

Generative AI: A New Era of Enlightenment

Building a Responsive Strategy at Elon University

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Section 1: The Emergence of Generative AI Technologies

The strategic plan for 2030 [Boldly Elon](#) sets the direction to build upon decades of innovation and national leadership in experiential and innovative teaching pedagogy, setting the standard for engaged learning and mentoring. Maintaining such a strategic positioning requires that Elon University continue to be responsive to its ever-changing dynamic environment, which now includes rapidly evolving and potentially disruptive generative Artificial Intelligence (AI) technologies. The introduction of generative AI in Fall 2022 has left higher education institutions and companies grappling with its impact on society and daily operations. Given the speed of generative AI's deployment thus far, the need to advance digital transformation, reskill talent, and prepare future generations for the new world of AI is greater than ever. A recent McKinsey report predicts that because of generative AI half of all work will be automated between 2030 and 2060 (McKinsey, 2023). With its ability to process and generate human language, generative AI can assist humans in a variety of tasks including responding to complex questions, serving as a personal tutor, generating programming code, writing a resume, and translating languages. Generative AI has even passed standardized tests like the Bar, GRE, and SAT and has outperformed medical students on complex clinical exams (Hadhazy, 2023).

How does it work?

The technical backbone of generative AI advancements is a form of machine learning whose architecture mimics that of the human brain by creating a network of “neurons” that pass information back and forth. In 2017, an enhancement was created to the network such that some of the information passed contains context clues from previous words and sentences. This enhanced network, called a “transformer neural network,” resulted in an astounding leap forward in their ability to mimic human conversations. It is this discovery that underlies the Generative AI technologies such as ChatGPT and DALL-E.

Higher education institutions have rushed to respond to generative AI—such as ChatGPT, LLaMA, GitHub Copilot, and Bard—with institutional use policies that, in some cases, included a complete ban of generative AI over fears of student plagiarism. We believe that the question is not whether to use generative AI in higher education, but how to do so appropriately and ethically. The goal of this whitepaper is to offer strategic insights to help us examine how our campus could engage ethically with AI advancements and prepare for the ways it may impact education. This whitepaper offers a broad snapshot of how Elon might responsibly and strategically plan for engaging AI on our campus. As AI technologies are emerging and changing quickly, this whitepaper does not aim to answer all the questions that are appropriate and important to ask, because such answers are uncertain and should involve discussions with the wider university community before they are answered. This whitepaper is a conversation starter, offered as a way to engage our community in a dialogue that will continue throughout the next academic year.

The whitepaper is organized into the following sections:

- Section 2 proposes draft language for "Elon's Generative AI Statement," building upon Elon's "AI Awareness & Readiness Survey" and the analysis of peer- and aspirant-institutions' AI statements
- Section 3 highlights some benefits of AI and its potential for engaged learning
- Section 4 outlines some risks and challenges of AI that are especially important for educational institutions to consider mitigating
- Section 5 offers interim considerations for generative AI in instructional settings for our community to consider, to ensure informed and ethical engagement with AI advancements

Section 2: Draft of "Elon's Generative AI Statement" (August 2023)

In line with the approaches of the other institutions, including Elon's peer- and aspirant-institutions, and considering Elon's Mission Statement and unique culture, the following draft of "Elon's Generative AI Statement" is offered for discussion:

As a pioneer of experiential learning and a national leader in engaged learning for student and alumni success, Elon University prepares ethical, resilient, and agile graduates who are active and responsible citizens that shape the future. In line with our mission, we recognize the importance of equipping our students with the necessary skills to embrace technology for enhanced learning and engagement in their personal, professional, and civic lives. Generative AI technologies hold immense potential for accelerating the co-creation of knowledge, enhancing effectiveness and efficiency. However, they can also introduce novel challenges to student engagement; pedagogy design and assessments; diversity, equity, and inclusion concerns; ethical considerations; and honor code expectations.

At Elon, the decision to incorporate these technologies into teaching and learning is at the discretion of our faculty. While some faculty members may choose to utilize generative AI in their instruction in select instances, others may opt to refrain from its use. It is the **responsibility of faculty** to make their policies clear and explicit and to discuss them openly with students. It is the **responsibility of students** to adhere to the guidelines established by their faculty. Employing the output of these technologies in violation of the policy set by the faculty will be considered an Elon honor code violation.

Elon University AI Principles:

- The use of AI at Elon should begin with the primacy of human health, well-being, dignity, safety, privacy and security.
- The use of AI is appropriate and effective in some applications and inappropriate and ineffective in others. Faculty should decide whether, when and how AI should be used in courses and clearly communicate those boundaries to students. Staff should incorporate the use of AI in their work with full awareness and support of their supervisors. In all situations intellectual honesty and transparency about the use of AI is paramount.
- We see AI as a tool to enrich and enhance teaching, learning, creativity and human development. We believe the role of AI should be to augment, not fully replace the vital human relationships between teachers and learners, or within groups of peer learners.
- We see digital and AI literacy as an essential part of an Elon education. Since AI is a multidisciplinary field, students should learn about AI's intersections with philosophy and ethics,

social sciences, health sciences, business, communications, government and legal studies, creative arts and many other fields. We should strive to help learners gain critical thinking and analysis skills appropriate for functioning in an AI-assisted world, including concepts such as social responsibility and citizenship, information literacy, how AI might reinforce human bias and discrimination, its implications for personal privacy, intellectual property and the ways it can abet deception through fraud and fakery.

- Everyone in our community should have the opportunity to access and engage with AI systems, including physical access as well the skills and capability to use these systems efficiently and equitably.
- AI systems used at Elon should never compromise the privacy of students' personal information. While AI systems may be utilized, faculty and staff should maintain a primary role in the evaluation of students' learning progress, behaviors and outcomes.
- AI systems used at Elon should be transparent and neutral – they should disclose the positionality of their data and models and should not manipulate learning processes in unethical, deceptive or subliminal ways.
- The use of AI in research must be done within the bounds of rigorous ethical standards. Researchers should take all necessary steps to understand the likely benefits of AI-enabled research, the limits that should be imposed on its application, and the risks (known and unknown) and potential negative consequences that might emerge from these technologies.

Section 3: Potential Benefits of Generative AI in Higher Education

Generative AI has the potential to transform, and perhaps even revolutionize, education. While much of this is still speculative—as AI tools continue to proliferate and educators learn to harness their power—there are several potential educational benefits of generative AI that are repeatedly mentioned in the literature. The broad argument is that generative AI will free instructors from mundane and repetitive tasks, allowing them to spend more time creating immersive and engaging learning experiences geared toward the individualized needs of students. As educators gain AI literacy, it could lead to even more profound shifts in how they create content, teach, and engage students. The following section summarizes some of the primary ways technology leaders predict generative AI will change education.

Educational Enhancement. Generative AI can enhance education, making it more engaging, accessible, and tailored to individual student needs. Generative AI, for instance, can put classroom skills and knowledge into practice through the generation of interactive learning simulations (Lebo & Brown, 2023). For example, medical students might “interact” with a generative AI trained to mimic the symptoms of a patient. Such simulations can enhance the realism of learning objectives, providing opportunities for faculty to tailor scenarios to class content and student learning needs. Generative AI can also serve as a personalized tutor. For instance, Khan Academy, a non-profit learning platform for K-12 students, has partnered with OpenAI to create an AI [guide](#) that serves as a tutor and student coach in math, computer science, and writing topics. With the proper IT infrastructure faculty could use generative AI to tailor content and feedback to students based on their needs and learning styles (Seo et al., 2021). These AI tools can also “engage” with learners, for example, by helping students practice language skills by interacting with an AI through customized conversation-like responses (Kharbach, 2023) or by making revision suggestions to submitted text, according to the users' prompts. These personalized, interactive uses of generative AI can enhance student engagement and improve learning outcomes (Adiguzel et al., 2023).

Instructor Empowerment and Skill Development. Instructors could use generative AI tools to create a range of curricular materials, like syllabi, assignments, test and quiz questions, case studies, self-paced practice problems, and study guides, as well as administrative and professional documents like memos, reports, proposals, self-assessments, and visual presentations (Pavlik, 2023; Gupta & Bhaskar, 2020). Furthermore, educators can assist students with learning needs by utilizing AI tools with text-to-speech or speech-to-text functions (Dillard, 2022; Kasneci et al., 2023; Tilili et al., 2023). Beyond creating materials, AI technologies may foster improved teaching skills and competency by providing inspiration, promoting self-reflection, and granting deeper insights into students' learning processes (Adiguzel et al., 2023). For instance, AI-generated metrics can provide instructors with detailed analytics on each student's performance, such as the type of questions they ask or the amount of progress they have made in a course. With such metrics, faculty can refine assignments, better target areas of difficulty for students, and create tailored learning paths.

Enhanced Academic Research. AI technologies (such as scite.ai, elicit.org, consensus.app, and semanticscholar.org) are valuable tools for researchers (Mariani, 2021). AI applications can help streamline and automate the process of collecting research, writing literature reviews, and enabling knowledge discovery (Mariani, 2021). Upon analyzing a given text, generative AI has the ability to generate informative research questions. AI-powered tools can also synthesize and organize large amounts of research data, concisely summarizing research findings (Heid, 2023). With AI-supported research, faculty can generate more detailed results and efficiently manage data. AI-enhanced research methods can also be used to identify patterns and trends that would be difficult to identify manually, allowing faculty to explore research areas they might not have considered.

Increased Efficiency. Generative AI technologies (such as Microsoft Co-Pilot) can automate various routine tasks, allowing staff and faculty to focus their time on other important activities. For example, AI tools can automate the gathering of data, the development of reports, and the scheduling of meetings and events, all of which can help instructors and staff save time.

Content Creation. The ability of generative AIs to create content has the potential to alter education in at least two ways. First, as mentioned above, instructors can use these tools to quickly and efficiently create a range of curricular and professional materials (Pavlik, 2023; Gupta & Bhaskar, 2020). Second, students can use these tools to respond to writing assignments and prompts during different parts of the writing process. While it is essential for students to understand the limitations and biases of content created by generative AIs, the value of effective prompt engineering, and the importance of critiquing and revising AI outputs, these AI tools have the potential to enhance student writing as engaged learning (Hesse, D. et al., 2023; Byrd, A. et al., 2023; Selber, 2023).

Section 4: Risks and Challenges of Generative AI

It is important to be aware of and mitigate the potential risks and ethical concerns associated with the use of generative AI in educational environments. These concerns have led 1,000 technology leaders to call for a six-month halt in "giant" AI experiments (Metz and Schmidt, 2023). In addition, there is concern that AI developers are creating applications that are difficult to understand, predict, and reliably control. These concerns include, but are not limited to, the following:

Transparency: A lack of transparency into the source data and how the responses are generated could make these generative AI models difficult to explain and understand. For example, a generative AI solution that summarizes the literature about engaged learning may not be able to reference the right articles that led it to its conclusions about the data. That's why being able to verify the information

produced by generative AI is an essential skillset to develop and build. How can we help our students critically assess AI output quality?

Overreliance: Overreliance on AI systems can lead to several negative consequences, such as users uncritically accepting incorrect AI outputs; loss of critical thinking skills; inhibiting users from developing original ideas; misunderstanding concepts; inability to apply knowledge; detachment from the inquiry process; limited exposure to diverse perspectives; and users losing confidence that they can learn on their own without the assistance of AI (OpenAI, 2023; Passi & Vorvoreanu, 2022). How can we train our community to use strategies for mitigating user overreliance on AI and help students develop frameworks for interacting successfully with AI systems?

Academic Integrity: It is reasonable to assume that students have been utilizing generative AI technologies to complete their class assignments. However, given the speed with which AI emerged during this last academic year, it is also reasonable to assume that most faculty members understandably did not incorporate an "Acceptable AI Use" policy into their syllabi. This creates an academic integrity gap that could be addressed by clear expectations around generative AI use in academic settings. How can we prepare our community to address the academic integrity gap?

Misinformation Concerns: The rise of deep fake images and videos and manipulation of information pose a major near-term threat that calls for AI regulations from the US government and close attention from educational institutions. Studies have already demonstrated the ability of machines to produce images and sounds nearly identical to their real-life counterparts (Metz and Blumenthal, 2019). Such advancements could potentially hasten the propagation of misleading or false information. How can we help our community to mitigate the risks of deep fake materials?

Output Quality: While the answers generated by AI may seem logical and accurate, there can be instances where the information produced is incorrect, a phenomenon often referred to as a "hallucination." It is therefore crucial for students to cross-check AI-generated information with reliable external sources. Moreover, content produced by generative AI can be harmful and biased, as the data training the model represents data sources that includes bias. Additionally, these tools have been primarily trained on Western perspectives and may not present a globally inclusive view. How can we help our community develop a clear understanding of the limitations of generative AI?

Equity and Access: Some generative AI tools are freely available, but more advanced models like GPT-4 are subscription based. Ensuring that all students, faculty, and staff have equal access to tools like ChatGPT and the training to use them effectively is a critical step in bridging the digital divide on campus. What infrastructure do we need to build to ensure equitable access to these tools?

Job Loss: The impacts of generative AI on the job market, both in the short- and long-term, remain uncertain. While some studies show significant productivity gains (McKinsey, 2023), others indicate potential disruptions in specific labor sectors, which may impact students, staff, and faculty. How can we help our community use AI to strengthen their professional lives while mitigating any potential downsides?

Section 5: Interim Considerations for Generative AI in Instructional Settings

The following interim consideration recommendations have been assembled based on published research, discussions in public forums, and feedback received from faculty and staff across the university units.

Faculty Considerations:

1. Understand the Opportunities and Limitations of AI

- a. Develop AI Literacy
 - i. Attend campus workshops and review campus online resources to become familiar and stay current with the use of generative AI and Large Language Models, their benefits and limitations, and their potential for facilitating engaged learning.
 - ii. Experiment with different AIs in your everyday work, as you prepare for class and conduct research, to become familiar with the range of AIs available and their possibilities for academic work.
 - iii. Participate in discussions with colleagues within and among disciplines on the appropriate use of AI.
 - iv. Review the AI statements issued by Elon and by your professional organizations and publications, as the use of AI technologies in teaching and research is often discipline-specific.
- b. Be open to the creative use of generative AI tools to enhance students' engaged learning experiences and help them achieve your course learning outcomes. For example, students might use generative AI tools as a "discussion partner," as an online content tutor, as a research assistant, or as an aid during specific parts of the writing process (e.g., to brainstorm topics or questions; to generate an initial outline as a starting point; to request specific kinds of feedback, etc.).
- c. Consider where in your curriculum generative AI will be discussed and used, and consider scaffolding across classes, just like you would scaffold content and learning outcomes.
- d. Determine how you would measure successful use of the generative AI to support your courses and your students.
- e. Develop an understanding of how AI technologies may be used, or are already being used, in the workplace in relation to the field in which you teach.
- f. Be aware that AI-detection tools, much like existing plagiarism detection tools, have limitations and can set up an adversarial rather than a trust and empowerment relationship between students and faculty.
- g. Engage in discussions with your colleagues to determine resources needed to support your use of AI for your majors and schools.

2. Understand the Risks Associated with AI and its Ethical Use

- a. Consider what constitutes ethical use of AI in your discipline, in your research, and in your teaching.
- b. If students may use AI tools in your courses, clearly communicate what constitutes acceptable use and how a student should cite or disclose the use of generative AI relative to their academic work.
- c. Be aware of the risk of unauthorized and unverified AI tools for sensitive information as they may present data privacy concerns. Critical information protected under the Family Educational Rights and Privacy Act (FERPA) could potentially be leaked onto the internet, leading to security risks and legal implications.

- d. Be aware of the potential for fabricated "hallucinations" (i.e., inconsistent and nonsensical generated content) and inaccurate content produced by generative AI. Consider when and how content from generative AI should be verified.

3. Develop and Communicate Generative AI Course Policies

- a. Consider how the development of AI technology might require you to revise and redesign your course assignments, quizzes, and tests to avoid unethical or dishonest use of generative AI. For example, widely used class assignments such as take-home essays and writing assignments that are not scaffolded might be weakened by the advance of generative AI tools as they can generate convincing content.
- b. Be transparent with students about course and assignment expectations regarding the use of generative AI technologies.
 - i. Add a clear "Acceptable AI Use" statement to your syllabi. You might also choose to add more specific "Acceptable AI Use" statements to individual assignments. The decision to use AI in the classroom and under what circumstances is up to individual faculty members. Please see Appendix C for examples.
 - ii. Explain to your students the benefits and limitations of generative AI technologies relative to your class and clarify the values and learning goals that led you to adopt your "Acceptable AI Use" policy.
 - iii. Clearly articulate course expectations and repercussions for violating the "Acceptable AI Use" policy in alignment with other university policies.
- c. When students are permitted to use AI for class assignments:
 - i. Practicing using AI as a class, and together critique their benefits and limitations.
 - ii. Be clear about the role of AI in your class, highlighting its role as supplementing the classroom experience rather than replacing it.
 - iii. Asking students to write a brief reflection or summary about which AI they used, critique the output quality, and explain how they revised the output (the Human-AI loop).
 - iv. Asking students to turn in transcripts produced during AI use.
 - v. If you are asking your students to use paid AI technology, add the resource into your syllabus, so students know the cost of the tool.
 - vi. Remind the students of the values in Elon's Honor Code and Code of Conduct: Honesty, Integrity, Responsibility, and Respect. Students are expected to exemplify our values through their academic work including their use of generative AI.
- d. Highlight the importance of the Human-AI loop: AIs may assist humans in creating content, but AI outputs should not be used without human intervention and revision. (Please see [Humans in the Loop: The Design of Interactive AI Systems -stanford.edu](https://stanford.edu))
- e. Be honest with students about your experience and comfort level with AI technologies, which are emerging and changing frequently. Disclose when you use AI technologies to design class and learning assignments to your students.

4. Promote Equitable and Inclusive Use of AI

- a. Consider how the integration of generative AI technologies into the classroom helps or hinders students' success depending on their unique needs and experiences.
- b. Consider how AI tools such as text-to-speech, speech-to-text, or generative picture technology can enhance your class accessibility.
- c. Ensure all students have access to technology and instructions when adopting generative AI tools in your classroom. Pay attention to the cost of subscription AIs and consider using free alternatives if the cost is prohibitive.

Staff Considerations:

1. Understand the Opportunities and Limitations of AI

- a. Review the AI statements from professional organizations relevant to your areas of expertise that guide your work.
- b. Develop AI Literacy: participate in workshops to become familiar and stay current with the use of generative AI, its benefits and limitations as well as data privacy, bias, and security concerns.
- c. Experiment with different AIs to learn how they might augment your work efficiency and effectiveness so you can allocate more time to higher-impact tasks.
- d. Explore using AI tools in your professional work (outlining drafts, summarizing main points, etc.).
- e. Discuss the use of AI in your work tasks with your supervisor to have a candid conversation and seek any input and guidance they may have.
- f. Determine how you would measure successful use of the generative AI to support your work.

2. Consider How it Could be Applied in Your Unit

- a. When using AI for work tasks such as creating new content for marketing, forecasting numbers for finance, or coding for software development:
 - i. Critique the output. AI outputs are not meant to be copied and used without human intervention or revision ([the Human-AI loop](#)).
 - ii. Note which AI you used, what worked well, and any limitations you noticed, so you can keep track of the ones you would like to use in the future and to share best practices and new ideas with colleagues.
 - iii. Experiment using AIs with staff (or students) you supervise and discuss their benefits and downsides.
- b. Select a pilot to try the use of AI safely in a business operation. Having the structures and support through change management practices will be critical as we transition to a new way of working with emerging technology.
- c. Consider an open discussion with IT about implementing an Azure platform with OpenAI access to explore, configure and use the technology appropriately with proprietary and sensitive data.

3. Understand Risks Associated with AI and its Ethical Use

- a. Consider what constitutes ethical use of AI in your discipline, in your field of work and in your teaching.

- b. Establish guardrails to help your team experiment safely and responsibly. What data is allowed or not allowed to share? When is it necessary and/or recommended to fact-check content produced by generative AI tools? What are the mechanisms for fact-checking a suggested output?
- c. Be aware of the risk of unauthorized and unverified AI tools for sensitive information as they may present data privacy concerns. Critical information protected under the Family Educational Rights and Privacy Act (FERPA) could potentially be leaked onto the internet, leading to security issues and legal actions.
- d. Be aware of the potential for fabricated "hallucinations" and inaccurate content produced by generative AI. Consider when and how content from generative AI should be verified.

4. Promote Equitable and Inclusive Use of AI

- a. Consider how AI tools such as text-to-speech, speech-to-text, or generative picture technology can enhance work accessibility.
- b. Ensure all staff have access to technology and training if you adapt to use generative AI tools in your unit.

Student Considerations:

1. Students are responsible for knowing their instructors' AI policies. If it is not communicated clearly to students in course or assignment statements or by the instructor, they should ask their instructor if it is acceptable to use AI and under what conditions. As an emerging technology that may be implemented differently in different disciplines and courses, it is important for students to understand that course expectations toward AI use may vary across classes, disciplines, and schools.
2. Students should have access to ongoing AI training across all their years at Elon.
 - a. Build an understanding of when it's appropriate to use generative AI to support their work.
 - b. Understand the limitations and benefits of using generative AI across different disciplines and courses.
3. Students are responsible for understanding and abiding by Elon's Honor Code and Code of Conduct: Honesty, Integrity, Responsibility, and Respect. Students are expected to exemplify Elon's values through their academic work, including their use of generative AI.

Building an Infrastructure for Faculty and Staff Professional Development Considerations

In order to define AI responsible use policies and principles at Elon, above and beyond the teaching context, we recommend reviewing resources like the [European Union's Ethics Guidelines of Trustworthy AI](#) and the [Organization for Economic Cooperation and Development \(OECD\) AI principles](#). The following materials were organized using a people, processes, technology, and workshop/training framework:

People

1. Identify AI champions in departments or schools, to establish open communication between faculty/staff and professional development leaders and to help respond promptly to faculty/staff needs, questions, and requests and to relate these concerns to the coordinating

infrastructure. Offer champions compensation for their time and effort, as they will be expected to be leaders in their fields and for their colleges.

2. Offer incentives to faculty with appropriate expertise to work alongside IT professionals to build AI infrastructure.
3. Train and recruit IT professionals to develop and run an AI infrastructure leveraging existing IT infrastructure.

Processes

1. Consider connections between Elon's Data Competency QEP (Quality Enhancement Plan) and Data Nexus. For example, how and to what extent do data competent students use AI?
2. Organize events and create opportunities throughout the academic year to have conversations about AI adoption that include students, faculty and staff.
3. Develop an infrastructure for coordinating/organizing professional development opportunities across campus and commit sufficient budget resources for this coordination, workshops, speakers, grants, technology requirements, etc. Possibilities might include an "AI Readiness Committee;" relying upon existing programs to manage coordination; defining a more centralized structure such as an "Institute or Center for Ethical AI Use;" a working group; or a combination of these options.
4. Ensure that Elon stays informed about emerging AI ethical concerns, government and industry AI discussions, and policies and adjust policies accordingly.
5. Establish a cross-functional responsible AI adoption committee and develop processes to monitor and audit AI systems deployment in business operations on-campus.

Technology

1. Create online resources for the provost's website ("Generative AI Statement," Recommendations); CWE: Center for Writing Excellence website (AI writing, research, and writing pedagogy resources); CATL: Center for the Advancement of Teaching and Learning website (AI general pedagogy resources); Library (AI research resources); as well as other units with interests and expertise to share. These programs could link to each other's websites and aim for sharing a limited number of useful, focused resources.
2. Develop an "AI Playground" so faculty, staff, and students can experiment with different, emerging, and free as well subscription AIs. Offering the Elon community these opportunities is an important way to mitigate the potential problem of unequal access and encourage faculty and staff to integrate AIs into their work and teaching, when appropriate.

Workshops and Training

1. Draw upon strengths of Spring 2023 precedent, with multiple programs on campus collaborating to offer general and school/discipline specific AI workshops and grants (CWE, CATL, TLT (Teaching and Learning Technologies), Librarians, First-Year Writing, faculty/staff with expertise and interest).
2. Design inclusive and collaborative professional development opportunities that recognize faculty and staff's diverse AI experiences and draws upon their expertise and interest.
3. Design professional development so that it meets participants where they are in the learning process, responds to their needs and questions, and provides many "touch points" or

opportunities over time, and in different formats (for example, workshops, reading groups, online resources, individual consultations, and grant opportunities).

4. Design training for students based on their discipline.

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