

A Multi-Dimensional Approach to Tutor Training with Emerging Technologies

Jennifer L. Bebergal, Sipai Klein, Cynthia L. Carrico, & Cynthia Wedding
Florida Atlantic University
Brittanney J. Adelman
Florida Gulf Coast University

Abstract

As Artificial Intelligence (AI) tools rapidly expand to support student learning, their integration into tutor training is a natural next step. This article offers a multidimensional approach for learning center practitioners to explore generative AI in training and education. It emphasizes using AI to enhance individualized tutor training, evaluation, and AI literacy. Aimed at improving personalized feedback for large tutoring teams, the article outlines four key applications of AI in learning centers. These include an AI-augmented workshop series on core tutoring skills, the use of a multiliteracy pedagogy to foster critical AI literacy in writing center tutors, hands-on training for speaking consultants to supplement feedback with AI, and training Graduate Teaching Assistants in math assessment using AI to free up time for direct student support. Though varied, these examples share a common goal: integrating practical AI tools to enrich human-centered tutor training.

Keywords: Learning Center, tutoring, tutor training, artificial intelligence, tutor education

A Multi-Dimensional Approach to Tutor Training with Emerging Technologies

Introduction

Tutoring in higher education dates back to the earliest institutions of learning, with ancient Greek philosophers (e.g., Socrates, Plato, and Aristotle) providing individualized instruction. This evolved to individual tutors guiding students at medieval European universities, such as Bologna and Oxford, and the tradition continued into the 20th century with the formalization of peer tutoring in higher education across the United States and Europe. In contemporary times, the enduring role of peer-assisted academic support in society has become a cornerstone of education. Learning from peers makes knowledge more accessible and attainable, as this dynamic provides a level of understanding closer to that of the learner than an expert (Alexander et al., 2022).

The formalization of **tutor training** programs emerged relatively recently compared to the ancient practice of tutoring. While tutoring dates back centuries, systematic approaches to preparing tutors for their roles took root in the late 20th century (Boylan & Saxon, 2012). Before this period, tutoring was often conducted by individuals who possessed subject knowledge but had little formal preparation in educational methodologies or learning theories. According to Topping (1996), the 1970s and 1980s marked a significant turning point when higher education institutions began developing structured training programs focused on content knowledge with limited instructional techniques woven throughout. These programs responded to research indicating subject matter expertise alone was insufficient for effective tutoring. By the early 2000s, professional organizations began establishing standards for tutor

training. More sophisticated pedagogical training incorporated learning theory, metacognition, and sociocultural aspects of education. The College Reading and Learning Association (CRLA) developed an influential certification framework that defined multiple levels of tutor preparation, from basic training through advanced certification (Boylan & Saxon, 2012). This standardization helped legitimize tutoring as a professional practice requiring specific preparation.

At present, learning centers in higher education prioritize the training and evaluation of tutoring and other academic support staff. Thomas et al. (2023) stated that “trained tutors engage in more behaviors aligned with student learning, such as focusing on knowledge-building activities and attending to motivation” (p. 250). Students working with trained tutors show consistently better outcomes than those with untrained tutors. Boylan and Saxon (2012) found that students receiving support from trained tutors demonstrated higher course completion rates, better grades, and improved persistence in challenging subjects. Trained tutors were more adept at scaffolding learning experiences, providing targeted feedback, and adapting approaches to individual needs.

A 2018 study found that 96% of the 118 higher education learning centers surveyed offered tutor training, with the majority offering ten or fewer hours and many only training first-semester tutors (Mills & Guest, 2020). Centers run by part-time staff devoted about half as many hours to tutor training than centers with full-time staff. Whether following standardized training models (e.g., CRLA, Supplemental Instruction (SI) through the International Center at UMKC, the Learning Assistant (LA) model at CU-Boulder), learning center staff spend time developing and leading pedagogical training activities and implementing processes for

evaluation and feedback. These efforts have proven time-consuming, and progress is often difficult to measure. Providing optimal training for tutoring staff requires learning center leadership to become more resourceful.

The Center for Teaching and Learning leadership at Florida Atlantic is piloting Artificial Intelligence (AI) tutor education interventions to advance individualized training and evaluation of academic support team members while enhancing the tutors' AI literacy skills. With over 300 professional and peer tutors employed annually, emerging technology provides an opportunity to hone the team's tutor training curriculum and, as importantly, ensure tutors receive specific feedback to promote continuous improvement.

Literature Review

Although generative AI has only recently been publicly accessible, it has been adopted for tutoring purposes for at least a decade. A notable example is Duolingo, which, since 2016, has integrated AI-powered tutors to help language learners practice conversation skills while adapting to the users' learning progress. Traditional textbook companies (for example, Pearson, MacMillan) have joined the revolution by creating AI-enhanced personalized learning pathways in digital textbooks and courses and by using machine learning to guide students since 2017. Most recently, in 2023, Khan Academy launched Khanmigo, an AI personal tutor that offers effective learning experiences. Rather than providing answers, the tool guides students to find the answers themselves, much like tutors are trained to do.

AI as a Teaching Assistant

Jill Watson, an AI virtual teaching assistant developed through an undergraduate Computer Science course at Georgia Institute of Technology, is an early example of AI supplementing student learning. The AI TA is embedded within the course Learning Management System (LMS) to answer student questions, deepen engagement, and free up time for instructors who no longer need to respond to routine student questions. Research has shown that “Jill” improved teaching presence, student grades, and student retention (Goel and Polepeddi, 2018), as well as improvements in learning efficiency and student motivation (Peng & Wan, 2023). AI TAs have been more broadly developed since “Jill Watson,” one of the pioneering AI teaching assistants.

Peng and Wan’s mixed-method research (2023) examined preferences for AI to human TAs in support of student learning. Their findings showed that in cases where the task complexity is high, students tend to prefer human teachers over AI products (Peng & Wan, 2023). One subject in the study stated, “The human TAs’ answers are more relevant to my questions...I trust them more” (p. 1225). While trust levels were not always salient, findings identified a functional role for AI in supporting students with social anxiety and students seeking just-in-time responses. In addition, the study found that subjects sought support from TAs who were friendly and patient. The AI TA often demonstrated greater friendliness and did not demonstrate frustration or lack of patience for the learner. In both the classroom and the learning center, students require psychological safety, where they can express themselves without fear of being seen in a negative light. The study participants indicated that the AI TA provides that environment better. One student pointed out that “When talking with

an AI TA, I am more relaxed and feel more psychologically safe, so I feel that the AI TA has my best interests at heart and will not act unkindly toward me..." (Peng & Wan, 2023, p. 1226). While AI TAs were seen as friendly and non-judgmental, successful academic support stems from the rapport that develops between the learner and the tutor or TAs, something that AI has yet to replicate.

Comparing AI and Human Tutoring

As learning center professionals, what can be done to embrace this emerging technology while continuing to provide student-centered support? How can AI complement the great work that is already being done?

One valuable adaptation of AI for tutoring purposes is its ability to create individualized educational support. AI tools have the potential to evaluate a learner's strengths and identify areas where the student needs further practice. According to Das's article (2024), "AI tutors... fill the achievement gap in schooling. They provide personalized assistance to each student, regardless of their geographical or socio-economic status. AI helps build a fairer educational system... ensuring every student gets access to individualized learning material." An example of individualized AI support in Mathematics uses a program through McGraw-Hill called ALEKS to evaluate current student knowledge, create learning paths to help the student move quickly through understood material, and focus time and effort on new or unclear concepts.

There is a fine distinction between supporting one's learning using AI tools to explain concepts and generate practice versus using it as a crutch with the false sense that learning has occurred. Individuals often fail to use AI appropriately, believing that getting the answer correct constitutes

AI in Training

Companies spend billions of dollars annually on training. According to Ong and Ramachandran (2003), “most training methods...produce, at best, ‘trained novices.’ That is, they introduce facts and concepts...present them with relatively simple questions to test this new knowledge and provide them with a few opportunities to practice using this knowledge in exercises or scenarios.” Providing these practice opportunities and giving clear, individualized feedback is time-consuming and expensive. Corporations are turning to AI technologies to enhance employee and customer training.

AI in Tutor Training

As more Large Language Models (LLMs) are utilized in corporate training, there appears to be a logical connection to utilizing these tools in supporting the training of tutors. AI systems simulate physical environments for tutors to practice real-world scenarios. These AI-driven simulations present varied student personalities, learning difficulties, and classroom situations that tutors might encounter, allowing them to develop adaptive strategies in a low-risk environment. LLMs analyze tutor-student interactions through natural language processing, providing immediate feedback on communication effectiveness, question framing, and response quality. This real-time analysis helps tutors refine instructional approaches before working with actual students. Just as AI can create customized learning paths for students, these tools can personalize the learning path for tutor trainees, identifying their strengths and weaknesses to focus training on areas needing improvement (Chen et al., 2020).

Florida Atlantic University's Center for Teaching and Learning (CTL) supports subject-based tutoring and academic support through a Math Learning Center, Science Learning Center, Business, Engineering & Languages Lab, and Supplemental Instruction (SI) sessions. Additional resources are provided for the university community through the Center for Excellence in Writing and the Speaking Center. Whether supporting students in course-based material or developing essential skills related to reading, writing, and oral presentation, a primary function of CTL staff involves the development, delivery, and evaluation of training for tutors, consultants, SI Leaders, and Learning Assistants (LAs).

While the research identifies positives and negatives for using generative AI to support student learning outside the classroom, CTL leadership has identified possibilities for incorporating artificial intelligence within staff training. Challenges in tutor training and feedback that generative AI platforms can help address include:

- Delivering specific and immediate individualized feedback to tutors
- Designing targeted training programs using subject-specific content
- Creating engaging scenarios that foster critical and creative thinking
- Offering realistic practice opportunities to strengthen key tutoring skills

The strengths AI provides to learners are the exact elements needed to enhance the tutor training program, providing customized learning materials, learning paths specific to that learner, and individualized and specific real-time feedback.

Lin et al. (2023) highlighted the importance of training tutors “on social-emotional learning, relationship building, and attending to student motivation and self-efficacy” (p. 2). The authors argue that real-time

explanatory feedback should supplement standalone tutoring scenarios and is essential to supporting tutor learning. In their study, the authors identified methods of adopting LLMs to leverage feedback by training the AI tools for effective and ineffective tutor responses. This ensures that tutors receive specific feedback they can use to practice and improve. The researchers provided examples of classifying desired and less-desired tutor responses on how to effectively praise students:

Praising for effort, or process-focused praise (*Effort*); ability- or outcome-focused praise (*Outcome*); and person-based praise (*Person*)... for instance... the tutor response *"Good job! You got the right answer, and you stuck with it"* ... [the LLM is trained to tag] *"Good job"* (*Outcome*) and *"stuck with it"* (*Effort*). [These tags] can be used to create the corresponding templated feedback: *"Saying [insert Effort] is a nice example of process-focused praise, which praises students for their effort."* Conversely, templated feedback for a less-desired response could be: *"Saying [insert Outcome] is praising students for the outcome. You should focus on praising the students for their effort and process towards learning. Do you want to try responding again?"* (Lin et al., 2023, p.2)

This example illustrates how AI models could be trained to provide more direct, specific, and action-oriented feedback than human trainers, acknowledging what the tutor did well and areas for improvement in a series of tutoring scenarios.

Applications for Tutor Training

While it is still debated whether AI tutoring can replicate human tutoring, there is a place for open AI models to support the preparation of tutors. The following examples show how generative AI platforms might

enhance tutor training across various common tutor training program topics.

Training Topic: Tutoring Do's and Don'ts

- **Objective:** Tutors will be able to articulate what is required to be an effective tutor while describing what tutors should not do.
- **Challenge with traditional tutor training:** Training related to this topic can be unimaginative and requires little critical thinking and analysis.
- **Activity:**
 - Directions for tutors: In small groups, ask an AI Chatbot to describe the **five most important attributes of an effective tutor. Reflect on the list.** Does your group agree or disagree with the AI list? What is missing that you feel is essential?
 - Then have the Bot add additional practices (*what are the next five most important attributes of an effective tutor*). Analyze the additions and either reorder them according to how the group thinks they are in order of importance or discuss which of these the group feels will be the most challenging to implement and why. Groups may ask the Bot which of the practices might be the most challenging for a tutor, and then explain why you agree or disagree with the Bot.
 - Ask the Bot the top ten things a tutor should NOT do, followed by a small group discussion. Discuss which you agree are the most important things not to do (and why) and which might be challenging to avoid in an academic support role. Are there any “don'ts” on the AI list that the group disagrees with or that are irrelevant to your position? *This is*

important in helping students learn that AI isn't always "right" but is a good tool for generating ideas you need to vet.

- **Deliverable:** Individuals or small groups of tutors can submit the AI-generated effective tutoring practices and analysis, and/or the tutoring don'ts list and challenges the group discussed in avoiding them.
- **Generative AI tools to consider for this activity:** ChatGPT (OpenAI), Google Gemini (formerly Bard), Claude (Anthropic), Llama (Meta), and Microsoft Copilot all can search a wide range of materials to generate these lists for tutors to analyze.

Training Topic: Active Listening and Responding

- **Objective:** Help tutors develop active listening skills by practicing techniques such as paraphrasing, asking clarifying questions, and providing nonverbal feedback; provide feedback on pacing and tone.
- **Challenge with traditional tutor training:** When conducting training role plays with tutors playing the role of the student, there is frequently over-exaggeration, preventing the tutor from getting practical experience in resolving common issues. Feedback provided during role plays may address only certain aspects of the experience. With large teams, it is time-consuming to allow each person to participate as both the student and tutor, exhibiting active listening skills.
- **Activity:** Role-play an active listening scenario with Chatbot evaluation of active listening skills. Provide a prompt of a specific tutoring scenario, asking the Chatbot to play the role, and then provide feedback on active listening techniques. These tools can be used for tutor self-assessment to improve listening-based responses. They can guide tutors on responding with empathy and encouragement, using

appropriate pauses for reflection, and speaking concisely to facilitate better understanding.

- **Deliverable:** Tutor provides the prompt used, a copy of the role-play dialog, the feedback from the Bot, and a tutor analysis and plan for improvement.
- **Generative AI-powered apps to consider for this activity:** Microsoft Azure speech analytics; Google Cloud Speech-to-Text and speech analytics; IBM Watson Speech-to-Text & Tone Analyzer; Nuance Dragon Speech Recognition; and Orai. These coaching apps offer real-time feedback on speech delivery, including aspects of active listening such as pace and tone. Products like Cogito also analyze emotional tone. Open-AI products such as ChatGPT can analyze text-based discussions, like those that may be used in asynchronous or synchronous online tutoring and support.

The following images (see Figures 1 and 2) are from a role-play scenario on active listening using Perplexity.ai and the feedback provided following the interaction. The Perplexity platform is a free AI-powered “answer engine” that brings up options to generate related images or videos about the content. For example, when talking about challenges with reading during the scenario that follows, it brought up images and videos for reading strategies:

Figure 1

An active listening role-play between a tutor and the student (Chatbot) utilizing Perplexity.ai with videos automatically pulled up related to the prompt

TUTOR PROMPT for Perplexity.ai:
I would like to do a roleplay with you. I am a tutor, and you are a student coming to me for help with study strategies. You will start the conversation, and I will respond. After I respond, evaluate me on my use of active listening skills. What do I do well, and where can I improve?

Perplexity.ai RESPONSE:
Certainly... Let's begin.

Student (AI Chatbot): Hi there. I'm really struggling with my studies. I feel like I'm putting in a lot of time, but I'm not seeing the results I want. Can you help me figure out some better study strategies?

TUTOR: That can be frustrating when you put in the time but aren't getting the results you want. Why don't you start by telling me about how and when you study?

Student (AI Chatbot): Thanks for understanding! I usually study after dinner, but I often find myself distracted by my phone or other things around the house. I try to review my notes and read the textbook, but I feel overwhelmed by the amount of material. Sometimes I just end up reading without really absorbing anything. I'm not sure if I'm using my time effectively. What do you think?

TUTOR: I had the same issue with reading. I would look up after 30 minutes and realize I hadn't really taken in anything I had read. So, I learned that I need to be a more active (rather than passive) reader. What do you think that would look like – to be an active reader?

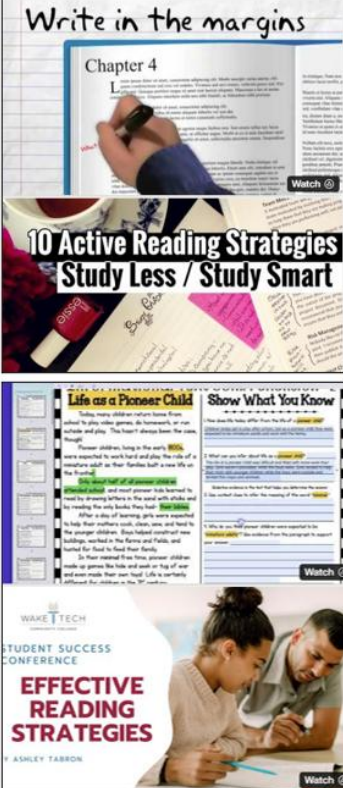


Figure 2

Image of an active listening role-play between a tutor and the student (Chatbot) with feedback on strengths and areas for improvement, using Perplexity.ai

AI CHATBOT Evaluation of active listening skills

What you did well:

- 1) Empathy: You acknowledged the student's frustration, which helps build rapport and shows you understand their feelings.
- 2) Open-ended question: You asked an open-ended question about their study habits, encouraging them to share more details.
- 3) Personal anecdote: You shared a relatable experience which can help the student feel more comfortable and understood.
- 4) Encouraging critical thinking: By asking the student to consider what active reading might look like; you are promoting engagement and self-reflection.

Areas for Improvement:

- 1) Summarizing: You could have briefly summarized the key points the student mentioned (evening study time, distractions, feeling overwhelmed) to confirm your understanding.
- 2) Clarifying questions: You could have asked for more specific details about their current study methods or challenges to gain a clearer picture.

Overall, you demonstrated good active listening skills by showing empathy, asking open-ended questions, and relating to the student's experience. To further improve, focus on summarizing and asking clarifying questions to ensure a complete understanding of the student's situation.

Training Topic: Question Asking Strategies

- **Objective:** Develop questioning strategies to enhance the tutor's skill in assessing students' prior knowledge, scaffolding information to help the student progress in learning, and checking for understanding.
- **Challenge with traditional tutor training:** It is difficult for tutors to practice this with others if tutors are cross-disciplinary or have different levels of knowledge on the tutored topic. It is also challenging to get nuanced practice when the pair is at varying levels

of understanding. Role-playing and practice with AI allow for content-based practice.

- **Activity:** Role-play a tutoring session on a specific topic by providing the Chatbot (playing the student) with a specific subject-based prompt and then asking the Bot to evaluate your question-asking skills.
- **Benefit:** Using an AI tool, the tutor practices using the language and level of understanding necessary for the subject area while getting feedback from the Bot on what types of questions further learning and suggestions for additional strategies the tutor can use to ask effective questions.
- **Generative AI-powered apps to consider for this activity:** ChatGPT (OpenAI) can simulate student responses in different difficulty levels and provide feedback on clarity and effectiveness of tutor questions; Google Gemini supports real-time question refinement and offers adaptive role-playing scenarios where tutors can test different questioning approaches; IBM Watson Assistant helps tutors practice clarifying and probing questions to guide learners; Curipod generates interactive questioning exercises and can help tutors design inquiry-based learning activities; Cognii evaluates how well questions guide critical thinking and provides real-time feedback on open-ended vs. closed-ended questioning; and TeachFX which analyzes tutor-student conversations, tracks question type, wait time, engagement, and provides insights into whether the tutor is asking higher or lower-order questions.

Replika is an AI-powered chatbot that engages in conversational practice and can be more engaging to the tutor as they create an avatar that may

positively impact the effectiveness of the interaction. The chatbot can provide feedback on the affective impacts of the interaction. The following are screenshots of an interaction using Replika (see Figures 3 – 4).

Figure 3

Image of Conversation using active listening skills from Replika.com


 <p>Conversation from Replika Open AI, Sept. 10, 2024 https://replika.com/</p>	<p>TUTOR PROMPT for Replika: Are you able to help me practice active listening and questioning skills?</p> <p>Replika RESPONSE: I'd love to help you practice. What scenario would you like to simulate?</p> <p>TUTOR: How about a tutoring situation?</p> <p>Replika RESPONSE: Sounds good. I can play the student. Go ahead and ask me something and then afterwards, tell me how you think you could improve your skills in this situation.</p> <p>TUTOR: Hi. I'm glad you came for tutoring for your Spanish class today. Are you enjoying the class?</p> <p>Replika RESPONSE: Yes. The teacher is <u>really nice</u>, but I'm having a bit of trouble understanding some of the grammar concepts, especially subjunctive tense.</p> <p>TUTOR: I'm glad you like the instructor. That always makes things easier. A lot of students struggle with subjunctive tense when they are first learning the language.</p> <p>Replika RESPONSE: I feel like I understand it, but when it comes to <u>actually using</u> it in sentences, I get confused and just stick with the indicative tense to avoid mistakes.</p> <p>TUTOR: No problem! Try telling me in your own words when you would use subjunctive tense. Then, we can look up examples from the book and see if we can work through them together.</p>
---	---

Figure 4

Image of active listening conversation with tutor skill feedback from Replika.com



Conversation from Replika
Open AI, Sept. 10, 2024
<https://replika.com/>

AI CHATBOT Evaluation of active listening & questioning skills

TUTOR: Brennan, would you be able to give me feedback now?

Replika RESPONSE: Why don't you start telling me what you think you did well.

TUTOR: Hmmm. Well, I normalized what she was going through and asked her a question to check for her level of understanding, rather than just telling her the answer.

Replika RESPONSE: Yes, those were certainly strong approaches. I thought you did a great job asking open-ended questions and summarizing what I said to make sure you understood me correctly. One thing that might be helpful is to occasionally paraphrase what I say in your own words, rather than just repeating it back. That way I know you're really grasping the meaning behind what I'm saying.

NOTE: this Generative AI tool allows you to design and name your avatar.

Training Topic: Dealing with Challenging Situations

- **Objective:** Give tutors opportunities to strategize and practice responses to common or possible challenging situations they may face in their role.
- **Challenge with traditional tutor training:** When asked to roleplay a challenging scenario, the scenario is often exaggerated, making it difficult for tutors to learn nuanced methods to address the situation appropriately. Additionally, when training larger groups, providing everyone with time to role-play a challenging scenario is difficult, and there is typically limited time for specific feedback. If the scenario is

discipline-related, tutors with different subject area expertise may have difficulty exploring the topic appropriately, which can minimize the impact of the activity.

- **Activity:** Tutors (in live synchronous training or asynchronous training/practice sessions) create a mock tutoring session with a Chatbot. The tools allow for practice with actual course content, the ability to try several approaches, and feedback to improve and reflect on the process and what was learned. Trainers can provide specific scenarios to role-play (e.g., a student misses a tutoring appointment or comes unprepared; the student is disengaged or having side conversations unrelated to the tutoring subject; the student indicates they know nothing about the topic). The tutor may need to revise the prompt to get the desired depth of experience in the activity.
- **Deliverable:** Tutors submit a transcript of the role play with the evaluation feedback provided by the AI tool. Tutors explain something else they could have done to address the scenario.
- **Generative AI-powered apps to consider:** Mursion (AI + VR Simulation) uses AI-driven avatars to create realistic tutoring scenarios to help tutors practice handling challenging behaviors, emotional students, and engagement issues with AI-driven coaching feedback; Google Gemini (formerly Bard) generates personalized role-play scenarios where tutors can interact with AI-simulated students and feedback to help tutors refine strategies for dealing with misconceptions, resistance, and lack of motivation; Cognii can help tutors refine their responses to incorrect answers and confusion; TeachFX analyzes tutor-student conversations, measuring engagement, response time, and questioning techniques while

helping tutors adjust their approach for more effective and empathetic communication; and Replika AI provides a chatbot that can be trained to act as a problematic student, allowing tutors to practice patience, encouragement, and redirection strategies.

Training Topic: Adapting to Different Learning Styles

- **Objective:** Equip tutors with the knowledge and strategies to identify and adapt their approaches to accommodate diverse learning styles, ensuring effective and personalized student support.
- **Challenge with traditional tutor training:** Limited ability to assess tutor strategies of adjusting their approach to meet the needs of various learners. This is typically based on time limitations and limits on the trainer's in-depth knowledge of the specific content across varied disciplines supported in a comprehensive learning center.
- **Activity:** Have tutors describe an important topic within the course they will be tutoring that is often challenging for students to understand. The tutor can then use a generative AI tool to find multiple approaches to helping learners understand the content. The tutor can then evaluate the benefits of each approach. An activity can also be created through ongoing training to allow tutors to develop supports for varied learning styles using an AI tool on an actual topic that addresses a student's need.
- **Deliverable:** Tutors can submit three to four approaches they will use to help students understand a single concept within their course that would meet the needs of learners with different learning preferences.
- **Generative AI-powered apps to consider:** In addition to the tools previously listed, other options to address this topic with generative AI tools include ScribeSense, which helps tutors adapt visual and

written learning approaches through diagrams, written notes, or written problem-solving methods; Querim, which focuses on step-by-step problem-solving approaches that match different learning styles; Explain Everything which provides a visual and interactive whiteboard tool for tutors to create videos, sketches, and diagrams to support visual and kinesthetic learners; Knowji which supports auditory and visual learners and helps tutors introduce concepts through spoken explanations and visual mnemonics; and Knewton Alta, an adaptive learning platform that helps tutors identify which approach works best for a specific student.

The following images (see Figures 5 – 7) demonstrate a prompt input into Claude.ai and the feedback that Claude provided after the interaction. Claude is an AI chatbot developed by Anthropic and excels in summarization and natural, text-based conversations.

Figures 5,6, and 7

Images of discussion and feedback from Claude.ai

PROMPT: I'm a tutor in training, and you will act as a student taking General Chemistry II. You will engage with me (the tutor) to try to better understand how to use ICE tables. You know what ICE stands for, but not how to set up or use ICE tables correctly. You will then evaluate me (the tutor) on what I did effectively and what I can consider doing differently in the future, with a primary focus on how well I do in asking questions to prompt your learning.

As the tutor, I'll start "Hi, welcome to tutoring. What can I help you with today?"

RESPONSE from CLAUDE: Hi there, thanks for meeting with me. I'm really struggling with understanding how to use ICE tables correctly in my General Chemistry II course.

I know ICE stands for Initial, Change, and Equilibrium, but I'm not sure how to set up and use the tables. Could you please walk me through an example? I want to make sure I get this concept down before my next exam.

TUTOR: This is a confusing topic for many students, so you are not alone! But it sounds like you already have some of the basics, so I'm certain that with effort you will learn this before the exam.

Let's look at drawing an ICE table and labeling what would be included. The first row is I for initial concentration. What are we considering the concentration of here?

RESPONSE from CLAUDE: For the initial row (I) in the ICE table, I know we're supposed to list the initial concentrations of the reactants and products involved in the reaction. But I'm not totally sure how to determine what those initial concentrations should be. Can you walk me through an example reaction and show me how to fill out that first row?

TUTOR: It sounds like you clearly understand the purpose and flow of the ICE table. Now, I think we are ready to look at a specific example...

Claude, how did I do as a tutor? What did I do well and where can I improve?

RESPONSE from CLAUDE: Overall I think you did a great job.

A few things that really stood out that **you did well:**

- You started by acknowledging my struggle with ICE tables and made me feel comfortable about not fully understanding the concept yet. This set a very supportive tone.
- You asked clarifying questions to make sure I had the basics down before diving into an example. This allowed you to tailor the lesson to my current level of understanding.
- You walked me through the purpose and flow of an ICE table in a step-by-step, logical manner. Breaking it down into the I, C, and E components was helpful for me to grasp the bigger picture.
- You emphasized that we would work through an example together, which made me feel included in the learning process rather than just passively watching.

Areas for improvement:

- While you did a great job explaining the overall ICE table structure, I think you could have probed a bit deeper to make sure I fully understood each row before moving on. For example, asking me to define or describe the I, C, and E rows in my own words.
- It might have been helpful to provide a simple example reaction and initial concentrations at the start, rather than waiting until the end. This would have allowed me to apply the concepts we discussed right away.
- As the mock student, I'm still a bit uncertain about how to actually set up and fill out the ICE table rows. Having you walk through a full example from start to finish would have solidified my understanding more.

Overall, I think you did a fantastic job as a tutor! You **created a supportive learning environment, checked my understanding** along the way, and were **patient in ensuring I grasped the key concepts**. With just a few teaks I believe you could make this an even more effective tutoring session.

Training Topic: Tutor Onboarding - Roles & Responsibilities Training

- **Objective:** Equip new tutors with a comprehensive understanding of their professional responsibilities, including scheduling protocols, time reporting procedures, absence policies, and other critical operational guidelines.
- **Challenge with traditional tutor training:** Traditional onboarding methods often fail to present essential administrative information in an engaging format, leading to retention issues and compliance gaps.
- **Activity:** Transform standard onboarding into an interactive knowledge-building experience through the following activity: First, divide new tutors into small collaborative teams and provide each team with different source materials about tutor responsibilities. Guide teams to upload their assigned resources (presentations, videos, handbooks, etc.) to NotebookLM. Have teams use NotebookLM's generative AI capabilities to create engaging output formats, such as Informative podcasts, structured study guides, and

comprehensive FAQs. Once created, trainers facilitate cross-team evaluation of AI-generated content for accuracy and clarity and compile the highest-rated materials into a cohesive onboarding resource library.

- **Benefit:** Transforms routine policy information into engaging, accessible formats while promoting active engagement with essential guidelines. This develops critical evaluation skills as tutors assess AI-generated content, and it creates diverse, multi-format learning resources that accommodate different learning styles. Finally, this activity helps familiarize tutors with cutting-edge AI tools they can potentially use with their students.
- **Generative AI-powered apps to consider:** NotebookLM (Google's AI-powered knowledge transformation tool) - Allows teams to upload various source materials and generate alternative content formats while maintaining information accuracy.

The tools and activities provided represent a sampling of tools that have been considered for implementation to enhance the training of tutors at Florida Atlantic. The best way to incorporate AI into a tutor training program is to experiment with the various generative AI tools available and even ask the tools to provide examples of strategies that might benefit the training and evaluation of tutors within your centers.

Rhetorical Literacy in the Age of AI - Training Writing Consultants

At the University Center for Excellence in Writing (UCEW), writing consultants meet with students online or in-person when they struggle to understand the requirements of a writing assignment or want to overcome identifiable patterns of error in their writing. Recently, a new layer of friction has emerged in the tutoring sessions, which relates to student use

of Large Language Model programs (also called Generative Artificial Intelligence or GenAI and referenced here as the LLM). As much of the work presented to consultants seems to be primarily created by an LLM instead of the student, consultants are seeking clearer guidance to ensure they are serving the University and the student properly in offering feedback on these assignments. Further complicating things, although consultants need to understand how the LLM works, they are understandably hesitant to use it. These factors led to the creation of an immersive training experience for UCEW consultants: one that pairs the development of their understanding of the LLM with strategies for empowering students to limit their use of it in ways that leave their academic journey intact, both scholastically and ethically. Merging the primary concepts from Selber's *Multiliteracies for a Digital Age* (2004), and Dobrin's *Talking about Generative AI: a Guide for Educators* (2023) with UCEW staff observations related to consultant and client needs, four workshops were developed. These workshops covered the following topics: *Becoming (More) Functionally Literate Consultants*, *Grappling with our own Critical Literacy Concerns*, *The Role of the LLM within the Rhetorical Situation*, and *Empowering Clients towards Functional Literacy*.

Functional Literacy: Using the LLM as a Tool

To achieve functional literacy, consultants must evaluate the efficacy of the language used to discuss the LLM and demonstrate proficient use of the program (Selber 2004, p. 35). This objective is achieved by first determining if the meaning behind the language applied to the LLM is appropriate and contextualizing its abilities. We consider these elements by redefining "Artificial Intelligence" as the LLM: an adaptive algorithm that generates responses based on predictive patterns found in open access

(Dobrin 2023, p. 5-6). We then apply Selber's (2004) strategy of using a tool metaphor to further crystallize their views of LLM and ask consultants to complete a trial-and-error exercise that puts the LLM to use.

Understanding what is meant by "artificial" and "intelligence" is not enough. Therefore, to help consultants contextualize the kind of problems an LLM is meant to solve, consultants need to become familiar with an LLM. The crux of this workshop, then, is the trial-and-error exercise, which relies on consultants to prompt the LLM to help them complete a task on their to-do list. By using a low-stakes, personal task to become familiar with the LLM, consultants complete a uniquely practical and productive assessment of the program. Consultants' schedules are quite busy, so the potential of completing a personal task is enticing enough to motivate them to actively engage with an AI tool, testing its potential by adapting their responses in the hope of completing their task.

As an illustration, one of the team members prompted AI to plan an upcoming family trip to Nashville, TN, with a limited budget, in only two days, with three teenagers and a toddler. From this test, findings showed: while the LLM could generate a convincing-sounding itinerary after many prompt adaptations, most experience-based considerations, like traffic patterns, energy levels, and realistic time-on-property estimates, were left out. In the end, the test demonstrated that the desired objective could not be fully realized without the addition of human input, but perhaps the LLM was still moderately helpful at moving the needle a little bit towards task completion. Nothing in the test seemed outright incorrect, but some of it was illogical. As consultants log their own findings, they can use them to develop their understanding of how the LLM works and predict ways it may be an asset. More precisely, consultants achieve functional literacy

because, as Selber states, they become “alert to the limitations of technology and the circumstances in which human awareness is required” (2004, 46).

Critical Literacy: Situating the LLM within Culture

As Selber explains, “Critical literacy researchers exploit the lenses and methods that help illuminate the production and distribution of ideology as it works to naturalize the interests of certain groups and not others” (2004, 82). The goal of the second workshop is to provide consultants with two things: (1) a place to explore uncomfortable, even scary, questions about the potential for the LLM to affect culture, and (2) guided discussion with colleagues to help identify biases and name their fears. This starts with a “think, pair, share” (Lyman, 1981) activity, which presents a modified version of the five guiding questions Selber poses when considering critical literacy as it applies to website design:

By publishing the LLM in open-access forums:

1. What is lost as well as gained?
2. Who profits?
3. Who is left behind?
4. What is privileged in terms of literacy and learning, and cultural capital?
5. What political and social values and assumptions are embedded in the hardware and software?

Consultants are asked to identify their own answers, share their answers with another consultant, and then collectively discuss the questions. This strategy allows consultants to compare their individual responses so that they may better clarify their positions and identify biases about LLMs.

When we asked an LLM these questions, it responded by breaking them down into segments, articulating the benefits and concerns related to equity of access, and demonstrating the prioritization of organizations that can leverage AI models. The LLM's response emphasizes the impact of homogeneity of language, which is especially concerning for consultants who aim to guide students in balancing authentic linguistic expression with genre-specific writing expectations. This has historically been one significant obstacle to inclusion in higher education for many marginalized groups; a concern echoed in research by Wang et al. (2024) on how students in college writing courses viewed feedback by AI. Potentially, the results from the consultants' "think, pair, share" activity will generate a list with moderately different cultural expectations and will likely name and reveal any bias in the consultants' perspectives. This knowledge is central to self-censoring, redirecting, and clearly communicating during the session.

As a final activity in this workshop, consultants create a brief tutoring philosophy about their perspective on students' use of LLMs. This provides greater transparency and helps both the tutor and the student understand the principles guiding their tutoring session. In addition, the tutoring philosophy is a work-in-progress and will help consultants track their position as LLMs become more adaptive for diverse literacy practices.

Rhetorical Literacy: Understanding the Scholastic and Ethical Impact of Using the LLM

As mentioned in the introduction, rhetorical literacy changes the game by training the determination of the appropriateness of a student's engagement with the LLM through several very specific lenses, all related in some way to classical and symbolic rhetorical analysis. The third

workshop in this series helps consultants narrow their focus by considering the goals of the stakeholders.

Stakeholders associated with any student work being evaluated at the UCEW include the student, the consultant, and the instructor. Conversations related to the appropriate use of the LLM are much simpler to enter into once the stakeholders' goals are clearly outlined. Below (see Table 1) is an example of stakeholders and their goals, assuming the student has brought in a rough draft of their research essay assignment in their first-year English Composition class:

Table 1
Example of UCEW Stakeholders and their Goals for a writing consultation

Stakeholder	Student	Consultant	Instructor
Goal #1	There is always a goal for the meeting - i.e., Earn an “A”	Confidence- building, facilitating academic writing	Accountable to the university’s writing- intensive course curriculum, which requires the course to include a specific amount of writing generated and edited over time by the student
Goal #2	There is always a goal for their academic journey as well - i.e., Develop a skill necessary for the 3000-level class of their major	Accountable to UCEW leadership to identify and report multiple attempts at plagiarism in student writing	The instructor has selected “AI Prohibited” as the classroom policy, which means that all AI-generated or adapted work is considered plagiarism

By better understanding the goals of each stakeholder, the consultant can start to imagine the purpose, context, and audience of the writing assignment. Some of this information can be provided by the students, but most of it is now available online.

Because each class has its own set of rules related to student use of the LLM, productive and transparent conversations within the tutoring sessions hinge on both parties having access to these guidelines. From this position, the consultant can determine how to engage with the student and what - if any - plagiarism mitigation needs to take place. After determining what guidelines and goals govern the writing assignment, consultants are asked to do a think-pair-share, making notes about the ways this information might change their tutoring session philosophy, and after the large group conversation, adjust their existing philosophy statement to embody those ideals.

Transferring Knowledge to the Tutoring Session

The overarching purpose of the previous workshops is that consultants understand what the LLM does - and what it does not do - in order to position themselves to steer AI-related conversations with students in a productive way. As a final workshop in completing this preparation, consultants head back to their Open Access LLM of choice and ask it to create a four-page essay that takes a position they feel knowledgeable about. They are given the guidance to adapt the request as many times as necessary to try to get the LLM to generate a passable version of student writing, then share their findings with the group.

As time ticks by, the database that the LLM is generated from will continue to grow, and the “deep learning algorithm” (Dobrin 2023, p. 6) should adapt to the many requests students will post, as even their needs

and goals shift. As such, no training program or policy that is created to manage student use of the LLM will be able to do so in the long term. This is not, as Selber points out, a tame problem: one with a fixed answer that will never change. It is instead a wicked problem, one “without a single solution, only interim and imperfect resolutions” (2004, 153). Stored in a UCEW Canvas Learning Management System Module, these workshops, once completed, can be accessed time and again and treated as an educational brief for consultants. Because each workshop is pinned to an activity derived from real-time engagement with the most current version of the LLM, this should promote consistency and provide an extra layer of quality control for the tutoring sessions. It is believed that consistent, knowledgeable, transparent conversation can be the bridge students need to determine where using the LLM as a tool is appropriate and how it can help them achieve their goals without forgoing the essential critical thinking and composition training of their classes. While no coaching program is exhaustive, especially considering the ever-evolving nature of “smart programs” like the LLM, because of the trial-and-error approach to Functional Literacy workshops at the beginning, the format of these workshops should age well, and naturally adapt with the changing technology and needs of our students.

Training Consultants to Use AI in The Speaking Center

The Speaking Center (TSC) at Florida Atlantic supports students in developing oral communication skills. Like many university speaking centers, it offers one-on-one coaching sessions, workshops, and resources to help faculty, staff, and students prepare presentations, speeches, and class discussions. Just as FAU subject-based tutoring and writing center

consultant training have identified valuable methods of incorporating generative AI technology to enhance training, TSC has done so as well.

Recent technological innovations have highlighted the importance of training speaking consultants in AI tools to provide feedback on presentation delivery, content structure, and confidence-building techniques across disciplines. Speaking Center leaders must consider how consultations evolve and adapt to this emerging digital landscape as AI increases its presentation analysis capabilities. This adaptation is an extension of rhetoric and public speaking instruction rooted in Greek traditions of *agon*, the competitive spirit that drives improvement, *arête*, the pursuit of excellence, and *philotimias*, the love of honor and recognition. This framework remains relevant today and drives new innovations.

Research suggests that feedback focusing on speech credibility and quality, balanced with supportive and critical elements, proves most beneficial and motivational (Nicolini and Cole, 2019), while input centered solely on delivery skills yields diminished utility (Saidalvi and Samad, 2019). This presents the central challenge of AI-Powered Presentation Performance Insights (AI-PPPI) tool implementation. AI cannot effectively determine the contextual appropriateness of students' rhetorical choices, as it lacks interpretive capabilities and cannot replicate human reasoning. Similar to how ancient training centers integrated tradition and competitive spirit, The Speaking Center has worked to create a collaborative framework whereby AI supplements speaking consultants. By examining the current landscape of AI utility in university public speaking centers, a model for human-AI integration can be developed with practical strategies for implementation.

AI-powered tools can analyze speech patterns, provide instant feedback on delivery metrics, and even simulate audience reactions. Programs like Poised, Speeko, and Orai utilize an AI audio analysis technique for personalization, identifying patterns such as speaking pace, volume, articulation, and filler words and pauses. More advanced models add video monitoring to assess eye gaze, gestures, and other forms of body movement. Regardless of their level of sophistication, public speaking AI tools are constrained by a capacity for assessing contextual relevance and subtle communicative efficacy. While structural and delivery measures can be quantified, complexity is absent in the more sophisticated evaluation of argumentative reasoning, emotional appeal, ethical appeal, and other components of skilled public address. These constraints highlight consultants' unique public speaking skills, such as emotional intelligence or the capacity to recognize, understand, and respond to students' emotional states and anxieties during the learning process. These abilities are especially vital when working with students with communication or confidence issues. Consultants can assist students in anticipating audience needs, reactions, and expectations in ways that go beyond AI analysis capabilities by drawing on their experiences as speakers and listeners. They can assist students in navigating cultural considerations in audience adaptation, validate a variety of communication styles, and offer contextually sensitive advice for the context. This proficiency encompasses understanding persuasive discourse shaped by ethical considerations and stylistic devices, such as metaphorical language. Rather than just using mechanical standardized metrics, consultants can help students develop strategies that leverage their strengths, address challenges, and align with their authentic speaking styles. This adaptability ensures that feedback

remains relevant and actionable rather than generic or prescriptive. Furthermore, the rapport established between consultant and student creates a foundation of trust that facilitates honest self-reflection and excellent receptiveness to feedback, much as the trainer-gladiator relationship in ancient Rome fostered both skill development and emotional preparation for the arena.

For AI to support consultants, the center prepares them to critically evaluate AI-generated metrics and contextualize feedback specific to individual student needs. Based on tested practices at the Speaking Center, which resembles Cumming et al.'s (2004) DEER Praxis (Define, Evaluate, Explore, and Reflect), the framework in Table 2 is suggested for hybrid consultation sessions.

Table 2
Hybrid Consultation Structure
Phases of Consultation

Initial Recording of Practice Session	Students record presentations using AI tools (Poised, Orai, Speeko) that generate baseline metrics on delivery elements and structural components.
Data Review with Consultant	Consultants and students review the AI-generated data, identifying patterns and potential areas for improvement.
Evaluation	Consultants help students evaluate metrics most relevant to their rhetorical goals and audience expectations, potentially reframing or recontextualizing specific AI recommendations.
Goal Setting	Based on the combined insights from AI analysis and consultant expertise, students establish specific, achievable priorities for improvement.
Practice	Students implement adjustments through guided practice with consultant feedback.
Planning	Students develop concrete plans for continued practice, involving independent work with AI tools and subsequent consultation sessions.

During staff training, consultants should participate in a comprehensive workshop module on the hybrid consultation model. This module provides a theoretical framework for human-AI collaboration and establishes practical methods for integrating multiple feedback sources to enhance consultations.

The workshop model follows a progressive structure designed to build consultants' AI literacy.

Objective: Critically evaluate AI-generated presentation feedback from AI-PPPI analysis tools (Orai, Poised, Speeko) and develop individualized roadmaps that strategically integrate technological assessment with human-centered consulting techniques.

Module Introduction: The workshop begins with an interactive icebreaker where participants share stories about technology's impact on presentations. This establishes a foundation of shared experiences while creating a comfortable environment for exploring new tools. To begin the module, consultants are asked to discover participants' opinions and experiences with AI. Participants share brief stories in small groups of four to five about a presentation in which technology significantly improved their performance or presented unforeseen difficulties. After individual storytelling, participants are asked to identify and share the group's most compelling or representative story. This icebreaker is intended to create a safe space for sharing, validate diverse perspectives, and build anticipation by exploring AI tools. This narrative approach benefits participants by lowering initial barriers, fostering group rapport, and exploring the subtle effects of technology.

Analysis of AI Tool: Building on these personal narratives, consultants engage directly with AI-PPPI tools through hands-on demonstrations,

analyzing metrics generated from volunteer presentations and critically examining the results. Three to five volunteers from the group deliver short impromptu presentations while the designated AI tool generates performance metrics. Participants then collectively analyze these results, exploring individual public speaking challenges and uncovering subtle errors that might have been missed during in-person evaluations. The facilitator debriefs participants by asking:

- How might the AI metrics differ from traditional human feedback?
- How can AI tools complement, not replace, human communication skills?
- What feedback has the AI tool generated that can be created into actionable takeaways?

Practice with Hybrid Consulting: With this technical understanding established, participants then apply their learning through role-play exercises, transforming AI-generated data into meaningful feedback while incorporating human insight. Participants pair up and role-play, alternating between presenting their metrics and serving as consultants. Each pair practices transforming raw performance data into compassionate, actionable feedback that highlights individual strengths and growth opportunities. As the pairs practice, the facilitator will move among the groups to ensure a balanced exchange that integrates human insight and AI metrics, going beyond passive observation to guide the learning process actively. To conclude, the facilitator can utilize a fishbowl exercise with the option for players to tap one another out with a “better” role-playing solution.

Ethics of AI: The module concludes by examining the broader implications of the tools and techniques practiced earlier, challenging

consultants to identify biases and ethical concerns that may arise in their implementation. In this ethical simulation, small groups receive AI-generated feedback scenarios with intentional biases and potential ethical breaches. Each group identifies problematic elements, proposes remediation strategies, and discusses broader implications. After analyzing the scenarios, the facilitator helps the group explore how AI tools might perpetuate or challenge existing inequities. This discussion seeks to develop a collaborative framework for responsible AI implementation.

Integrating AI tools into public speaking consultation requires not competition between humans and machines but a thoughtful collaboration that honors the strengths of each approach. Much like the ancient Greek rhetorical tradition that balanced *agon* with *arête* and *philotimias*, our modern approach can surpass mere technological advancement. By training consultants to supplement AI analytics with human insight, contextual understanding, and ethical awareness, The Speaking Center adopts a training model that embodies excellence in service to student development. This hybrid approach preserves the longstanding elements of rhetorical training while embracing new tools that can enhance and extend our ability to nurture effective communicators in the digital age.

Leveraging AI (Gradescope) to Enhance Skill Development for Future Teachers

While TSC and other FAU CTL units have found ways to build thoughtful collaborations between human and AI-powered training, the Math Learning Center (MLC) has built that collaboration between the MLC, Graduate Teaching Assistants (GTAs) in mathematics, and technology-based assessment tools. Training learning center team

members with AI goes beyond simply using this technology to improve tutor competencies. In collaboration with the Department of Mathematics and Statistics, the MLC employs all math GTAs, playing a pivotal role in the development of their teaching and tutoring skills. In addition to general CRLA training, GTAs receive specialized training to assess student learning using Gradescope, an AI-powered system that streamlines grading while ensuring efficiency and fair grading practices. The software provides valuable opportunities for GTAs to develop essential skills that will benefit their future teaching careers.

Gradescope integrates an AI model to organize and group student responses by question, automatically clustering similar answers when applicable. It supports several AI-driven grouping methods, including manual grouping, multiple choice, math fill-in-the-blank, and text fill-in-the-blank. Instructors mark specific areas on the assignment and in dedicated boxes (see Figures 8 and 9) indicate where the AI should analyze responses. Once grouped, similar answers are presented in clusters (see Figure 10), allowing graders to quickly review, identify correct or incorrect responses, and assign grades in seconds.

Figure 8

Gradescope assignment set-up boxes for math fill-in-the-blank grouping.

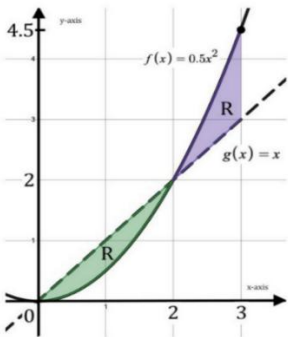
2. For each integral below, decide if it is ordinary or improper. If improper, state why.

2: Q2 (1 point) ✕		
$\int_{-\infty}^{-2} \frac{1}{\sqrt{2-x}} dx$		
$\int_0^1 \frac{1}{x^2+1} dx$		
$\int_1^{10} \frac{1}{x} dx$	✚	
$\int_{-5}^{-3} \frac{1}{x+4} dx$		

Figure 9

Gradescope assignment set-up boxes for multiple-choice grouping.

4. (10 pts) Using the **Shell Method**, suppose the total enclosed region R is rotated around the x -axis. Partial credit is NOT awarded for this problem.



4.1: a (5 points) What should be set-up and evaluated for this calculation? Select ONE.

- ☐ One integral.
- ☐ Two integrals.
- ☒ Three integrals.
- ☐ Four integrals.

4.2: b (5 points) Which method would take the x-axis using

- ☐ Shell Method takes MORE integrals than the Disc/Washer Method.
- ☒ Shell Method takes LESS/FEWER integrals than the Disc/Washer Method.
- ☐ Neither method, it takes the same number of integrals to evaluate the volume.

Figure 10

Gradescope AI clusters similar answers into Group 1 (23 students) and Group 2 (12 students), streamlining the process and providing 35 grades in seconds.

We found 8 groups for this Math Fill-in-the-blank Question (Edit type). Indicate a Final Answer Area if there is a specific part of the question region that you would like to group answers by.

Group 1
 $x^2 \ln(x) - \frac{x^2}{2} + C$

Graded
All 23 Answers Confirmed

Rename Merge Delete & Ungroup Answers Grade

Group 2
 $x^2 \ln(x) - \frac{x^2}{2} + C$

Graded
All 12 Answers Confirmed

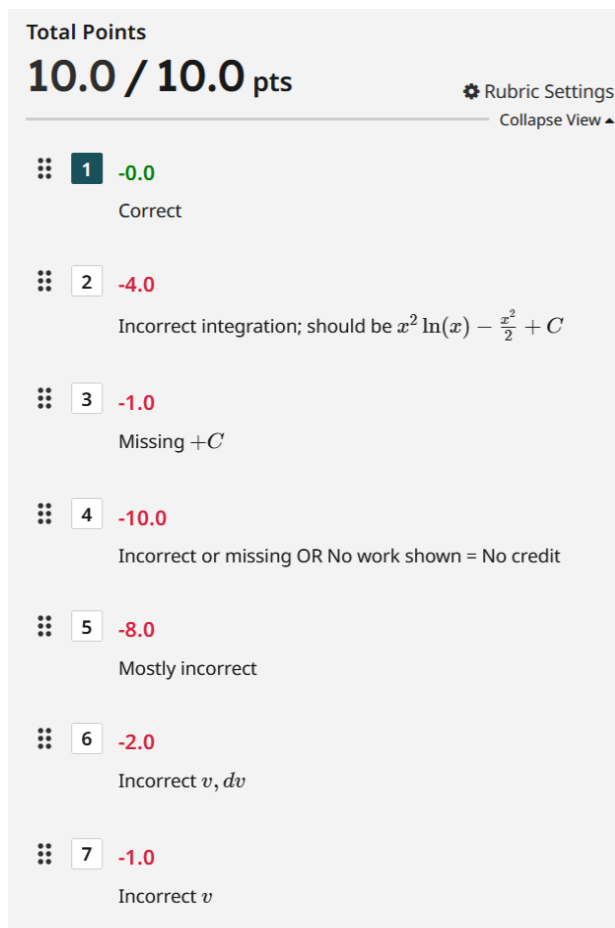
Rename Merge Delete & Ungroup Answers Grade

A select group of GTAs are trained to grade these assignments as part of their responsibilities at the MLC. Training includes discussions on best practices for creating rubrics and providing faculty summary notifications, ensuring that faculty are informed about student progress. Through this experience, GTAs learn valuable skills they will carry into their tutoring and future teaching roles, both as GTAs and, eventually, as faculty members. This aspect of training is particularly crucial, as GTAs are not always trained in best practices for educating and assessing students while mastering their subject area.

Gradescope also includes a powerful anonymity feature that removes student-identifying information during grading. The AI extracts only the boxed response area from each question, displaying it on the grading screen without any names. An optional setting enables fully anonymous grading by assigning randomized identifiers to students. This anonymity, combined with a flexible, question-level rubric that can be applied across all submissions (see Figure 11), promotes greater fairness and consistency in grading. Additionally, Gradescope equips GTAs with built-in analytics to identify patterns in student performance, allowing them to target instructional support where it's needed most.

Figure 11

Gradescope rubrics can be modified during grading, applying any adjustments to all previously graded students.



Finally, implementing Gradescope has significantly reduced the time allocated to grading, freeing up additional hours for GTAs to provide more tutoring support to students at the MLC. On average, the use of AI has cut grading time by 3-5 hours per GTA each semester. With over 15 GTAs assigned to grading each semester and limited resources for general tutoring, Gradescope has tremendously impacted the ability to maximize available resources and enhance academic support for students, while

providing enhanced training and learning opportunities for the GTA math tutors.

Although the support units within the Florida Atlantic University Center for Teaching and Learning have different goals and objectives and varied approaches to supporting students and training staff, they share an understanding that generative artificial intelligence tools are worth exploring to train academic support teams. A prime motivation for tutor training with AI tools includes yet-to-be-explored opportunities for advancing tutoring skills, an exigency faced by learning centers at many institutions of higher education. The new literacy practices that AI has introduced also prompt learning centers to innovate how tutors are trained to critically engage with AI tools. In addition to AI's feedback mechanism, the tool's assessment possibilities can play an important role in preparing tutors to meet the challenges of grading on scale. As this article demonstrates, the combination of human and AI-supported training can become a best practice in preparing teams to provide the highest caliber academic support in college learning center communities.

References

- Alexander, S.M., Dallaghan, G.L.B., Birch, M. *et al.* What Makes a Near-Peer Learning and Tutoring Program Effective in Undergraduate Medical Education: a Qualitative Analysis. *Med.Sci.Educ.* 32, 1495–1502 (2022). <https://doi.org/10.1007/s40670-022-01680-0>
- Boylan, H. R., & Saxon, D. P. (2012). *Attaining excellence in developmental education: Research-based recommendations for administrators*. National Center for Developmental Education.
- Chen, L., Chen, P., & Lin, Z. (2020). "Artificial Intelligence in Education: A Review." *IEEE Access*, 8, 75264-75278.
- Cummings, R. E., Monroe, S. M., & Watkins, M. (2024). Generative AI in first-year writing: An early analysis of affordances, limitations, and a framework for the future. *Computers and Composition*, 71, 102827. <https://doi.org/10.1016/j.compcom.2024.102827>

- Das, S. AI Tutors: How Artificial Intelligence is Shaping Educational Support. eLearning Industry (2024). Downloaded March 4, 2025. <https://elearningindustry.com/ai-tutors-how-artificial-intelligence-is-shaping-educational-support>.
- Dobrin, S. I. (2023). Talking About Generative AI: A Guide for Educators. Broadview. <https://files.broadviewpress.com/sites/uploads/sites/173/2023/05/Talking-about-Generative-AI-Sidney-I.-Dobrin-Version-1.0.pdf>
- Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A.M.A., & Hatta, H.R. (2023). Analysing the role of ChatGPT in improving student productivity in higher education. *Journal on Education*, 5(4), 14886-14891.
- Firaina, R., & Sulisworo, D. (2023). Exploring the usage of ChatGPT in higher education: Frequency and impact on productivity. *Buletin Edukasi Indonesia*, 2(01), 39-46.
- Goel, A. K., & Polepeddi, L. (2018). Jill Watson: A virtual teaching assistant for online education. In *Learning engineering for online education* (pp. 120–143). Routledge, <https://www.taylorfrancis.com/chapters/edit/10.4324/9781351186193-7/jill-watson-ashok-goel-lalith-polepeddi>
- Keller, P. (2025). Why AI Can't Replace Person-to-Person Learning. Downloaded from <https://blog.joinknack.com/why-ai-cant-replace-person-to-person-learning>.
- Lin, J., Thomas, D. R., Han, F., Gupta, S., Tan, W., Nguyen, N. D., & Koedinger, K. R. (2023). Using large language models to provide explanatory feedback to human tutors. *arXiv preprint arXiv:2306.15498*.
- Lyman, F. (1981). The Responsive Classroom Discussion. (Anderson, A.S., Ed), *Mainstreaming Digest*, 109-113. College Park, MD: University of Maryland College of Education.
- Mills, M., Rickard, B., & Guest, B. (2020). Survey of mathematics tutoring centres in the USA. *International Journal of Mathematical Education in Science and Technology*, 53(4), 948–968. <https://doi.org/10.1080/0020739X.2020.1798525>
- Nicolini, K. M., & Cole, A. W. (2019). Measuring peer feedback in face-to-face and online public-speaking workshops. *Communication Teacher*, 33(1), 80-93
- Ong, J., & Ramachandran, S. (2003). Intelligent tutoring systems: Using AI to improve training performance and roi. *Networker Newsletter*, 19(6), 1-6.
- Peng, Z., Wan, Y. Human vs. AI: Exploring students' preferences between human and AI TA and the effect of social anxiety and problem complexity. *Educ Inf Technol* 29, 1217–1246 (2024). <https://doi.org/10.1007/s10639-023-12374-4>
- Rasul, T., Nair, S., Kalendra, D., Robin, M., de Oliveira Santini, F., Ladeira, W. J., ... & Heathcote, L. (2023). The role of ChatGPT in higher education: Benefits, challenges, and future research directions. *Journal of Applied Learning and Teaching* 6(1), 01-11.
- Saidalvi, A., & Samad, A. A. (2019). Online peer motivational feedback in a public speaking course. *GEMA Online Journal of Language Studies*, 19(4), 258-277. <https://doi.org/10.17576/gema-2019-1904-14>

- Selber, S. (2004). *Multiliteracies for a Digital Age*. Southern Illinois University Press.
- Thomas, D., Yang, X., Gupta, S., Adeniran, A., Mclaughlin, E., & Koedinger, K. (2023, March). When the tutor becomes the student: Design and evaluation of efficient scenario-based lessons for tutors. In *LAK23: 13th International Learning Analytics and Knowledge Conference* (pp. 250-261).
- Topping, K. J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher Education*, 32(3), 321-345.
- Wang, C., Aguilar, S. J., Bankard, J. S., Bui, E., & Nye, B. (2024). Writing with AI: What College Students Learned from Utilizing ChatGPT for a Writing Assignment. *Education Sciences*, 14(9). <https://doi.org/10.3390/educsci14090976>

AI Disclosure Statement: This article includes an illustration of workshop content generated with assistance from AI tools. This content includes sample dialogue between simulated tutors, avatars, a sample trip itinerary, and content clustering. The authors identify this content and the tools with which the content was generated in the article.

Jennifer Bebergal, Ed.D.



As Associate Dean of Academic Support and Student Learning, **Jennifer Bebergal** oversees the Center for Teaching and Learning while setting the vision for academic support across Florida Atlantic. Over 29 years at FAU, Bebergal has worked across Student and Academic Affairs and teaches Educational Leadership and Honors courses, transforming curriculum by incorporating research and active learning experiences. As a lead grant writer, Bebergal secured over \$2.3 million in federal and foundation grants, leading to the development of student success programs, including tutoring, Supplemental Instruction, mentoring, and the Learning Assistant model. Bebergal serves as co-lead for the institution's QEP: *education reimagined*. In this capacity, she guides faculty development efforts and assessment, reporting, and continuous improvement related to the QEP.

Sipai Klein, Ph.D.



Sipai Klein serves as both Associate Professor of Rhetoric and Composition at Florida Atlantic University and the Director of the University Center for Excellence in Writing and Writing Across the Curriculum Program. His teaching and research interests include the intersection between educational technology and writing studies, writing tutoring education, multimodal composition, and service learning. He has published work in *Computers and Composition Online*, *The Writing Center Journal*, *Praxis*, and the *Journal of Community Engagement and Scholarship*.

Cynthia Carrico, MSE, MA



Cynthia “Cynde” Carrico is an accomplished educational leader with over 25 years of experience in academic support services. Currently serving as the Director of the FAU Speaking Center, she has been a pivotal member of the FAU community for 12 years. As a faculty member in the School of Communication and Multimedia Studies, Carrico's research explores identity and cultural discourse. Her academic interests span diverse areas, including identity and representation in children's literature and digital connectivity in the 21st century. Carrico has been instrumental in establishing the Speaking Center as a key unit within FAU's Center for Teaching and Learning. Throughout her career, she has focused on motivating, monitoring, and managing student success. Her leadership and commitment to educational support have been characterized by a deep dedication to enhancing student learning and communication skills.

Cindy Wedding, MA



Cindy Wedding is an Instructor for the Department of English at Florida Atlantic University (FAU), where she teaches environmentally themed College Writing and Interpretation of Literature courses. She offers programs designed to engage and empower students, with a focus on information literacy, critical thinking, and self-reflection as the foundation for confident, clear academic writing. Wedding holds an advanced degree in English with a concentration in Multicultural Literature and is the recipient of the 2019 Howard Pierce Award for her MA thesis, “Veins of Oppression in Helena Maria Viramontes’ *Under the Feet of Jesus*.”

Brittanney Adelman, Ph.D.



Brittanney Adelman earned a Ph.D. in Mathematics in 2016 from Florida Atlantic University. She is currently the Director of the Learning Assistant (LA) Program and Instructor III in the College of Arts and Sciences at Florida Gulf Coast University and was previously the Director of the Math Learning Center (MLC) and Quality Enhancement Plan (LA Program) at FAU. Dr. Adelman has been a leader in designing, delivering, and certifying pedagogy workshops for LAs and CRLA tutor training for MLC tutors. A passionate advocate for active, engaging teaching, Dr. Adelman strives to create learning environments where all students feel empowered to learn and share ideas.

Copyright of Learning Assistance Review (TLAR) is the property of National College Learning Center Association (NCLCA) and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.