

# Memorandum

**To:** All College of Liberal Arts Faculty

**From:** The College of Liberal Arts Generative AI Task Force

**Date:** January 12, 2023

**Subject:** Memo to Departments & Academic Units from the Generative AI Taskforce

Generative AI will impact society, culture, and the economy in broad and fundamental ways. Higher education, in particular, will see changes in how knowledge is generated and how we understand and value critical thinking, creative expression, and professional and personal communication. Because Generative AI will have a permanent presence on the landscape of higher education, we have the obligation and responsibility to reflect, revisit, and readdress the goals of higher education in the 21<sup>st</sup> century.

Following several conversations with faculty and staff in CLA, Dean Ben Withers of the College of Liberal Arts charged The Generative AI Taskforce (identified below) to explore the impact of Generative AI technologies on the educational mission in the college. The committee has reviewed the resources provided by [The Institute for Teaching and Learning](#) at CSU, along with a plethora of resources published at the national level and met several times to discuss what aspects of this material is most relevant to our pedagogical approaches in the College of Liberal Arts. This memo offers departments and academic units a brief description of Generative AI, its implications for higher education, and a spectrum of recommendations that may be adopted for working *with* or working *around* Generative AI. Our hope is that this aids in opening a space for reflection, discussion, and action related to Generative AI in your department or academic unit, predicated on ethics, equity, and best practices.

## What is Generative AI?

The transformative impact of Artificial Intelligence (AI) has been one of the biggest stories as of late with the release of various Chatbots, most notably ChatGPT and other similar Large Language Models (LLMs). Collectively, this new generation of AI is known as Generative AI, with the technology representing an advance in the capacity of AI to create novel or previously undeveloped content from training datasets. For instance, ChatGPT, released by OpenAI in November of 2022, can produce



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previously unwritten text, while instruments such as DALL-E can generate new artwork. Still other Chatbots enable the generation of video, audio, and even computer code.

ChatGPT has garnered the most attention with “GPT” standing for “Generative Pre-trained Transformer.” This technology is itself the culmination of previous developments in Artificial Intelligence. These include artificial neural networks, also known as “deep” or “machine learning.” Inspired by discoveries in neuroscience related to the human brain, these artificial networks can be “stacked” or “blocked” and linked together by “transformers” that move predictions from one block of networks to another. This expands the growth and capacity for deep learning. For instance, the most recent version of ChatGPT, GPT-4 released in early 2023, has one trillion artificial neural connections. As a point of comparison, the human brain has one hundred trillion neural connections. Known as Generative Adversarial Networks, these deep learning artificial neural networks exponentially increase computations, thus, allowing for “self-supervised” learning, discovery, and content generation.

In the case of ChatGPT, these networks are pre-trained based on Large Language Models (LLM) drawn from vast amounts of content, including material from academic sources, and culled from the current internet. This allows the user to engage in Natural Language Processing (NLP) by entering a prompt into ChatGPT and receiving a natural language text that closely approximates human responses. This is not a “cut-and paste” approach, where students extract information, excerpts, or quotes from the internet. Indeed, one novel challenge the technology raises in the academic context is that it is usually difficult or impossible to determine what training data the model is utilizing in formulating an output. Instead, the GPT technology creates new text (or in the case of DALL-E, new images), that previously did not exist in this generated form. Successes related to ChatGPT range from writing poetry to technical reports, along with scoring in the 10<sup>th</sup> percentile of the LSAT and producing college essays and screenplays. Different models have different strengths and weaknesses. How well one of them performs a given task is dependent on the dataset that the model was trained on.

These models are likely here to stay and will have a profound effect on human activities for students beyond the classroom and in their future careers. Writing and creating alongside AI and generative models is increasingly adopted within various industries and fields ranging from medicine and emergency management to business, journalism, and computer programming. Despite the challenges that these tools create for traditional processes and products, we will need to appreciate within the humanities, arts, and social sciences the myriad ways AI will (and has already) become a part of the economies and ecologies of our moment.



## Implications & Concerns

Accompanying the proliferation of Generative AI Chatbots has been a litany of concerns related to the technology's social, cultural, and economic impacts. This is particularly true in the context of higher education, where the generation of knowledge and the development of critical thinking and creative expression skills comprise the fundamental aim of the enterprise. Focusing on ChatGPT in an educational context, we discuss two prominent concerns which are then related to the recommendations section of this memo.

First, ChatGPT does not *know* or *understand* what it is writing. That is, the GPT generated text is not based upon *meaning*, but rather produces a response governed by predicting the statistical sequencing of the most probable words (referred to as “tokens”) that would generate sentences, and then sequence sentences as directed by the prompt. While increasingly nuanced and exhibiting human-level performance in certain respects, the generated content is not meaning-based, nor is it determined by intent or purpose. Instead, the text or image-based response is predicated on predictive statistics generated from “pre-trained” data. These responses, while predictively coherent, are not truth-directed and may be inaccurate, fictitious, or simply out-of-date; while responses may align with truths and offer insightful content that enriches and extends human perspectives, such outcomes play no role in the design of the technology.

Relatedly, the second concern is bias or undesirable results produced or generated by ChatGPT. We cannot assume that data used to “pre-train” ChatGPT or the algorithms themselves are neutral, untainted, or even accurate. The outputs offered by the technology can reflect or even accentuate the biases of the data sets and algorithms that generate those outputs, further perpetuating injustice. Given the “stealth” ability of ChatGPT generated content to go undetectable, it becomes even more important for critical AI literacy to be part of general digital or media literacy. Similarly, the representation of text can promote linguistic injustice that privileges certain forms of communication, such as standard English, by erasing or disappearing local dialectics, subgroup argots, vernacular speech, and Indigenous languages.

Both concerns are exacerbated by the opacity of the processes that generate the outputs produced by these models. ChatGPT does not cite the sources it draws from in producing some output, and the datasets used to train the most well-known models have not been disclosed by the corporations that own them. Moreover, the precise ways in which the algorithms themselves work are opaque even to the experts who designed them (the so-called “black box” problem). Given that a key part of



academic research and teaching involves tracking the ongoing conversation between scholars in some field over time, LLMs raise special challenges in the university setting that pertain to issues like academic integrity, authorship and attribution, and best practices in research methodologies.

### **Recommendations**

These concerns, amongst others, have raised questions about where or whether Generative AI technologies like ChatGPT have a place in higher education. Some scholars caution against taking an adversarial approach to student adoption of Generative AI predicated on surveillance that dehumanizes students by restricting their writing/creative process. They argue that in the future students will encounter these technologies in other courses, their environments, and personal lives, and they are increasingly being integrated directly into common productivity software. Others argue that monitoring and tracking student use of Generative AI is not a dehumanizing process. Rather, holding students accountable to academic standards around use of sources in writing will maintain the ability for students develop understanding of the subject material through the writing process and for faculty to assess their understanding.

While it is not the intent of the Generative AI Taskforce to take a position on this question, we offer recommendations that departments/academic units and faculty might consider when addressing the question of Generative AI. We call for faculty and staff involvement in the formation and evaluation of policies about AI rather than a top-down approach, favoring instead one that is flexible, open, and responsive to the rapidly changing conditions associated with Generative AI technologies.

### **Departmental Actions:**

- **Develop departmental language/policy** related to Generative AI that could range from exclusion of the technologies in the classroom altogether to ethical and responsible models of collaboration between humans and LLMs in department/course learning objectives. This would include incorporating or rewriting course plagiarism and student integrity statements.
- **Create guiding documents, materials, or resources for students and faculty that promote best practices** related to Generative AI. These could focus on the ethics of academic integrity, copyright infringement, and documenting sources/citations in scholarship. Additionally, resources could prioritize critical AI literacy development among educators, focusing on the



risks of AI tools and their possible benefits. This material may benefit students and educators who do not have sufficient expertise to critically evaluate Chatbots such as ChatGPT.

- **Provide support for faculty to adapt their teaching materials** and pedagogical practices to account for the changes brought by Generative AI. Administrators and department heads should direct resources to CCAF faculty to ensure they have the necessary resources and are fairly compensated for course/assignment redesign, given that they typically teach larger/lower division classes and/or carry a heavier teaching load.

#### **Faculty Actions:**

- Faculty should **facilitate in-class discussions about policies surrounding Generative AI**. If use of the technologies is allowed, faculty should provide examples of how students can and cannot integrate Generative AI into coursework. It should not be assumed that students will enter the classroom understanding their instructor's expectations regarding these technologies. Early and explicit discussion of these expectations can reduce misunderstandings.
- **Focus course design on the principle that these technologies may be complementary to but are never a replacement for student thinking**, scholarly engagement, or creativity, as expressed in their writing, reading, conversing, or creative expression. The goal in the classroom should always be to utilize recent technologies where appropriate to help students develop their unique voices as scholars, creators, and thinkers.
- **Specific suggestions for course assignments might include:**
  - Using Generative AI to aid students in **processing complex texts and/or large data sets** in a time effective ways.
  - Value process-focused (versus result-focused) activities such as **using Generative AI to initiate exploration**.
  - Focus **on developing assignments that require references to use in-class discussion or activities**, which will not form part of the LLMs data set. Be aware that many high-quality academic articles and sources, including textual commentaries, may be included in the training dataset of the model.
  - Focus on **exams/essays that are in-class** and/or closed browser/book.



- **Diversify assignments** in non-traditional ways such as visual posters and zines, in-class presentations, and non-writing collaborative assessments.
- If faculty adopt Generative AI technologies, one focus could be on **supporting student's access, training, literacy, and competency in using these tools** in ways that foster peer-to-peer and faculty-to-student collaboration.
- **Current research suggests that Generative AI detecting tools such as the new Turnitin and GPTZero are largely ineffective.** They tend to have high rates of false negatives and, more worryingly, false positives. These false positives disproportionately impact disadvantaged students—for instance, ESL students—and given the opacity of how the detection software works it is very difficult for a student to defend themselves against charges of misconduct based on what appears to be highly dubious evidence.

### **Concluding Thoughts**

The rapidly expanding presence of Generative AI in educational settings, and society more generally, mandates that institutions of higher education acknowledge and respond to these developments. Whether its ChatGPT, DALL-E, or the myriad of other Generative AI applications, we are only now witnessing their transformative potential. While confronting these challenges requires a coordinated university-wide approach, the impact of Generative AI will occur at the departmental level and in the classroom. Dedicating time and resources to educating, evaluating, and supporting our collective understanding of these new tools like ChatGPT is the greatest responsibility we have as educators in the 21<sup>st</sup> century.

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