

Impact of Generative Artificial Intelligence on Education at UC San Diego

by the Senate-Administrative Workgroup

Table of Contents

I. Background

1. Charge
2. Generative AI - what is it
3. How does GenAI impact Education - what are the challenges & opportunities
4. Objectives of this Report

II. Ethical Considerations

1. Equity
2. Integrity
3. Privacy
4. Critical Thinking
5. Intellectual Property
6. Academic Freedom

III. Key Recommendations

1. Teach AI Literacy
2. Establish a Supportive Institutional Infrastructure
 - a. Form a Permanent Senate-Admin AI in Education Committee
 - b. Establish AI Teaching Leaders in the Faculty
 - c. Investigate the Provision of Tools
 - d. Create and Launch an “UC AI in Education at San Diego” Website
3. Protect the Integrity of Academic Assessments
4. Provide Time, Training & Support to Instructors
 - a. Provide Short-Term Support
 - b. Provide Long-Term Support
5. Continuous Monitoring and Improvement

IV. Summary

V. Membership

1. Administration
2. Academic Senate
3. Student Representatives

Background

Beginning in November 2022 with the launch of OpenAI’s ChatGPT, Generative Artificial Intelligence (GenAI)¹ has brought significant disruptions to teaching, learning, and assessment in educational institutions. GenAI refers to a subset of artificial intelligence technologies that leverage large datasets and sophisticated algorithms to generate creative and contextually relevant outputs. The technology employs deep learning methods, which use multiple layers of processing units. One of its capabilities with far-reaching implications for higher education is its advanced natural language processing, enabling it to generate responses to a broad range of prompts in ways often indistinguishable from human-generated content.

GenAI presents both challenges and opportunities for educational institutions. The challenges include ethical considerations that are central to our educational mission. These include ensuring academic integrity, helping community members critically evaluate AI-generated information, addressing privacy issues, and mitigating the risk of exacerbating existing inequalities due to uneven access to, and bias baked within, GenAI tools. For instance, many instructors currently administer unproctored online exams or assign paper-based tasks that GenAI can complete without substantive student contributions.

Conversely, GenAI offers opportunities to personalize learning experiences, to support students in developing their ideas, to help students understand complex concepts, and to provide assistive technologies to students with accommodations. It can also assist with course design and automate routine tasks such as providing feedback in ways that may allow instructors to focus more on interactive and student-centered teaching approaches.

The emergence of GenAI raises many important policy questions for universities. These include questions about allowable uses of GenAI, whether learning outcomes should change, and how the ethical concerns raised by GenAI should be addressed. Several universities have already begun to tackle these questions. For example, Cornell University², University of Virginia³ and the University of Michigan⁴ issued reports in mid-2023 with guidelines and recommendations for using GenAI in education.

It is important for our campus to take advantage of the expertise we have to provide guidance on policy and to take a broader leadership role in navigating this transition, and our Senate -Administration Workgroup was tasked with taking the lead on this. Our Workgroup was asked

¹ We will use the term GenAI throughout this document as a catch-all for Large Language Models (LLMs), Large Multimodal Models (LMMs), music, code, and art generator tools.

²

<https://teaching.cornell.edu/generative-artificial-intelligence/cu-committee-report-generative-artificial-intelligence-education>

³ <https://provost.virginia.edu/subsite/genai/task-force-report>

⁴ <https://genai.umich.edu/committee-report>

to review the literature to better understand the impact of GenAI on education, establish norms and policies for students and instructors, and discuss as a community what teaching, learning and assessment should look like to adapt to the emergence of GenAI.

The specific charge our Workgroup was tasked with is described in the four bullet points pasted below:

- Survey academic units to get a sense of key AI topics being discussed and the primary issues of importance.
- Review what is known about how GenAI impacts teaching, learning and assessment.
- Develop a set of guidelines or principles for the appropriate adoption and implementation of GenAI tools in education, including consideration of the minimum knowledge requirements students and instructors need to be effective and ethical in their use of AI.
- Propose the membership of a dedicated team that will: provide ongoing support to community members implementing the guidelines; stay abreast of advances in GenAI technology, including its evolving impact on education; establish shared measurement practices; and advise leadership on ongoing GenAI challenges and solutions

We began meeting at the end of Winter quarter and had eight meetings in which the Workgroup members shared their experiences and perspectives relevant to questions of AI and education. We also had guest speakers. This included Daniel Suchy, Ed Tech Services Senior Director, who taught the group about Triton GPT, and Leo Porter CSE Associate Teaching Professor, who talked to the group about his innovative work using AI to teach computer science. We also heard from Paul Hadjipieris, a Teaching & Learning Commons Development Specialist, about the work he has been doing with instructors to address the challenges and opportunities associated with GenAI. Individual members of our group also attended a range of discussion groups relevant to the topic of GenAI and education, such as the systemwide Science of Teaching and Learning journal club, which focused on the use of AI tools in the classroom during Spring Quarter.

While we anticipated finding extensive empirical research to guide us, we discovered a scarcity of rigorous studies testing the effectiveness of specific uses of GenAI. Many papers discuss the challenges and opportunities associated with GenAI and propose ways to utilize it, but empirical evidence is limited. Consequently, we recommend that UC San Diego support research in this area to provide an evidence-based foundation for future policy decisions, allowing UC San Diego to take a leadership role in this field.

The present report represents a first step in addressing the challenges and leveraging the opportunities presented by GenAI. It will be important to continue these discussions as the technology evolves and more research becomes available. By doing so and leveraging the diverse expertise within our community, we can iteratively craft policies that advance our educational mission while thoughtfully considering ethical implications.

Ethical Considerations

Core values must guide University decisions about when, if and how to integrate artificial intelligence into teaching, learning and assessment.

Equity: The fact that only certain portions of our student population are using more advanced GenAI tools (e.g., paid versions), raises important questions about inequity in learning outcomes (and threats to degree integrity). At the same time, GenAI tools may allow some students to have a more equitable education experience (e.g., those who are neuro-atypical who have access to assistive AI technologies). Therefore, the University should explicitly assess the best ways to amplify educational opportunities for all, and to ensure that all of our graduates have the chance to develop AI literacy by graduation. This assessment might conclude that the University should provide GenAI tools, and training on how to use those tools, that students might need to be successful in the classes we offer. It is critical that this assessment be driven by research insights into the ways in which GenAI tools do (or do not) positively impact student learning, as well as consideration of the opportunity costs (both financial and time) of integrating GenAI tools.

Integrity: All academic work submitted for credit must be an honest and trustworthy reflection of a student's achievement of the particular learning outcomes for that assessment and/or course, otherwise the integrity of our degrees is at risk. This means that students must not offload their thinking and doing to machines unless they were expected to do so by the course instructor and/or are transparent about their use. Instructors should establish clear and transparent guidelines on the acceptable and unacceptable uses of GenAI tools in their class, as well as if they are using artificial intelligence in student feedback or grading.

Privacy: When GenAI tools hosted by outside vendors (e.g., ChatGPT) are used for academic work, this can risk the privacy of student and instructor information if: a) personal data is included in that work (e.g., a personal reflective essay) and b) the tool stores this data and uses it for training purposes (hacks of these tools to release user information have been successful). Thus, any tool(s) adopted by the University or used by students/instructors must protect private data (P3 & P4 levels) and preferably not share any of our data with the vendor for training purposes. Instructors and students alike should be informed and educated about how to determine whether free or open GenAI tools meet this standard.

Critical Thinking: one of the greatest weaknesses of the current GenAI tools is their tendency to confabulate. These tools were not trained to be truthful, to discern fact from fiction, or to be accurate. They were trained to predict the next best word in the sentence (or the next best pixel in the image, for example) based on patterns not accuracy. So, when GenAI tools are used by students or instructors without their critical discernment, this undermines the educational mission of our University. As we implement GenAI into education, we must prioritize critical thinking (can also be thought of as AI literacy, information literacy, or digital literacy), which includes

teaching people ethical and responsible use of generative AI while reinforcing the need for human input and evaluation.

Intellectual Property: the ownership of intellectual output is a long-standing principle within higher education, and the creation of intellectual property is the bedrock of much of what our University does. At risk, for the purposes of this report, are the materials that instructors create for their courses such as lectures, readings, class activities, lesson plans, and assessments of and for learning. Students may already be using GenAI tools to distill lectures by uploading podcast transcripts to produce summaries or prompting machines with the instructor’s assessment prompts, actions that could violate intellectual property rights and potentially copyright laws. When considering next steps, the University should prioritize protecting the intellectual property of instructors, but also of students.

Academic Freedom: Instructors have the freedom to make decisions about their individual courses based on their disciplinary expertise and their teaching experiences, and the faculty (through Academic Senate) have oversight and final say over course and program approvals. Thus, when considering when, if and how to use GenAI tools for teaching, learning and/or assessment, we do not recommend a single, uniform policy for all of campus. Faculty purview over the curriculum should be a prioritized value and no action should be taken or decision made without faculty input and/or approval.

Key Recommendations

Recommendation #1: Teach AI Literacy

One of our key recommendations is to incorporate AI Literacy into the educational curriculum to ensure that all students have a foundational understanding of artificial intelligence, relevant ethical considerations, and its applications. At a high level, AI literacy focuses on developing an understanding of the capabilities of AI systems, including where and how they are (or can be) used, along with skills to critically assess and evaluate AI system outputs and performance. Although this is a relatively new area for instruction, there are already efforts to build curricula to support AI literacy in educational contexts. For example, the College of Southern Idaho created an AI Literacy online module⁵ for its instructors to embed in their own courses. The module “presents four competencies based on Anders’ *The AI Literacy Imperative: Empowering Instructors and Students*⁶: awareness, capability, knowledge, and critical thinking.

⁵ <https://lor.instructure.com/resources/fa612cbf164e42e5bc7728dc53772a40?shared>

⁶

<http://sovoirepublishing.com/index.php/2023/06/04/new-book-the-ai-literacy-imperative-empowering-instructors-students/>

For our campus, One possibility is that we, similar to the Integrity Tutorial, require all new students to take an AI Literacy online module. Another possibility is to embed AI Literacy within the undergraduate writing curriculum. A third option would be to implement AI Literacy instruction into existing library training programs. Any of these approaches will help ensure that all students receive some training.

We also recommend that academic departments and programs consider how they can promote AI Literacy and how it can be incorporated into the curriculum to help students understand what professional uses are appropriate and the problems that can arise from misuse. They can also incorporate exercises in their courses that encourage students to critically evaluate AI-generated content in their academic discipline, such as comparing human-written and AI-generated texts and assessing the credibility of AI-generated information.

Instructional Assistants play a crucial role in supporting student learning and implementing course policies. We recommend that AI literacy be added to the existing Preparing for Success: Online Course for Instructional Assistants⁷ to help Instructional Assistants gain the knowledge and skills to support students in using GenAI tools effectively and ethically. Training for IAs could include workshops on how to use (or not use) GenAI tools in grading and feedback, how to guide students in the ethical use of AI, and how to handle situations where AI use may raise academic integrity concerns.

Instructors should also have access to resources and templates for incorporating AI literacy into their courses. This can include lesson plans, assignment ideas, and assessment rubrics. It will also be important for them to have the kinds of professional development opportunities discussed under recommendation #4.

Recommendation #2: Establish a Supportive Institutional Infrastructure

If we are to successfully adopt GenAI tools in ways that will enhance and strengthen our education mission, we need the infrastructure to support the adoption, create forward momentum, and ensure that our core values continue to guide implementation and innovation. In other words, we cannot expect individual instructors to shoulder the burden of this work. The innovation of GenAI is too vast and impactful to be considered on a course-by-course basis (although ultimately decisions about the use of artificial intelligence in the academic curriculum will naturally vary course-by-course given that the decision is intimately tied to learning outcomes).

This Workgroup has several recommendations for institutional infrastructure that can support instructors in making curricular decisions about artificial intelligence.

⁷ Based on Canvas - <https://canvas.ucsd.edu/courses/2898> - and required of all new IAs

Recommendation 2.a. Form a Permanent Senate-Admin AI in Education Committee

This Senate-Admin Workgroup was established only for a short-term basis in order to produce this report. However, ongoing collaboration between instructors and administrators (especially those with expertise in teaching, learning, assessment and technologies) will be critical for a successful implementation of artificial intelligence in education. The formation of this committee would be aligned with the University of California’s AI Working Group’s final report which recommended that each campus create committees to “counter the potentially harmful effects of AI and strengthen positive outcomes.”⁸

The permanent Senate-Admin Committee would help manage decisions about integrating GenAI into teaching, learning and assessment at the undergraduate, graduate and professional levels of education. The Committee should be expected to keep up-to-date on changes in artificial intelligence that impact education, make recommendations to instructors and administration, set guidelines for ongoing practice (e.g., what constitutes a sufficient change that requires Senate review), review guidance created by campus units (e.g., AI Office, Library, the Commons), provide a mechanism for instructor input on what GenAI tools for education are adopted by the University, and ensure that our core values are prioritized in all decisions and actions. The committee should include Senate faculty members, administrators from education-focused units, and undergraduate, graduate and professional students. The committee should seek input from all stakeholders, including Non-Senate Faculty.

This committee could be part of a Collective Impact⁹ approach to the ongoing challenge of incorporating artificial intelligence into teaching, learning and assessment. The University could bring together, in a structured way, the people and units on campus who are already working collaboratively together on this issue (e.g., Academic Integrity, the Commons, Ed Tech, Library). Representatives from the artificial intelligence in education collective impact network could serve on the Senate-Admin Committee, bridging the gap between academic support staff, students and faculty.

Recommendation 2.b. Establish AI Teaching Leaders in the Faculty

The requirement of instructors to adapt to the sudden emergence (and continual and quick evolution) of GenAI is not dissimilar to their experience of having to suddenly engage in emergency remote instruction at the start of the pandemic. However, the integration and intrusion of GenAI in education isn’t temporary and the requirement to make adjustments in pedagogy and assessments in response is foundational and major. One thing that was immensely helpful to instructors during the pandemic was the establishment of Remote Teaching Leaders in the departments. These appointed faculty received a stipend during the first quarter from the EVC

⁸ <https://www.ucop.edu/ethics-compliance-audit-services/compliance/uc-ai-working-group-final-report.pdf>

⁹ For more information on Collective Impact at UC San Diego, see: <https://collectiveimpact.ucsd.edu/>

and for those departments that continued the role, other compensation (e.g., teaching credit) was arranged by the departments. The Teaching Leaders consulted with campus experts (e.g., Academic Integrity, the Commons) as well as each other for direction and advice so that they could: implement necessary technology; formulate recommendations for best practices; serve on a Senate-Admin Workgroup; and create a community for sharing ideas, learning, and venting.¹⁰

We recommend that the University set up a similar infrastructure to support instructors in deciding if, when, and how they integrate artificial intelligence into their courses and teaching. Instructor-to-instructor interaction is a very efficient and promising way to impact instructor knowledge and capacity building. This will also allow instructors to have access to people with relevant disciplinary knowledge to help answer their questions and solve specific problems related to AI and education. The University should compensate faculty for taking on this role by providing a stipend or teaching/service credit; the proper compensation should be decided in consultation with Permanent Senate-Admin AI in Education Committee and be commensurate with the workload associated with the role.

Recommendation 2.c. Investigate the Provision of Tools

Part of the infrastructure supporting the potential adoption of artificial intelligence into teaching, learning and assessment is access to the tools themselves. Instructors and students are already using the tools¹¹ but are on their own to decide if they are going to use the tools and if they are, which tools and whether they will use the paid or free versions. There are three problems inherent in this relatively unconstrained adoption of generative artificial intelligence. First, there are known differences in quality between the paid and free versions, thus potentially advantaging students and instructors with capital. This, then, can undermine one of our core values - equity. Second, when instructors and students are left on their own to pick the tools, they may not know which tools are appropriate to use for what purposes, and what data they can share with the tools and which data they should not. This ignorance and uncertainty could lead to some problematic or harmful choices. In contrast, a tool that the University recommends or offers can address equity issues and protect data privacy. Third, as instructors adapt their courses to incorporate LLM usage, they are depending on the availability of free versions to ensure all students have access. We need to consider that many tools - especially the most useful ones - will eventually have a paywall, which could massively disrupt our curriculum once again.

The Workgroup did not have the time or expertise to deliberate about if, when, how or which tool(s) the University should adopt. We do recommend, however, that this decision-making should be informed by the best, most recent data about the potential benefits and efficacy of

¹⁰ Thanks to Todd Kemp of Mathematics for sharing a summary of his experiences in this role.

¹¹ For example, according to a Microsoft study (<https://www.microsoft.com/en-us/education/blog/2024/04/explore-insights-from-the-ai-in-education-report/>), 68% of K-16 educators have used AI at least once or twice and 62% of students have used AI at least once or twice.

GenAI in pedagogical settings (though as we noted at the outset, there is currently very limited data on this topic). It is critical that faculty are included in the decision-making, and that likely long-term price increases are considered. The University is already in the process of developing TritonGPT (which protects data privacy because it is hosted internally and doesn't feed data to external third parties) and perhaps that is the way forward. Regardless of which route we go (internally developed or external vendor, or neither), the tool would need to be thoroughly vetted and costs would need to be considered. In terms of recouping any costs of providing these tools to students, we recommend that the University consider novel programs like UC Davis's Equitable Access that charges students one flat rate per term for all of their "textbook" needs (which could include access to an LLM tool).

Recommendation 2.d. Create and Launch an "UC AI in Education at San Diego" Website

The UC San Diego community needs a "landing page" for all things related to artificial intelligence in education. Several university units already have information on artificial intelligence such as the Library (<https://ucsd.libguides.com/ai>), CSE (<https://ai.ucsd.edu/>), IT (<https://blink.ucsd.edu/technology/ai/index.html>), and Academic Integrity (<https://academicintegrity.ucsd.edu/excel-integrity/gen-ai/index.html>). However, there is no one-stop-shopping site for educators and students who want to educate themselves about if, when and how to use LLM (or other artificial intelligence) tools for teaching, learning and/or assessment. A common site, which could link to other existing sites, could inform the community on what's happening at UC San Diego (in terms of AI adoption in education), share reports from the Collective Impact and/or Senate-Admin Workgroup, provide links to resources, and enable the collection of information and questions from the campus community. Of course, the natural question associated with this recommendation is - who builds and maintains such a site? While this workgroup is not, at this time, recommending that a new artificial intelligence office/unit be created for the campus (given that we haven't yet even leveraged the collective impact possible with existing campus experts), it is likely that the overall effort - including the website - will require administrative support. So, we recommend the University consider creating a new admin position within an existing unit (perhaps in the Commons or in IT) to support the Senate-Admin Workgroup, any Collective Impact network, the AI Teaching Leads, and the website.

Recommendation #3: Protect the Integrity of Academic Assessments

One of the greatest challenges posed by GenAI is that it has the capability to complete many assessments intended to evaluate student achievement of learning outcomes. Students can simply provide a GenAI tool with the assignment prompt or assessment question, and receive an answer, which they can then submit as their own work. Research has shown that GenAI tools can pass

well-established standardized tests (e.g., CPA exam¹², Bar exam¹³, and neurology board exams¹⁴). Yet, another recent study found that when students become dependent on these tools to raise their grades rather than amplify their learning, their performance drastically decreases when they are restricted from accessing ChatGPT-4.¹⁵ Researchers have also discovered that evaluators are unable to reliably identify GenAI generated exam answers, which also scored higher on average than student generated answers.¹⁶ Notably, this threat to assessment integrity is not new. During the pandemic, when all assessments were completed remotely (typically without proctoring), use of answer-providing services like Chegg skyrocketed at UC San Diego and around the world. The challenge now, of course, is that GenAI tools are cheaper (even free) and quicker than what students can get from companies like Chegg. As a result, “the risk of academic dishonesty is substantial. [Gen]AI tools, if left unchecked, could erode the trust in educational qualifications and compromise the value of academic achievements.”¹⁷

The University already has some guidance for maintaining academic integrity in the age of GenAI. For example, the Academic Senate’s current Academic Integrity Policy states that students shall “complete and submit academic work that is an honest and fair representation of their knowledge and abilities at the time of submission” and “be responsible for knowing and following the standards of the class and the institution.”¹⁸ It also says that no student should submit work completed, in part or total, by another person or by machine. The UC San Diego Library collaborated with the Academic Integrity Office to produce a Generative AI Guide for students, cautioning them that they should use such tools for appropriate learning assistance, not for offloading their thinking and doing.¹⁹ In addition, the Academic Integrity Office provides general guidance to students for thinking through when it is appropriate, and when it isn’t, to use such tools for academic work²⁰. The AIO also produced guidance for instructors on how to rethink their courses in the age of AI and craft their GenAI and academic integrity policies.²¹

As indicated in the AI Office’s Crafting Your GenAI & Academic Integrity Policy Guide, it is critical that all instructors craft their own policy according to their course learning outcomes and clearly communicate that policy to their students. Course policies should specify which GenAI uses are allowed, such as using GenAI for brainstorming, grammar checking, or research assistance, and which are prohibited, such as using GenAI to complete assignments without personal engagement. This is particularly critical in summative assessments that are meant to

¹² https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4788096

¹³ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4389233

¹⁴ <https://pubmed.ncbi.nlm.nih.gov/38060223/>

¹⁵ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4895486

¹⁶ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0305354>

¹⁷ <https://www.dewsburyreporter.co.uk/community/the-hidden-perils-of-ai-in-education-why-chatgpt-and-copilot-should-stay-out-of-schools-4688605>

¹⁸ <https://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>

¹⁹ <https://ucsd.libguides.com/ai>

²⁰ <https://academicintegrity.ucsd.edu/excel-integrity/gen-ai/ai-in-education.html>

²¹ <https://t.ly/RP-tQ>

represent what a student knows and can do, assessments that receive a grade that lead to the granting of a degree. Policies on GenAI use should be included in course syllabi and discussed at the beginning of the course. Instructors should explain the rationale behind these policies and provide examples of acceptable and unacceptable uses of GenAI to help students make informed decisions about how to integrate AI into their learning practices. As GenAI technology continues to evolve and as we learn more about AI, new challenges and opportunities will emerge, and it will therefore be important that GenAI policies are updated regularly to reflect these changes.

If we expect instructors and students to uphold academic integrity and for learning to be prioritized, then they need university-wide, accepted guidance (not just from the Academic Integrity Office and the Library) on if, when, and how to use GenAI in assessments. Should instructors be changing their assessments to incorporate the use of GenAI or should they be securing their assessments to prevent cheating with the same tools? Should students use GenAI tools to summarize course readings, study course concepts, or write their first drafts? What should instructors do if they think a student used GenAI on an assessment when they were not supposed to?²² The list of questions is long and the answers are complicated, primarily because research on the impact of GenAI tools on learning is still in its nascent stage.

Therefore, we recommend that, once formed, the Senate-Admin Committee reviews the existing and ongoing research on the impact of GenAI on student learning and provide some guidance for instructors making these decisions and crafting their syllabus language²³. We reiterate that we are not recommending a campuswide policy about GenAI in education but only guidance and suggestions. Guidelines should include strategies for assessing whether the enrolled student has the knowledge and abilities necessary to pass the course, including, but not limited to, secure assessments.²⁴ Ultimately, course instructors have academic freedom over deciding pedagogy and assessments for their classes, including whether and how to incorporate GenAI, but instructors have been asking for guidance and best practices. Academic Senate should establish clear guidelines for determining when course changes due to GenAI integration are sufficiently substantial to warrant Senate Review. Additionally, the Senate may need to revisit our processes for approving non-UC San Diego courses for UC San Diego credit in light of GenAI capabilities. When accepting courses from other institutions for academic credit, we must have confidence that the enrolled student, rather than another person or AI, has genuinely achieved the stated learning outcomes. These precautions are necessary to maintain the integrity of our academic

²² Academic Senate's Academic Integrity Policy states that instructors must report all suspected integrity violations to the Academic Integrity Office. However, with GenAI use, the evidence of unethical use isn't always clear. Instructors should therefore exercise caution before alleging cheating with GenAI and consult with the AI Office before reporting.

²³ The Committee could start with and build on what was already produced by the Academic Integrity Office - <https://t.ly/RP-tQ>

²⁴ Secure assessments are those in which temptations and opportunities for integrity violations are eliminated or strongly limited, such as in-person classroom paper-based assessments or computer-based assessments in the Triton Testing Center's (TTC) computer-based testing facility.

standards in an era where GenAI tools could potentially be used to circumvent assessments, especially in remote classes or in-person classes with only remote assessments.

Finally, other classroom integrity guidelines are needed to protect intellectual property rights of instructors and privacy rights of the students. Bots, for example, can now record others and conversations in virtual classes without anyone knowing. We should have policies on that, as well as on whether GenAI tools can be used to summarize lecture transcripts or videos, or make use of any other course materials.

Recommendation #4: Provide Time, Training & Support to Instructors

When ChatGPT was first released in November 2022, instructors were advised to change the ways they teach and assess. However, doing so requires resources, including training and support. In this section, we provide recommendations for supporting instructors in making these changes. We've divided the recommendations into short-term wins and long-term solutions.

Recommendation 4.a. Provide Short-Term Support

All instructors will need time and support to adjust their courses and/or assessments, and the majority of instructors will also need training on how to do it in a way that centers student learning with integrity. The permanent Senate-Admin AI in Education Committee should consider appropriate ways to compensate instructors for their additional workload.

Other recommendations for short-term support include ensuring there are sufficient workshops or consultations available through the Commons or other related units (e.g., Academic Integrity). Given that the Commons has limited resources, perhaps for one year, the Commons could consider having a “supporting instructors to adapt their teaching to the AI world” theme that redirects existing resources to focus on GenAI as a priority.

For instructors to be effective in promoting AI literacy, they will need relevant professional development opportunities. Fortunately, our campus has a great deal of collective expertise on this topic, and it will be important to allow people with diverse areas of expertise to give talks and participate in panel discussions. It will also be important for instructors to have opportunities to share experiences and learn from each other after trying out new strategies relevant to AI in the classroom. Funding for outside speakers and conferences on AI and education will also be important in allowing our campus to take on a leadership role in this area and help instructors learn general and discipline-specific best practices.

Recommendation 4.b. Provide Long-Term Support

In terms of long-term or ongoing training and support, the University should consider hiring additional Instructional Designers to help instructors rethink both their online and in-person courses given the potential impact of GenAI on learning outcomes and assessment validity.

The University could also look at funding institutes, retreats for cross-disciplinary collaborations, or research grants to enable instructors to develop ways to integrate AI into the curriculum.

An institute could look similar to other academic institutes on our campus (e.g., the Institute for Practical Ethics), but should be focused on AI in Education rather than on basic or fundamental research on artificial intelligence. For example, Cal State University Sacramento has established the National Institute for Artificial Intelligence in Education to ‘train current and future teachers to use the technology ethically and effectively.’²⁵

Research grants could look like what Carnegie Mellon is doing with their Generative Artificial Intelligence Teaching as Research (GAI TAR) Fellowships. These Fellows receive a \$5000 award and support from their teaching and learning center professionals to: “design and implement a teaching innovation using a generative AI tool in a course...measure the impacts of the innovation on student learning; and disseminate findings at CMU and beyond.”²⁶

Recommendation #5: Continuous Monitoring and Improvement

It is too early to understand the impact of GenAI on higher education. UC San Diego should take a leadership role in understanding this impact and how it unfolds over time. This will require research. Short term research is needed to examine how instructors are already using these tools and what their experience looks like. This research can address questions such as the following:

- Are instructors and students utilizing these tools?
- What motivates or hinders their use?
- Which specific tools are being used?
- How are these tools being applied in practice?
- What types of guidance and support are needed?

For a more comprehensive understanding, we recommend supporting research to explore best practices and optimal methods for integrating GenAI in the classroom. For example, this research should look at the effects of different classroom practice on student learning. AI leaders (like the new AI Teaching Leaders in the Faculty) can help inform instructors of these findings and help them apply the findings to their specific courses. This will help solve the current

²⁵ <https://www.govtech.com/education/higher-ed/sacramento-state-to-launch-institute-for-ai-in-education>

²⁶ <https://www.cmu.edu/teaching/gaitar/pdf/gaitar-rfp.pdf>

challenge that assessing the impact of GenAI on student writing and learning often falls on already overburdened individual instructors.

Summary²⁷

Generative Artificial Intelligence (GenAI) has emerged as a disruptive force in higher education, presenting both challenges and opportunities for teaching, learning, and assessment. The committee identified the core ethical considerations of equity, integrity, privacy, critical thinking, intellectual property protection, and academic freedom to be critical for UC San Diego to adapt in a way that advances our institutional goals.

The report outlines five key recommendations for UC San Diego. First, integrate AI literacy into the curriculum to ensure all students understand AI and its applications. Second, establish a supportive institutional infrastructure, including a permanent Senate-Admin AI in Education Committee and AI Teaching Leaders within the faculty. Third, protect academic integrity by providing clear guidelines on GenAI use in coursework. Fourth, offer comprehensive training and support to instructors to help them adapt their teaching methods. Finally, implement continuous monitoring and improvement through ongoing research on GenAI's impact on education.

Recognizing the scarcity of empirical data on GenAI's educational impact, the committee emphasizes the need for an adaptive, research-driven approach. UC San Diego should prioritize ongoing studies of GenAI usage, effectiveness, and support requirements within its community. This commitment to continuous learning and flexible policy-making will be crucial as the technology evolves. By implementing the report's recommendations and maintaining a proactive stance, UC San Diego can become a model for effectively integrating GenAI into higher education while addressing its unique challenges.

²⁷ Written by Claude 3.5 Sonnet. Chat History available upon request.

Membership

Administration

- Tricia Bertram Gallant, Director, Academic Integrity & Triton Testing, Academic Affairs, Co-Chair
- James Soto Antony, Dean, Division of Graduate Education & Postdoctoral Affairs (GEPA)
- Victor Ferreira, Associate Vice Chancellor, Faculty Diversity, Office of Equity, Diversity, and Inclusion
- Karen Flammer, Director of Digital Learning, Teaching + Learning Commons
- Carlos Jensen, Associate Vice Chancellor, Educational Innovation
- Shahrokh Yadegari, Associate Director, Qualcomm Institute; Director, Sonic Arts Research & Development, and Initiative for Digital Exploration of Arts and Sciences (IDEAS)

Academic Senate

- Gail Heyman, Professor, Psychology, Co-Chair
- Samuel Bazzi, Professor, Global Policy & Strategy and Economics
- David Danks, Professor, Halicioğlu Data Science Institute and Philosophy
- Michael Hogarth, Professor, Medicine
- Tara Javidi, Professor, Electrical & Computer Engineering and Halicioğlu Data Science Institute
- Carrie Wastal, Teaching Professor, Muir College and Vice Chair, Educational Policy Committee

Student Representatives

- Dylan Schneider, Graduate Student
- Joshua Hwang, AS Vice President of Academic Affairs and Undergraduate Student