STUDENT ENGAGEMENT AND AI

RESEARCH OVERVIEW AND FINDINGS

OLC ONLINE LEARNING™ CONSORTIUM

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OVERVIEW

Since the release of ChatGPT in 2022, the role of generative Artificial Intelligence (AI) in education has been the topic of scholarly and public debate. While many initial reactions to ChatGPT and other generative AI systems focused on issues like cheating and student misconduct (Fütterer et al., 2023), arguments have also been made about the tremendous potential for positively transforming the education landscape (Adiguzel et al., 2023; Whitfield & Hofmann, 2023). Meanwhile, a 2023 survey of 2- and 4- year college students found that "51% of students will continue to use generative AI tools even if it were prohibited by their instructors or institutions…[while an] even greater number of students (48%) have tried AI writing tools at least once" (NeJame et al., 2023, para. 4 & 7). While AI's educational potential undoubtedly raises ample challenges and opportunities, one thing is abundantly clear: **AI in education is here to stay**.

Given the rapid growth and adoption of AI, it is crucial to understand how students in higher education both perceive and use these new technologies to engage in and with their education. Multiple studies have shown that students have positive perceptions of AI in education generally (Hew et al., 2023; Lozano & Blanco Fontao, 2023; Tominc & Rožman, 2023), and for specific reasons like AI's ability to support cognition (Jin et al., 2023), improve skill development and marketability (Elhajjar et al., 2021), and increase learning and student-instructor engagement (Seo et al., 2021). Student awareness of AI has similarly been found to be generally high (Dergunova et al., 2022), while one study even showed that students had positive attitudes towards a fully AI teacher (Chen et al., 2023).

The positive student perceptions of AI in higher education are **supported by improved learning and engagement outcomes through AI use**. In various use case studies, AI has been shown to improve language learning (Zhang et al., 2023), student self-efficacy (Saavedra Torres & Heath, 2023), student relationships with self and instructors (Xu & Ouyang, 2022), and overall academic performance and engagement (Durak, 2023; Lee et al., 2022). More specifically, Alharbi (2023) found writing as a key way that students use AI to engage in their courses, and divided the most common AI writing tasks into the following four categories. "(1) automated writing evaluation tools, (2) tools that provide automated

writing corrective feedback, (3) AI-powered machine translators, and (4) GPT-3 automatic text generators" (p.1). The manner in which students use AI for writing, however, was shown in multiple studies as an area of contested terrain. Students and teachers find the use of AI "more acceptable in the early stages of the writing process (i.e., brainstorming and outlining) than in later stages" (Barrett & Pack, 2023, p. 17), while unreflective use of AI for writing may lead to purposeful and involuntary plagiarism (Burkhard, 2022) or limit potential for student academic engagement and growth (Khurma et al., 2023). Challenges for AI use in writing were also found, particularly in AI's limited ability to facilitate students' expression of personal opinions and reflections (Tirado-Olivares et al., 2023).

Despite the positive early results related to student use and perceptions of AI, research also shows that **institutional support for student use of AI remains a challenge** as faculty primarily focus on issues related to academic dishonesty, yet institutional support is crucial for student success and meaningful engagement. In their study of institutional adoption of AI, Wang et al. (2023) argued that institutional AI capability "significantly affects students' self-efficacy and creativity" (p. 4919), while students have also been found to express greater desire to learn about AI in supportive environments (Kaysi et al., 2023, p. 699). However, institutional policies, including those on academic integrity, are in need of revision with an eye for AI use and integration (Perkins, 2023, p. 1). Finally, the human instructor's role has been found to be "essential in complementing the AI feedback" (Kang et al., 2023, p. 12111), and broader recommendations have been made to include AI in curricula and explicitly teach students different AI tools and how to use them (Kelly et al., 2023). In other words, **students benefit when institutions and instructors take a proactive approach to AI use**.

Institutional support for student use of AI remains a challenge.

Taken together, the literature on student perceptions and use of AI show that these technologies are here to stay in education – for better or worse. While there are promising initial findings on educational outcomes, results are varied with **the majority of research on student use focusing only on writing specifically**. The data also clearly shows

widespread adoption of AI by students, though there is limited qualitative data on how students use AI and no studies that explicitly focus on the impact of AI on student engagement. Many questions also remain considering the power of these new technologies and speed of their development. Put simply, AI use in education is still very new, and there is a clear need for in-depth analysis from the student perspective in particular on what AI use and impact really looks like in practice. Recommendations for future research specifically include studies on student perceptions on the ethics of AI use (Barrett & Pack, 2023), how AI can be introduced in classroom settings (Elhajjar et al., 2021), and how to support and prepare students for a future that will inevitably include AI (Khurma et al., 2023; Ng et al., 2023).

In this study, we chose to investigate the impact of AI on student engagement in higher education. Specifically, we wanted to better understand how students are using generative AI tools, how they view AI's role in their educational experiences, the effects of AI use on student engagement, and how instructors can support students in effectively using AI to enhance their educational experiences. To that end, **we focused on the following research questions**:

1. How does student use and perceptions of AI in higher education impact student engagement?
2. How can students be better supported by Higher Education Institutions (HEIs) in their learning and use of AI?

Student Engagement Framework: Detailed

While there is no universally accepted definition of student engagement, we are cautioned by Kahu's (2013) argument that engagement is "not an outcome of any one of these influences [university, relationships, and student variables] but rather the complex interplay between them" (p. 767). Kahu (2013) developed a conceptual framework of student engagement embedded within sociocultural factors wherein she defines student engagement as a psycho-social process encompassing affect (enthusiasm, interest, and belonging); cognition (deep learning and self regulation); and behavior (time and effort, interaction, and participation) (p. 766). These three dimensions are shaped by structural

influences, such as university culture and policies and student background; psychosocial influences, which encompasses relationships between university teaching and student motivation, among other factors; proximal consequences, including academic learning and achievement and social satisfaction and well-being; and distal consequences, including, but not limited to, academic retention and personal growth.

We are struck by Kahu's (2013) insistence that an engagement model must encompass relationships between actors and consider both antecedents and consequences of engagement. As she argues, these influences "highlight that student engagement is more than just an internal static state [...] this individual experience is embedded within the socio-cultural context" (p. 766). We also agree that "the different dimensions of engagement are dependent on each other, interlinked rather than discrete and disconnected" (Kahu, 2013). This perspective extends Garrison, Anderson, and Archer's community of inquiry model (1999), which also sees student engagement as a product of interaction but limits the significant contributors to teachers and students. They identify three essential components of "worthwhile educational experiences": cognitive presence, social presence, and teaching presence (p. 88). The community of inquiry model helpfully underscores the importance of engagement outcomes and the interplay of influences at work in student engagement.

Finally, we also drew inspiration from Dixson's (2015) student engagement model that combines previous work across disciplines including social constructivism, community of inquiry, and other educational research. They specifically argue that student engagement involves:

> students using time and energy to learn materials and skills, demonstrating that learning, interacting in a meaningful way with others in the class (enough so that those people become "real"), and becoming at least somewhat emotionally involved with their learning (i.e., getting excited about an idea, enjoying the learning and/or interaction). Engagement is composed of individual attitudes, thoughts, and behaviors as well as communication with others. Student engagement is about

> students putting time, energy, thought, effort, and, to some extent, feelings into their learning. (Dixson, 2015, p. 4)

Dixson's framework importantly encompasses a few dimensions of engagement that we wanted to include in our model: demonstration of learning, meaningful interaction, and emotional involvement.

Based on these three models, we analyzed key indicators and developed the following framework for understanding elements of student engagement.

Interconnected Core Dimensions of Student Engagement

Affect (Emotional Engagement)

- Belonging: Fostering a sense of community and connection among students that makes them feel a part of the learning environment.
- Risk-Free Expression: Creating a safe space for students to express their ideas and emotions without fear of judgment.
- Encouraging Collaboration: Promoting cooperative learning experiences and peer support.
- Enthusiasm: Generating interest in the topic and/or learning experience.
- Meaningfulness: Cultivating a sense of purpose and relevance in the learning material.
- Emotional Involvement: Encouraging students to become emotionally engaged in their learning.

Cognition (Cognitive Engagement)

- Deep learning: Facilitating activities that promote critical thinking, problem-solving, and the construction of new knowledge.
- Sense of puzzlement: Stimulating curiosity and inquiry by presenting challenges and problems to solve.
- Information exchange: Encouraging the sharing of knowledge and perspectives among students.

- Connecting ideas: Helping students make connections between different concepts and ideas.
- Applying new ideas: Supporting students in applying their learning to real-world situations and new contexts.
- Significance: Helping students see the value and significance of what they are learning in relation to their personal goals and real-world applications.
- Self-regulation: Guiding students in managing their learning processes, setting goals, and monitoring progress.
- Demonstration of learning: Ensuring students actively demonstrate their understanding and mastery of the content through assessments, projects, and other activities.

Behavior (Behavioral Engagement)

- Time and effort: Motivating students to invest time and effort in their learning activities.
- Interaction: Promoting active participation and interaction in both synchronous and asynchronous learning activities.
- Participation: Encouraging consistent engagement in discussions, assignments, and collaborative projects.
- Socio-Cultural Context: Broader social, political, and cultural influences impacting engagement. Recognizing power dynamics and their effect on student experiences.
- University Variables: Institutional practices and policies, curriculum design, and assessment methods.
- Relationships: Interactions with staff and peers, sense of belonging to a learning community (classroom, program, institution, region).
- Student Variables: Individual characteristics such as motivation, personality, and life pressures (e.g., employment, family responsibilities).
- Technology: Engagement with technology and AI platforms to facilitate the learning process.

For this study, we defined student engagement based on an adaptation of Kahu's (2013) framework, which highlights affect, cognition, and behavior as the three primary elements

of engagement. To this model, we added other indicators based on similar models which we found lacking in Kahu's design. We also added technology as a significant influencing factor of student engagement, since technology-enhanced learning is now the norm in the U.S. We used this framework to inform survey and interview question design and analysis of key engagement indicators.

The results of this study are based upon a survey completed by 87 students and one-hour interviews conducted with 18 students. Some but not all of the interviewed students completed the survey, and the participants in both parts of the study ranged from first-year undergraduate students to doctoral students. The qualitative questions from the survey were coded by hand, and the interviews were coded first using ChatGPT and Descript to develop initial patterns and broad themes, which were then reviewed in their full context and confirmed using a constant comparative method. The research highlights below come primarily from student interviews, which proved to be more illustrative.

RESEARCH HIGHLIGHTS

The participants used AI in a wide variety of ways and had mixed and contradictory views about its value, the ethics, and the long-term consequences of relying on generative AI. In this section, we work to describe the varying ways AI was used and is understood in terms of the purposes and research questions.

Although we did not ask about the specific AI technologies used, ChatGPT was mentioned most frequently by name. Gemini and Copilot were also named. We did not ask specifically if they were using paid AI or free versions of the software, but one student, a graduate student, mentioned having the paid version of ChatGPT.

How are students using AI tools?

Participant use of AI fell into four broad themes: (1) good spark; (2) kinda like a tutor; (3) time saver; (4) tinkering. **Some of the students were using AI in ways that were against course policy** and that could have had repercussions for the student; however, we do not

discuss that aspect of AI use in this section. You will find a discussion of ethics in the section on student views.

Good Spark

The most common response to the question about how AI is used was as a **brainstorming resource**. Using AI to generate ideas for assignments, particularly writing assignments, appeared throughout the data. Emma said:

> I think that whenever I put it into AI that they give me like new ideas that I haven't seen…and like helps me think more about what I'm writing or the assignment I'm doing or the quiz I'm taking. Whatever it may be, I think that ChatGPT is just a really good spark.

Giorgio viewed the brainstorming function of AI as helping him overcome procrastination. He said, "…when I get stuck in procrastination…you know, what ideas to write about, … AI kind of helps me. It helps me get a framework before I even do it and avoids the procrastination for me."

Kinda like a Tutor

Participants also used AI as a tutor. Students uploaded study materials, quizlets, prompts, videos, any and all imaginable course materials, and asked AI to produce practice tests, step-by-step explanations, and answers. For example, Sharon said, "it's kind of like a … tutor." Sharon noted that she has asked it to read her papers and do math problems. Sharon talked about AI helping her manage her courses, as a person with ADHD. She felt AI was useful in helping her "consolidate" her ideas and focus on her coursework.

Solomon said, "I use it as a tool. I try to use it more as a tool than like a way to cheat." He noted that AI has helped him break down and solve problems in his physics and engineering classes.

Taylor offered, "I'll like copy the information and I'll put it into ChatGPT and ask it to give me … a multiple choice 50 question test."

Helen said, “You’re able to take pictures of your math homework…and I don’t know how it reads it, but it fully reads it and knows what to do from there.” She went on to say, “it’ll like teach me step by step.” Helen described math as her most challenging class and said, “I can ask it as many questions as I want.”

Many participants thought that **using AI was akin to asking their faculty members**, but they noted that faculty members were not available at all hours or were not open to questions or that they were reticent to ask. AI acted as a tutor or a study buddy. The students were interacting with the technology, asking questions, getting quizzed on material, and using AI to stay focused and stay engaged.

Time Saver

Students pointed to **saving time as one of the primary motivators for using AI**. Students asked AI to complete tasks like grammar and punctuation checks, summarizing books or articles, fact checking, solving equations, writing code, and completing assignments that the student considered “busy work.”

Eli described using AI to double check his math equations saying, “it’s really redundant to balance those equations, and it takes up the most time. … It (AI) gets the first step out of the way and get’s the ball rolling.”

Sandy offered, “Sometimes … it like will check my papers for just like grammar errors. And so I’m able to submit an assignment and be like, I know that I did my best, or I have my grammar errors checked.”

Emma offered an example of an online class with required weekly quizzes. She said, “I will put the like the questions into ChatGPT, and once I understand the question, then I can go back to our book and read like exactly where that question was from. And that’s interesting because it leads me back to things that I missed previously.” Emma also described uploading study guides and asking ChatGPT to write a test based on the study guide. She would then take the test and ask ChatGPT to grade it.

Tinkering

Eli had an entrepreneurial idea that involved using helium, but he did not have any experience with helium. He knew what materials he wanted to float, and he knew the weights and measurements of the materials. ChatGPT produced an equation for the buoyancy of the materials using helium, including estimations of leakage. In Eli's words:

> "And it really got my mind tinkering. … I'm like here's where calculus can tie between … the rates and velocity, or the rate and time. … Here's how the chemistry can tie in because helium is escaping then…making contact with the ozone and it's damaging the environment. … So, if I used hydrogen, what's the difference."

The quote makes clear that Eli's mind is tinkering. He is **using generative AI to keep his internal dialogue going**. When he runs into something he does not know, like the buoyancy of helium, he asks AI the question and then proceeds to develop his thinking.

Other examples include a music student who used AI to help her pick progressive song chords; a business student who used AI to develop a risk analysis; and a mechanical engineering student who used AI to debug code. In each of these cases, generative AI offered knowledge that the student did not have, and the student used the knowledge to further their own creative or generative work.

How do students view AI's role in their educational experience?

The majority of the participants in the study considered the effect of AI on creative thinking and critical thinking.

Participants new to AI worried that they would not learn the content; however, after using it, they found that often it facilitated content-learning. The majority of the participants in the study considered the effect of AI on creative thinking and critical thinking. Some concluded that AI prompted and developed thinking skills; others concluded that AI truncated the development of thinking skills. The majority of the participants also

considered the ethics surrounding AI; however, syllabus policies were not viewed as an effective way to police AI use.

Like a Knife

Chen observed, “AI is like a knife. It has a sharp side and another side.” In her view, students can rely on AI too heavily and miss learning that will be important to their professional life. Chen uses AI to debug coding that she struggles to correct. She described using ChatGPT to debug and noted that if the AI offers solutions using code that have not been discussed in class, she either changes it to code that has been covered in class or she asks AI to make changes based on what has been covered in class. She does this so that the AI detector used by the faculty member will not detect that it has been used.

But she emphasized that she **does not use AI for entire assignments, but to solve problems within assignments** that she has struggled to solve. For her, she has determined where the sharp side of the knife is – using AI to solve problems within homework, while avoiding detection – and the dull side of the knife is – using AI to do entire homework assignments such that the student learns nothing.

Marie noted that “the biggest challenge for me is the over-reliance on AI where it replaces critical thinking, creativity, and innovation.” This concern ran throughout the data, but like most of the participants, Marie concluded, “it reduces waste of time and it really improves productivity.” Like Chen, Marie actively determines the sharp side of the knife versus the dull side of the knife. She does this in a way that is personal to her own learning.

In a final example of this, Wang discussed **using AI to fix grammar and summarize articles**. For him, this was the sharp side of the knife. The dull side was in searching for articles. He offered a story of himself and his roommates using AI to search for articles then finding the articles were fake. This notion that AI could not always be relied on for the correct answer ran throughout the interviews. Several participants noted the importance of checking AI responses for accuracy and authenticity, seeing this as the dull side of the knife.

Ethics

Most of the participants noted ethical lines when using AI. Typical in this thinking was Marie, who said, “For me, the emphasis is not on the use of AI, but the ethical and responsible use of AI.” She is an AI user, but she thought there were ethical lines to be drawn. Marie, like many of the other participants, drew lines that were specific to their majors and to their strengths. **Participants turned to AI when they believed assignments to be repetitive, redundant, or busy work**, and they did this without questioning the ethics. Students also used AI for help in areas where they struggled, like grammar and punctuation or debugging code or solving equations. But, like Helen, discussed in the coding section, they learned lessons about the boundaries. If they were going to learn in college, AI could not be relied on to do all their work. The interviews revealed students who were actively thinking and revising their understanding of the ethics surrounding the use of AI.

Mandy was the one student who worried that AI crossed an academic ethics line generally. She said, “I’m not sure where that boundary lies between like what is your ideas and what aren’t your ideas. And so it’s kind of been like … just uncomfortable area where I’m not sure where that falls.” Because of this discomfort, Mandy has only used AI when prompted to do so by a faculty member for an assignment.

Finally, Zek was most adamant that AI involves a myriad of ethical problems that should be examined before using AI. He asserted:

> “AI is terrible for the environment and like this obsession that our society is starting to put towards it for what? For the most part, it would be a lot more useful for humanity if we focused our efforts elsewhere. There’s a major like ethical dilemma for me.”

His concern spanned from energy use to learning generally. He went on to say:

> “It creates like a negative experience where all you’re really learning to do, like you’re not learning. It’s not just you’re not learning the material. You’re not learning like time management skills. You’re not learning organizational skills. You’re not learning

> how to research. You're not learning how to like take accountability and do things on your own when you're having something else do it for you."

No other student brought up the environmental concerns and no other student viewed AI as simply inhibiting learning in general. For Zek, there is no sharp side of the knife and believing there is a learning purpose is an ethical problem.

How does student use and perceptions of AI in higher education impact student engagement?

For this study, Kahu's (2013) framework for student engagement was used. Kahu understood engagement to be a psycho-social process encompassing affect (enthusiasm, interest, and belonging); cognition (deep learning and self-regulation); and behavior (time and effort, interaction, and participation). Many of these aspects were discussed above. In this section, we will extend that discussion to explore the participants' perspectives in terms of the conceptual framework.

Affect

AI served as a mechanism for belonging and as a mechanism for avoiding community. For example, Solomon said, "I think it gives you more confidence going into a test." For him, using AI to study offered a sense of belonging and an emotional involvement in his work. Solomon was "very anxious" about taking Calculus, but with the help of AI to study, he was able to understand challenging material, which ended up to "be very motivating." In this case, AI helped Solomon overcome challenges that might have prevented him from being successful and therefore from feeling connected to the course.

Emma used AI to generate interest in her Old Testament class. She said, "I'll copy and paste them (verses) into ChatGPT and say, hey, can you rephrase this and make it more understandable?" The data offers many examples of this. AI simply helps the student understand something that they are finding difficult and this leads to interest and belonging in the course. Emma concluded, "It's really helpful." AI helped her stay interested in her course.

Many of the participants asked AI in lieu of asking faculty members.

On the other hand, Emma chose AI over communicating with her professors. She observed, "… this (AI) is really more helpful than me emailing my professor and waiting like a few hours or even like a few days for a response whenever I could like be getting my assignment done." Emma was not the only one. Many of the participants asked AI in lieu of asking faculty members. Importantly, it was not that they were not interested in the subjects or the learning, but they were not interested in how talking or emailing with faculty might create community with their professors. This finding was prevalent throughout the data.

Todd, a computer science major, described using AI for debugging code, but he noted that it was only helpful about half of the time. He said, "I would post a block of code and then include the error message and just ask, 'hey, how am I getting this error?'" Even when it was not helpful, it was a "companion tool." Again, AI is working in the realm of affect, especially in terms of purposefulness. Todd came to understand that AI could do some things, but not all things – giving him purpose relative to his major.

Overall, as discussed earlier, for our participants, AI worked as a tutor or study buddy and in that function, **AI deepened emotional engagement, such as interest, meaningfulness, and belonging**. AI worked to overcome academic challenges and answer questions immediately in ways that facilitate affect, especially belonging. However, AI did not facilitate faculty/student relationships. That finding is without qualification.

Cognition

AI made it possible to both deepen learning and to avoid learning. The story of Eli (see Tinkering) using AI to test his entrepreneurial ideas that connect engineering and physics is a clear story of engagement. AI made it possible for Eli to think more deeply and in more specific terms about his ideas.

Lex used AI to develop training courses, and perform needs and risk assessments. However, he noted that you have to "be very specific and chunking and kind of scaffolding tasks for it to do." Lex worked to ensure he was the academic behind his work. To do that, he used AI for small specific tasks that he then used to build work that was more complex. This is an example of connecting ideas and puzzling out problems, while using AI to support the work.

The opposite was also true. Taylor offered an extended example of using AI in her freshman seminar course. She said, "…that class tends to seem like busy work because the assignments are not like major-based or like they're not really … even general education." Taylor commonly used AI to complete assignments for the course. By doing this, she was neither cognitively or emotionally engaged in the course. In her view though, because the course was "busy work" and not part of her major or the general education requirements, she could choose to give it short shrift to focus on other courses. Her interview indicated that she was engaged in her college work, but not engaged in this particular course.

Behavior

The participants felt **AI saved them time, making it possible to focus on learning that they deemed important**. They also believed AI kept them from having to do tasks that they thought were "busy work," redundant, or repetitive.

The data illustrated that AI functioned as a human relationship with a faculty member or a study buddy might. Conversing with AI was a type of interaction. In the sections above, there are several examples of this.

How can students be better supported by HEI in their learning and use of AI?

The participants in this study described their faculty members as falling into two groups: those who viewed AI wholly negatively and those who were finding ways to use AI in learning. **Faculty members viewing AI negatively were more common than those viewing it positively.** Some students felt their university should take a stance and pass policies that required faculty to allow AI.

When talking about faculty who forbid it, **students did not hesitate to say that they and their classroom colleagues still use AI** – even in the courses where it is forbidden. They see these faculty members as simply not understanding the technology or appreciating what it can do for learning. Participants repeatedly talked about wishing all their faculty members had reasonable AI policies and a nuanced understanding of how AI works. Matthew asserted:

> If we get into a habit of surveilling students, I think it'll be detrimental to them in a different way. So finding a way to balance education where they understand that AI can be useful but they also should not abuse it. … Balance."

Overall, the students pointed to supporting faculty development such that faculty understand how AI works and how it might improve instructional design and aid learning. They used verbs like "wish" to express their desire that faculty members reconsider their positions on AI usage. Sharon, for example, said that faculty positions on AI are "just going to get fairer because professors are aware that people are going to use it, and they're just going to kind of want to be like, okay, use it responsibly." However, what "responsible" use of AI looks like is still unclear, and for students with faculty members who use AI, they still wanted guidance on the ethics of AI use.

DISCUSSION

The 18 participants in this study all described using AI in one way or another. One participant noted that using Google means getting an AI response even when you do not want one. **All the participants understood AI as unavoidable.** However, they ranged in their understanding about its usefulness in learning, from participants seeing it as reducing creativity and critical thinking to seeing AI as a way to expand and build on creative or critical thinking. Generally, the participants believed ethical concerns should guide AI use choices, but they did not view draconian policies forbidding AI as part of that ethical concern. They simply ignored the policy or sought not to be caught by the AI checkers.

Suggestions for Practitioners

> Faculty are not leading in the AI context.

This research concerned how students use AI and make sense of AI in the higher education setting and in their chosen career. One aspect of this data that rose to the top was that faculty are not leading in the AI context. Rather, students are figuring it out as they go. The following suggestions are directed at moving faculty into a leadership role in the AI context.

University Policy

Many of the participants expressed frustration and bewilderment that their faculty members were adamantly against the use of AI. Some thought that their **university leadership should pass policies that endorse AI** for certain uses or in certain contexts. However, it is clear that university-wide policies would likely be in violation of the AAUP (American Association of University Professors) principle of academic freedom, which makes clear that faculty should be able to decide what is taught and how it is taught. University leaders will need to **find ways to equip faculty members to lead in the AI context**. This will likely mean training, support in instructional design, and conversations about ethics.

Training

The transcripts also make clear that **students are going to use AI whether it is allowed or not**. This tension is not going to resolve itself. University leaders might offer training for faculty explaining how AI can be used constructively in learning. To effectively address the ever-evolving nature of AI, such training should include a space for discovery in which faculty serve as co-creators and engage with one another. Furthermore, training might be conducted to show faculty how AI can facilitate their discipline-specific work, as it did ours in coding these interviews. The training might include the limitations of AI. Many of the participants noted times when AI was simply wrong. Working with faculty to understand

what AI does well and does poorly is an important part of moving faculty members into a leadership role in the AI context.

Instructional Design

Faculty members would do well to understand that they **will not stop the use of AI with a statement on a syllabus**. When students use AI because they are afraid to ask a question of a faculty member or are unable to connect with the faculty member during office hours, they are choosing AI because it is always there. This is worth some consideration in the realm of student-faculty dynamics. How can faculty members be an important member in the learning relationship with students in an AI context?

Ethics

Simply forbidding AI use is not ethical guidance. The students in this study struggled to make decisions and form ethical beliefs around AI usage. Faculty can be part of that conversation by engaging in the technology and determining ethical boundaries of their own and then expressing those to students. **One of the important missing elements for students is ethical guidance on the use of AI**. Without faculty or institutional guidance on how to use AI as a tool, students will make those determinations themselves. However, due to the rapid rate of change and the unknown long-term consequences related to AI technologies, faculty may not have all of the answers when it comes to the ethics of AI. This challenge creates an opportunity to engage learners as co-developers in determining the ethical boundaries of AI, particularly in their fields of study. By taking this approach, faculty have the potential to reframe discussions of AI away from cheating and toward its possibilities.

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