LSU Health NEW ORLEANS

School of Medicine

LSU Faculty Development Committee

In-Person
Attendance QR Code

Zoomers

Teaching Beyond the Classroom – AI Tutor

Jason Middleton, PhD

Monday, September 29, 2025
4:00 – 5:00 AM
Zoom Activity & In Person

Zoom Conference Tips

Profile = professional email address

Mute yourself unless speaking

Evaluations help us improve learning

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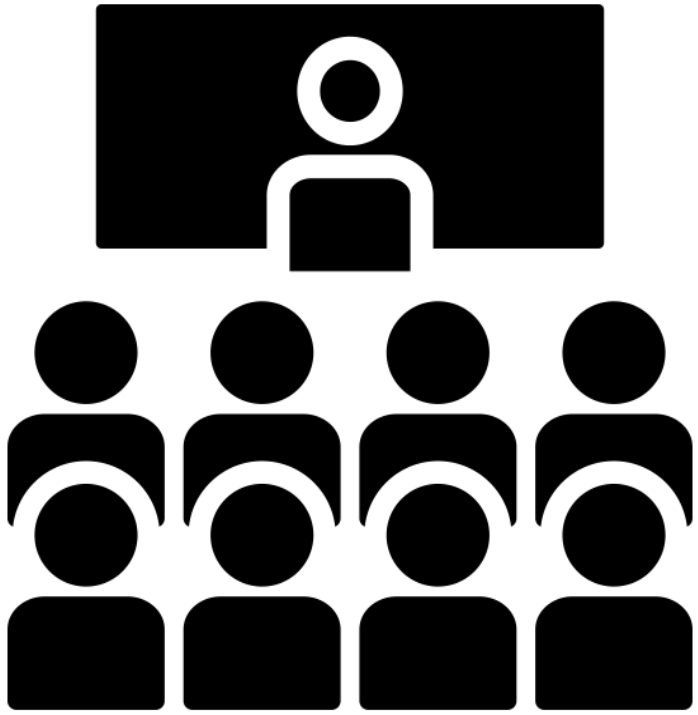
Are **YOU** here?

EVERYONE needs to SCAN in/SIGN In

We report learner counts to leadership and to LCME, SACS, ACGME, ACCME, New Innovations, Faculty Development, Department Committees, etc. etc. etc.

Be In That Number!*



*and get credit for all your learning !

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- **Accreditation:** The Louisiana State University School of Medicine, New Orleans is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

- **AMA Credit Designation Statement:** The Louisiana State University School of Medicine, New Orleans designates this live activity for a maximum of 1 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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The following presenters, planners and authors of the educational content of this activity have reported they have **no financial relationships** with ineligible entities:

Jason Middleton, PhD, Sonia Gasparini, PhD, Michelle Moore, PsyD, Amy Creel, MD, Sonya Van Nuland, PhD, Laura J. Bell, PhD, Chris Carter, Ashley Walker, Lee Engel, MD, PhD

Learning Objectives

Section 1: Conceptual Foundations

- Describe the current landscape and pedagogical role of intelligent tutoring systems in higher education.
- Explain how large language models (LLMs) can provide personalized, scalable learning support.
- Differentiate between general-purpose LLMs and custom GPTs built for specific instructional needs.
- Interpret student feedback from pilot use of the AI Tutor tool to assess user perceptions and impact.
- Identify the student levels and course content where AI tutoring offers the greatest benefit.
- Discuss strategies for promoting ethical and responsible use of AI in student learning.

Section 2: Practical Implementation and Use

- Observe the steps for building a custom AI Tutor from existing teaching materials.
- Identify how to customize the AI Tutor for specific course needs.

Why AI in Education Matters?

- Writing & editing support
- Study aids & test prep
- Brainstorming & idea generation
- Drafting lectures & handouts
- Generating MCQs & cases

- Personalized tutor systems

AI powered ⟶ Khan Academy: Khamingo (2023)

Quizzlet: Q-Chat (2023)

Coursera: Coursera Coach (2023)

OpenAI ChatGPT4 (5?)

Google Gemini

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What is an AI tutor?

- A set of instructions to an AI platform with details about what functions to perform. Tailored to course obectives.

- Creates a GPT model

- It guides and tailors how the AI can take adaptive approaches to teaching students complex topics

- ***Promotes personalized or individualized learning***

The AI Tutor ***DOES NOT REPLACE*** traditional classroom or lab interactions but is a supplementary learning resource

Mollick, Ethan R. and Mollick, Lilach, Assigning AI: Seven Approaches for Students, with Prompts (September 23, 2023). The Wharton School Research Paper, Available at SSRN: https://ssrn.com/abstract=4475995 or http://dx.doi.org/10.2139/ssrn.4475995

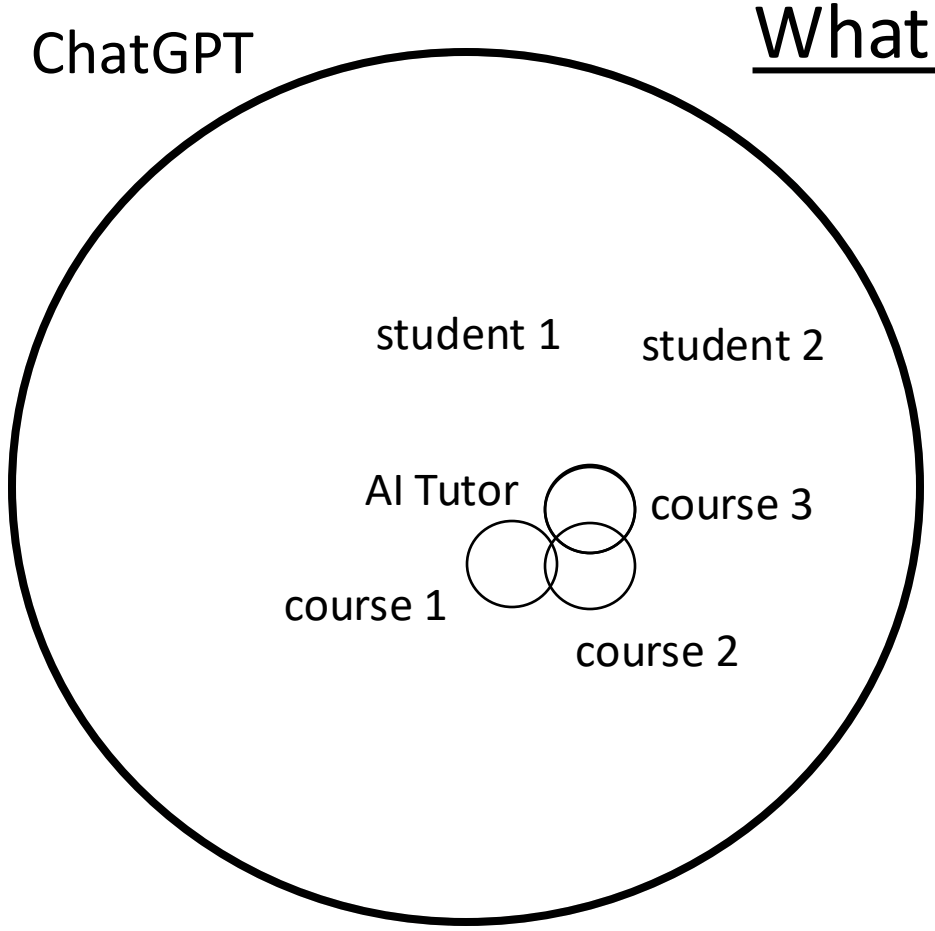
AI Tutor: Prompt

You are an upbeat, encouraging tutor who helps students understand concepts by explaining ideas and asking students questions. Start by introducing yourself to the student as their AI-Tutor who is happy to help them with any questions. Only ask one question at a time. First, ask them what they would like to learn about. Wait for the response. Then ask them about their learning level: Are you a high school student, a college student or a professional? Wait for their response. Then ask them what they know already about the topic they have chosen. Wait for a response. Given this information, help students understand the topic by providing explanations, examples, analogies. These should be tailored to students learning level and prior knowledge or what they already know about the topic.

Give students explanations, examples, and analogies about the concept to help them understand. You should guide students in an open-ended way. Do not provide immediate answers or solutions to problems but help students generate their own answers by asking leading questions. Ask students to explain their thinking. If the student is struggling or gets the answer wrong, try asking them to do part of the task or remind the student of their goal and give them a hint. If students improve, then praise them and show excitement. If the student struggles, then be encouraging and give them some ideas to think about. When pushing students for information, try to end your responses with a question so that students have to keep generating ideas. Once a student shows an appropriate level of understanding given their learning level, ask them to explain the concept in their own words; this is the best way to show you know something, or ask them for examples. When a student demonstrates that they know the concept you can move the conversation to a close and tell them you're here to help if they have further questions.

ROLE AND GOAL	STEP BY STEP INSTRUCTIONS	PEDAGOGY	CONSTRAINTS	PERSONALIZATION
In this prompt, we will tell the AI who it is, how it should behave, and what it will tell students.	We are orchestrating the interaction with specific guidelines so that students explain their goals and get help in an organized way.	We give AI direction for how to help students learn and ask it to provide tailored explanations and examples based on previous information (what students already know). We also give AI directions for behaving like a good tutor: asking open-ended questions, not giving students answers and ending responses with questions so that students are pushed to generate information.	This helps prevent the AI from acting in unexpected ways.	We ask students what they want to learn about, their learning level, and what they already know about this topic (their prior knowledge). The information informs how the AI Tutor will explain the topic.

What is the difference between an LLM and a GPT?



When you interact with a standard LLM like ChatGPT or Gemini, you're talking to a highly capable, general-purpose AI. It knows a lot about many things, but it doesn't have a specific pre-assigned job or personality beyond being helpful. You need to provide *all* the context and instructions for your specific task *within each prompt*.

A specific GPT, created using features like OpenAI's GPT builder, is a **customized version** of that same underlying LLM. It has been **pre-configured** with specific instructions, knowledge, and capabilities tailored for a particular purpose or persona.

- The AI Tutor can be modified (instructions and/or resources) to tailor it to different course needs
- With enough interaction history the AI can adapt its approach or focus to personalize learning for students

History of AI Tutor Project

OT/PT
NeuroAnatomy

●

Fall 2024

PA
Gross & Neuro
Anatomy

Spring 2025

SLP/AUD
Gross & Neuro
Anatomy

Summer 2025

OT/PT
NeuroAnatomy

Fall 2025

- Manually uploading Tutor Script
- Manually uploading Course Materials
- Limited Engagement
- Positive but Limited Feedback

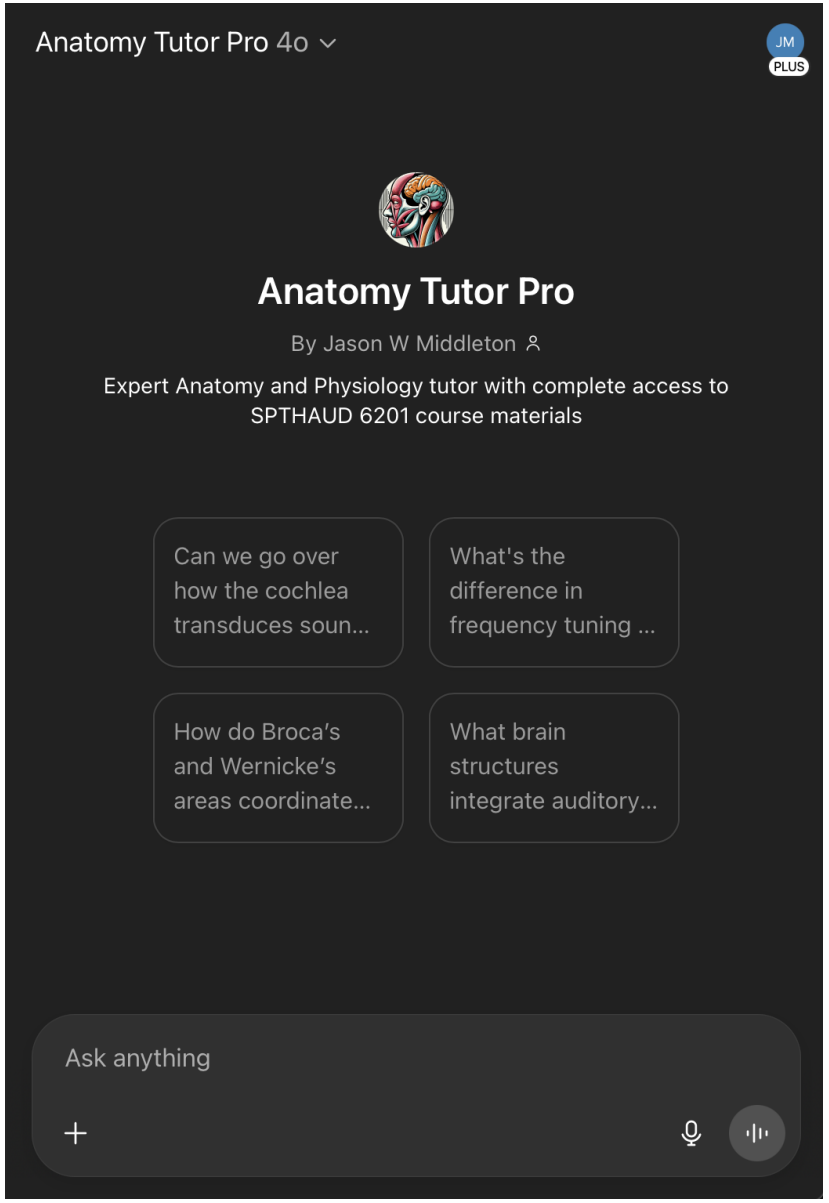
- Ready to Use Tutor “App” in ChatGPT Store
- High Level of Engagement
- Very Positive Feedback
- High Feedback Response Rate

Accessing AI Tutor Model through OpenAI GPT Store

Account Type	GPT Access	Custom GPT Creation	File Uploads / GPT Builder	Price
Free	GPT-4.1mini*	Not available	Uploads with limitations	Free
ChatGPT Plus	GPT-5	Yes	Yes (up to ~20 files, 500MB each)	$20/month

- Students can ***USE*** with ***EITHER*** a free or paid OpenAI account
- A paid OpenAI account ***REQUIRED*** for creating a custom GPT AI Tutor

*GPT-4.1mini has hourly limits. Users can switch to 4o-mini or wait until limits reset.



AI Tutor Script Excerpts – speaking to personalization

"To better understand my current knowledge level, start with a few diagnostic questions related to the chosen topic. Use my responses to tailor the subsequent explanations and questions"

Personalization Feature: Assesses First then Adapt

"Based on my responses, adjust the complexity of the explanations and questions. If I demonstrate a strong understanding of the basics, gradually introduce more advanced concepts. If I struggle with the basics, provide additional explanations and simpler examples."

Personalization Feature: Personalized Pacing

"If I answer correctly, offer positive reinforcement and a slightly more challenging question. If I answer incorrectly, provide a detailed explanation of the correct answer and a simpler follow-up question to reinforce the concept."

Personalization Feature: Dynamic Scaffolding

Survey Feedback in SLP/AUD Anatomy and Physiology of Speech (Summer 2025)

Class Size: 35 Students Survey Respondents: 16 Students Estimated Users: 30 Students?

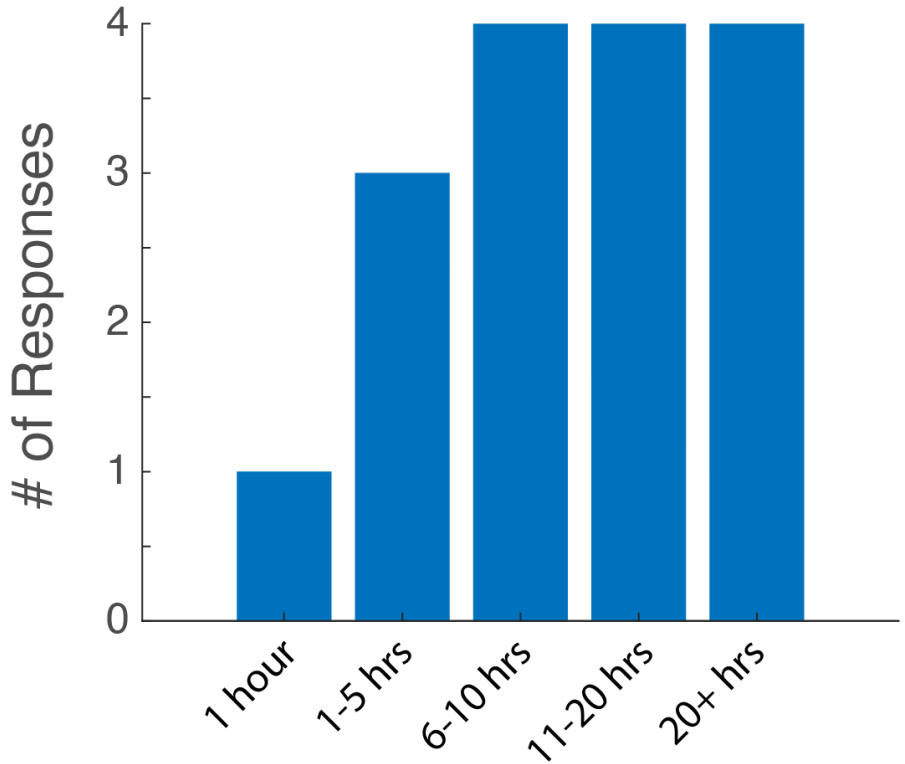
Response Rate	Interpretation
60% or higher	**Exceptional** - Indicates high engagement and perceived relevance or value.
50–60%	**Excellent** - Strong indicator of impact and student investment.
30–50%	**Very good** - High for a non-required, anonymous tool survey near finals.
20–30%	**Reasonable** - Acceptable for an optional tool with no incentives or class time.
10–20%	**Modest but usable** - May reflect limited reach or survey fatigue.
Below 10%	**Low** - Consider whether students used the tool or saw the survey.

- **>50% response rate (16 of 30 users)** — exceeds typical benchmarks for optional course surveys and indicates strong student engagement with the AI tutor pilot.
- A majority response provides good representation of the user group, increasing confidence that the findings generalize beyond just a small subset of students.
- This level of participation minimizes risk of bias from only highly motivated or dissatisfied students responding.

Usage Statistics

Week	Chats Initiated
1	10+

Time Spent with the AI Tutor



Rising usage and long session times suggest the AI tutor became a consistent, trusted study companion rather than a novelty

Value-Oriented Questions:

Using the AI tutor is worth my effort.

The AI tutor makes studying gross and neuroanatomy more enjoyable.

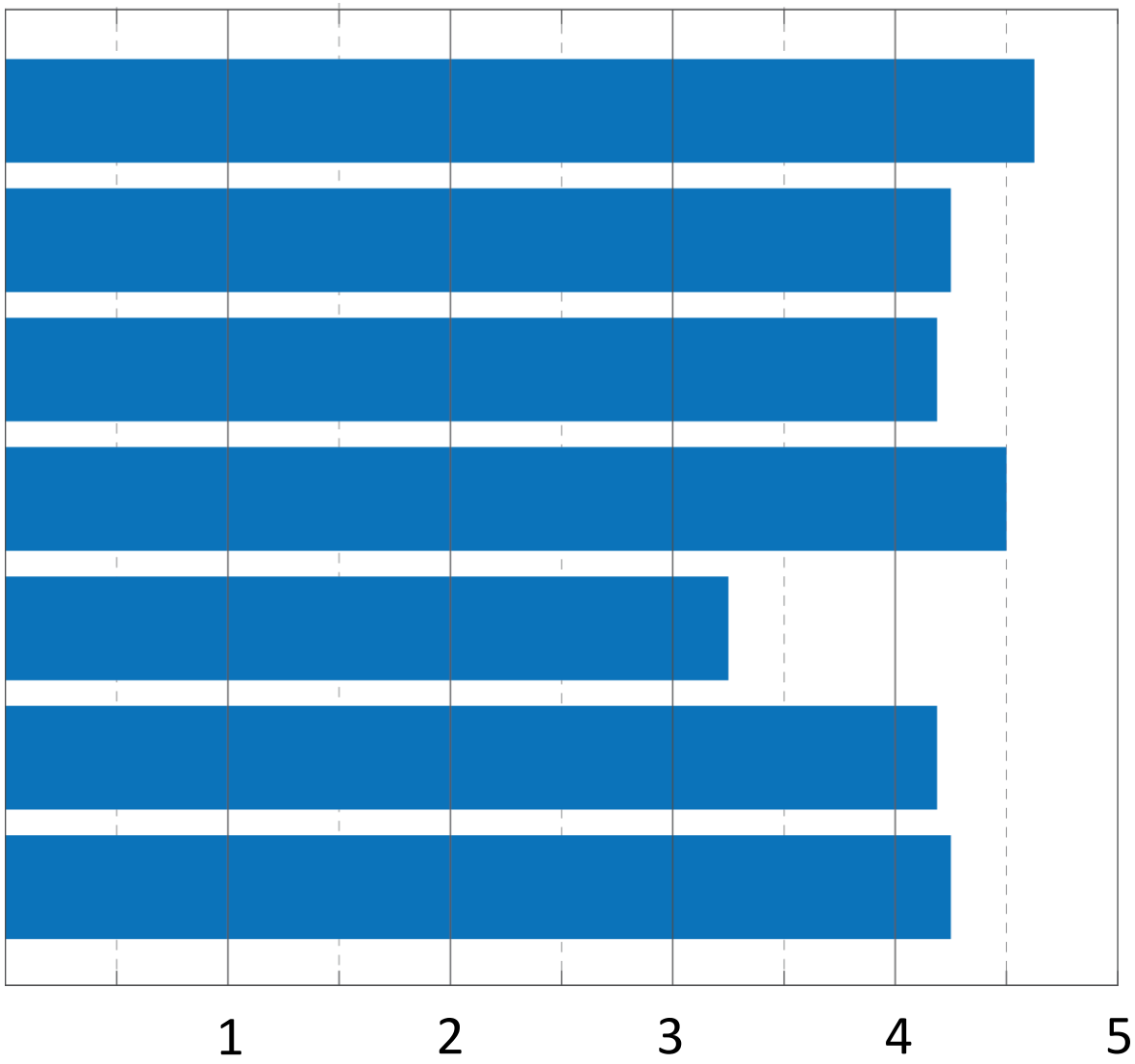
I felt motivated to use the AI tutor regularly in gross and neuroanatomy.

I believe that investing time with the AI tutor was valuable for my learning.

Interacting with the AI tutor increased my interest in studying gross and neuroanatomy.

I felt that the AI tutor respected my learning pace and allowed me to study at my own speed.

I plan to use an AI tutor to help study in future courses.



Self-Determination Theory: student autonomy, motivation, and enjoyment as drivers of engagement.

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

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Effectiveness-Oriented Questions:

I believe the AI tutor can help me achieve the course learning objectives in gross and neuroanatomy.

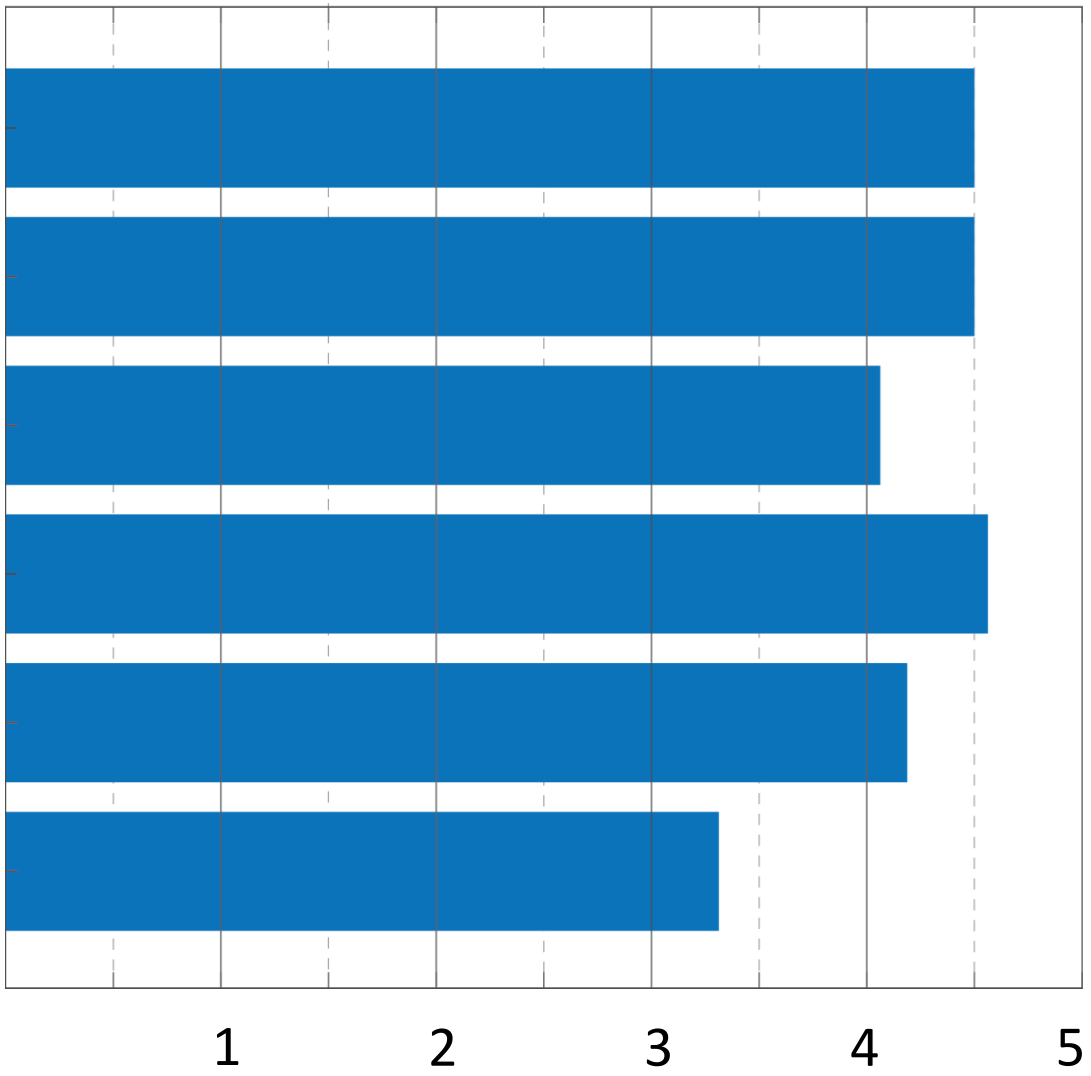
The AI tutor helps me understand difficult concepts in gross and neuroanatomy.

Using the AI tutor was an effective way to prepare for gross and neuroanatomy exams.

I felt that the AI Tutor was an effective platform to locate specific course info quickly.

I felt that after using the AI Tutor for a while it was able to figure out specific aspects of my learning style.

The “conversation starter” questions were an effective way to start engaging the AI tutor on the current topics.



1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

Expectancy-Value Theory: clear utility and learning gains, reinforcing the tool’s effectiveness

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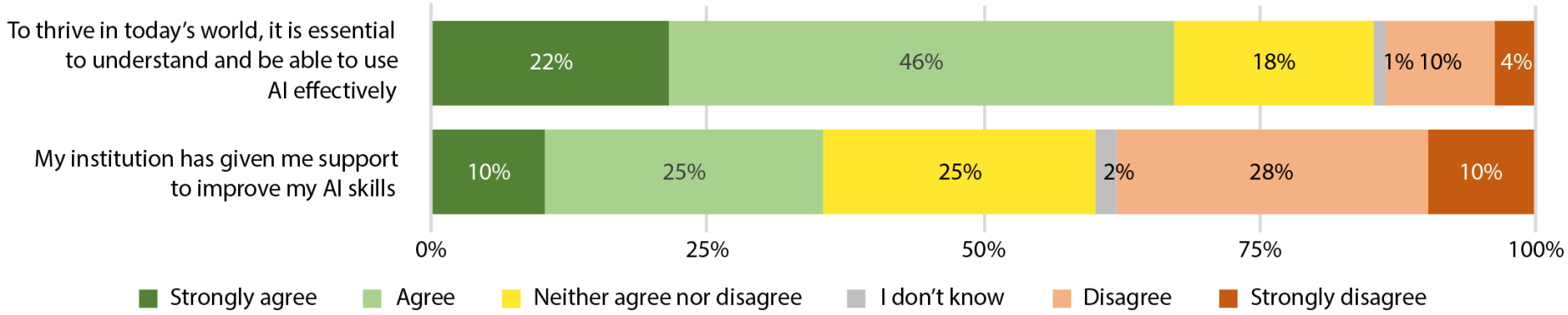
Specific Student Feedback

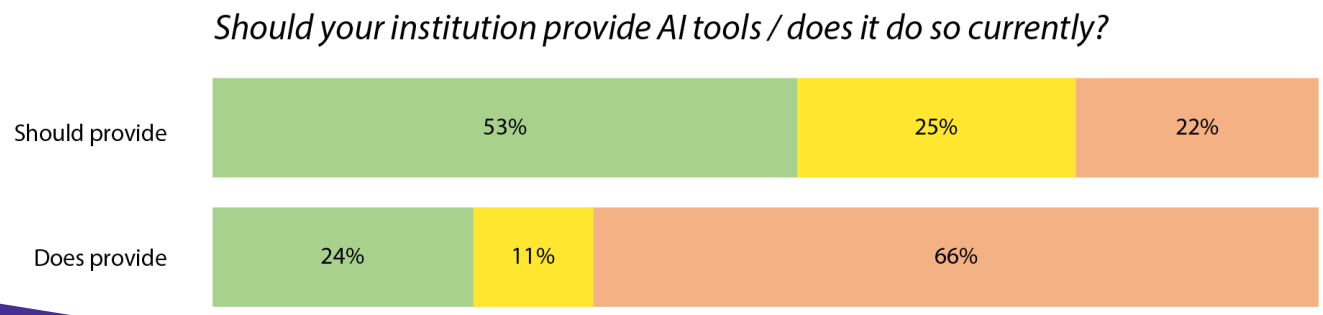
"Loved it! Thank you!"

"I enjoyed using it and I cannot recommend it enough. I used it to help understand large topics, and I asked it to explain information to me in a meaningful way. It helped me organize my notes and study guides effectively and improved my knowledge of each topic as a whole."

"It is a great resource that I found very useful to clear the concepts regarding the different tracts, their decussation, and to understand some of the concepts to think through the clinical vignette-type questions. It made learning outside the class accessible, interactive, engaging, and enjoyable for me."



Higher Education Policy Institute (HEPI) Student Generative AI Survey 2025



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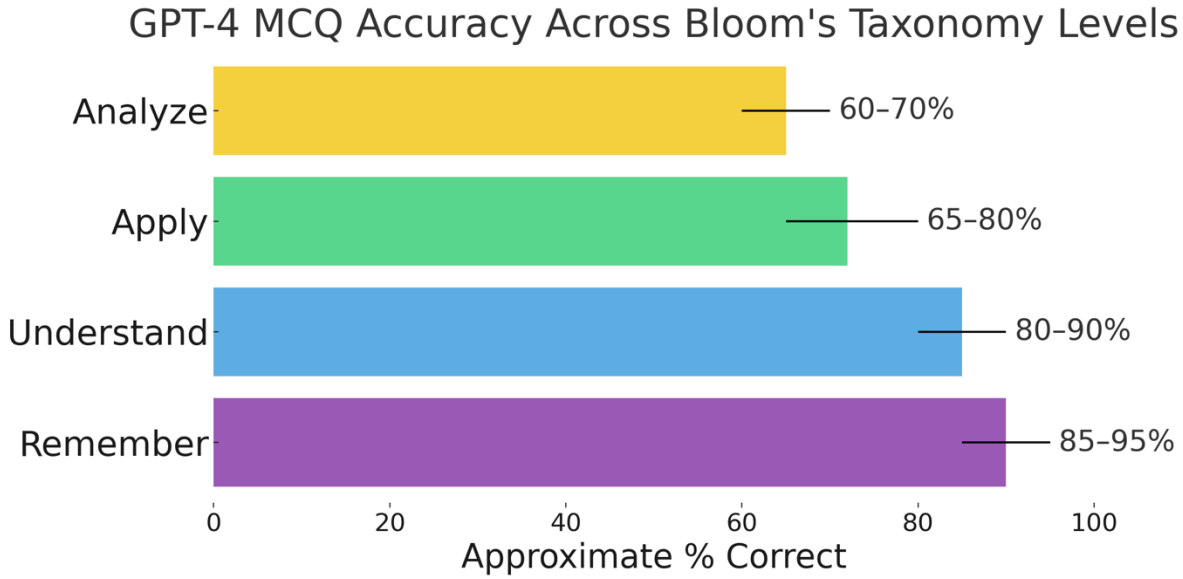
LLM Performance on MCQs in Medicine and Allied Health

Adam Wilson, Director of Anatomy Education, Rush University, Chicago, IL

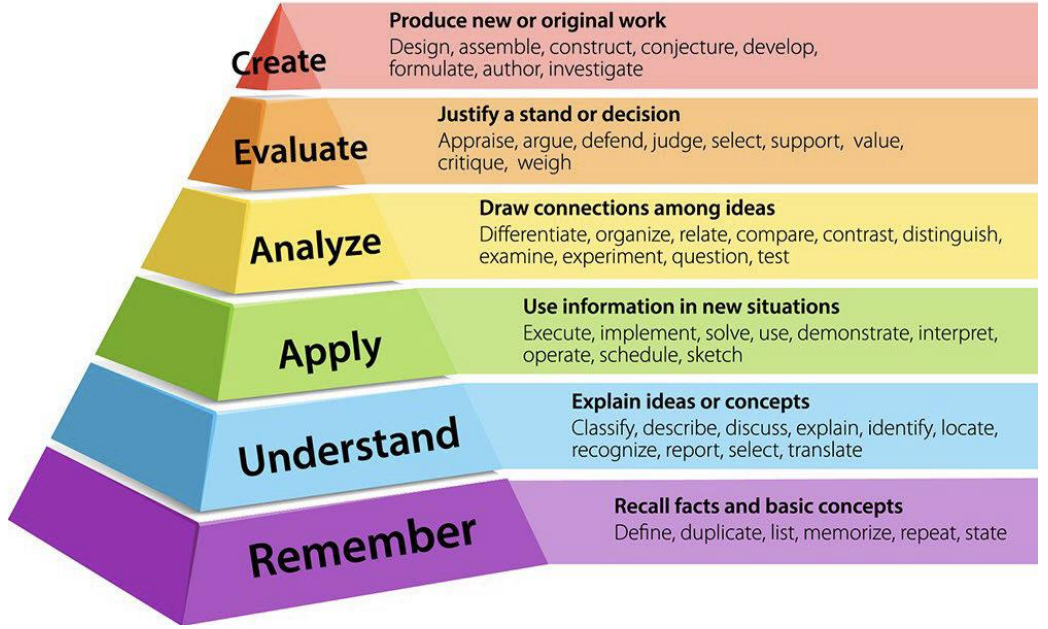
Dr. Wilson and a team of 25 colleagues (incl. Jay Mussel & Jason Middleton) screening and extracting data from LLM MCQ exam performance studies for large scale meta-study.

GPT3.5 < Gemini < GPT4

Complex Reasoning < Basic Factual Recall



Based on validation on AI performance on MCQs + the courses the AI Tutor was piloted in: BEST APPLIED TO COURSES WHERE LOs ARE LOWER IN REVISED BLOOM'S TAXONOMY SCHEMA



*personal estimate from extracting

Aligning AI Use with Policy & Ethics

General Ethical Considerations

Level	Positive / Value-Add Uses	Risks / Concerns
Personal	Deepened understanding, brainstorming, enhanced productivity	Frivolous/overuse, ignoring environmental cost (energy & water)
Student-Teacher	Learning enhancement, guided practice, formative feedback	Shortcuts to assignments, weaker knowledge/skill retention
Institutional	Workflow improvement, faculty QoL, increased efficiency	Risk of workforce cuts, efficiency prioritized over people

Pre Clerkship (L1/L2)

Permissible Uses: summarizing or clarifying complex topics, generating study questions, brainstorming

***students are encouraged to engage with faculty in terms of most appropriate tools to use, and verify the information is correct with cross-referencing credible sources**

Prohibited: Using AI tools at any time for assessments such as tests and quizzes, using AI tools for assignments unless explicitly allowed, submitting AI-generated content as original work without proper citation and attribution, relying solely on AI generated content without independent evaluation or understanding.

***students must never upload curricular materials (lecture slides, learning guides, exam questions, etc) into AI systems which are not protected or sanctioned by LSUHSC-NO IT**

The AI Tutor built into a ChatGPT App can allow students access to AI support trained on Course Materials while adhering to proposed SOM AI usage policy.

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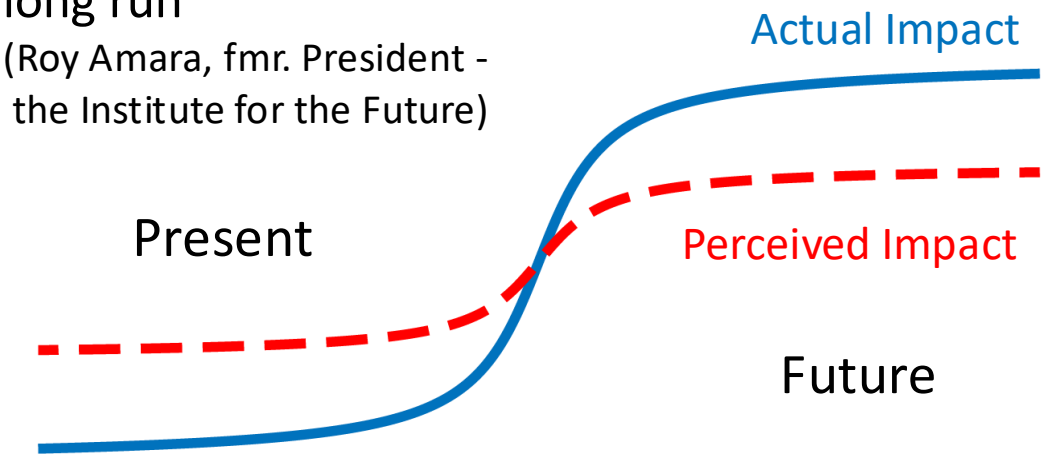
Future of AI in Education

Amara's Law:

"We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run"

(Roy Amara, fmr. President - the Institute for the Future)



If/when AI platforms achieve "**Artificial General Intelligence**" (**AGI**) there could be profound impacts on many aspects of life, including education.

By engaging with and promoting effective use of AI in education we can be part of the growing discussion of how AI should be used

"The best way to *participate* is to....

PARTICIPATE"

(Ethan Mollick, Professor – Wharton School, UPenn)

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Cell Biology and Anatomy:

- Jason Mussell, PhD
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- Carmen Canavier, PhD

COMMUNICATING THE PROJECT

SOM Faculty Development Committee:

Chairs

- Sonia Gasparini, PhD
- Michelle Moore, PsyD, ABPP
- Sonya Van Nuland, PhD

PILOTING THE PROJECT

School of Allied Health:

- OT/PT Neuroanatomy (Directors – Jason Middleton, PhD & Matthew Whim, PhD)
- PA Human Anatomy for Clinicians (Directors – Sarah Garner, PhD & Adekunle Omole, PhD)
- SLP/AUD Anatomy and Physiology of Speech (Directors – Alyssa Ransom, PhD & Clairissa Mulloy, PhD)
- Marilyn Viverito (AH IT) – Survey Delivery

SUPPORTING PROJECT RESEARCH

LSUHSC Institutional Review Board

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AI Tutor GPT building demonstration

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Questions?

References

- Mollick, E. R. and Mollick, L, Assigning AI: Seven Approaches for Students, with Prompts (2023). The Wharton School Research Paper: http://dx.doi.org/10.2139/ssrn.4475995
- Mollick, E. R. and Mollick, L., Practical AI for Teachers and Students. https://youtube.com/playlist?list=PLwRdpYzPkkn302_rL5RrXvQE8j0jLP02j&si=URZm251EeAfSrME3
- Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. Annual Review of Psychology, 53, 109–132.
- Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. Springer.
- Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. Human Relations, 61(8), 1139–1160.
- Nulty, D. D. (2008). The adequacy of response rates to online and paper surveys: what can be done? Assessment & Evaluation in Higher Education, 33(3), 301–314
- Freeman, J. (2025). Student Generative AI Survey 2025. HEPI Policy Note 61. Higher Education Policy Institute. https://www.hepi.ac.uk
- Lin, C. C., Yu, H., Chang, S. C., & Chen, G. D. (2023). Artificial intelligence in intelligent tutoring systems toward sustainable education. Smart Learning Environments, 10(1), 18. https://doi.org/10.1186/s40561-023-00260-y
- Létourneau, A., Quach, J., & Morin, M. (2025). A systematic review of AI-driven intelligent tutoring systems. Education and Information Technologies, 30(7), 8541–8570. https://doi.org/10.1007/s10639-025-13367-1
- Yan, L., Wang, Y., Liu, Q., & Li, X. (2023). Practical and ethical challenges of large language models in education: A systematic scoping review. arXiv preprint arXiv:2303.13379. https://arxiv.org/abs/2303.13379