



Generative Artificial Intelligence (Gen AI) and Teaching & Learning Tool

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VCU, like many other universities, has strategically been engaging faculty in conversations around emerging technologies in order to prepare them to use and introduce generative Artificial Intelligence (AI) technologies to their students, ultimately learning to use new technologies in teaching and learning more broadly. Without fear, censorship, or bans, the university aspires to be a collective source of curiosity. One reason the new technology seems to be in every university conversation is that generative artificial intelligence (Gen AI) has the ability to create unique pieces of text, art, code, and video with increasing sophistication that cannot be identified by typical plagiarism detection tools, such as turnitin.com or i-thenticate. Some K-12 schools around the country are banning ChatGPT and other generative technology (Johnson 2023; Ropek 2023). Universities have until now approached it in varying ways but without any specific rules and guidelines. Perhaps, they recognize the futility of that approach and are seeking to learn alongside AI.

ChatGPT is the first publicly available prototype of generative artificial intelligence, or GenAI, that was not immediately corrupted during the testing phase. OpenAI Labs released ChatGPT in November 2022 to learn from human users in real life scenarios. For the purposes of this resource tool, ChatGPT is a specific proxy for any generative text technology. Others include DALL-E, Google Bard, Microsoft's AI powered Bing, and Amazon Codewhisperer. The points discussed in this tool could be applied to any content generating technology.

In an effort to enable discussion amongst faculty about the potential challenges and opportunities of ChatGPT, Faculty Affairs in the Office of the Provost organized two panels for faculty to understand the potential impact of Gen AI on teaching and learning. [The first forum titled, Artificial Intelligence in the Learning Environment](#), held at the end of January 2023 was attended by more than 100 faculty across all campuses, including VCU-Qatar. Using the questions and issues from this first session, we identified three themes for a second session as virtual roundtables: [fundamentals of generative AI](#), [inequities in access](#), and [plagiarism and copyright](#). We expect to continue these discussions in the 2023 fall semester. Updates to this Tool will be included as addendums as the technology evolves and new issues arise such as regulatory mechanisms to mitigate risks from AI which was recently initiated by the U.S. government.

There are benefits to AI such in medicine, education, and many other areas of human endeavor. The challenge for faculty is how to prepare students to be in a world that is dominated by AI. The contradictions surrounding AI chatbots are complex, but we need to consider mechanisms to

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navigate this new terrain just as we moved from the calculator to the laptop to smartphones to Zoom.

This Tool is organized in three main sections: a guide to the terminology; navigating Gen AI and teaching & learning at VCU; and a conclusion that lays out the next steps to support VCU faculty.

On Terminology

With the rise of ChatGPT and other generative text technology, meanings of terms used to describe the expansive topic of artificial intelligence vary widely. The number and variety of new terminologies has been complicated for many as the seemingly ambiguous nature of each concept relies on some understanding of disciplinary relationships and developing technologies.

Artificial Intelligence (AI): a “machine[s] that responds to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment, and intention” (Shubhendu and Vijay 2013).

Bot: automated computer software that is programmed and instructed to complete a certain task without human intervention (*What is a bot*, n.d.). Bots can be seen in countless different computer programs including AI “chatbots” which imitate human vocabulary and syntax when prompted by human input. While a bot can be beneficial in the form of a personal assistant while online shopping or answering questions about college applications, there are also malicious bots that are programmed to carry out cyber-attacks.

Machine Learning: a branch of artificial intelligence that utilizes algorithms and data to promote greater accuracy of software applications (Burns 2021; *What is machine learning*, n.d.). ‘Machine learning’ is used in a wide range of real-world computer applications including speech recognition, fraud detection, and recommendation engines (Burns 2021).

Natural Language Processing (NLP): the branch of artificial intelligence that is “concerned with giving computers the ability to understand text and spoken words in much the same way human beings can” (*What is natural language processing*, n.d.). Natural language processing requires machine learning to respond accurately to human inquiries. Together, machine learning and natural language processing enable computers to participate in what seems to us to be human communication through text or voice.

Generative Artificial Intelligence (GenAI): a specialized part of the broader artificial intelligence field. GenAI goes beyond simple analysis or action on data, and instead, works to “generate novel content” such as text or images (Lo 2022). Using machine learning and natural language processing, GenAI is able to make technological predictions based on previous human entries.

DALL-E 2: a transformer language model, similar to ChatGPT, that allows the AI system to create realistic images based on a user’s prompt (Wang 2021).

Navigating AI in Teaching & Learning at VCU

Since late 2022, professors, administrators, and students have been tinkering with ChatGPT to figure out what it can and cannot do. As of now, generative technology can write just about anything. But not all what it says is true. It is also unable to comprehend meaning or situate a concept in a context (Bogost 2022). It's also trained on outdated information and so will not be able to discuss something that happened more recently, such as the name of the winner of the 2023 Super Bowl. Finally, while it does provide a unique response each time, if the bot receives the same question - say from an exam - it will provide answers that are similar.

Robbins (2023) notes, “The ground is shifting under our feet (p. 11). She lists 17 key points that are useful for all faculty to think about (see appendix A of this Tool). Instead of banning ChatGPT, we need to engage with it to enhance student learning. The challenge, as faculty members approaching a new educational paradigm is to both encourage open conversations while maintaining a standard of learning for all. Mode of teaching, and particularly asynchronous teaching, may pose unique challenges.

At VCU, Faculty Affairs in the Provost's Office clearly recognizes that generative text technology will be used differently across disciplines and across classrooms within the same discipline. In a classroom where AI tools and students work together to create text, aiding transparency about the uses of the tools will be key. In classrooms where students are being asked to reflect and respond to broader issues given the course material, AI tools will be sidelined. While we do not have specific guidelines for every course/discipline, we are providing general guidance for all faculty. Please see plans for next steps in the last section of this tool.

Faculty should Explore ChatGPT

Faculty should use and play with generative text technologies to get an understanding of what it is and how it responds to assignments/writing. While this Tool emphasizes examples of writing, we expect addendums to the Tool will cover other types of assignments as well.

1. Take any opportunity to experiment with ChatGPT, DALL-e, Bard or any other generative text technology. Try to break it. Pretend you are a student. Allow your curiosity and creativity to guide your inquiry.
2. Plan to discuss the role of AI with your class in the first week of the semester. If the work that is turned in was not completed by students, it cannot reveal what they know or can do. And that can hurt the student in the long run. You can help students understand how ChatGPT works and teach them to interrogate the information it provides, as well as understand what is ethical and professional.
3. Attend webinars that focus on strategies to use ChatGPT (or other AI tools) in courses or to circumvent student tendency to use it. Example: Alchemy has hosted a couple of webinars that are very detailed including how to rethink assignments. “Harnessing the Power of AI: Transforming Assignments and Assessments in Higher Education,” was hosted by Alchemy on August 2, 2023. which Dr. Mangala Subramaniam attended. You can access the recording of the webinar on their YouTube channel [here](#). The [slide deck](#) and a [transcript of the chat](#) are available. Additionally, there is a [list of resources](#) related to ChatGPT and AI shared during their recent webinars. Included in the list are “[ChatGPT Prompts to Accelerate Learning](#),” which they have made available as a downloadable document.

4. Recognize and involve students as experts. Ask them for feedback on new methods. Listen, write down responses, make changes. Involve them in the creative process and in ongoing research. They are our interlocutors with regard to new technology in the classroom.
5. Refine syllabi and communication, particularly assignments and expectations and whether they would be in-class or take-home. See more below.
6. The release of transformative technology is the perfect time to re-evaluate your personal teaching philosophy and, as a department or discipline, revise plagiarism policies and responses, with an eye toward equity and access for all.
7. Identify areas where Gen AI can be used. Even if you don't have time to develop a new activity or module this semester, in your play, consider how to integrate the new technology in ways that would support student learning and enhance engagement.

Thinking about Assignments and Testing

Faculty must rethink the structure and weight of grades for assignments and the expectations of students.

1. Banning students from using ChatGPT or other AI tools for take home assignments cannot be monitored by faculty and can be fraught with problems on matters such as grade appeals. There are lots of ways students could use ChatGPT without having it do their work for them, like using it to brainstorm ideas or offer clearer definition of something they're trying to understand.
2. For the most part, faculty may not be able to discern the use of ChatGPT by students. Sometimes students may use it only to seek an outline, and sometimes more. Terry (2023) notes, "The more effective, and increasingly popular, strategy is to have the AI walk you through the writing process step by step. You tell the algorithm what your topic is and ask for a central claim, then have it give you an outline to argue this claim. Depending on the topic, you might even be able to have it write each paragraph the outline calls for, one by one, then rewrite them yourself to make them flow better (p. 24).
3. Terry (2023) clearly notes, "...rather than fully embracing AI as a writing assistant, the reasonable conclusion is that there needs to be a split between assignments on which using AI is encouraged and assignments on which using AI can't possibly help. Colleges ought to prepare their students for the future, and AI literacy will certainly be important in ours. But AI isn't everything. If education systems are to continue teaching students how to think, they need to move away from the take-home essay as a means of doing this and move on to AI-proof assignments like oral exams, in-class writing, or some new style of schoolwork better suited to the world of artificial intelligence" (p. 25).
4. Please carefully consider the grade weight of in-class versus take home assignments. The possibility of regurgitating answers memorized from an AI tool to write an in-class test is possible but less so. Plagiarism or use of Chat GPT is more likely in take-home assignments. But the structure of an assignment such as writing a take-home essay but requiring a presentation (in smaller classes) may allow for identifying whether the work is of the student or not.
5. If there's an assignment prompt that seems important, but too easily completed by AI, it can help to adjust it so that a question will "require someone to use their personal experience, or their passion, or their creativity" (Supiano 2023:35). "Structure the way students write in their courses to emphasize process, not just product...and you "can read

for substance, and not just style. Faculty members can ask students to reflect, to bring something of themselves into their assignments. They can explain that education is more than an exchange of tuition dollars for a diploma; show them the real value in learning the things they want students to learn, even when doing so is unpleasant” (p. 34).

6. Additionally, some like Supiano cite Warner’s approach to grade writing on a single-point rubric, “like whether a piece has “energy” — a quality that some professional writers like Warner find missing from AI-generated text” (p. 34).
7. Continuing on the topic of writing, consider reviewing Jessica Singer’s book, *Next Generation Genres: Teaching Writing for Civic and Academic Engagement*. Although her book does not directly address ChatGPT, it offers exactly the kind of innovative ideas we need as we wrestle with the implications of AI for teaching. Early provides detailed guidance on implementation of three genres of writing -Artist Statements, Public-service announcement, and Turning-point essays. She includes a full assignment sheet for each genre, models of student work, suggestions for classroom activities to prepare students for the assignments, sources and reading lists, and references to digital tools that can support creative work in these genres. This can be helpful to begin experimenting with new writing assignments in your current and future courses.
8. Think about how you use class time. It could be devoted to problem solving that is graded.
9. Approach classroom experimentation analytically. Scholarship of teaching and learning research begins with a “problem” - something that is changing in the classroom. Are you making changes to your tests? To your methods? Are you anticipating a different outcome, whether that’s enhanced engagement with the material or higher grades on difficult to understand sections of your course? Document it. It can help with structuring your course and assignments in the following semester.
10. Does the use of ChatGPT work better for some kinds of assignments over others? Maybe having students use ChatGPT to write a reflective essay on a topic and then asking students to critically think about the essay in groups in class may facilitate some aspects of teaching pedagogy. Allocating a higher percentage of the grade for the classwork may be one way to reflect the student’s work more clearly.
11. Assignments related to internships - experiential learning, study abroad, service learning - are less likely to lead to use of Gen AI tools by students.

Plagiarism and Copyright

Two very difficult topics related to Gen AI in teaching and learning are handling plagiarism and copyright.

1. Make it very clear to students through a strongly worded note that AI-generated work submitted as original effort will be punished to the fullest extent of what your institution allows. Post the statement on the department/school/college website and make it highly visible on student related web pages. Consider using this challenge as an opportunity to reassert the basic purpose of education: to develop the skills, to cultivate the virtues and habits of mind, and to acquire the knowledge necessary for leading a rich and meaningful human life (Keegen 2023).
2. The VCU [Honor System and Standards of Academic Misconduct](#) defines plagiarism as, “falsely claiming ownership or misrepresenting the origins of work submitted for publication or an assignment. In other words, plagiarism occurs when an individual takes

credit for work that is not their own without appropriate acknowledgement of the creator. Plagiarism can include the uncited use of someone else’s words, ideas, facts, opinions, theories, illustrations, tables, figures, text images, source code, and/or intellectual work, even if the material is located in the public domain and can be freely shared.”

When the work is generated by a computer rather than a human being, the application of the rule can be trickier to apply. This is especially true when students see text generating technology as just another tool like a calculator or a wikipedia page. Turning in an assignment produced entirely by AI is categorically different from using the tool as an online encyclopedia and citing appropriately. University administrators and faculty around the world are parsing details such as the human centric nature of the policies or the intent and use of the tools, recognizing that however they determine to keep an eye on AI generated text will change from semester to semester for the time being.

Please note the additional statement added to “**Honor System: upholding academic integrity**” if you scroll down on this [page](#).

3. In those classrooms where generative AI is commonly used, the challenge of citation and acknowledgment will come up. The APA citation guide currently recommends that users think of ChatGPT as sharing an algorithm’s output - not retrievable by other users - and to both describe the prompt and cite the outcome in text. For example:
“When prompted with the question, ‘how should I cite ChatGPT in a college paper?’, the ChatGPT generated text responded, ‘Please note that as an AI language model, ChatGPT is a tool and not a published paper or academic source in itself. It's important to follow the specific citation style required by your academic institution or the guidelines of the journal you are submitting your paper to. Adapt the above format as needed to conform to the citation style you are using, such as APA, MLA, Chicago, or others.’ (OpenAI 2023)

Next Steps to Support VCU Faculty

First, the goal is to engage the faculty. Hence this Tool in draft form is available to seek insights into challenges we can discuss as there are no readymade answers, as well as to learn from each other about strategies used to navigate the AI terrain in teaching. This Tool will be discussed at a virtual only session scheduled for **Tuesday, September 26, 2023, 3-4:15 pm**. An announcement with a registration link will be sent out via TelegRAM about two weeks ahead. Please come with what you’ve seen, what you’ve done to try to mitigate the possibility of AI plagiarism, and how well you think your strategies worked. It is also worth figuring out where everyone stands on the question of whether AI chatbots are helpful tools for students, and how best to align different perspectives and make allowances for divergent opinions while holding a firm line on the question of plagiarism.

Second, considering that the AI world is constantly changing, we are creating an advisory council of faculty who are familiar with AI and who stay abreast of new developments so that we can update this tool with addendums.

Third, sharing ideas is critical to supporting faculty. In order to enable sharing, we will create a repository so that faculty can upload details of successful strategies. Instructions for uploading and how to use someone’s material or ideas (acknowledging and citing) will be included. Expect details soon.

Appendix A

Note: Directly quoted from Robbins (2023).

1. AI knows more than any one person knows, but every person knows things that AI does not know.
2. A large university may know more than AI knows, but the knowledge is fragmented and distributed.
3. The universe of information includes important, useful information and seemingly unimportant information; it is hard to know what might become important someday. It is good to have scholars focused on obscure narrow topics.
4. Education is still a matter of teaching people how to access information and how to turn information into knowledge.
5. The professional distinction between teachers (who transfer information) and scholars (focused on knowledge production) will become more stark.
6. Knowledge production is upstream from information transfer. Most interactions with AI-chat models occur downstream. Or, if you think of knowledge as a pyramid, most AI chat is at the very base level.
7. Methods of organizing and systematizing information are becoming more important. Catalogs, canons, and curated lists will become more valuable.
8. The textbook industry should be worried.
9. Scholars are best situated to know what is not yet known, to identify “blank spaces” in the universe of knowledge.
10. Higher education will be less about ensuring students know what they’ve read and more about ensuring they read what is not yet known by AI.
11. The written essay will no longer be the default for student assessment.
12. At the time of this writing, AI writing is technically proficient but culturally evacuated.
13. Until culturally inflected AI is developed, models such as ChatGPT will stand apart from culture. Knowledge production within culture will not fully be absorbed by AI.
14. Specific and local cultural knowledge will become more valuable.
15. Experiential learning will become the norm. Everyone will need an internship. Employers will want assurances that a new graduate can follow directions, complete tasks, demonstrate judgment.
16. Programs such as Hallie Pope’s Graphic Advocacy Project will argue for new communication tools and modalities.
17. Years ago, I assigned Hélène Cixous’s feminist classic “The Laugh of the Medusa” (1975) and a student came to class saying, “I can’t write a response essay. Instead, I am going to give you a hug.” And she did. Assessment may take new and unexpected forms

Cited References

- Barnett, S. 2023. *ChatGPT is making universities rethink plagiarism.* <https://www.wired.com/story/chatgpt-college-university-plagiarism/>, Wired, January 30. Retrieved February 2, 2023.
- Bogost, I. 2022, "CHATGPT is dumber than you think." *The Atlantic*. December 16. <https://www.theatlantic.com/technology/archive/2022/12/chatgpt-openai-artificial-intelligence-writing-ethics/672386/> Retrieved January 24, 2023.
- Burns, E. (2021,). *Machine Learning*. Enterprise AI. <https://www.techtarget.com/searchenterpriseai/definition/machine-learning-ML> March 30 Retrieved March 1, 2023
- Chronicle of Higher Education. 2023. *Big Bot on Campus: The perils and potential of ChatGPT and other AI.*
- Johnson, A. 2023. "Chatgpt In Schools: Here's Where It's Banned-And How It Could Potentially Help Students." January 18. <https://www.forbes.com/sites/ariannajohnson/2023/01/18/chatgpt-in-schools-heres-where-its-banned-and-how-it-could-potentially-help-students/?sh=115ec5786e2c> *Forbes*. Retrieved March 3, 2023.
- Keegin, Joseph M. 2023. "ChatGPT Is a Plagiarism Machine. So why do administrators have their heads in the sand?" Pp. 27-29 in *Big Bot on Campus: The perils and potential of ChatGPT and other AI*. Chronicle of Higher Education.
- Lang, James M. 2023. "How to Create Compelling Writing Assignments in a ChatGPT Age." Pp. 36-39 in *Big Bot on Campus: The perils and potential of ChatGPT and other AI*. Chronicle of Higher Education.
- Lo, D. 2022. "AI is having a moment—here’s how businesses can lean in." <https://www.fastcompany.com/90826178/generative-ai> *Fast Company*. December 18. Retrieved March 1, 2023.
- OpenAI. 2023. *ChatGPT* (June 8 version) [Large language model] <https://chat.openai.com/>
- Robbins, Hollis. 2023. "17 Notes on Academic AI: the ground is shifting our feet." Pp. 11-12 in *Big Bot on Campus: The perils and potential of ChatGPT and other AI*. Chronicle of Higher Education.
- Ropek, L. 2023, January 4). "Did CHATGPT write that? A college student created an AI Essay detector." <https://gizmodo.com/chatgpt-ai-essay-detector-college-princeton-edward-tian-1849946535> *Gizmodo*. Retrieved January 26, 2023.
- Shubhendu, S., & Vijay, J.F. 2013. "Applicability of Artificial Intelligence in Different Fields of Life." *International Journal of Scientific Engineering and Research* 1(1): 28-35.

Supiano, Beckie. 2023. "Will ChatGPT Change How Professors Assess Learning?" Pp. 30-35 in *Big Bot on Campus: The perils and potential of ChatGPT and other AI*. Chronicle of Higher Education.

Terry, Owen Kichizo. 2023. "I'm a Student. You Have No Idea How Much We're Using ChatGPT." Pp. 23-25 in *Big Bot on Campus: The perils and potential of ChatGPT and other AI*. Chronicle of Higher Education.

Wang, J. J. 2021. *Dall·E: Creating Images from Text*. OpenAI. January 5
<https://openai.com/research/dall-e> Retrieved March 23, 2023.

What is a bot? Cloudflare. (n.d.). <https://www.cloudflare.com/learning/bots/what-is-a-bot/>
Retrieved March 1, 2023.

What is machine learning? IBM. (n.d.). <https://www.ibm.com/topics/machine-learning> Retrieved March 1, 2023.

What is natural language processing? IBM. (n.d.). [https://www.ibm.com/topics/natural-language-processing#:~:text=Natural%20language%20processing%20\(NLP\)%20refers,same%20way%20human%20beings%20can](https://www.ibm.com/topics/natural-language-processing#:~:text=Natural%20language%20processing%20(NLP)%20refers,same%20way%20human%20beings%20can) Retrieved March 1, 2023.

Recommended Readings

Bass, D., & Bloomberg. (2023,). "Buzzy ChatGPT chatbot is so error-prone that its maker just publicly promised to fix the tech's 'glaring and subtle biases.'" <https://fortune.com/2023/02/16/chatgpt-openai-bias-inaccuracies-bad-behavior-microsoft/> *Fortune*. February 16. Retrieved March 1, 2023.

Chronicle of Higher Education. 2023. *Big Bot on Campus: The perils and potential of ChatGPT and other AI*.

Dilmegani, C. 2022. "Top 6 use cases of generative AI in Education." <https://research.aimultiple.com/generative-ai-in-education/> AIMultiple. December 25. Retrieved March 1, 2023.

Lepore, Jill. 2023. "The Data Delusion." <https://www.newyorker.com/magazine/2023/04/03/the-data-delusion> *The New Yorker*. April 3. Retrieved April 12, 2023.

Ortiz, S. 2023. "What is CHATGPT and why does it matter? Here's everything you need to know." <https://www.zdnet.com/article/what-is-chatgpt-and-why-does-it-matter-heres-everything-you-need-to-know/> *ZDNET*. February 16. Retrieved March 1, 2023.

Ruby, M. 2023. "How CHATGPT works: The models behind the bot." <https://towardsdatascience.com/how-chatgpt-works-the-models-behind-the-bot-1ce5fca96286> *Medium*. January 30. Retrieved February 2, 2023.

Singer, Jessica. 2022. *Early's Next Generation Genres: Teaching Writing for Civic and Academic Engagement*. New York, NY: W.W. Norton and Company.

West, D. M. 2018. *What is Artificial Intelligence?* Brookings Institute.
<https://www.brookings.edu/research/what-is-artificial-intelligence/> Retrieved March 1, 2023.