

Lippincott® Nursing Education *Trends & Insights*

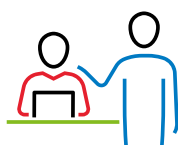
Leveraging the power of AI to foster clinical judgment

Purpose: As nurse educators navigate the complexities of nursing education, including artificial intelligence (AI), fostering students' decision-making skills, using best practices, and relying on evidence-based neuroscientific educational methods must remain top priorities. This *Trends & Insights* discusses how to ground AI strategies in brain-based learning, ensuring students engage in deep thinking.



The Learners

Students are active, intense early adopters of AI, using it to assist with studying, creating items to hone test taking skills and complete assignments.¹⁻⁶ “To get work done,” students use AI to generate study guides and tools to make learning “easier.” Assignments that ask students to answer rote questions or include non-reflective writing steer students to AI, with the emphasis on quick completion. When AI does the creation and thinking, learning is superficial, focused on memorization for the test. Superficial learning may prove useful in the short term but does not yield deep learning or retention for future retrieval in clinical practice. Unchecked, students' use of AI can fragment the learning experience.



The Faculty

The advent of AI calls for nurse educator flexibility and major changes in how formative teaching and assessment tools are developed, emphasizing personal reflection, credible resources, independent work, and academic integrity.⁷⁻¹² When faculty themselves understand the risks and benefits of AI, they can lead their students in appropriate use of the tool to enhance learning and foster deeper, more productive conversations that will lead to greater clinical judgment. Ensuring generated information is evidence-based and valid is the highest priority.⁷⁻⁸ AI literacy ensures students critique and cite evidence-based sources of information.^{2, 7-9} Students need to design prompts to inform results and use AI in a way that enhances clinical judgment.



The Science

Advances in learning science research reveal exciting insights into brain development and methods to enhance memory-making, retention, and retrieval. Strategies that use AI and foster high-level thinking, deep learning, and clinical judgment are critical.¹³⁻¹⁶ Innovative, objective-driven teaching strategies are needed to embed AI in brain-based principles and methods, while actively placing students in platforms to create, synthesize, and critique information. Asking students to handwrite material, for example, enriches processing of information and contextualizes critical thinking.¹³⁻¹⁵ Incorporating AI into brain-based strategic approaches ensures that students are engaged, active, and experience deep learning while growing clinical judgment skills.

Nursing students must learn to supervise, critique, and curate AI to ensure they are skilled in the use of AI as practicing nurses. Current healthcare applications of AI include:

- Healthcare plans based on predictive analytics, decision support systems, algorithms, and early warning systems
- Documentation and electronic health records
- Clinical and drug research, quality improvement projects, and safety initiatives
- Chatbots, bots, and healthbots within AI driven automated systems
- The teaching of clients to use AI to become informed decision-makers and partners in care¹⁷



Key elements for safe and equitable AI use:

- Teach students to recognize the potential for bias in data and to supervise use of information.
- Ensure students curate information, validating in evidence-based sources and citations.
- Use AI as a critical discernment training tool by employing the skills to evaluate the validity of information, i.e. checking for hallucinations or inaccuracies in data.
- Assess students' access to AI, bridging the gap with additional resources and education.¹⁸
- Maintain the focus on the humanization of nursing and nursing education at the forefront of all AI initiatives.¹²

Strategies to use AI to enhance deep learning

Brain-Based Learning Principle

Tasks for Learners

Strategies

These methods may be used in class, clinical, lab, simulation, live or online, synchronous or asynchronous, and adapted to meet learning objectives, topics, concepts, and settings.

Practice Retrieval

Remember, apply, and use information in a single session to reinforce learned material.

What's missing, what's right?

Students create a client case and plan of care using AI, prompting 5-6 nursing actions. In pairs, they critique, substantiate, and validate actions, while suggesting two additional evidence-based actions, interventions, or care strategies for the client.

Interleaving

Make information more complex with new details, data, or context to enhance neural effort.

Throw a wrench

Students create a *Client Teaching Plan* with AI related to learned topics, validating citations. Faculty “throw a wrench” by asking students to consider implementing this plan with clients who have visual, hearing, cognitive, or other impairments and abilities. Students reflect on adaptations to the teaching plan in their class *Quick Write Journals*.

Hugging

Reinforce information in a meaningful application exercise immediately after discussion, introduction, or teaching session about the topic.

Clinical judgment at work

Following discussion of a topic, student groups use AI to create a related clinical judgment case and items. In groups, students engage in Socratic questioning about the case. Faculty then introduce a status change for the clients (shortness of breath, bradycardia, change in level of consciousness) and students independently hand write an *SBAR* or *Change of Shift Report* highlighting the impact of the change to the client's condition, creating and discussing details that could occur in the case based on this status change.

Spaced Retrieval

Remember and apply information over time, exerting increased neural work.

Switch

Students create and take a 10-item pathophysiology quiz based on class conditions or concepts. Then, students take each other's quizzes. To reinforce information, students sit *knee-to-knee* to clarify items and misconceptions, searching the literature for evidence-based rationales.

Meaningful Repetition

Repeating information takes memorization to the next level and ensures a deeper and richer understanding of material.

Do you remember?

Students create mnemonics for current learning needs using AI. Students do a *Quick Write — asking*: Are these tools helpful? How can they be used? How might they be applied to bedside care? Students *Peer Review* each other's mnemonics using the *3/2/1 critique*: 3 positives, 2 additions, 1 change they would suggest.

Chunking

Create embraceable “bundles” of information to facilitate retention and ease future retrieval.

Organize me!

Students take handwritten or typed notes during a learning session, after which they load these into AI, asking for organization, leveling, and priority-setting with the creation of a study guide. Students read, reread, and build upon content, ensuring more learner effort and engagement in material while meeting personal study needs. When students come to class or learning session, they may *Compare and Contrast* notes with those of others, amplifying their information and shared understanding.

Reflection

Become immersed in deep thinking to develop personal understanding.

Need to know

Students develop an AI-generated unfolding client case related to class objectives. Students create a *3-Minute Audio Recording* reflecting on what other information/equipment they need to care for this client, potential complications and prevention, prioritization of care, and tasks for delegation. Students *Speed Date* around the room, sharing thoughts and perspectives, reflecting upon lessons learned.

Calibration

Use tools to determine level of knowledge, learning gaps, and study needs focused on self-regulation.

Ask why!

Students create a 20-item quiz using AI about content, topics, or concepts; they take and then grade the quizzes. For all items, students ask Why? to validate correct and incorrect answers along with all rationales, creating a list of *Muddiest Parts* to target study efforts on areas that need improvement. Students can further use AI to build study guides or study plans based on misconceptions and learning gaps.

Remediation

Address knowledge gaps through targeted, clinically based, student-driven, active, timely, and relevant activities assisting students to focus on and “study what they don’t know.”

Cognitive wrappers

Following an instructor-made or standardized test, students predict their score while analyzing and quantifying study efforts. Then, students compare actual with predicted scores and correlate level of effort with performance. By delving into their personal study efforts, students develop a remediation plan in AI based on exam results and areas of opportunity (weaknesses). Following completion of remediation activities, students *Think-Pair-Share* the value of *Cognitive Wrappers* while faculty discuss the links between testing, remediation, and study efforts.

Elaboration

Build layers/complexity into material through emotions and context.

Exploring communication

Students request AI to build potential statements made by a patient who is stressed or experiencing a crisis. Students use *Invented Dialogs* to create responses to these patient statements, using principles of therapeutic communication and empathy. Students *Think-Pair-Share* these in class, building communication skills.

Test-Multimodal Learning

Use tests and quizzes as teaching strategies, reinforcing making memories, retention, and retrieval.

Retain-Retrieve-Repeat

Students use AI to create a practice exam based on the NCLEX® Client Needs Test Plan. Create an assignment in which students take the exam, reflecting on questions, answers, and rationales. Students write one personal strength and one gap in learning on index cards. Students address items with fellow students in *Teach Each Other* and *Learn from Each Other* to bridge gaps and build upon strengths.

Multi-sensory/Multimodal Learning

Experience learning with varied modes and senses to enhance engagement and neural involvement.

Walk the client wall

Students create a client profile with AI similar to a client they cared for in clinical or simulation. Students *Compare and Contrast* clients. On a large poster board, students write a 1-2 sentence summary about the care of both clients, citing 5 differences and 5 similarities in their “real” and “AI-generated” clients. Hang the boards on the walls around the room and have students *Walk the Client Wall*, providing a 2+2 critique for 3 colleagues’ entries (2 positives, 2 questions or thoughts).



Use the SMART keys for prompt engineering

- ✓ **Scope:** Provide the AI with a role (e.g. “you are an expert nurse educator”), similar to a delegation framework. Provide information and guidance as one would when delegating in nursing practice.¹⁹
- ✓ **Models:** Align requests to evidence-based nursing education models, such as the National Counsel State Boards of Nursing Clinical Judgment Measurement Model.
- ✓ **Ask:** Request AI to enhance the prompt by identifying missing context or content.
- ✓ **Resources:** Provide resources and direct the AI generator to utilize credible sources. Ensure no copyrighted material is used and request rationales with citations.
- ✓ **Templates:** Streamline and standardize outcomes by creating customized prompt templates that can be used for repetitive tasks.

Top messages:

1. **Ensure students learn to engineer prompts for the most accurate information.**
2. **Guide students to use reputable tools that source valid, trusted, and evidence-based information and yield best practices.**
3. **Ensure that assignments are grounded in sound principles of deep learning and require reflection, thought, and clinical reasoning.**
4. **Reinforce that students may practice with AI-generated content, but they need to use evidence-based, vendor-vetted, and peer-reviewed sources to ensure the most accurate and current information available.**

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