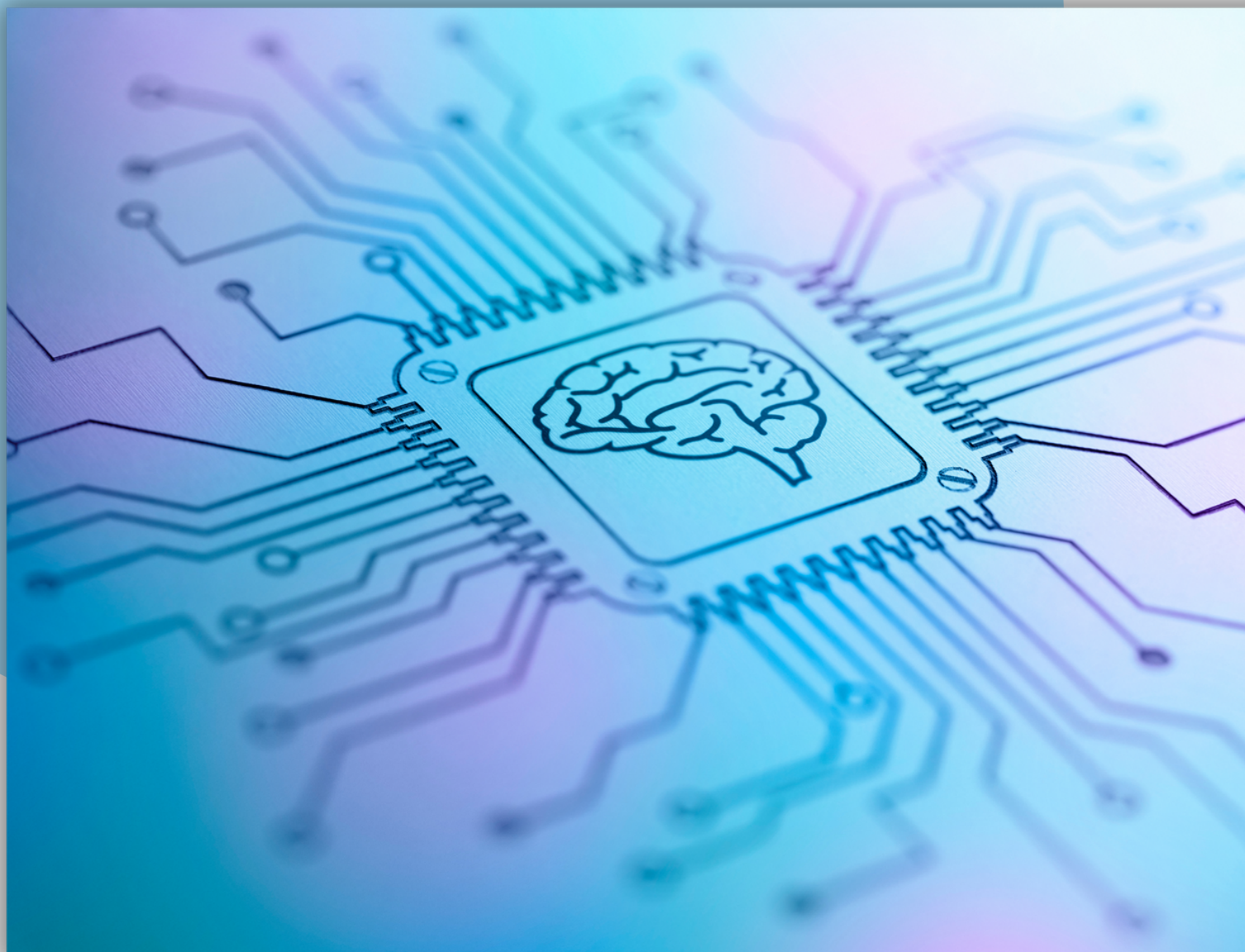


SPECIAL REPORT



INCORPORATING AI IN EDUCATION: EMPOWERING EDUCATORS, ENGAGING STUDENTS



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How to Incorporate AI into Assignments

REDUCING AI ANXIETY STARTS BY TALKING WITH STUDENTS

BY DEMIAN HOMMEL AND BRADLEY COHEN

Generative Artificial Intelligence (AI) is consuming a growing share of our collective consciousness. Like many educators, we've spent months processing the media coverage and pondering AI's potential impact on the future: Is AI "an absolute systems-level threat to education" as [some argue](#)? Will it spell the end of countless jobs or create new horizons for teaching, research, and meaningful work? Will AI save or enslave us?

It's equal parts exciting and exhausting. But as educators, it's important to remember we aren't the only ones struggling to find our footing.

[Survey data](#) from Best Colleges reveals that as of March this year, 22 percent of students admitted using ChatGPT to complete an assignment or exam, with 57 percent indicating they intend to use AI tools for future coursework. That's enough to give most instructors pause and has set off a flurry of activity in [reimagining](#) how we assess learning in order to reduce the risk of [student cheating](#). But more far-reaching for the emotional beings who fill our classrooms are the concerns expressed about the future: Twenty-seven percent of students worry about AI's influence on their education, with four in 10 saying AI defeats the purpose of education altogether. Thirty-one percent are fearful about their career prospects and almost half are anxious about AI's impact on society. A [survey](#) by ZipRecruiter adds even more gravity to these concerns: Seventy-two percent of Gen Zers say they are worried about losing their jobs to AI while [The Economist](#) found that Google searches for "is my job safe" have doubled in recent months.

The troubling part is that, according to Best Colleges, the majority of students report their instructors have not openly discussed the use, let alone potential impact of AI on education, careers, or the very disciplines students are investing their time and treasure in pursuing.

Furthering a culture of care in the classroom

There's plenty of research demonstrating how stress interferes with learning, especially in [memory formation and retrieval](#). Meaningful, productive dialogue can help. By exploring the concerns AI is eliciting in our students, we can also create the space to address the anxiety many of us feel about the issue of cheating.

Earlier this spring, Demian Hommel, co-author of this article, devoted a class to discussing how the risks posed by AI might affect students' personal and professional aspirations and what they could do to enhance their own resilience in the face of change.

The responses reveal a mixture of apprehension and optimism. Most noteworthy, they show a hunger for dialogue:

- “AI can pretty much do anything right now and it’s really threatening many jobs.”
- “Advances in technology are inevitable. People have resisted new and drastic change throughout history, yet every time it happens we seem to adjust as a society.”
- “I’m taking four courses this term and this is the only time that the impact of AI has been brought up, even though my other courses are computer science and engineering where this technology is going to be most disruptive. It’s true that we can’t predict where this is all going, but I feel better just having discussed it.”

Whether or not we’ve wrapped our minds around AI, or determined how it will affect the work we ask students to shoulder, at the very least, we need to have a conversation.

Setting the table for an effective discussion

Since most of us don’t have all the answers, this moment offers a unique opportunity to model vulnerability, intellectual curiosity, and the willingness to learn alongside our students. As Marie Curie famously said, “Now is the time to understand more, so that we may fear less.” But to avoid a reactionary discussion, it’s important to set the stage. Thinking in terms of before, during and after class is a useful framework for this or any other substantive discussion we may wish to have with students.

To prepare for the discussion, assign readings that provide [different perspectives](#) on AI along with comprehension questions for students to complete before class. Danny Liu and Adam Bridgeman’s recap from a recent [student forum](#) held at the University of Sydney offers a host of areas for exploration.

[The Best Colleges Survey](#) might also serve as a foundation by exposing students to how others are responding to AI—from metrics on student usage, to perspectives on academic integrity, education, society and the world of work. Even better, have students complete a survey of your own creation delving into these themes along with questions specific to your discipline and related career pathways.

Preparing to engage

Getting students to open up can be challenging. Asking a series of questions at the start for students to reflect on individually or with a partner (“[think-pair-share](#)”) will increase the likelihood of participation. For large classrooms, technology is a powerful enabler, especially for those who may be less inclined to speak up. Today’s student engagement platforms offer a range of options to gather responses through polling, word answer and other question types and to display them in a visually engaging way.

You might ask what skills or knowledge students believe are critical in the age of AI? Or how they might feel if their instructor used ChatGPT to provide feedback on their assignments? Single word responses can be turned into a word cloud to spur discussion. Click-on-target questions allow students to use their laptop or mobile device to click on a portion of an image, a graph or even a paragraph, which then converts individual responses into a heatmap. For example, Hommel used this approach to show an infographic of the world's largest economic sectors and asked students to select the industry they believe will be most affected by AI. The results—that nearly every part of the economy is likely to be affected—were surprising to some students who had not considered the role information technology plays in each sector.

If you have a tool that allows you to host discussions, create a thread and keep it open so students can ask questions and provide comments. This allows students to generate conversations with their peers and to surface concerns and opinions from individuals and the collective. Keeping tabs can be challenging, so consider enlisting the help of a teaching assistant or student to report in periodically.

If you create your own version of the Best Colleges survey, reveal the results at key moments and then ask for opinions and counterpoints. You might also compare and contrast the results against those from your own students and use this to explore the similarities and differences. Having students react to the opinions and perceptions of their peers is a surefire way to generate meaningful engagement.

Power in reflection

Although sharing our own perspectives may help, the most meaningful driver of academic and personal growth are the insights students generate for themselves through reflection.

At the end of the discussion, have students write an [exit ticket](#) or a [minute paper](#) to capture their most important takeaways, any shifts they've experienced in their attitudes towards AI, and what they might do moving forward. This offers instructors the benefit of understanding where students are at, if the experience was beneficial, and what concerns might be left unaddressed. If an end-of-class assignment seems too rushed, consider assigning a series of reflection questions for extra credit. You might ask them to conduct research on an aspect of AI they're interested in exploring. What opportunities does AI afford to revolutionize traditional approaches or methods in your field? How might students use generative AI to make aspects of their own lives more efficient? Or as Liu and Bridgeman asked, if you use AI to complete assignments, how will future employers have confidence in your own knowledge and capabilities?

One critical benefit of the before, during and after approach is signaling the value of the collective learning that happens in the classroom. Asking students to prepare ahead of time ensures they are less likely to be passive participants and will improve the quality of the discussion. Leveraging technology for the during portion helps each student see their response in the context of the larger picture. Following up with a reflection activity afterwards makes it more likely the information and experience will “stick.”

Putting students in the driver’s seat

Anxiety is often a product of uncertainty. Encouraging students to reflect and think critically about their thoughts and emotions and the actions they might take can help them separate perceived from actual threats. Given some of the apocalyptic predictions about AI’s impact on society, providing a venue for thoughtful dialogue allows us to model the value of processing major issues as a collective. It also gives students the opportunity to inform their own opinions and plans for the future, which may engender a greater sense of control over events that impact their lives.

The same advice applies to those of us charged with leading students through their academic journey. We’re all grappling with uncertainty and the sheer volume of recommendations and prognostications surrounding AI is overwhelming. In the face of a change as significant as this, we would be the first to recommend investigating how AI will affect course delivery and familiarizing ourselves with the potential of these tools to transform learning. But we should also be having the same discussion with our peers and within our departments. Sharing our own encounters with students about the opportunities and concerns raised by AI is a good place to start. (*Generative AI was not used to write this article*).

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GET A FEAL FOR AI

BY REGAN A. R. GURUNG

Do you remember life before smartphones?

If 2007 was a watershed moment, influencing and shaping a new generation that would grow up with iPhones, 2023 may go down as the next big milestone for society and life as we know it ([Twenge, 2023](#)). The dawn of the new year marked the arrival of a new player in the nation's consciousness. Hello, AI language models and ChatGPT!

Catapulting onto the higher education stage with the new release of OpenAI's ChatGPT 3.0., the best-known AI tool and what I focus on for now, tech-savvy faculty quickly saw the writing on the wall ([Scott, 2023](#)). The affordances of this effortlessly available AI language model could make a variety of tasks, from mundane emails to complex papers, easier to start and complete. Many professionals savored how entering a prompt into ChatGPT provided the antidote to the poison of absent muses and procrastination. Some faculty quickly modified their course assignments in attempts to be AI-proof. Sure enough, making instructions more specific to a class made ChatGPT responses significantly less accurate. This peculiarizing would only go so far. New versions of ChatGPT seemed more immune to such attempts to thwart the veracity of output in the name of good academic conduct.

The reality is that few of us can be sure how good or how bad AI is going to get. We can be sure that AI will underlie more of the processes that we use all the time. We can also hazard a guess that advances in AI technology will radically change the nature of what people do at work and how they do it. In the face of uncertainty, it is important to know how the new developments in AI should be viewed in higher education. Just as there are guides to critical thinking that help us separate fake news from true (e.g., Is the source credible?) or a good survey from a poor one (e.g., Is it valid and reliable?), we should have a handy guide for our students and for faculty to evaluate the use of AI. University recommendations are [proliferating](#). It is time to get our own FEAL for AI and ask four main questions as we consider using it.

F: Will the task be faster?

At first blush, this seems like an easy win for AI. Enter a prompt into AI, and it spits out an answer in a few seconds. While this seems extremely convenient, the fast output can be deceiving. Often, one must add more prompts to get a better answer or solve the issue. The language used may not be how we would write. The output may be tangential. This prompting and review of new output is also made more difficult by the fact that ChatGPT's access is limited to what is in public domains. The result is that in its almost human drive to please, ChatGPT will "hallucinate" and provide information that is not factual. Checking output and adding prompts adds time to what once seemed like a fast process. In some cases, it may be faster to do the task oneself.

E: Is it ethical?

Most colleges and universities will start new academic years with faculty updating student academic misconduct statements to address the use of AI. A good immediate step is for instructors to make clear whether AI use is acceptable. Faculty may also want to set limits on how much use is permissible. Is it all right for a student to use ChatGPT to get started if they then edit and complete the assignment themselves? If the student provides all the prompts used and a transcript of their interaction with ChatGPT, can they use it in whichever way they wish? While it may seem obvious, knowing whether the use of AI is allowed or not is an important check. Furthermore, correctly citing AI is an essential part of ethical use.

A: Is it accurate?

The level of hallucinating is surprising. In addition to providing inaccurate facts about a person (ask it to write your biography and see whether it gets you right), ChatGPT has also been known to make up citations. It is good enough that a cursory glance suggests perfect formatting, but a close look will show a conglomeration of various sources. I have seen numerous APA-style citations that are perfect on style but nonexistent in reality. Worse, the authors used were people who worked on the topic, and the source journal existed. This makes detecting hallucinating AI much harder work. Especially in classes where the learning outcome is to be able to accurately summarize a body of literature with full citations, ChatGPT may not deliver an A paper. Checking for accuracy is critical, and novices to a topic, whether faculty or student, may turn in grossly flawed work if they rely on AI.

L: Will I learn?

Although skeptics and cynics may complain that students will turn a blind eye on ethical issues and ignore accuracy concerns if they can get the job done fast, this would be an overgeneralization. If a student uses ChatGPT to do an assignment and pays little attention to the output before turning it in, they are unlikely to have learned the skills that the assignment was designed to foster. If they use ChatGPT to generate examples to use as models or inspiration for their own work, learning could be taking place, though this is an empirical question that needs to be tested. Using an abacus speeds up calculation time but still required a user to know how to compute mathematical functions and was a tool that facilitated learning math skills. ChatGPT could also be a tool that can help students learn, but faculty need to reflect on how best to do this.

FEAL it out. Then act.

AI is not going anywhere. Instead of putting our heads in the sand and hoping someone else will take care of the issue for us, we should further develop our critical thinking skills regarding how we can best use this transformative technology.

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ESSENTIAL CONSIDERATIONS FOR ADDRESSING THE POSSIBILITY OF AI-DRIVEN CHEATING, PART 1

BY TORREY TRUST

The launch of the artificial intelligence (AI) large language model ChatGPT was met with both enthusiasm (“Wow! This tool can write as well as humans”) and fear (“Wow...this tool can write as well as humans”).

ChatGPT was just the first in a wave of new AI tools designed to mimic human communication via text. Since the launch of ChatGPT in November 2022, new AI chatbots have made their debut, including Google’s Bard and ChatGPT for Microsoft Bing, and new generative AI tools that use GPT technology have emerged, such as [Chat with any PDF](#). Additionally, ChatGPT became more advanced – shifting from using GPT-3 to GPT-3.5 for the free version and GPT-4 for premium users.

With increasing access to different types of AI chatbots, and increasing advances in AI technology, “preventing student cheating via AI” has risen to the top of the list of faculty concerns for 2023 (Lucariello, 2023). Should ChatGPT be banned in class or should you encourage the use of it? Should you redesign your academic integrity syllabus statement or does your current one suffice? Should you change the way you give exams and design assignments? As you grapple with the role AI plays in aiding student cheating, here are six key points to keep in mind:

1. Banning AI chatbots can exacerbate the digital divide.
2. Banning the use of technology for exams can create an inaccessible, discriminatory learning experience.
3. AI text detectors are not meant to be used to catch students cheating.
4. Redesigning academic integrity statements is essential.
5. Students need opportunities to learn with and about AI.
6. Redesigning assignments can reduce the potential for cheating with AI.

1. Banning AI chatbots can exacerbate the digital divide.

Sometimes when a new technology comes out that threatens to disrupt the norm, there is a knee-jerk reaction that leads to an outright ban on the technology. Just take a look at the article, [“Here are the schools and colleges that have banned the use of ChatGPT over plagiarism and misinformation fears”](#) (Nolan, 2023), and you will find several U.S. K-12 school districts, international universities, and even entire jurisdictions in Australia that quickly banned the use of ChatGPT after its debut.

But, banning AI chatbots “risks widening the gap between those who can harness the power of this technology and those who cannot, ultimately harming students’ education and career prospects” (Canales, 2023, para. 1). ChatGPT, GPT-3, and GPT-4 technology are already being embedded into several careers from law (e.g., [“OpenAI-backed startup brings chatbot technology to first major law firm”](#)) to real estate ([“Real estate agents say they can’t imagine working without ChatGPT now”](#)). Politicians are using ChatGPT to write bills (e.g., [“AI wrote a bill to regulate AI. Now Rep. Ted Lieu wants Congress to pass it”](#)). The Democratic National Committee found that the use of AI-generated content did just as well as, and sometimes better than, human-generated content for fundraising ([“A Campaign Aide Didn’t Write That Email. A.I. Did”](#)).

Ultimately, the “effective use of ChatGPT is becoming a highly valued skill, impacting workforce demands” (Canales, 2023, para. 3). College students who do not have the opportunity to learn when and how to use AI chatbots in their field of study will be at a disadvantage in the workforce compared to those who do – thus expanding the digital divide.

2. Banning the use of technology for exams can create an inaccessible, discriminatory learning experience.

It might be tempting to turn to low-tech options for assessments, such as oral exams and handwritten essays, as a way to prevent cheating with AI. However, these old-fashioned assessment techniques often create new barriers to learning, especially for disabled students, English language learners, neurodiverse students, and any other students that rely on technology to aid their thinking, communication, and learning.

Take, for example, a student with limited manual dexterity who relies on speech-to-text tools for writing, but instead is asked to hand write exam responses in a blue book. Or, an English language learner who relies on an app to translate words as they write essays. Or, a neurodiverse student who struggles with verbal communication and is not able to show their true understanding of the course content when the instructor cold calls them as a form of assessment.

Banning technology use and resorting to low-tech options for exams would put these students, and others who rely on technology as an aid, at a disadvantage and negatively impact their learning experience and academic success. Keep in mind that while some of the students in these examples might have a documented disability accommodation that requires an alternative form assessment, not all students who rely on technology as an aid for their thinking, communication, or learning have a documented disability to get the same accommodations. Additionally, exams that require students to demonstrate their knowledge right on the spot, like oral exams, may contribute to or intensify feelings of stress and anxiety and, thus, hinder the learning process for many, if not all, students (see [“Why Your Brain on Stress Fails to Learn Properly”](#)).

3. AI text detectors are not meant to be used to catch students cheating.

AI text detectors do not work in the same way that plagiarism checkers do. Plagiarism checkers compare human-written text with other human-written text. AI text detectors guess the probability that a text is written by humans or AI. For example, the Sapling AI Content Detector “uses a machine learning system (a Transformer) similar to that used to generate AI content. Instead of generating words, the AI detector instead generates the probability it thinks [emphasis added] each word or token in the input text is AI-generated or not” (2023, para. 7).

Let me repeat, AI text detectors are guessing whether a text is written by AI or not.

As such, many of the AI text detector tools specifically state that they should not be used to catch or punish students for cheating:

- “Our classifier has a number of important limitations. It should not be used as a primary decision-making tool, [emphasis added] but instead as a complement to other methods of determining the source of a piece of text” (OpenAI; Kirchner et al., 2023, para. 7).
- “The nature of AI-generated content is changing constantly. As such, these results should not be used to punish students [emphasis added]. While we build more robust models for GPTZero, we recommend that educators take these results as one of many pieces in a holistic assessment of student work” (GPTZero homepage).
- “No current AI content detector (including Sapling’s) should be used as a standalone check to determine whether text is AI-generated or written by a human. False positives and false negatives will regularly occur” (Sapling AI Content Detector homepage).

In an empirical review of AI text generation detectors, Sadasivan and colleagues (2023) found “that several AI-text detectors are not reliable in practical scenarios” (p. 1). Additionally, the use of AI text detectors can be particularly harmful for English language learners, students with communication disabilities, and others who were taught to write in a way that matches AI-generated text or who use AI chatbots to improve the quality and clarity of their writing. Gegg-Harrison (2023) shared this worry:

My biggest concern is that schools will listen to the hype and decide to use automated detectors like GPTZero and put their students through ‘reverse Turing Tests,’ and I know that the students that will be hit hardest are the ones we already police the most: the ones who we think ‘shouldn’t be able to produce clear, clean prose of the sort that LLMs generate. The non-native speakers. The speakers of marginalized dialects (para. 7).

Before you consider using an AI text detector to identify potential instances of cheating, take a look at this open access [AI Text Detectors slide deck](#), which was designed to support educators in making an informed decision about the use of these tools in their practice.

4. Redesigning academic integrity statements is essential.

AI chatbots have elevated the importance of academic integrity. While passing AI-generated text off as human-generated seems like a clear violation of academic integrity, what about using AI chatbots to revise text to improve the writing quality and language? Or, what about using AI chatbots to generate reference lists for a paper? Or, how about using an AI chatbot to find errors in a code to make it easier to debug the code?

Students need to have opportunities to discuss what role AI chatbots, and other AI tools, should and should not play in their learning, thinking, and writing. Without these conversations, people and even organizations are left trying to figure this out on their own, often at their own expense or the expense of others. Take for example the mental health support company Koko which decided to run an experiment on users seeking emotional support by augmenting, and in some cases replacing, human-generated responses with GPT-3 generated responses. When users found out that the responses they received were not entirely written by humans they were shocked and felt deceived (Ingram, 2023). Then, there was the lawyer who used ChatGPT to create a legal brief for the Federal District Court, but was caught for doing so because the brief included fake judicial opinions and legal citations (Weiser & Schweber, 2023). It seems like everyone is trying to figure out what role ChatGPT and other AI chatbots might play in generating text or aiding writing.

College courses can be a good place for starting conversations about academic integrity. However, academic integrity is often part of the hidden curriculum – something students are expected to know and understand, but not explicitly discussed in class. For example, faculty are typically required to put boilerplate academic integrity statements in their syllabi. My university requires the following text in every syllabus:

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. *Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent.* [emphasis added] (University of Massachusetts Amherst, 2023).

While there is a detailed online document describing cheating, fabrication, plagiarism, and facilitating dishonesty, it is unlikely that students have been given the time to explore or discuss that document; and the document has not been updated to include what these behaviors might look like in the era of AI chatbots. Even still, students are expected to demonstrate academic integrity.

What makes this even more challenging is that if you look at OpenAI's Terms of Use, it states that users own the output (anything they prompt ChatGPT to generate) and can use the output for any purpose, even commercial purposes, as long as they abide by the Terms. However, the Terms of Use also state that users cannot present ChatGPT generated text as human-generated. So, turning in a fully ChatGPT-written essay is a clear violation of the Terms of Use (and considered cheating), but what if students only use a few ChatGPT-written sentences in an essay? Or, use ChatGPT to rewrite some of the paragraphs in a paper? Are these examples a violation of the OpenAI Terms of Use or Academic Integrity?



(c) **Restrictions.** You may not (i) use the Services in a way that infringes, misappropriates or violates any person's rights; (ii) reverse assemble, reverse compile, decompile, translate or otherwise attempt to discover the source code or underlying components of models, algorithms, and systems of the Services (except to the extent such restrictions are contrary to applicable law); (iii) use output from the Services to develop models that compete with OpenAI; (iv) except as permitted through the API, use any automated or programmatic method to extract data or output from the Services, including scraping, web harvesting, or web data extraction; (v) represent that output from the Services was human-generated when it is not or otherwise violate our Usage Policies; (vi) buy, sell, or transfer API keys without our prior consent; or (vii), send us any personal information of children under 13 or the applicable age of digital consent. You will comply with any rate limits and other requirements in our documentation. You may use Services only in geographies currently supported by OpenAI.

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3. Content

(a) **Your Content.** You may provide input to the Services ("Input"), and receive output generated and returned by the Services based on the Input ("Output"). Input and Output are collectively "Content." As between the parties and to the extent permitted by applicable law, you own all Input. Subject to your compliance with these Terms, OpenAI hereby assigns to you all its right, title and interest in and to Output. This means you can use Content for any purpose, including commercial purposes such as sale or publication, if you comply with these Terms. OpenAI may use Content to provide and maintain the Services, comply with applicable law, and enforce our policies. You are responsible for Content, including for ensuring that it does not violate any applicable law or these Terms.

Figure 1: Screenshot of OpenAI Terms of Use (emphasis as yellow highlight added)

Students need opportunities to discuss the ethical issues surrounding the use of AI chatbots. These conversations can, and should, start in formal education settings. Here are some ways you might go about getting these conversations started:

- Update your course academic integrity policy in your syllabus to include what role AI technologies should and should not play and then ask students to collaboratively annotate the policy and offer their suggestions.
- Invite students to co-design the academic integrity policy for your course (maybe they want to use AI chatbots for helping with their writing...Or, maybe they don't want their peers to use AI chatbots because that provides an advantage to those who use the tools!).
- Provide time in class for students to discuss the academic integrity policy.

If you are in need of example academic integrity statements to use as inspiration, check out the [Classroom Policies for AI Generative Tools document](#) curated by Lance Eaton.

5. Students need opportunities to learn with and about AI.

There are currently more than 550 AI startups that have raised a combined \$14 billion in funding (Currier, 2022). AI will be a significant part of students' futures; and as such, students need the opportunity to learn with and about AI.

Learning with AI involves providing students with the opportunity to use AI technologies, including AI chatbots, to aid their thinking and learning. While it might seem like students only use AI chatbots to cheat, in fact, they are more likely using AI chatbots to help with things like brainstorming, improving the quality of their writing, and personalized learning. AI can aid learning in several different ways, including serving as an "AI-tutor, AI-coach, AI-mentor, AI-teammate, AI-tool, AI-simulator, and AI-student" (Mollick & Mollick, 2023, p. 1). AI chatbots can also provide on-demand explanations, personalized learning experiences, critical and creative thinking support, reading and writing support, continuous learning opportunities, and reinforcement of core knowledge (Nguyen et al., 2023; Trust et al., 2023). Tate and colleagues (2023) asserted that the use of AI chatbots could be advantageous for those who struggle to write well, including non-native speakers and individuals with language or learning disabilities.

Learning about AI means providing students with the opportunity to critically interrogate AI technologies. AI chatbots can provide false, misleading, harmful, and biased information. They are often trained on data "scraped" (or what might be considered "stolen") from the web. The text they are trained on privileges certain ways of thinking and writing. These tools can serve as "misinformation superspreaders" (Brewster et al., 2023). Many of these tools make money off of free labor or cheap foreign labor. Therefore, students need to learn how to critically examine the production, distribution, ownership, design, and use of these tools in order to make an informed decision about if and how to use them in their field of study and future careers.

For instance, students in a political science course might examine the ethics of using an AI chatbot to create personalized campaign ads based on demographic information. Or, students in a business course might debate whether companies should require the use of AI chatbots to increase productivity. Or, students in an education course might investigate how AI chatbots make money by using, selling, and sharing user data and reflect upon whether the benefits of using these tools outweigh the risks (e.g., invading student privacy, giving up student data).

Two resources to help you get started with helping students critically evaluate AI tools are the [Civics of Technology Curriculum](#) and the [Critical Media Literacy Guide for Analyzing AI Writing Tools](#).

6. Redesigning assignments can reduce the potential for cheating with AI.

Students are more likely to cheat when there is a stronger focus on scores (grades) than learning (Anderman, 2015), there is increased stress, pressure, and anxiety (Piercey, 2020), there is a lack of focus on academic integrity, trust, and relationship building (Lederman, 2020), the material is not perceived to be relevant or valuable to students (Simmons, 2018), and instruction is perceived to be poor (Piercey, 2020).

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ESSENTIAL CONSIDERATIONS FOR ADDRESSING THE POSSIBILITY OF AI-DRIVEN CHEATING, PART 2

BY TORREY TRUST

Redesigning assignments can reduce the potential for cheating with AI. Students are more likely to cheat when there is a stronger focus on scores (grades) than learning (Anderman, 2015), there is increased stress, pressure, and anxiety (Piercey, 2020), there is a lack of focus on academic integrity, trust, and relationship building (Lederman, 2020), the material is not perceived to be relevant or valuable to students (Simmons, 2018), and instruction is perceived to be poor (Piercey, 2020).

You can redesign assignments to address many of these issues. I came up with the TRUST model to serve as a pedagogical tool for redesigning assignments so that students will be less likely to turn to AI for cheating. It stands for:

- Transparency
- Real World Applications
- Universal Design for Learning
- Social Knowledge Construction
- Trial and Error

Transparency refers to making the purpose and requirements for the assignment as clear as possible. Students have always questioned the value of the content, assignments, and activities in their courses (“Why do I have to learn this?!”). Now, students are wondering why they have to do assignments that AI chatbots could do for them, especially when AI could do the work, like write an essay or research paper, in just a few seconds.

Students are rarely told why they have to do papers, projects, essays, discussion forum posts, or other assignments other than “to get a good grade.” While grades provide extrinsic motivation for some students, not all students are driven by the sole purpose of getting a good grade. Students want to know why they are being asked to do what you have assigned them to do. If you make this clear to them, you might find that they will find more value in the assignment and be less motivated to cheat with AI. Additionally, if you clearly outline the steps needed to complete the assignment, students might feel more confident that they can complete the assignment and be less likely to resort to cheating.

For my assignments, I outline the purpose at the top of the assignment document (see Figure 2) and then I use the checklist feature in Google Docs to provide the step-by-step directions (see [User Experience Research Project document](#) as an example). I ask students to make their own copy of the document so they can check off items as they complete them. This helps with executive functioning and improves motivation. To learn about making assignments more transparent, explore the [Transparency in Learning and Teaching \(TILT\) Framework](#).

User Experience Research Project

Purpose

To build your UX research skills and knowledge, while also informing other educators about how to critically analyze the user experience of a digital tool or app.

Challenge

As an individual, in pairs, or in groups of 3, create a multimodal UX Research Report that features a critical evaluation of the user interface, user experience, user instruction, and accessibility of a tool.

Figure 1: Screenshot of the top of my User Experience Research Project document

Real World Applications is about making your assignment as applicable to the real world as possible. There are several ways to do this – you could ask students to participate in a civic engagement project, design an open educational resource, build a working prototype of an invention, partake in a service learning activity, create a social media campaign, teach or tutor younger students, or address one of the [United Nations Sustainable Development Goals](#). For example, in an Ancient History class, students could design social media videos to excite interest in the topics they are studying (see [“Teens Are Going Viral With Theatrical History Lessons on TikTok”](#)). Or, in an Italian Studies class, students could create an open access eBook that teaches younger students about the Italian language and culture (see [“Empowering College Students to be OER Creators and Curators”](#)). Assignments with real world applications can help students see that the material is relevant and valuable to their own lives and to others, and potentially reduce the likelihood of turning to AI for cheating.

Universal Design for Learning (UDL) refers to the framework that focuses on reducing barriers and increasing access to learning (CAST, 2018). The framework has three main principles: Multiple Means of Engagement, Multiple Means of Action and Expression, and Multiple Means of Representation. Using UDL as a framework for redesigning your lessons can improve student interest, engagement, and motivation for learning, which in turn, can reduce student’s inclination to turn to AI for cheating on an assignment. To learn more about this framework, read [UDL: A Powerful Framework](#) and explore the [UDL on Campus website](#).

Social Knowledge Construction is about giving students the opportunity to deepen their understanding of the class content through interactions with others. I often tell my students that nearly all learning experiences have a social component, whether it involves reading text written by others, watching videos or presentations designed by others, communicating with others, and even observing others. Yet, many college assignments lack the opportunity for students to construct knowledge with others. This does not mean that you have to (or even should!) assign group projects, there are many ways that you can redesign an assignment to include social knowledge construction. My favorite thing to do is having students invite others to participate in the assignment. For instance, in the User Experience Research Project mentioned above, students have to find 3-5 peers to conduct usability testing of an educational digital tool and they present this data in their final report. Another way to bring social knowledge construction in is to encourage students to get feedback on their assignment from, or to share what they learned from the assignment with, individuals outside the class (see Figure 3). Encouraging learning through social knowledge construction can increase the relevance and value of an assignment, and ideally, reduce instances of cheating.

Social Engagement

- 4. If you worked in groups, did you positively contribute to your group members' learning?**

- 5. If you worked in groups, did your group members positively contribute to your own learning?**

- 6. If you worked alone, did you share your User Experience research project and/or discuss what you learned in class related to this topic with others (e.g., friends, roommates, family members, educators)?**

- 7. If you worked alone, did you actively seek out feedback from classmates and/or the instructor to improve your project?**

Figure 2: Screenshot of the Social Engagement section in the User Experience Research Project Final Reflection document

Trial and Error is about giving students the opportunity to learn through failure. Students can often learn more from productive failure than from success (Sinha & Kapur, 2021). But, typically, when students fail, they don't get a chance to learn from their mistakes, like redoing an assignment or retaking a quiz. When failure is a normal part of learning, rather than the final outcome, students might feel less pressure, stress, and anxiety when doing assignments because they know they will have a chance to fix any errors; and therefore, they may be less likely to turn to AI to cheat. In my classes, if students fail part or all of an assignment, I give them feedback on how to improve their grade and then give them additional time to revise and resubmit their work. While this might not be feasible in a large class, there are other ways you can incorporate trial and error in large classes, like having low-stakes quizzes that can be taken multiple times to demonstrate mastery of learning rather than high-stakes one-shot midterms and final exams.

In summary, when assignments are redesigned to be transparent in purpose, value, and requirements, feature real world applications of knowledge, align with the Universal Design for Learning principles, encourage social knowledge construction, and allow for learning through trial and error, this may address many of the issues that cause students to turn to AI for cheating.

While the launch of ChatGPT spurred panic and increased fears about student cheating, there are things that should be done and things that should not be done when addressing the potential for student cheating with AI. This article presented six key points to consider when navigating the role of AI in aiding student cheating: 1) the potential impact of banning AI chatbots on the digital divide, 2) the risk of creating inaccessible and discriminatory learning experiences by banning technology for exams, 3) the limitations of AI text detectors, 4) the importance of redesigning academic integrity statements to address AI use, 5) the need to provide opportunities for students to learn with and about AI, and 6) the ways to redesign assignments to reduce the temptation to cheat with AI.





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HOW TO INCORPORATE AI INTO ASSIGNMENTS

BY JOHN ORLANDO

The arrival of ChatGPT sent shockwaves across academia as articles with titles like [“Yes, We Are in a \(ChatGPT\) Crisis”](#) splashed across higher education media. Reports of students using it to write their papers led to the immediate goal of keeping students away from AI. Then a counter movement started when instructors realized they could use AI to cut time off their tasks. Articles came out of how to use AI to [create lessons](#), provide [feedback to students](#), [generate assessments](#), [write video scripts](#), and other time-saving tasks. Institutions have also been using AI in [chatbots to answer student questions](#) for a couple of years.

There is also a growing understanding that students will use AI in their future work, and as higher education is meant to prepare students for the future, it would do better to teach students how to use it than adopt the Luddite position of forbidding its use. AI is just another tool to assist humans in their endeavors. It is like the ship’s computer on Star Trek, which would answer questions to provide the crew with valuable information for decision making. That is how the tool is being used now and will be used in the future. For instance, [astronomers use it to scan images of millions of stars](#) to find anomalies. Now that the initial shock has abated, we can take a more levelheaded look at the real dangers of AI and how to incorporate it into assignments that prepare students for the world that they will enter.

What is the real danger of AI?

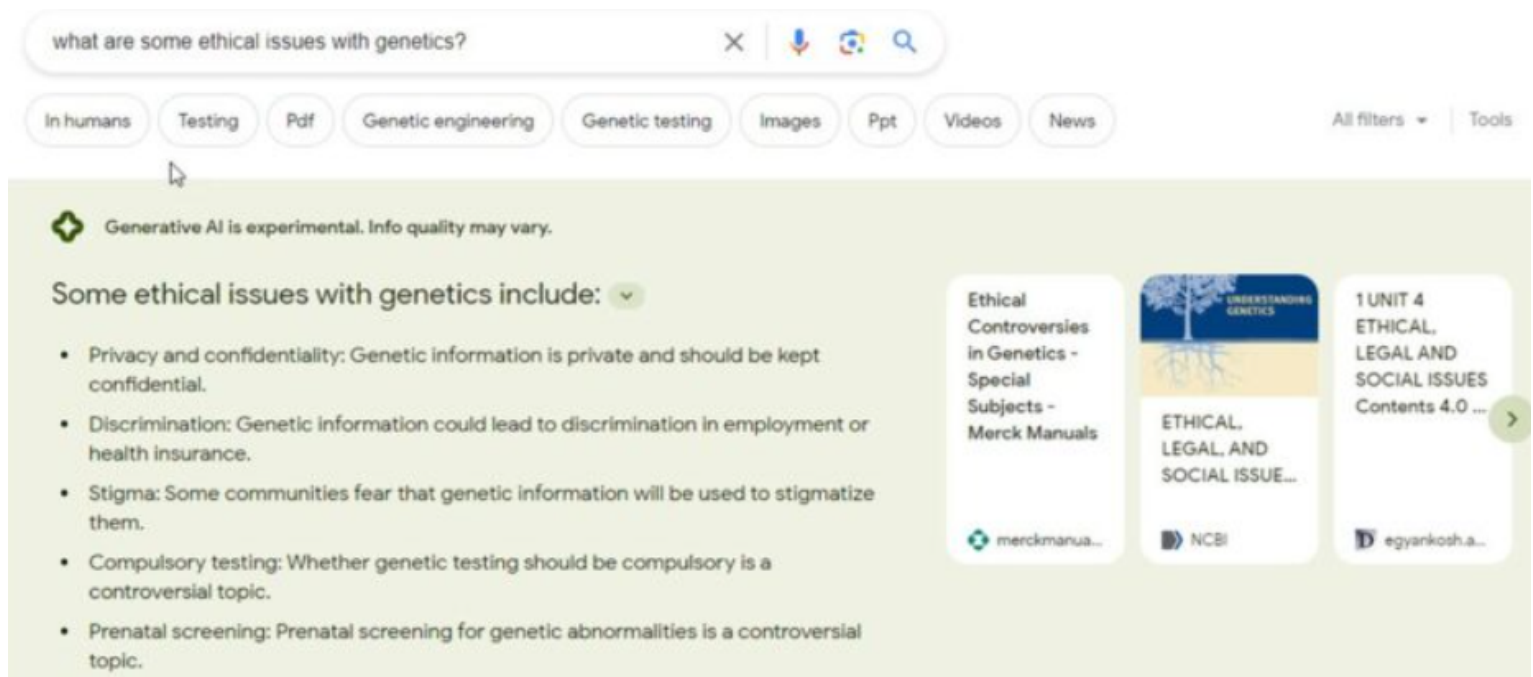
Higher education has two main worries about AI. One, students can use it to write papers, making plagiarism easier. Two, it might give students false information. Each is a bit of a red herring.

First, there are AI checkers, such as [AI Detector](#), through which instructors can run student work. A lot been said about the fact that these checkers are not perfect, but neither are ordinary plagiarism checkers like Turnitin, and that has not created similar hand-wringing in academia. Accuracy claims for these detectors range from 95 to [99 percent](#), and I personally found AI Detector remarkably accurate with some test cases.

But the point is that the situation is no different from ordinary plagiarism. There are ways to fool Turnitin, just as there are ways to fool AI detectors. There is nothing we can do about that other than have institutional policies against plagiarism and do our best to detect it. We have laws against murder and police to investigate it, but people still kill, and we go about our business despite this fact. Higher education needs to do the same. The possibility of plagiarism says nothing about whether we should assign students to use AI, just as the possibility of ordinary plagiarism has not stopped us from giving students writing assignments.

As for accuracy, there seems to be a widespread assumption that AI-generated information must be wrong because it draws from the unlettered masses rather than ivory-tower sages, but I have done some test queries and found the results remarkably accurate. Plus, plenty of academic articles have been found to contain incorrect information or are outright fraudulent, and the Wisdom of Crowds is the proven fact that for certain types of questions the aggregate answer of a large group of amateurs will be more accurate than that of a small group of professionals.

We insist that students cite sources for any factual claims, and if the AI system they use does not provide a source, then students need to find one with that information if they are to use it in their work. Note that Google is currently experimenting with an AI system that does provide sources, as seen in the screenshot below. Faculty can recommend that students use it for their research.



Screenshot of Google's experimentation with AI system

Higher education has moved away from having students memorize information on grounds that there simply is too much information to memorize. We now teach information literacy, which is knowledge of how to find information using available tools. AI is just the latest advancement in information retrieval, and higher education needs to focus on teaching how to use it.

Plus, as finding information gets easier and easier, learning how to evaluate and apply it becomes more and more important. Faculty should focus assignments more on critical thinking.

AI assignments

Rather than try to delineate all the various assignments that can use AI, it is easier to put them into categories for faculty to use as they wish. Here are two such categories.

Research on AI

This kind of assignment makes AI itself the focus. An instructor can assign students to choose a class topic and ask an AI system to answer a question about it, such as the example in the screenshot above about the ethical issues with genetics. Students would then evaluate the answer by comparing it with other sources. They would answer questions like the following:

1. How comprehensive is the answer? What topics were left out?
2. How accurate is the answer? Was some information wrong, and if so, which information?
3. Did the answer represent any biases?

The instructor can also require students to ask the same question in different ways and evaluate how the answers differ. In this way, students learn how an AI system interprets a question and produces results. That knowledge will inform how they use AI systems in the future. Plus, they are learning about the topic through their use of AI responses and comparative research on those responses.

AI as the starting point for research

A second assignment type is for students to use AI to gain an overview of the topic and then pursue it in more detail with focused resources, similar to how Wikipedia is already used. Here students pick a topic and ask a couple of AI systems (e.g., ChatGPT and [Google Bard](#)) a question about it so they get a range of answers. They combine the answers to get the lay of the land on that topic and then build their work from other resources on the topic.

For both assignments, students submit the AI results of their query and the product that they created. This allows instructors to distinguish student thinking from the AI output.

AI evaluation of student work

Besides research, students can use AI to [generate feedback on their work](#). The feedback ChatGPT provides focuses on general writing topics, such as composition and detail. It will not provide much feedback on substantive issues, such as factual errors or missing topics. But this is a good way for students to improve the clarity of their writing before submitting it to the instructor. See the first part of feedback ChatGPT provided on a sample student work below:



Certainly! Here's feedback on how to improve the essay:



Title: The Evolution of CSR in the 21st Century: Embracing Technology and Ethical Management

Introduction:

The introduction provides a concise definition of CSR and its significance. However, it could be more engaging and capture the reader's attention with a relevant anecdote or a compelling statistic about CSR's impact on businesses today.

Definition of Technologies:

The definitions provided for Big Data, Cloud Computing, and Outsourcing are a good start, but they lack depth and clarity. Consider providing more detailed explanations, supported by real-world examples, to ensure the reader fully understands these concepts.

- **Big Data:** Expand on how businesses utilize Big Data, its applications in decision-making, and its role in shaping industries.
- **Cloud Computing:** Explain the benefits of cloud computing such as scalability, cost-effectiveness, and accessibility. Mention how it revolutionizes data storage and processing for businesses of all sizes.
- **Outsourcing:** Provide examples of outsourcing in various industries, discussing how it streamlines operations and enhances efficiency.

Foreseen Challenges and Recommendations:

The section on challenges and recommendations is insightful, but it lacks specificity. Instead of stating that the main challenge is not taking advantage of new opportunities, elaborate on specific challenges related to technology adoption, such as data security, privacy concerns, or adapting to rapidly evolving technologies. Offer concrete and actionable

🔄 Regenerate

Instructors can encourage students to use Grammarly or the internal writing checker on their word processing program to address simple writing mistakes in grammar and spelling and then submit the work to an AI system to improve the clarity of the writing. This will free up instructor time from working on writing errors and allow them to focus on the thinking issues that they would rather discuss anyway. This use of AI is not much different from students doing peer reviews, which instructors have learned improves student work. It also provides students with skills that they can apply to their future work.

These are just a few ways to teach students about how to use AI in their work. Undoubtedly, more will come as systems develop. But in the end AI is just another tool, and the job of higher education is to teach students how to use it to be more successful in the future.



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