | ISSN 2819-3024

tools such as ChatGPT, Microsoft Copilot, and Google Gemini demonstrate the potential to enhance the nursing education landscape. Additionally, organizations such as the Canadian Association of Schools of Nursing (CASN) are beginning to recognize Nursing Informatics as an Entry-to-Practice Competency for Registered Nurses (CASN, 2012) and the role of AI in fostering nursing education in Canada (CASN, 2024).

We are nursing faculty members/nursing educators teaching at reputable universities in Edmonton, Canada. During nursing course planning, start-of-term, and year-end team meetings, as well as the development and evaluation of student assignments/quizzes, meaningful observations often arise. In discussing these insights, a recurring theme has been observed: Despite advancements in AI, many nursing educators remain hesitant to adopt these technologies. This reluctance often stems from concerns that AI may conflict with traditional teaching approaches. We recognize these concerns, including ethical issues such as academic misconduct, plagiarism, and the potential erosion of the human element central to nursing education. However, AI offers multiple benefits if used wisely. We examine the opportunities and challenges of integrating AI into nursing education, highlighting its opportunities while addressing the challenges that must be navigated for effective and ethical integration.

The Potential Use of AI in Nursing Education

Enhancing learning outcomes

AI technologies can revolutionize nursing education by offering inclusive, diverse, and tailored learning experiences. Adaptive learning platforms can assess unique individual student needs, track progress, and adjust educational content accordingly (Andersen et al., 2021). Tools such as S.A.R.A.H., developed by WHO, and AI-driven platforms such as ChatGPT are designed to assist students in comprehending complex nursing concepts. For example, S.A.R.A.H. provides interactive guidance on various health topics, including healthy eating and mental health, to name a few (WHO, 2025). S.A.R.A.H., available 24/7 in eight different languages, is an authentic, usable resource for learners coming from diverse backgrounds, that can foster deeper engagement and understanding (WHO, 2025). This platform is a foundational resource for novice nursing learners, supporting them in care planning, clinical decision-making, and preparation for patient education in clinical settings (WHO, 2025). In our opinion, this is a great tool for novice learners. S.A.R.A.H. uses clear, multilingual communication to support diverse learners by helping students access and understand health information for patient teaching, care planning, and concept clarification.

Creating NCLEX-style next generation NCLEX questions and rubrics

The NCLEX (National Council Licensure Examination) is a standardized exam that nursing graduates must pass to obtain licensure as Registered Nurses (RNs) or Licensed Practical/Vocational Nurses (LPNs/LVNs) in the United States and Canada (National Council of State Boards of Nursing, n.d.). AI, particularly ChatGPT, can generate study questions and answers that resemble human-to-text inputs using a large language model. It effectively generates Next Generation (NGN) NCLEX-style questions that emphasize real-world skills by simulating complex scenarios, thus preparing nurses for challenges they may encounter in practice (Dickison et al., 2019). These questions can challenge students to apply critical thinking and decision-making skills, better preparing them for licensure exams. Nursing students have

reported higher engagement and improved confidence in their decision-making skills when using AI-enhanced study tools (Andersen et al., 2021).

We also consider that AI can assist novice, early-career, and experienced educators by offering a foundational starting point for developing rubrics for nursing skills assessments, thereby enhancing consistency and transparency in grading and evaluation. AI tools can enhance rubric precision, efficiency, and alignment with curricular objectives, facilitating personalized learning experiences (Fernández-Sánchez et al., 2024). Also, Silvestri-Elmore and Burton (2025) noted that AI can assist nursing educators in designing effective unfolding case studies that foster critical thinking, thereby enhancing student outcomes. In addition, ChatGPT can offer valuable support by facilitating research and teaching tasks, such as idea organization, summarization, and simplification, as well as aiding data analysis and interpretation (Castonguay et al., 2023).

Facilitating skill development

AI can provide step-by-step guidance for performing nursing procedures, offering visual aids, videos, and interactive simulations. These tools enhance students' technical competencies while reducing reliance on educators for repetitive demonstrations (De Gagne, 2023). AI can also assist in generating concept maps that can link patients' conditions with interventions, goals, and priorities, helping students understand the rationale behind their clinical reasoning and clinical judgment. We have observed how AI-powered concept mapping tools have improved students' abilities to prioritize, think, rationalize, and plan care. These tools encourage profound understanding and critical thinking, essential for effective patient care (De Gagne, 2023).

Supporting educators

AI can streamline administrative tasks for nursing educators, such as creating quizzes, grading assignments, and providing student-specific feedback. This allows educators to focus on more critical aspects of teaching, such as mentoring and fostering student empathy (Topol, 2019). Also, the integration of AI in education has gained significant momentum, with universities recognizing its potential to enhance learning outcomes. For instance, Microsoft Copilot, an approved AI software by MacEwan University, is a tool that assists educators in managing workloads more efficiently (MacEwan University Library, 2024). Many institutions not only endorse the use of AI but also facilitate access to these resources for their students and educators, reflecting a growing acknowledgment of AI's transformative role for teaching and learning.

Challenges for Nursing Educators

Our observations are that nursing faculty are uncertain whether integrating AI into nursing education is the right approach. While nursing students use generative AI tools, nursing educators are unsure how to effectively incorporate it into their teaching practices or navigate the challenges it presents. Also, the use of ChatGPT is seen as a direct threat to academic integrity by educators in the fields of nursing and health sciences (Archibald & Clark, 2023). This view of AI as a threat highlights the dilemma many nursing educators face regarding balancing technology integration with maintaining traditional teaching values (Labrague et al., 2023).

However, it is essential to consider that AI supplements and enhances the teaching and learning process when used correctly (De Gagne, 2023).

One of the most significant concerns among nursing educators is the potential for AI tools to enable academic misconduct. Generative AI platforms such as ChatGPT can produce essays, solve medication calculation problems, and even generate entire assignments, raising fears about plagiarism and a lack of original thought (Challen et al., 2019). Some educators worry that reliance on AI may undermine the development of critical thinking skills, as students might opt for shortcuts instead of engaging deeply and thinking broadly with the knowledge (Panit, 2025).

Ethical concerns also play a significant role in educators' hesitation to adopt AI. Some of these concerns are as follows:

1. **Data Privacy**: AI systems require large datasets to function effectively, raising concerns about the security and confidentiality of student information (De Gagne, 2023).
2. **Algorithmic Bias**: AI can perpetuate existing biases in healthcare if the underlying data is unrepresentative or flawed (Reddy, 2022).
3. **Accountability**: AI's black box nature makes it challenging to determine responsibility when errors occur (Sayyadi & Provitera, 2023).

AI in Nursing Education: Not a Mistake, But a Milestone

The integration of artificial intelligence into nursing education is not a mistake, but a milestone—one that signals a shift toward innovation while reaffirming the core values of the profession. As AI tools become more prevalent, nursing programs must prioritize academic integrity, ethical use, and educator preparedness, ensuring that technology enhances rather than replaces the human connection, critical thinking, and compassion at the heart of nursing.

To mitigate concerns about plagiarism and academic misconduct, nursing programs must establish clear guidelines for the ethical use of AI. Educators can encourage students to use AI tools as supplemental resources rather than substitutes for original work. For example, AI can help generate guiding questions or provide foundational knowledge that students can expand upon through critical analysis and discussion (De Gagne, 2023).

Professional development programs are essential to help nursing educators gain confidence in using AI tools. These programs should include training on integrating AI into lesson plans, assessing its outputs for accuracy, and addressing ethical considerations (Akgun & Greenhow, 2022). Departments, learning communities, policies, and guidelines should also emphasize that AI is a tool to augment teaching rather than replace it.

AI developers and users must work closely with educators and policymakers/analysts to ensure that AI tools are transparent, unbiased, and aligned with the values of nursing education. Regular audits and updates can help maintain the ethical integrity of these systems (Challen et al., 2019). Post-secondary institutions have increasingly embraced the integration of AI technologies, recognizing their value in supporting students, learners, and employees. Many universities provide work accounts that are now granting access to various AI tools, fostering innovation and efficiency in academic and professional tasks. For example, MacEwan University has integrated AI tools such as Microsoft Copilot and Grammarly into its platform to support students and faculty. The university also provides workshops such as "Copilot & Firefly in the

Classroom" to help faculty incorporate AI into their teaching practices. Additionally, MacEwan offers resources on the ethical use of AI, ensuring transparency in course expectations (MacEwan University, n.d.). Thus, the limits of AI are variable and are still emerging. With access to AI tools such as Microsoft Copilot and Grammarly, students benefit from more personalized and efficient learning support, helping them navigate academic challenges and engage more meaningfully with their learning.

Nursing is an art and science that requires compassion, communication, and ethical judgment. While AI can enhance technical skills and knowledge acquisition, it cannot replace the relational aspects of nursing education. Therefore, educators must strike a balance, using AI to complement traditional teaching methods. This can be achieved through the following approaches:

1. **Simulation Labs**: Virtual simulations can be paired with in-person labs to provide students with technical, interpersonal, and trauma-informed training.
2. **Interdisciplinary Collaboration**: Collaboration between nursing educators, AI developers, and healthcare professionals can create tools that reflect the holistic nature of nursing.
3. **Empathy Training**: AI cannot teach empathy, but it can provide scenarios that challenge students to reflect on care's ethical and emotional dimensions. Also, AI tools offer consistent and empathetic support, often surpassing the capacity of stressed individuals juggling multiple responsibilities (Perry, 2023).
4. **Role of Professional Organizations**: By incorporating AI competencies into their frameworks, these organizations can set standards for their ethical and effective use. CASN's recognition of AI as a nursing competency (CASN, 2024) highlights its growing importance in preparing students for modern healthcare environments.

Conclusion

Integrating AI into nursing education offers significant opportunities to enhance learning, improve competency-based assessments, and support educators. However, reluctance among nursing educators, fueled by concerns about academic integrity, ethical issues, and the potential dehumanization of nursing, must be addressed. By fostering a culture of ethical AI use, providing comprehensive training, and emphasizing the complementary role of AI, nursing education can leverage these tools to prepare students for the complexities of modern healthcare. Adopting AI in nursing education requires a balanced approach that values technological innovation and the human elements of nursing education and practice. As professional organizations like CASN continue to recognize AI's role in nursing competencies, the path forward becomes clearer. We can embrace AI not as a replacement but as a partner in advancing nursing education and patient care.

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