

# AI for Clinical Education Preparation

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**“Transforming Physical Therapy Education: Powered by AI  
The Future Waits for No One”**

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# Disclosures



No financial disclosures to report



This presentation will NOT discuss in whole AI literacy which in this author's opinion is the foundation for ethical AI utilization.

# Clinical Education

Critical Thinking: Beyond Knowledge to Curiosity, Confidence, and Adaptability



## Preparedness for the clinic

Affective

Cognitive

Psychomotor



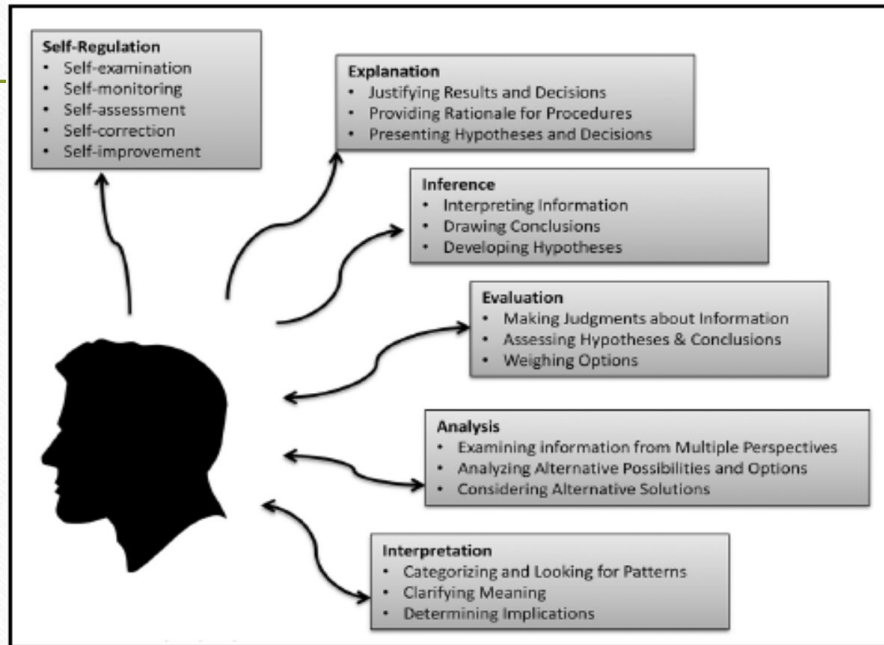
## Bridging theory to practice

Tutor

Coaching

Mentoring

# Skills Needed For Critical Thinking



**Figure 6-3.** Foundational cognitive skills and critical thinkers. (Adapted from Facione PA. *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction: Executive Summary: "The Delphi Report."* Millbrae, CA: The California Academic Press; 1990.



# Teaching Critical Thinking

- Traditional teaching methods, while effective in many contexts, often struggle to provide personalized support and instant feedback, particularly in fields that demand a significant amount of text-based learning, **critical thinking, and analytical skills** (Means et al., 2009)
- Although knowledge is an important foundation for critical thinking, there are also **affective and attitudinal aspects of critical thinking**, such as being curious, analytical, and confident in adapting one's views based on information or new understanding; tolerating ambiguity; and seeing the truth or best evidence. (Plack and Driscoll, 2017)

# Today's Student Physical Therapist

For some:

- Fewer Social Interactions
- Fewer Professional Opportunities

For most:

- Digitally savvy
- Minimal exposure to varied PT settings prior to PT school
- Discomfort in selecting diverse clinical education experiences

Haidt, Jonathon. *The Anxious Generation: How the Great Rewiring of Childhood is Causing an Epidemic of Mental Illness*. Random House, 2024

Lukianoff, Greg and Haidt, Jonathon. *The Coddling of the American Mind: How Good Intentions and Bad Ideas are Setting Up a Generation for Failure*. New York: Penguin Press, 2018.

Talmon, Geoffrey A. "Generation Z: What's Next?" *Med.Sci.Educ.* 29, 9–11, 2019. <https://link.springer.com/article/10.1007/s40670-019-00796-0>

# Impact on Affective Domain

- Relationships are not considered, “safe”
- Conversations are “transactional” and not open ended
- Desire instantaneous feedback
- Require training in seeking and accepting constructive feedback
- Delayed development of prefrontal cortex
  - self awareness
  - social skills & comfort
  - communication
  - problem solving

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# Today's DPT Faculty and Clinical Faculty

- Mixed generations
- Resource changes and faculty preparedness
- Growth in PT programs
- Greater regulation for clinical placements and often more restrictive options for integrated clinical experiences
- Clinical instructors are busier

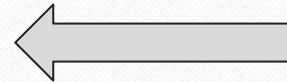


# Enter Generative AI

- Described as the simulation of human intelligence by machines, giving machines, particularly computer systems, the ability to perform complex tasks that would normally require human reasoning, decision-making, and problem-solving” (Alam, 2023)
- “For medical students, ChatGPT can provide interactive environments for them to practice their communication skills with simulated patients (Alam, 2023)
- Generative AI tools have the potential for adaptive learning experiences tailored to individual students' needs and abilities, as well as opportunities to increase learning through a variety of other pedagogical methods

**TABLE 1 SUMMARY OF SEVEN APPROACHES**

AI USE	ROLE	PEDAGOGICAL BENEFIT	PEDAGOGICAL RISK
<b>MENTOR</b>	Providing feedback	Frequent feedback improves learning outcomes, even if all advice is not taken.	Not critically examining feedback, which may contain errors.
<b>TUTOR</b>	Direct instruction	Personalized direct instruction is very effective.	Uneven knowledge base of AI. Serious confabulation risks.
<b>COACH</b>	Prompt metacognition	Opportunities for reflection and regulation, which improve learning outcomes.	Tone or style of coaching may not match student. Risks of incorrect advice.
<b>TEAMMATE</b>	Increase team performance	Provide alternate viewpoints, help learning teams function better.	Confabulation and errors. "Personality" conflicts with other team members.
<b>STUDENT</b>	Receive explanations	Teaching others is a powerful learning technique.	Confabulation and argumentation may derail the benefits of teaching.
<b>SIMULATOR</b>	Deliberate practice	Practicing and applying knowledge aids transfer.	Inappropriate fidelity.
<b>TOOL</b>	Accomplish tasks	Helps students accomplish more within the same time frame.	Outsourcing thinking, rather than work.



# Simulator

I want to practice my prognosis skills with physical therapy scenarios



Certainly! Here's a physical therapy scenario for you to practice your prognosis skills:

Scenario: A 45-year-old female patient presents to your physical therapy clinic with complaints of chronic lower back pain. She reports that the pain has been present for the past six months and has progressively worsened, particularly after long periods of sitting or standing. She describes the pain as dull and achy, primarily localized to the lower back with occasional radiation down her right leg. She rates the pain as a 7 out of 10 on the visual analog scale (VAS). She works as a secretary and spends most of her day sitting at a desk. She denies any recent trauma or injury to her back but mentions that she has noticed some stiffness and decreased range of motion in her lower back. She has tried over-the-counter pain medications and occasional heat therapy with minimal relief.

Based on this scenario, what are your thoughts regarding the prognosis for this patient? What factors would you consider in determining her prognosis, and what interventions might you recommend?



# Coach

During your recent visit to the acute care hospital, what was the most important skill or technique you observed in the physical therapy practice, and why do you think it stood out to you?

I noticed that the PT was always focused on safety, but also in making the patient feel heard.

That's a great observation! **How did the PT balance safety and patient communication during the session? Can you give a specific example of how they ensured both were prioritized?**

One patient in particular was anxious and somewhat impulsive, so even when the PT was being positive, telling the patient they were doing great, and reassuring the patient, the PT was also guarding really close and arranging all of the equipment so the patient didn't really even notice all that was happening around them.

That's a thoughtful approach! **Reflecting on that situation, how did the PT's actions influence your understanding of patient-centered care in a high-stakes environment like acute care?**



# Coach



Hi, I'm here as your coach to help you reflect on your recent clinical experience. Let's take things step by step to explore what you've learned and how you've grown.

To start, can you think of one challenge that you overcame during your experience and one challenge that you did not? Take your time.

Well, I stood outside a patient's room for over 20 minutes by myself so that wasn't great



It sounds like that was a tough moment for you. Can you tell me more about what was happening while you were standing outside the patient's room? What were you thinking or feeling at that time?

Well, to be fair, the patient had soiled themselves and the CI and patient didn't want me in the room. So, I just felt awkward standing in the hallway by myself not knowing what to do



That sounds like a really uncomfortable situation. Standing in the hallway, feeling unsure of what to do, can definitely make things awkward. Looking back on that moment, what do you think was the most challenging part for you? Was it the uncertainty of what to do, the feeling of being excluded, or something else?

Maybe a little bit of both

# Simulator and Coach

- Log on to ChatGPT
- Choose one prompt based on the setting you are assigned to this semester.
- Copy and paste the italicized words into the Message ChatGPT box. You can replace the bolded words in the prompts with specific patient information (non-PHI) if you wish from the clinic.
  - Outpatient: *I want to practice my knowledge of differential diagnosis for **knee pain**. You'll play the **56-year-old female** who is seeking an outpatient physical therapy evaluation. I'll play the physical therapist. The goal is to practice history taking. Create a scenario in which I can practice history taking of a patient in an outpatient physical therapy setting. I should have to ask enough questions to be able to generate two differential diagnoses before I move into my physical examination. Do not play my role. Only play the patient's role. Wait for me to respond.*
  - Inpatient: *I want to practice my knowledge of differential diagnosis on a safe discharge plan for a patient in the acute care setting. You will play the role of an **82-year-old male patient** who has **diabetes, hypertension, and pneumonia** and is currently in the Intensive Care Unit. I will play the role of the physical therapist. The goal is to practice history taking. Create a scenario in which I can practice history taking of a patient in an inpatient physical therapy setting in my role as a physical therapist. I should have to ask enough questions to be able to generate the best potential discharge setting for you. Do not play my role. Only play the patient's role. Wait for me to respond.*
- Perform a subjective evaluation.
- When you feel ready to move into the physical examination of the patient, conclude the conversation with the following:
  - Outpatient: *I have a pretty good idea of what might be going on. I'd like to next do some tests and measures to figure out what is going on specifically with your knee.*
  - Inpatient: *It appears you are safe to get up and move a bit. I'd like to look at how you move so I can see if it is safe to recommend discharge to (select your best guess for this patient)*
- Then, please provide the following prompt: *Please provide feedback on my interaction.*
- In the upper right-hand corner, there is a selection to get a link to the conversation.
- In a document, please share the link and then also write about the following (not to exceed 1 page):
  - How would you proceed with your physical examination and why? IE, what tests and measures would you select to help you make your best clinical decision?



# Simulator and Coach

Minimizing the pedagogical  
risk

1. Open ChatGPT and using the prescriptive prompt based on your practice setting, you will practice a patient discharge conversation.
2. Input the following prompt based on your practice setting. Similar to assignment 2, you can replace the bolded text with your patient demographics.

Outpatient: *I want to practice my patient communication skills surrounding discharge from outpatient physical therapy. The goal is to practice educating the patient on why they no longer need outpatient skilled physical therapy. I will play the role of the physical therapist. You will play the role of the **68-year-old female** who has met her goals for **improving her knee pain from arthritis and is no longer a fall risk**. Create a scenario in which I can practice discussing this patient's plan of care where they are not in agreement with the recommendations. I should be able to have the patient understand and agree to the recommendations without feeling dismissed. Do not play my role. Only play the patient's role. Wait for me to respond.*

Inpatient: *I want to practice my patient communication skills regarding a safe discharge plan for a patient in the **acute care setting**. You'll play the **82-year-old male** patient who is in the hospital because of **low blood sugar**. I'll play the physical therapist. The goal is to practice educating the patient on why it is not safe to have him **discharged home by himself**. Create a scenario in which I can practice discussing this patient's plan of care where they are not in agreement with the recommendations. Do not play my role. Only play the patient's role. Wait for me to respond.*

2. When you feel the patient has an understanding and is okay with the discharge plan, ask for feedback using the following prompt: *Please provide me feedback on my explanations.*
3. Copy the link in a document along with a reflection on why you chose to suggest the strategy you did in the conversation. What are your recommendations for continued care or after discharge, and why? What you would continue to do and what you would do differently in future encounters?

\*Please cite all references in AMA format\*

**SCAN ME**



Poe is another chatbot where you can customize further if you would like. Depending on how your student responds will depend on how the conversation goes!

Further, it does add additional elements of emotion to it.



# Key Takeaways

- Teaching and learning is different in today's environment.
- Emerging technology and tools may make it possible to navigate these differences.
- Interactive learning fosters growth in communication, clinical reasoning, safety awareness, professional behaviors.
- AI assignments enhance the required elements of the clinical education curriculum.
- There are many opportunities to utilize AI as the master clinician to accelerate teaching to those who have deficits in areas of critical thinking, particularly from a deficit in metacognition or affective domains.

When novices try to offload memorization and organization, learning is impaired, the emergence of higher-order thinking skills is stifled, and without deep knowledge and skill, they're unable to adequately vet outputs....when the individual has the requisite knowledge and skill to ensure the output meaningfully matches the desired outcome learning is facilitated. (HBR, 2024)

AI is our clinical partner!

... Which is why generative AI should be viewed as our PARTNER and not our replacement in clinical education!

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