Online Students' Concerns and Hopes About Generative AI: Paper Series

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Note to readers: This research and the contents of this report are solely the work of the Ecampus Research Unit. No generative AI tools were used for any aspect of this research.

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Introduction to the Series

In winter 2024, the Ecampus Research Unit surveyed over 600 students who were taking online courses to learn about their perceptions, understanding, and use of generative AI tools in their online coursework during the fall of 2023. The two papers included in this series are part of a larger study; to read more about the study, please visit our findings page. The first paper analyzes student responses to the open-ended question, *What are 1-2 of your concerns regarding Generative AI tools?* The second paper analyzes student responses to the open-ended question, *What are 1-2 of your hopes regarding Generative AI tools?*

Methodological Approach

The qualitative analyses were conducted from the interpretive approach with shades of phenomenological perspectives. The analyses work to understand the lived experiences of students including their nuanced and complex perspectives, motivations, and contexts. This research is transferable to other groups in similar situations (Tracy, 2020), such as students at other institutions.

These analyses were conducted using an inductive approach, prioritizing the unique and multilayered perspectives of students by inductively generating frameworks from their responses. Qualitative approaches like this allow the researcher to investigate views and perspectives that might typically be marginalized in quantitative work because interpretive perspectives work to understand participant data through social, historical, and cultural contexts (Creswell, 2013). This study examined the nuance and complexity (e.g., the quality) of students' responses and did not quantify their responses, as such an approach would reduce the intricacies and complexity of students' views into simple, one-dimensional numeric values.

This research supports Oregon State University's strategic plan, Prosperity Widely Shared, which highlights "alternative ways of knowing" as key to knowledge generation and research excellence. Further, the strategic plan reiterates OSU's commitment to "value and integrate diverse lived experiences, perspectives, and viewpoints" in our university and community (Oregon State University, 2024).

Cresswell, J. (2013). *Qualitative inquiry & research design: Choosing among five approaches.* (3rd ed.). Thousand Oaks, CA: SAGE.

Oregon State University (2024). Prosperity Widely Shared: The Oregon State Plan.

Tracy, S. J. (2020). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact* (2nd ed.). Wiley-Blackwell.

"If we rely on AI to do this for us, what's left?": Online students' concerns about generative AI throughout their education and their lives

Greta R. Underhill Ph.D., Mary Ellen Dello Stritto Ph.D., Naomi R. Aguiar Ph.D.

In winter 2024, the Ecampus Research Unit surveyed over 600 students who were taking online courses to learn about their perceptions, understanding, and use of generative AI tools in their online coursework during the fall of 2023. This first paper of the series summarizes the analysis of student responses to the open-ended question, *What are 1-2 of your concerns regarding Generative AI tools?*

Key Findings

- Students identified an astonishing number of acute and serious concerns about generative AI tools in their education and many other domains.
- Students' concerns reflected a personal risk assessment, as well as a complex matrix of risk assessments regarding their immediate communities, their country, and the planet.
- **Personal domain**: Students were concerned that generative AI tools would degrade skills such as independence, critical thinking, and creativity.
- **Interpersonal domain**: Students identified the ways in which generative AI tools might impact their interpersonal relationships by mentioning "loneliness," "human connections," "shared experiences," and "quality of our interactions."
- **Educational Domain**: Students shared concerns about how generative AI tools would impact educational policies and course curriculum, and whether the use of the tools would cheapen the value of their college degree and impede the learning process.
- **Occupational domain**: The second most frequently cited concern was potential job loss or changes to work in various sectors.
- **Societal domain**: The third most frequently cited concern was the mis- and disinformation generated by these technologies. Students also mentioned how the technology would impact copyright and intellectual property, the quality of the internet, and the economy.
- **Environmental domain**: Students identified how generative AI might potentially impact the environment over time, citing energy consumption and natural resource depletion.
- **Technological domain:** Students' concerns about the technology impacted every other domain. They were concerned with the creation and administration of the tools, potential abuses of the technology, and inherent characteristics such as inaccuracy, programmatic bias, and eventual model collapse.
- Students attempted to pinpoint the essence of what it means to be human in contrast to the qualities of generative AI tools. Their philosophical concerns impacted every other domain.

- Students' concerns are in striking contrast to the popular narrative that most students have, are, or will enthusiastically use generative AI tools in their educational experiences and personal lives.

Recommendations

- Based upon the amount and quality of concerns expressed by students, instructors should be cautious in assuming that all students are using or even want to use these tools.
- Instructors should recognize the wide range of students' concerns about generative AI and how these concerns impact their educational experiences.
- Instructors should engage students in discussions about the risks and uses of these tools and about how these technologies impact their lives in and out of the online classroom.
- Instructors can create opportunities for students to reflect upon the use of generative AI in their learning and in connection with their values.
- Instructors might consider co-creating their generative AI course policies with their students to clarify expectations, alleviate concerns, and increase engagement.

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Introduction

Professionals throughout higher education are interested in understanding student perceptions and usage of generative AI as they plan for increased integration into classrooms and the workforce (Chan & Hu, 2023; Holmes & Anastopoulou, 2019). As technology companies continue to promote these emerging tools, studies report anywhere from 56% to 86% of students who self-report using generative AI tools (Nam, 2023; Rong & Chun, 2024; Townsend, 2024). However, student sentiment is varied, with students reporting interest in using these tools while simultaneously voicing concerns (Chan & Hu, 2023), warranting continued research to understand how students perceive and use these tools.

In winter 2024, the Ecampus Research Unit surveyed over 600 students who were taking online courses to learn about their perceptions, understanding, and use of generative AI tools in their online coursework during the fall of 2023. The goal of the study was to help the online division better support online students' use of generative AI and support Oregon State University faculty in their course development and facilitation of online courses. For a full description of methodology of this study and participant demographics, please see pages 37-41 of our full report (Dello Stritto et al., 2024). This study included open-ended questions asking about students' concerns and hopes about generative AI. The analysis of students' responses concerning their hopes for generative AI technology will be discussed in the second paper of this series (Underhill et al., 2025). This first paper summarizes the analysis of student responses to the open-ended question, *What are 1-2 of your **concerns** regarding Generative AI tools?* Four hundred and fifty-six students wrote responses to this question resulting in 95 pages of responses.

Methods

Qualitative analysis of this question followed Tracy's (2020) pragmatic iterative approach which frees the analyst to iteratively cycle between coding the data and consulting literature to inform analysis. The current analysis started with first cycle, inductive coding in which the analyst does not impose a deductive coding structure onto the data, but instead codes based upon what respondents communicate in the study. First round analysis used conceptual, in vivo, descriptive, emotion, value, versus, and provisional codes which resulted in nearly 400 codes and 1,000 references (e.g., the number of times data were coded to any one of the 400 codes). Analysis moved into second cycle coding using focused, axial, hierarchical, conceptual, and theoretical coding to interpret an overall thematic analysis. Some themes were developed through repetition and recurrence (Owen, 1984). Repetition is the occurrence of the same word or phrase multiple times in the data set while recurrence can be thought of as data that reveals the same concept despite disparate wording (Owen, 1984). Other themes were interpreted based upon the combination of recurrence and forcefulness. While repetition and

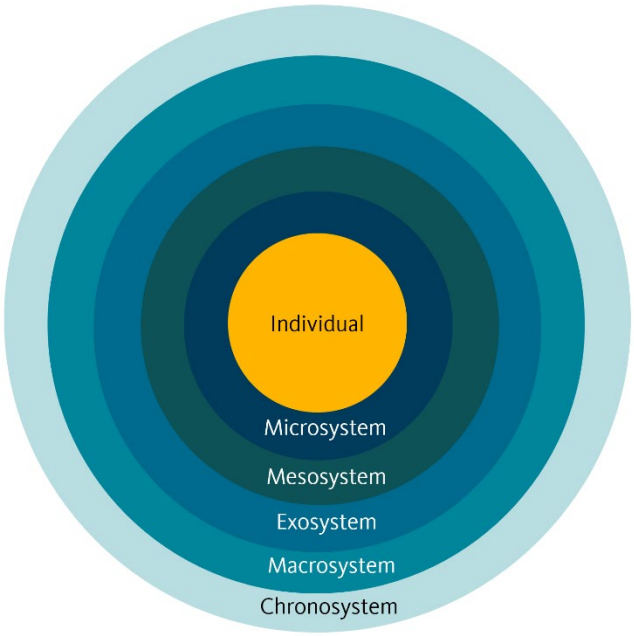
recurrence rely on the volume of repeated words, phrases or concepts, forcefulness refers to the emphasis, meaning, or power placed upon or interpreted in the data (Owen, 1984).

To ensure rigor and trustworthiness, the first author used commonly accepted checks of rigor throughout the analysis process. The first author regularly consulted with the two other authors, subject matter and research experts, for peer debriefings which serve to check interpretation, challenge assumptions and ask hard questions to push the analysis to high order constructs (Lincoln & Guba, 1985). Additionally, the first author memoed to make connections, vet interpretations, and note trends before diagramming data structures to understand the data (Corbin & Strauss, 2015). In line with Tracy's (2020) pragmatic iterative approach, as analysis proceeded, the first author consulted with the second and third authors and with theoretical frameworks to help understand and interpret the language students used to communicate their views on this technology.

Bioecological Systems Theory

The analysis of students' concerns about generative AI can be understood with Bronfenbrenner's (1999) bioecological systems theory, a helpful model when examining how individuals engage with their worlds (See Figure 1). Originating in developmental psychology, the theory posits that different environments, such as biological, interpersonal, societal, and cultural, impact individuals' growth and behavior throughout their lives. These layers extend from an individual's immediate environment, the micro level, to macro levels such as the culture in which a person develops, each impacting a person's ongoing development. The model has been extended (Bronfenbrenner, 1999, 2005; Bronfenbrenner & Morris, 2007) and applied to educational settings (Tong & An, 2024) to inform holistic approaches to examining educational processes in real-life settings.

Figure 1: Bronfenbrenner's Bioecological Systems Model

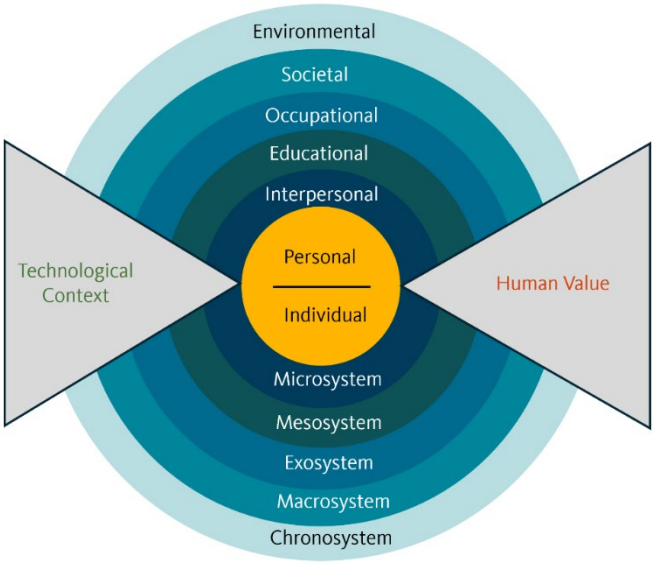


Results

Impacts of Generative AI tools

The pragmatic iterative analysis (Tracy, 2020) of students' concerns resulted in nearly 400 codes. The axial analysis revealed several themes that can be understood using an adapted version of Bronfenbrenner's (1999, 2005) bioecological systems model, demonstrating the interconnected levels and systems in which a person operates. At the center of the model (see Figure 2 below), students identified the ways in which generative AI tools could impact their personal lives through potential skill degradation, demonstrating concerns at the individual level. At the microsystem level, they also identified concerns with how these tools could impact their interpersonal relationships, connecting the skills they gained in online education to the quality of their relationships. Unsurprisingly, many concerns centered on educational policies and course curriculum, as well as worries that these tools would cheapen the value of their degree and ultimately hinder their learning, as represented in the mesosystem. The exosystem includes the workforce, the second most frequently cited area concern, with many students questioning whether jobs would still be available as new generative AI tools flood the market. Societal shifts, illustrated in the macrosystem, were regularly identified including the increase of mis- and disinformation – the third most frequently cited concern overall – how these tools implicate copyright and intellectual property, the dilution of quality content on the internet, and potential economic impact. Students worried these tools might usher in potential accelerated environmental degradation, which aligns with the changes over time in the chronosystem level.

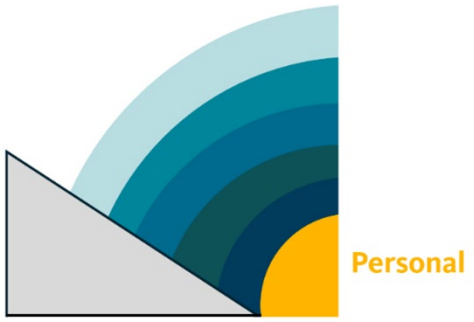
Figure 2: Layers of Student Concerns Related to Generative AI



The analysis revealed two themes that cut across multiple levels of the bioecological systems model. Figure 2 organizes the students' concerns within the framework of the bioecological model which has been adapted to demonstrate concerns that pierced multiple levels of students' lives. Illustrated by the piercing of the bioecological model on the left of Figure 2, labeled Technological Context, students demonstrated deep knowledge of these tools by describing worries about how these tools are created and administered and potential abuses of these tools across multiple levels of the model. Additionally, students identified problematic, inherent characteristics of these tools including programmatic bias, inaccuracy, and eventual model collapse; inaccuracy was the topmost identified concern. As illustrated by the piercing of the bioecological model on the right of Figure 2, labeled Human Value, responses revealed the philosophical questions associated with these tools as students wrestled with what makes us human, impacting multiple levels of the model.

The levels of student concerns in this analysis do not correspond exactly to the bioecological model, however, this framework demonstrates the depth and the nested nature of students' concerns. For example, although students might be more immediately aware of how these tools impact their skills or interpersonal relationships, they acknowledge that society shapes how these tools are deployed, impacting their educational and environmental experiences.

Personal



In their responses, students considered generative AI tools in multiple domains of their lives, beginning with how these tools might impact them personally, apart from their academic or professional performance. This personal focus corresponds with the individual level at the core of the bioecological systems model. Students considered their own data privacy and data security as they engaged with these tools, as well as developing an overreliance on this new technology. Students also identified that generative AI tools would degrade skills in the following areas: independence, critical thinking, creativity, collaboration, problem solving, learning, argument development, writing, empathy, emotional identification and regulation, communication, and social skills. Although these skills can be developed in the online classroom, responses indicated students thought broadly about using these skills in their personal lives. The following quotes illustrate these concerns:

> [Generative AI tools are] not going to improve my capabilities. Nobody learned how to run a marathon by using crutches every day. I know better; they're going to be used to harvest data from the work of honest students to sell to others.

> ...I think AI is becoming excessive and is ultimately a disservice to creativity and self-efficacy...
>
> What once was a cool concept is now removing innovation, curiosity, and spirit from so many. It rewards unoriginality. It is more than sad, it is tragic.
>
> ...Using AI may give students a false sense of competence with certain skills
>
> Degrading our ability to write, research, apply critical thinking skills, develop our own original thoughts and arguments

In these comments, students demonstrated deep self-awareness in identifying various goals for self-improvement and the potential for skill decay. Chan and Hu (2023) found similar results in that students feared challenges in increasing and maintaining holistic competencies like critical thinking skills. These fears are notable given that many individuals may be unaware of skill decay caused by generative AI. "AI-induced skill decay" is hard for individuals to identify because the quality of their task completion remains high, even while their skills degrade, precluding an individual's ability to consider their skill level without assistance from generative AI tools (Macnamara et al., 2024). Our students viewed generative AI tools as directly hindering their skills and self-improvement goals.

Interpersonal

Coinciding with the microsystem of the bioecological systems model, students identified the ways in which generative AI tools might impact their interpersonal relationships by mentioning "loneliness," "human connections," "shared experiences," and "quality of our interactions." Students again identified skills developed in the online classroom that they applied in their interpersonal lives as demonstrated by one student who mentioned that a decrease in using critical thinking skills in course work would change interactions with others. The following quotes demonstrate the interpersonal concerns:

> [I am concerned about] ...Increasing social media / social networking addiction and replacing human connections...
>
> One concern is that students that use AI for critical thinking assignments and are no longer able to interact to fellow people in an erudite manner. It is one thing to regurgitate info and another to offer discourse.

I don't want... it to lessen the quality of our interactions, learning, expression, or thought.

The consumption of art leads to shared experiences. (i.e. going to the movies, reading a book with the class, etc.) This will be gone [with increasing use of generative AI]. AI will someday be so powerful, that it will produce content tailored to each user. They will have no reason to consume something new or unfamiliar, and people will have no reason to engage with the same things. Ergo, communities and companionship will be even more fractured than they are now

[I am concerned about] continued decrease in social relations and increased loneliness due to [reliance] on computers opposed to others

Asking a person for help is good for communication and social skills and this may be lost if people only go to AI for help...

Students also wrote about how these tools would alter their relationships with their instructors, overlapping slightly with the educational level of the bioecological systems model.

I am concerned that there is not enough structure and knowledge about generative AI to the point that it hinders the relationship between students [and] instructors.
I think a big issue with Generative AI tools is that they drive people away from looking for resources themselves; rather than ask an instructor or TA, they might look to ChatGPT or another tool for help first.

Our students agreed with those in another study that feared generative AI tools would replace instructors (Holmes & Anastopoulou, 2019). These observations are particularly important when considering that instructor presence is a major indicator of quality online courses as indicated by the Community of Inquiry model (Arbaugh & Hwang, 2006; Caskurlu et al., 2020; Garrison et al., 2010). Online students at Oregon State are accustomed to high quality courses (Ecampus, Oregon State University n.d.; Hall, 2024) and some viewed generative AI tools as a threat to their relationships with instructors.

Educational

Moving into the mesosystem, student concerns that centered on education coalesced into three subthemes: policies and curriculum, the devaluation of education, and the learning process. Although most responses focused on the context of higher education, some students spoke broadly of the learning process, arguing that generative AI tools impeded the learning process regardless of whether it took place in a classroom.

Educational Policies and Course Curriculum

Students commented on the lack of clarity they received from instructors about how these tools would impact their courses and what policies they should follow. These responses contextualize student responses to survey questions in the full report about course policies in which a majority of students indicated their course policies were unclear (Dello Stritto et al., 2024). In their qualitative responses, students wrote about: 1) encountering "higher standards" because instructors assumed students were using generative AI tools, 2) inadvertently violating academic integrity standards by using the tools incorrectly or 3) being required to use the tools that made them uncomfortable.

> In school, we are going to be graded more harshly on assignments. One instructor forbid the use of AI tools in the class (which is fine), but said he would be grading everyone more strongly and have higher standards simply because AI now exists and could potentially be used. I don't use AI in school as I feel it is a form of cheating. Nevertheless, I am still punished, held to higher standards, and treated as a suspect of cheating simply because AI exists.
>
> ...Scholastically I'm worried about incorrect information and policies that could be overly restrictive of a tool that can ultimately be incredibly useful when properly used.
>
> My concerns regarding Generative AI tools are students who [solely] use [it to] generate completed assignments. Using AI tools to generate completed assignments would violate academic [integrity] (i.e. written papers, code scripts, etc.).
>
> My only concern is where the OSU instructors are with what they will allow. I don't want to find out after I get in trouble that something isn't allowed.
>
> I use AI to help organize my thought process and clearly understand topics or subjects. I sometimes worry that the professor would consider it cheating or dishonesty because of using it.

> I am concerned about using AI to help with papers (research, generating ideas, etc.) because of all the warnings from instructors. I find AI really helpful to help with ideas, but I am fearful that I'll "get caught" using the services and fail classes just because I used an aid.
>
> I don't want to be required to use it. I admit there are places where it is helpful in providing assistance or explaining things, but I'd prefer the option to use it or not.
>
> [I'm concerned] that OSU will ban all of them and then students [won't] be able to use proofreading tools.

Students demonstrated a wide range of concerns about generative AI policies; some worried about not having access to helpful tools because of "restrictive" policies, while others wanted "the option to use it or not." Multiple students expressed worries about misunderstanding course policies, a concern mirrored in a 2024 study that found 31% of respondents did not know or were unsure about when or how to use generative AI tools in their courses (Flaherty, 2024). Similarly, Chan and Hu (2023) found that students expressed worry regarding the "vacuum of institutional policies," bolstering the argument that universities and instructors should provide clear guidelines for generative AI usage (Slade et al., 2024).

Devaluation of Education

The value of education was implicated multiple times in students' comments. They questioned whether the use of generative AI tools would tarnish their university's credibility, trivialize their work, and cheapen the value of their college degree. The following quotes demonstrate the range of these concerns:

> ...introducing [generative AI tools] in a teaching capacity (as with some of the AI tutors out there) really damages school credibility as none of the current generative AI tools have any sort of fact checking or credentialling. I'd rather use Khan or even [Wikipedia] than an AI. It's incredibly frustrating to watch my peers cheat and get [A's] using AI.
>
> I am maybe concerned that AI will reduce the importance of the content of what I have strived to learn, prior to AI. Additionally, information has become easier to access, thus reducing the importance of a specific [content-based] courses and majors.
>
> ...blatant student use of [AI] in discussion board posts trivializes work.
>
> I have nothing but concerns and hatred for generative AI. The inhuman AI may provide some correct facts, but it is, after all, an AI, and does not actually know anything at all. I suppose my main concern regarding generative AI is that incompetent students often use it to falsify school assignments, especially those involving writing. These students [don't] belong at this school.

I feel that generative [AI] could impact the integrity of college degrees.

It can allow people to graduate with a degree they did not earn themselves, going on to perform a job they are not prepared for. This scares me.

...It is the easy way out for students to skirt the learning outcomes of our courses and our programs. I know too many students in my program who have failed to do the work the rest of us who haven't relied on AI have put in. AI is not fair or equitable.

I'm concerned that desperate or lazy students will see it as an easy way out of doing the actual work. I'm concerned that more honest students will be falsely accused of using generative AI on assignments and exams. Generative AI in my opinion only serves to hinder education rather than strengthen it.

If I use AI for coding complex code and [generative AI] can explain better than the video which is uploaded by the instructor, then why should I get a degree[?]

These students are not alone in their concerns about the quality of their education. In one report, 27% of students surveyed said they were concerned that their university's integration of generative AI would decrease the quality of education they received (Rong & Chun, 2024).

Impact on the Learning Process

Students expressed strong views about how generative AI could impact their learning processes, touching on issues such as receiving feedback from their instructors, their purpose in obtaining a degree, their deep desire to learn, and the overall point of education. Many students expressed the sentiment that they were working toward a degree because they were interested in a specific discipline or content area, one student saying, "I want to understand the information." Students viewed the use of generative AI as outsourcing their learning to a technology, disturbing the learning process, and hindering their progress toward expertise, as demonstrated by the following exemplars:

In my time at OSU, I have found it very difficult to convince the vast majority of my teachers to give me feedback on my work or converse with me about class subjects. Using generative AI gives Ecampus teachers another reason to provide less support and engagement and gives Ecampus students another reason to try less and limit critical thinking and creative skills.

My concern is students cheating in coursework. It's not the point of going to school, I want to understand the information.

It concerns me that AI is so normalized now that some students solely use it instead of actually putting in the work. I personally don't understand why you would voluntarily do school and or pay for it, to not do the work it requires. I'm in school to learn and further my education for my future not guess/ cheat my way through it.

In introducing it to an academic environment, we run a major risk of further damaging students' abilities to write coherently and to do proper research...
In the same way that I could pay someone else to take a test or write a paper, use of Generative AI means that I am learning how to use Gen AI and not the course material. I spend too much money to not learn what I am paying to learn.

I want to learn the content I am studying. I [don't] want to let a computer do the work for me. I am not interested in using it.

Other comments alluded to students' assumptions that learning would necessarily be challenging as they would be engaging with new concepts and content; using generative AI was viewed as "stunting" or outsourcing "the leg work" of "retain[ing] information." Students mentioned wanting opportunities for learning and viewed generative AI as "undermin[ing] the learning process."

...When students and/or instructors use it to write in courses, it removes important opportunities for learning. I see many new college students using AI to write online discussion posts, robbing themselves and their peers of the ability to truly learn collaboratively and actively develop their knowledge, critical thinking, writing, and team skills.

They reduce learning opportunities- aside from learning how to use AI...

I'm in college to learn to think and reason. This is much more than just getting the facts.
I feel like using Generative AI fundamentally undermines a learning experience by doing the leg work and providing critical thinking that is better left as a burden on the student to ensure the material is learned.

I'm worried it will stunt people's creative spirit and I worried about school being fair. If everyone is using AI then that's more fair...but there are some classes I think it would stunt learning. I don't want to use... it because I am interested in learning as much as I can.

Writing things helps me to retain information. If I used AI for schoolwork I would not learn as well.

I feel that it undermined the learning process...

Many students indicated they thought integrating generative AI "fundamentally undermine[d] a learning experience" and expressed their desire to engage in a challenging and engaging learning process. Students also viewed generative AI tools as impeding their learning process through bypassing necessary effort or stunting the learning preferences (i.e., "Writing things helps me to retain information"), a sentiment confirmed by other scholars (Shaw et al., 2023).

Occupational

The second most frequently cited concern was potential job loss or changes to work in various sectors, which aligns with the exosystem. Many students stated they were concerned that these tools would make some jobs obsolete and that their job searches would be more arduous. Students said they were "extremely concerned" that generative AI would "kill jobs." Others identified more nuanced possible changes such as "lower[ing] the barrier for people to participate in my field, making job acquisition more challenging." Other students wrote:

> ...I am also concerned for what it means for creatives in the workforce, as employers seek to cut corners and use these tools as opposed to paying for real peoples' work. The further acceptance and use of these tools within academic settings will exacerbate these issues.
>
> My biggest concern is being able to land a job in the future with the changing roles in tech and generative AI tools.
>
> [I am concerned that] Many thousands of jobs will be permanently lost as companies switch to AI tools to cut creative labor costs.
>
> [I am concerned about] Some jobs becoming irrelevant or obsolete
>
> ... [I am concerned about the] risk of job automation/layoffs
>
> I'm concerned that people are going to lose jobs to a fake technology that produces... an inconsistent absolute minimum viable product version of whatever it's replacing.
>
> I am extremely concerned about the increasing loss of jobs to AI in general, including the reduction of labor and job responsibilities as a result of generative AI through the removal of what have been seen as menial tasks...
>
> [I am concerned about] Replacing human workers in a way that does not benefit most people...

> [I am concerned that] Entry-level jobs for idea generation could be replaced- like writing rooms. The type of places need human thought and opinion, not software following a structured path, but people further up the chain synthesizing ideas would just turn to AI since it's much more economical.

Students in this study identified a trending sentiment; an Ipsos consumer report found that 62% of workers aged 18-34 years old anticipated generative AI would change their jobs in the next five years and 46% envisioned generative AI would entirely replace their jobs in the next five years (Larini, 2023).

A few students identified what they viewed as the root of the "AI takeover" of jobs: decision makers within employing organizations. And they are not alone in this assessment. In his book, *Blood in the Machine*, Brian Merchant (2023) compared the Luddite uprising of the Industrial Revolution to the current digital environment. He argued that the Luddites were not anti-technology – indeed, many Luddites were discriminating technologists – but instead, were concerned about worker rights. This orientation means they identified the source of stagnant or dropping wages, untenable working conditions, and job loss not as the new technology itself, but as *factory owners* who scaled technology without input from or concern for their workers. Similarly, some students in our study worried decision makers in organizations would wield generative AI as a "disciplining tool" to "cut costs," "replace employees [and] eliminate jobs."

> And I don't want it to take our jobs or be weaponized against us in some capitalist way to make our lives worse.
>
> [I am concerned that generative AI will be] Use[d] as [a] labor disciplining tool to drive down wages for knowledge workers despite being unable to truly replace human creativity & intellectual labor
>
> ...I am also worried that it will be used by corporations and companies as a motivation to replace its workforce to cut costs, as some companies have already tried to do.
>
> [I am concerned about] The ability for them to be abused by corporations to replace people's workplace positions where the AI tool is objectively worse and less capable in said position...
>
> [I am concerned] Generative AIs could be used to by companies to replace employees, eliminating jobs.
>
> [I am concerned] That they will make many jobs available for people with a bachelor's degree unavailable or irrelevant in the future...

Many were worried about the impact of generative AI on jobs in several industries, concurring with students in another study that said their career plans had been impacted by AI (Flaherty, 2024). Indeed, experts predict major occupational shifts due to generative AI (Ellingrud et al., 2024), but only a few students in the current study identified organizational decision makers as the true mechanism for accelerating or depressing numerous negative outcomes for employees as previous labor movements have done (Merchant, 2023).

Societal

Moving to the macrosystem of the model, students mentioned several societal level concerns including mis/disinformation, copyright infringement and regulations, and the quality of information on the internet.

Mis- and Disinformation

The most frequently cited of the societal implications addressed by students was also among the top three concerns overall: mis- and disinformation. Students identified the ways in which mis- and disinformation might impact society at large, such as: politics, corporations, crime rates, national security, and international affairs. One student commented, “Disinformation is already a serious concern without AI.” Similarly, another student commented on the potential outcome of mis- and disinformation, saying it “can incite people to behave or respond in extreme ways.” One student noted multiple concerns related to society, saying:

> 1. [I am concerned about] Successful disinformation/misinformation campaigns waged by state actors (or non-state actors with similar capabilities to states) and just the general proliferation of credible-seeming lies online. 2. [I am concerned about] The ability/skill of the AI itself to generate things (lies, truths, and in-betweens). I'm not worried about these AI's per se as much as I am worried about what happens when these capabilities are integrated into an [artificial general intelligence] once the technology eventually comes of age. As an example, I learned a little bit ago about this: [link to a news article explaining that a Generative AI program suggested 40,000 potential chemical weapons in a few hours]. What happens when that ability is paired with a generative AI that can explain to a human how to make them? It's as if we are building a being piece by piece, and the generative AI we are making is what will eventually become its mouth.

Other students wrote:

> [I am concerned about the] Generation of mis/disinformation that is accepted by the public and circulated as fact.

> ...Generative AI has the ability to create, spread, and target false and misleading information that can incite people to behave or respond in extreme ways. It's an exponentially more advanced form of propaganda, if used for that purpose. Mass media, spread of misinformation, and public information pathways have been used in this way for a long time, especially in the U.S. The history of the CIA's doings, particularly in regard to control of resources in developing countries, is really a particularly high bar for AI to strive towards.
>
> ...Furthermore- misinformation. AI flat-out gets a lot of things factually incorrect, or at times parrots conspiracy theories because these AI are not actually capable of verifying whether information is true- they simply string together words that they believe fit together to match whatever prompt they are given. This can mean they can take the writing style and formatting of a scholarly article- harmless, really- but they can also take entire excerpts without any citation...
>
> My concerns with Generative AI tools are more so with political and socio-economical, such as images being generated that aren't real and those being used as "proof" or propaganda to spread false information, or to profit off of someone else's image.

Notably, only one response centered on how mis- and disinformation might impact their own academic studies; almost all responses focused squarely on how the generation of inaccurate information would impact the fabric of society. Similar to these students, researchers have explored the implications of generative AI tools' contribution to mis- and disinformation (Shoaib et al., 2023; Xu et al., 2023), calling for proactive initiative for cyber-wellness (Shoaib, et al., 2023).

Copyright and Intellectual Property

Students also commented on the impact this technology might have on intellectual property and copyrighted materials. These concerns are rooted in their knowledge about how the training data were harvested for Large Language Models (LLMs), which we address in an upcoming section. Students mentioned their concerns with copyright regulations, infringement, consent, and ownership, as demonstrated by the following statements:

> [I am concerned about] ...lack of legal/legislative regulations with copyright
>
> [I am concerned about] Lack of consent- many people [whose] works are scraped for data did not at all consent to having their works used to train AI. This has issues with copyright, of course, but furthermore this can end up with an AI claiming that the information came from a specific source (because the AI sees that articles it is scraping from are sourced) without that source actually existing.

[I am concerned that] ...AI does not mesh well with our current world of copyright laws and ad-supported websites.

[I am concerned that] ...copyright laws regarding generation are not thorough enough, and producers are at risk.

[I have] Concerns around [copyright] who is who's content anymore[?] How will it impact the information that is collected about me[?]

[I am concerned about] ... Copyright infringement and loss of creative ethics/ownership...

[I am concerned about] Copyright infringement on smaller artists... My boyfriend is a stop-motion animator and I worry that his job will be taken away by like Disney corporate switching to ugly ai to make lackluster work that steals from artists posting on the internet and gets clicks because of how bad it is. The laws surrounding it's use need to be led by artists, educators and scientists who are directly affected by the potentially negative consequences not politicians who [don't] give a rat's ass about you. I think it could become a wonderful expressive and teaching tool but it shouldn't replace actual human labor.

In these responses, we understand that students considered these issues from a societal level, mentioning laws that guide the culture. Students also considered how these regulations might impact their own lives, as one student wrote about their boyfriend's work in a creative industry. Implicated in these responses are questions of data privacy, brought to the surface by one student who asked "How will it impact the information that is collected about me[?]" Data privacy is an ethical issue that Shaw et al., (2023) encouraged institutions to consider when planning for generative AI integration.

Quality of the Internet

Students wrote about the dilution of the internet as human-created content is replaced "by a sludge of generated content" and "endless verbal garbage." Inferred in their responses is the connection to their online learning: students seek accurate and timely information on the internet, but they viewed generative AI as degrading the quality of content they might encounter. The following quotes illustrate these concerns:

I'm concerned the entire internet is going to be replaced by a sludge of generated content with no intentionality assembled via the [large-scale] theft of actual people's work.

[I am concerned that] They will create endless verbal garbage (some of it inaccurate) that will pollute the internet and overwhelm the human-generated content.

> I feel as though AI is not as thoroughly informational as people are when they try to be. In my experience it only shows the best few answers and not a variety of other information.

Author and cultural critic, Cory Doctorow, coined the term “enshittification” to illustrate the process in which online services or products degrade in quality to maximize profits for interested corporate parties (Doctorow, 2023). Students in the current study were essentially describing the same process, predicting that the information found on the internet will no longer be intentional and creative, therefore no longer valuable.

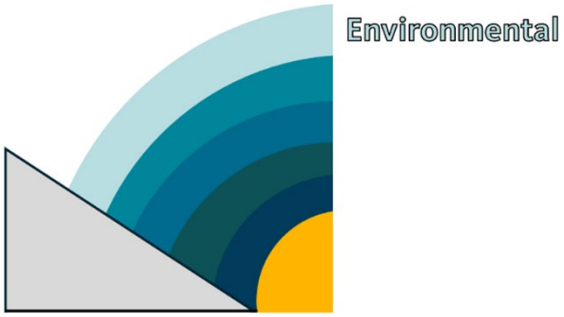
The Economy

Students also mentioned their concerns about how these tools would impact the economy. They wrote about general “economic turmoil” and broad impacts on the economy, but also specific situations in which power is consolidated by AI companies, as illustrated by the following exemplars:

> [I am concerned about] Overall societal and economic changes where the governments, academic institutions, businesses, etc. will be too slow or don't properly balance, regulate, or keep up with the impacts and effects of AI, causing a period of economic turmoil for those disenfranchised of the benefits of AI during the transition.
>
> [I am concerned about the] Proliferation of misinformation, social instability caused by economic shifts.
>
> In the short term, i.e. using it for work or school, I'm optimistic about its usefulness. However I am concerned about its broader impacts on society and its potential for misuse by political and/or economic actors
>
> [I am concerned] ...It may consolidate power in the hands of those who distribute AI tools
>
> [I am concerned about] Giving too much power to one company that runs the AI.

Although fewer comments centered on the economy, any economic impact could mean broad and lasting changes for vast sums of the people, therefore its inclusion in the responses is meaningful. Industry experts are identifying similar trends, predicting generative AI could “add trillions of dollars” to the global economy (Chui, et al., 2023, pg. 3). However, students in this study took a decidedly more pessimistic view of economic changes, using terms like “instability” and “turmoil” to describe the impacts they saw on the horizon.

Environmental

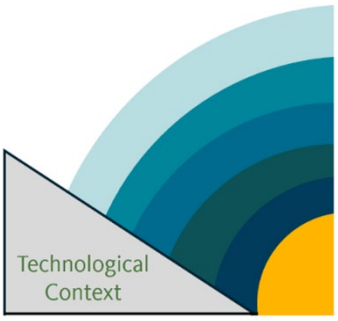


In the outer level of the model, aligned with the chronosystem, a few students identified how generative AI might potentially impact the environment over time, citing energy consumption and natural resource depletion. The following quotes illustrate these concerns:

> ...Also, [I am concerned about] the carbon emissions associated with running the energy consumptive computer running AI.
>
> [I am concerned about] ...power usage & environmental concerns
>
> [I am concerned about the] Waste of natural resources on computing power when the human brain could be utilized...
>
> [I am concerned about] ...major resource draw.

Researchers have established that the blistering rate of AI advancement will have damaging impacts on the environment without substantial human intervention (Dhar, 2020; Li et al., 2023; Strubell et al., 2019). Although not as many responses focused on the environment, it is notable that these issues were addressed at all as their potential impact was only recently coming to light when the survey was distributed (Dhar, 2020; Li et al., 2023; Strubell et al., 2019).

Technological Context



Two themes – technological context and human value – were interpreted to transcend the bioecological model in this analysis. These two themes cross-cut many of the levels indicating their impact all other concerns students identified. Within the technological context, students voiced three concerns. First, students wrote that they were concerned with the creation and administration of the tools, many questioning the ethics of harvesting training data without consent and viewing the continued administration of these tools as similarly unethical. Second, students envisioned varied and detailed examples of abuse enabled by these tools. Last, students identified several inherent and problematic characteristics of generative AI tools: inaccuracy, model collapse, and programmatic bias. Students cited the ways in which inaccuracy and programmatic bias

would impact decision-making and subsequent iterations of generative AI tools, forecasting eventual model collapse.

Students demonstrated deep knowledge about generative AI tools by repeatedly invoking the broader technological context in which they managed every other layer of the bioecological systems model. The themes illustrating the technological milieu pierce every other level of the model, impacting and sometimes directing development in those layers. For example, students identified programmatic bias ingrained in these tools, impacting the quality of output. These biases have ramifications for how students use these tools in the online classroom and in employment contexts. In all, students identified concerns about the creation and administration, as well as abuses of generative AI tools. They also identified several characteristics of generative AI tools that worried them, mainly inherent inaccuracy, programmatic bias, and future model collapse.

Generative AI Tool Creation and Administration

Students communicated deep ethical concerns about the **development of** generative AI technologies, particularly with the training data. Many students correctly pointed out that data used by many AI companies were obtained without permission or consent, "stolen," or scraped from the internet without notification. Many students expressed discomfort with using a technology they viewed as being created through unethical means as described in the following exemplars:

> My concern is that people whose work is used to train Generative AI models are not being adequately compensated or credited, or in some cases, even given the option to refuse to have their work used...
>
> [I am concerned that] training data is stolen art and [uses] mass labor from workers in colonized and exploited countries.
>
> The data used to train these programs, especially when it comes to image generators, is often taken from content posted online without the original poster knowing or consenting to its use, which I feel is unethical. While I have complex feelings about the concept of intellectual property, I do think that at the very least people should be informed and be allowed to opt out of having their works used and then have that consent/lack thereof actually respected...
>
> [I am concerned that] Datasets can be created without the consent of the original creators. [i.e.], deviantART recently partnered with a generative AI that scraped ALL works on the art platform, including those from deceased users.

Beyond tool creation, students also expressed concerns about the administration of these tools, beginning with **accessibility**, particularly regarding potential iterations of tools that might require payment to use.

> [I am concerned that these tools are] Not always accessible to full capacity for everyone and the school might even ban its use
>
> [I am concerned about] Universal access
>
> [I am concerned that] Stronger AI is only accessible through payment options
>
> [I am concerned about] gatekeeping it to those with the wealth and resources to do so.

Lastly, **control of these technologies** emerged as another concern, mainly the lack of oversight governing the companies developing generative AI tools.

> [I am concerned that] Whoever controls the next generation of AI controls the moral standards of the world....
>
> [I am concerned about] Who controls them and the data they are trained on
>
> I'm extremely concerned about the lack of oversight and social justice-oriented ethics at the companies developing these tools.
>
> [I am concerned that] ... Generative AI is still very new and not well understood and there are few regulations in place for it to be managed
>
> [I am concerned that there are] No regulations or limitations that AI must adhere to
>
> It seems unlikely that legislation will be able to keep up with the rapid development of AI. I worry that concerns about plagiarism, intellectual property, factual inaccuracies, ingrained biases, etc. will not be regulated fast enough as they occur, which I think is really dangerous.
>
> The use of Generative AI is not regulated by any large, knowledgeable, and unbiased group whose sole purpose is to protect the best interest and rights of the everyday people...

Students' concerns with the administration and regulation of these technologies and companies tie directly to their concerns with the creation of the technologies. Students perceived that companies developed these technologies unethically, without regard for creators' work or consent, a sentiment shared by multiple news organizations who are pursuing legal action against technology companies (Grynbaum & Mac, 2023; Robertson,

2024). Further, students perceived the lack of regulatory intervention in administering these technologies as a continuation of unethical business practices, calling into question their future use of these technologies. Student responses identified the inherent ethical nexus of technology development and deployment, also outlined by The Center for Humane Technology in their framework to incentivize the responsible construction and use of artificial intelligence broadly, in the absence of federal regulation (Center for Humane Technology, 2024). Students in this study perceived that they abided by higher ethical and moral principles than technology leaders at the forefront of these new tools.

Abuse of Generative AI Tools

A few students described their desire for more discernment when deciding when and how these technologies might be used. Students identified "little evidence to support" the belief that the tools are "useful and powerful," meaning these tools might be "implemented where [they have] absolutely no business being implemented." The following quotes illustrate their concerns:

> [I am concerned that] generative AI tools give users a false sense of reliability of information while obscuring the source of the information and outright lying. There is a large market opportunity on the basis of people believing that AI is useful and powerful when there is little evidence to support that as of yet. As a software engineer, I witnessed many companies embrace AI without a clear understanding of how it would improve their products, only that it would make them more appealing to users and investors.
>
> [I am concerned that] generative AI is being implemented where it has absolutely no business being implemented. I am far less concerned about a potential "Terminator" situation, and much, much more concerned that we are handing these tools work that they are absolutely not prepared to reliably handle... More and more organizations are offloading human thinkers in favor of AI thinkers, without interrogating whether that tool really is appropriate for the job. We must have a RIGOROUS standard for when, why, and how the use of Generative AI is appropriate to a given context. Until then, I remain EXTREMELY skeptical of its use.

Not only did these students highlight how these technologies produce inaccurate data, they also questioned the basic utility of the tools in certain contexts without "RIGOROUS" standards or "a clear understanding" of how these tools enhanced work. Students also identified a concern explored by The Center for Humane Technology and other researchers: the reality that these systems can deceive users (Barcay & Center for Humane Technology, 2025; Greenblatt et al., 2024).

Many responses highlighted various **ways these technologies could be abused** (some to be addressed in future sections). Students mentioned deepfake content, sexually explicit

nonconsensual content, content used to blackmail others, and scamming. The following quotes illustrate these concerns:

> ...Also, [I am concerned about] in the case of generative image/video/audio tools, the use and abuse of them to create fake audio where a person did not consent to the use of their identity (ex. voice replication, replication of identity in video, etc.)
>
> ...It's totally dystopian to have AI, something that could eventually be used to generate images of innocents committing crimes or be used for extortion. This should NOT be normalized.
>
> Generative AI has great potential for grifting, scamming, spamming, and spreading misinformation.
>
> [I am concerned about] Nonconsensual inappropriate images
>
> [I am concerned about]... unrestricted sexual content being generated
>
> [I am concerned about]... putting women at risk (deep fake pornography).

Student observations are well-founded as reports have already emerged outlining such abuses using these tools such as the financial fraud and child sexual abuse material (Federal Bureau of Investigation, 2024.; Federal Bureau of Investigation, Internet Crime Complaint Center (IC3), 2024; Leong, n.d.).

Tool Characteristics

Students identified several inherent and problematic characteristics of generative AI tools, citing the ways in which these tools would impact decision-making and subsequent iterations of generative AI tools: inaccuracy, model collapse, and programmatic bias. Students correctly recognized how inaccurate the output of these tools can be, some concluding that the technology is not reliable enough to use in their coursework. Responses also mentioned potential model collapse with students concerned about "unstable and unreliable" feedback loops. Lastly, students expressed concern with the inherent bias baked into these systems. All three of these tool characteristics implicate the quality of the model output and whether such outputs are reliable enough for use in multiple domains, including online coursework.

Inaccuracy of the Technology

The top concern of students was inaccuracy of the generative AI technology (102 references). Some mentioned the propensity to fabricate data, potential biases that might be baked into

models, or the notion that these tools are “confidently incorrect,” and obfuscate inaccurate information through a “false sense of reliability.” Many students simply stated that the outputs are not always accurate. The following quotes demonstrate their concerns within the educational context:

> [I am concerned that] generative AI is prone to hallucinations and it often does not specify any sort of confidence in what it says. [i.e.,] it is prone to being confidently wrong
>
> There is no guarantee that the information they provide is accurate, and it is also not capable of discerning information biases in any training data.
>
> These tools at time[s] can provide an overview of relevant information, however in my experience they often provide incorrect or made up references or information. If these tools are going to be used, we would have to fact check everything, which is more work than just doing it yourself in the first place.
>
> When it comes to generative AI, my main hesitation right now is the ... accuracy and trustworthiness of the created content. [With] my limited experience, sometimes the output is incorrect or low quality. However, it also concerns me that output can seem so real that users easily cannot tell what is true and what is, especially with images.
>
> I'm concerned that AI is highly inaccurate and not reliable for use in course work - I genuinely think using AI will harm the quality of work I do as a student. I also worry that using AI will making citing sources impossible because who knows where it's pulling its information from...
>
> I also think that many people have an unrealistic perception of what these programs are and what they can do. All that they do is generate a statistically likely output based on data they have been given--they cannot...even be especially reliable or trustworthy (as seen in the case where a lawyer used AI to generate completely fake case law references). All that these programs can do is make something that seems plausible/looks "right"; that does not mean their outputs are accurate or substantive.

These qualitative responses support the quantitative responses found in the full report (p. 20) in which only 34% of students said they thought generative AI tools were accurate (Dello Stritto et al., 2024). Similarly, recent work has found other students also distrust generative AI tools and question their accuracy (Amoozadeh, et al., 2024). Generative AI tools’ propensity to fabricate data has been well documented by scientific literature (Bhattacharyya et al., 2023; Emsley, 2023; Rawte, et al., 2023a; Rawte, et al., 2023b) affirming students’ skepticism of these tools and pointing to opportunities for further education about the true capabilities of these tools.

Model Collapse

Model collapse is a deteriorating process that can impact generative AI tools that rely on massive data sets to generate statistically average outputs. However, new training data is becoming harder for these companies to find, and the internet is being flooded with AI-generated content, meaning these models are increasingly using their own input as new training data. This process pollutes the data set because when programs continue to rely on their own statistically average outputs to generate more statistically average outputs, the normal distribution of data – or the available pool of data – shrinks. The output eventually collapses into low quality, sometime unusable content (Alemohammad et al., 2023; Bhatia, 2024; Shumailov et al., 2024). The following students described model collapse in their concerns:

> I am also worried that if we integrate it too much too quickly that it will begin (as it has already done in image generation cases) to "feed" (through what it is trained) on its own content causing a feedback loop that will make it unstable and unreliable.
>
> ...As more and more of the information that "trains" these models becomes, itself, AI generated, we careen further and further towards a more boring, awful, soulless world.
>
> I fear that generative AI tools will replace the creative works of actual humans, depriving people of jobs and devaluing the incredible work that people put into writing and art. I also fear that people will stop pursuing those skills, and when AI fails (which I suspect it will, since once there is enough AI generated content on the internet it will start sampling itself and gradually growing worse), no one will still have the skills that it loosely mimics.

Interestingly, students were not concerned with the technical problems of model collapse, but with the potential outcomes such as "unstable and unreliable" feedback loops, "a more boring, awful, and soulless world," and the degradation of creative skills that will be lost to these tools.

Programmatic Bias

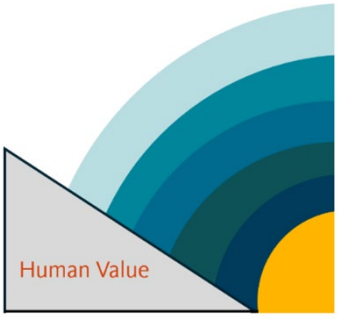
Students also expressed concern about biases that might be baked into or perpetuated by the process of programming generative AI tools, with one student comparing them to biases seen in social media. Students wrote:

> [I am concerned about] ... Accuracy and programmatic biasing. This is similar to what we see in search and social media where results are curated based on browsing history or social norms. The user should be able to determine what's harmful to them, not AI.
>
> I just worry about the bias in Generative AI tools...

> spam and scams and misinformation and propaganda/advertising intentionally [built in] to the biases of the tools...
>
> ... Not to mention there are great risks of biased and misinformation, as being generated by AI tools [run by large tech company[ies] today. AI is only as good as the dataset which it is given, and only as good at being unbiased and true as the developers who have coded the programs.

Encoded discrimination is well-documented in automation (Benjamin, 2020), search engines (Noble, 2018) and AI systems (Bender et al., 2021; Buolamwini, 2023), contextualizing these students' comments within a larger conversation about how our technology is developed and administered, as well as it's far-reaching impact on peoples' lives. Based upon their survey of students and faculty, Shaw et al., (2023) encouraged higher education institutions to reflect upon the ethical considerations of programmatic bias inherent in these tools and to implement policies that address barriers to accessibility and bias.

Human Value



The slice on the right side of Figure 2 illustrates students' concern related to the value of humanity. Students' responses about human value reflected concerns across all levels of the model, as demonstrated by the slice piercing through the levels. Student responses attempted to pinpoint the essence of what it means to be human, those intrinsic qualities that they perceive as unique to humanity: ingenuity, autonomy, love, creativity, and true thought. Along with these qualities, students wrote how "special" human life is and asked "what's left" if generative AI takes over fundamental human acts. Responses also contrasted human qualities with those of generative AI tools which seemed to reinforce the core or foundation from which students' other concerns stemmed: shared humanity. The following quotes illustrate these concerns:

> I liked what a friend of mine said about the subject: if no one could be bothered to write/draw it, why should I bother reading/appreciating it?
>
> Generative AI is nothing more than a predigested, regurgitated aggregation of actual work done by actual people. That actual work was done through conscious research and thoughtful consideration, which AI is not capable of...
>
> Human beings are lazy and will allow machines to do any work they can. But machines can't love. So we will lose the guidance of love.

Generative AI, by creating and generating things so easily, may cause human efforts and creations to be overlooked in the future. This is really concerning, since human beings are so unique and different from one another while generative AI is just combining all of these and does not have its own creativity.

...If we no longer know how to write or think for ourselves, and rely on AI to do this for us, what's left?

...I fear it will cause people to be stuck doing manual labor jobs and service jobs that make them unhappy without any other options. What a terrible sin this is, since human life is so special that to spend an entire lifetime hating the experience is just such a shame.

[I am concerned about] Removing someone's self autonomy regarding critical thinking and decision making...

...Having a computer create thoughts and do problems can ruin human ingenuity and problem solving, meaning people can become less reliable for the things they are supposed to know...

Recent work has similarly found students were concerned that using generative AI would "kill" creativity (Smolansky et al., 2023) or would not support their values (Chan & Hu, 2023). Student responses in the current study, especially those that mentioned love and souls, ventured into the philosophical and implied that students were not simply considering the pragmatic implications of generative AI tools in their education, but were also reasoning through the complexity of their beliefs and values, wrestling with the question, "What does it mean to be human?"

Conclusion

This study highlights an astonishing number of acute and serious concerns students have about generative AI tools, most of them confirmed by other literature. Importantly, students expressed concerns that spanned every level of the adapted bioecological model – personal, interpersonal, educational, occupational, societal and environmental – illustrating the potential disruption they anticipated as technology companies continue to promote these tools. Students' identification of implications at every level of the bioecological model indicates not just a sophisticated personal risk assessment, but also a complex matrix of risk assessment regarding their immediate communities, their country, and the planet.

This analysis also presents a striking contrast to the overwhelming narrative that most students have, are, or will enthusiastically use generative AI tools in their educational, professional, and personal lives. Headlines announce that student usage of generative AI has surged (Coffey, 2024) or that instructors have "no idea" how much students truly use these

tools (Terry, 2023). Broad pronouncements forecast these technologies will "shape broad swaths of the knowledge economy, and the wider work force" and that they could be "a lifeline for colleges" (Swaak, 2024). Authors confidently state that instructors "can't neutralize AI," that the "ubiquity of generative AI" is inevitable (McMurtrie, 2024), and that integrating these tools throughout the academy has become "standard operating practices" (Schroeder, 2024). Higher education leaders issue hazy predictions that these tools will become inculcated as critical infrastructure, enable new discoveries, "transform" educational experiences in "profound ways," and accelerate personalized educational experiences (Palmer, 2024). These reactive sentiments all find common foundation in techno determinist logics that assume that technological innovation always and inevitably leads to positive, morally good progress (Odell, 2019) without questioning who defines progress, innovation, or moral good. Techno determinist sentiments, ingrained in marketing language promoted by technology companies, paint the picture of inevitable technological advancement, an incoming tide that humans cannot alter or stop, effectively reducing the role of freewill. Against the seemingly overwhelming messaging of inevitable generative AI promotion, proliferation, and integration, it is not surprising that higher education professionals assume most students are using generative AI tools in their coursework.

However, the analyses here and included in the full report (pgs. 9-10) indicate that students' use of generative AI tools is anything but inevitable (Dello Stritto et al., 2024). They demonstrated acute awareness about the complex world in which they live and learn, and how generative AI tools would impact not just their immediate environments, but broad domains like education, society, the economy, and the environment. They are clearly not naïve actors. Chan & Hu (2023) similarly found that students with a good understanding of generative AI technologies may have meaningful reservations about them (Chan & Hu, 2023). And students are not alone. Experts in the field (Rainie, 2023), including "the godfather of AI" (Metz, 2023) have expressed deep concerns about these rapidly evolving technologies. Students demonstrated deep insight about these technologies' capabilities and potential impacts; at times, their comments bordered on prescient as we now observe some of their concerns becoming a reality. For example, research has demonstrated the potential for skill decay (Macnamara et al., 2024); and power is being consolidated of by fewer and fewer technology companies. This analysis contradicts techno determinist assumptions of reactive and wide adoption of generative AI tools and instead offers an alternative in which students thoughtfully reflected on their values, their lives, and their communities when determining their engagement with technology.

Recommendations

Considering these concerns, instructors in online education can take action to ensure their students are informed about and comfortable with their institution's use of generative AI in

the online classroom. First, instructors should be cautious in assuming that all students are using, or even want, to use these tools. Instead, they can invite students into discussions about the risks and uses of these tools as Demian Hommel, Associate Professor of Teaching in the College of Earth, Ocean, and Atmospheric Sciences at OSU, did in spring 2023 (Hommel & Cohen, 2023). In the larger study of Ecampus student perceptions of these tools (see full report pgs. 17-18), most students indicated at least moderate interest in receiving guidance from their instructors on how to us generative AI tools in their courses (Dello Stritto et al., 2024). This provides an opportunity for instructors to engage students in broader conversations about how these technologies impact their lives in and out of the online classroom.

Instructors might also create opportunities for students to reflect upon their learning and values, as many students in this survey did. Reflection activities not only help students solidify their learning, but it can reveal areas of confusion (Kroening, 2015), perhaps even confusion about generative AI tools. Course Development and Training Specialist, Melanie Kroening (2015), suggested that reflection activities do not have to take significant time and effort for students to complete or for faculty to grade, but can provide opportunities for students to consider specific or broad learning experiences. For example, Ana-Maria M'Enesti from the College of Liberal Arts at OSU, has her students analyze a given text, then prompt an AI system to analyze the same text before students compare and reflect upon the two analyses (M'Enesti, 2025). Given the uncertainty students have experienced through the last few years, time for reflection may offer a brief respite and help to ground students in their learning goals.

Faculty might also consider building course policies together with their students. Previous work has found that co-creating course syllabi, assignments, or policies may increase student engagement and decrease power differentials in the classroom, creating an environment in which students understand their thoughts and opinions matter (Gibson, 2011; Hudd, 2003). These strategies also align with Universal Design for Learning approaches that incorporate opportunities for student choice into courses (Meyer, 2014) As one example, Demian Hommel described a pedagogical experiment in which he let students write their own personal generative AI policy, recognizing that his students demonstrate varying levels of comfort with the technology (Hommel, 2025). Instructors may still exert necessary control over some aspects of the course to align with university policies but may find that co-creating a generative AI policy with their course to be helpful in reminding students of their agency in the learning process. For more recommendations such as writing a clear generative AI course policy, considering a range of student emotions and concerns about these topics, and continuing to educate students about these tools as they develop, see our recommendations at the AI faculty tools page.

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"I hope I will graduate before AI is a requirement in classes": Online students' hopes about generative AI throughout their education and their lives

Greta R. Underhill Ph.D., Mary Ellen Dello Stritto Ph.D., Naomi R. Aguiar Ph.D.

In winter 2024, the Ecampus Research Unit surveyed over 600 students who were taking online courses to learn about their perceptions, understanding, and use of generative AI tools in their online coursework during the fall of 2023. The purpose of the second paper of the series is to analyze student responses to the open-ended question, *What are 1-2 of your hopes regarding Generative AI tools?* Four hundred and thirty-nine students wrote in responses to this question resulting in 78 pages of responses. This analysis focused on the language students used to communicate their hopes.

Key Findings

- Students expressed broad hopes for generative AI tools such as: improving access to and generation of more information, positively impacting learning and education, and enabling more productivity in school and at work.
- Positive sentiments expressed by students used language that was general, shallow, vague, and broad, aligning with inflated marketing language promoted by technology companies.
- Many students voiced their concerns in response to the question about hopes, using the question stem to frame their worries: "I hope that my concern does not occur."
- Student concerns centered on learning and education, technology companies and tools, ethical implications, and regulations.
- Negative sentiment was buoyed by self-determination: students expressed deep concerns about the technology, but outlined ways in which they and others might intervene through renewed ethical commitments, societal shifts, regulations, and restructuring/rebuilding tech companies by using consented data.

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Introduction

In winter 2024, the Ecampus Research Unit surveyed over 600 students who were taking online courses to learn about their perceptions, understanding, and use of generative AI tools in their online coursework during the Fall of 2023. The goal of the study was to help the Division of Educational Ventures better support online students' use of generative AI and support Oregon State faculty in their course development and facilitation of online courses. For a full description of methodology and participant demographics, please see pages 37-41 of our full report (Dello Stritto et al., 2024).

This is the second research paper in the series. The first paper examined students' concerns about generative AI tools (Underhill et al., 2025). The purpose of this second research paper is to analyze student responses to the open-ended question, *What are 1-2 of your **hopes** regarding Generative AI tools?* Four hundred and thirty-nine students wrote in responses to this question resulting in 78 pages of data.

Methods

Qualitative analysis of this question followed Tracy's (2020) pragmatic iterative approach which frees the analyst to iteratively cycle between coding the data and consulting literature to inform analysis. The current analysis started with first cycle, inductive coding in which the analyst does not impose a deductive coding structure onto the data, but instead codes based upon what respondents communicate in the study. First round analysis used conceptual, in vivo, descriptive, emotion, value, versus, and provisional codes which resulted in over 300 codes and 800 references (e.g., the number of times data were coded to any one of the 300 codes). Analysis moved into second cycle coding using focused, axial, hierarchical, conceptual, and theoretical coding to interpret an overall thematic analysis. Some themes were developed through repetition and recurrence (Owen, 1984). Repetition is the occurrence of the same word or phrase multiple times in the data set while recurrence can be thought of as data that reveals the same concept despite disparate wording (Owen, 1984). Other themes were interpreted based upon the combination of recurrence and forcefulness. While repetition and recurrence rely on the volume of repeated words, phrases or concepts, forcefulness refers to the emphasis, meaning, or power placed upon or interpreted in the data (Owen, 1984).

To ensure rigor and trustworthiness, the first author used commonly accepted checks of rigor throughout the analysis process. The first author regularly consulted with the two other authors, subject matter and research experts, for peer debriefings which serve to check interpretation, challenge assumptions and ask hard questions to push the analysis to high order constructs (Lincoln & Guba, 1985). Additionally, the first author memoed to make connections, vet interpretations, and note trends before diagramming data structures to understand the data (Corbin & Strauss, 2015). In line with Tracy's (2020) pragmatic iterative

approach, as analysis proceeded, the first author consulted with the second and third authors and with theoretical frameworks to help understand and interpret the language students used to communicate their views on this technology.

Results

The pragmatic iterative analysis (Tracy, 2020) of students' responses resulted in over 300 codes. The axial analysis revealed several themes beginning with general hopes. Students expressed broad hopes that the generative AI technology would increase access to and generation information, allow people to be more productive in various domains, and improve learning and education. However, students' positive sentiments were found to be general, shallow, and vague. Their positive statements about generative AI aligned with current inflated marketing language used to sell technology. Students' responses also aligned with the concepts of techno determinism and technochauvinism as they relate to technological "progress."

Although this open-ended question asked students about their hopes, many voiced their concerns, linguistically framing their responses as "I hope my concern does not occur." The vague and shallow positive comments examined in the first part of this paper contrast sharply to the comments voicing concerns, which were rich, detailed, nuanced, contextual, and value laden. Students shared their concerns regarding learning and education, technology companies and the tools they produce, overall ethical concerns, and regulations, reiterating concerns voiced in the first paper in this series (Underhill, et al., 2025).

General Hopes

Students expressed many **broad hopes** related to Generative AI such as "AI can lead to new discoveries and methods that overall change things for the best" and "We can use them to enhance our lives especially through recreational uses." Some students expressed their hopes that generative AI would be used in other fields, as one student said, "use of AI for advancement of science." Other respondents hoped engaging with generative AI would help people learn more about themselves, how to be better humans, and how to create a better world. Responses contained verbs attributed to generative AI models like enable, enhance, create, help, change, restore. Other students commented on broad, positive outcomes, such as the following exemplars:

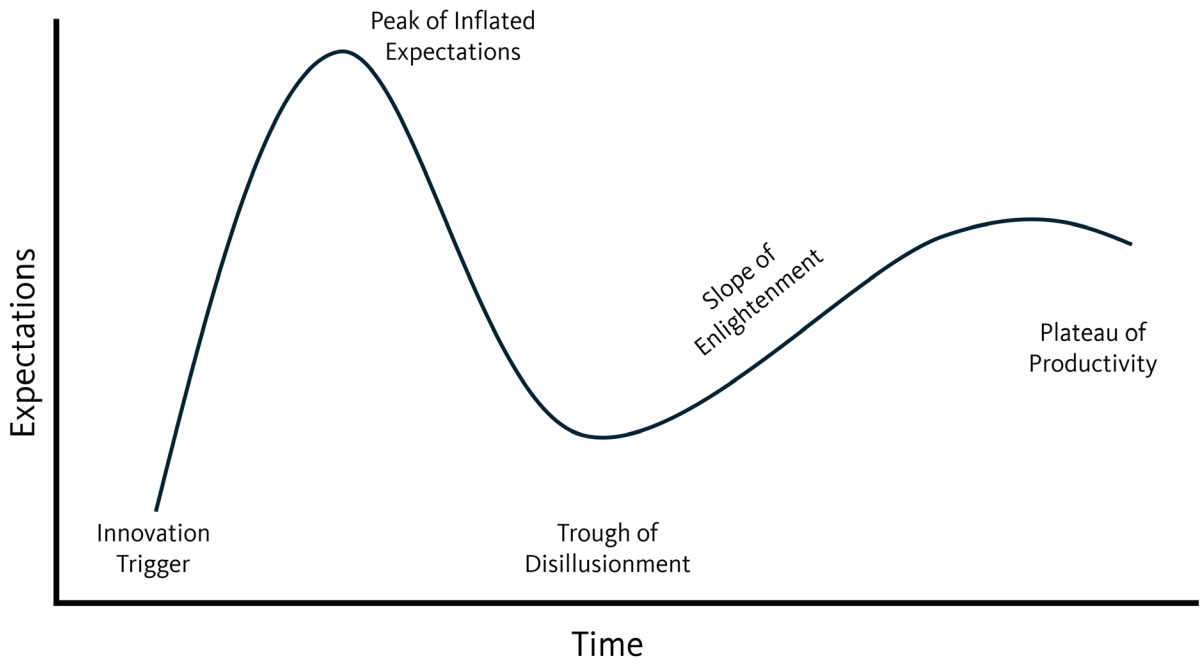
> [I hope] We'll be able to make cooler stuff much faster
>
> I think Generative AI tools can be a great creative tool for generating text or images just for fun, when accuracy isn't a concern.
>
> I hope generative AI tools can improve lifestyle such as finding accurate information from them.

> my hope with Generative AI, is that these advancements in AI will lead to advancements in other related fields, bolstering AI's potential in fields that do not encroach upon creative thought.
>
> [I hope] That it will streamline education, making it possible for students to learn much more quickly, deeply, and efficiently than ever before.
>
> Outside of education, AI tools have great opportunity to increase efficiency and provide benefits to organizations and consumers. AI could reduce costs associated with routine tasks that don't create significant value allowing for employees to spend their time generating value with time for problem solving.
>
> I hope that Generative AI will make it easier for individuals to accomplish more things and achieve their dreams.

In qualitative parlance, most of the comments communicating positive sentiment were not "rich" text. Rich text is deep, nuanced, complex, detailed, and contextual. In contrast, positively valanced student responses to this question used language that was general, shallow, vague, and broad. For example, one student mentioned new methods that will "overall change things for the best" without further explanation of what "things" should change or what "best" means. In another response that said people would "be able to make cooler stuff much faster," the student does not explicate the terms cooler, stuff, or faster. In a final exemplar the student said they hoped generative AI would "make it easier for individuals to accomplish more things and achieve their dreams" without providing details on what more people needed to accomplish and what dreams might be aided by this technology. Although they are not rich, these responses are valuable in helping us to understand sensemaking in real time, as students grapple with uncertain futures and unclear technologies.

These responses also help us to understand the prevailing cultural narratives about generative AI that are mostly positive, sweeping, and devoid of critique, in line with the Gartner Hype Cycle (See Figure 1).

Figure 1: Gartner Hype Cycle



The Gartner Hype Cycle (Gartner, n.d.) is a model that illustrates how innovative technologies rise, fall, and eventually level out. First, there is an *Innovation Trigger* that kicks off the technology's rise, followed by the *Peak of Inflated Expectations*. This peak usually includes some actual, if modest, technological success; however, publicity coupled with marketing campaigns vastly inflate the reality of the new technology, leading to a plummet into the *Trough of Disillusionment*. Failure of the technology leads investors and consumers to question the technology's efficacy before successes eventually put the technology back on track up the *Slope of Enlightenment*. Ultimately, the technology rests on the comfortable *Plateau of Productivity* where its output is realistic and reliable.

The Peak of Inflated Expectations is most salient to this study as overblown expectations of technologies are set through intentional communication such as: pitches to gain capital, networking to grow potential investors, marketing to potential clients, and news of technological innovation. Communication about generative AI technologies congeals around certain buzzwords: synergize, innovate, enhance, augment, disrupt, revolutionize, accelerate, leverage, pivot, optimize, value-add, and ideate. Additionally, messages use ebullient, excessive language to describe the technology. Promotional and news media focused on generative AI use terms like ground-breaking (Dey, 2022), never-before-seen (Leswing, 2022), technological revolution (Naina and Perrigo, 2023), superhuman (Huang et al., 2022), and transformative (Naina and Perrigo, 2023). Generative AI is said to have the "potential to generate trillions of dollars of economic value" (Huang et al., 2022) and "revolutionize industries and transform the way companies operate" (Chui et al., 2022). Business leaders

believe the field of AI will "help solve everything from climate change to cancer" (Naina and Perrigo, 2023) and will provide "abundance" to all 8 billion people on the planet (Levy, 2023). OpenAI stated they believe artificial general intelligence "will be the most important technological development in human history" helping to solve "currently intractable multi-disciplinary problems, including global challenges such as climate change, affordable and high-quality healthcare, and personalized education" (Brockman, 2019). Bold predictions are commonplace to garner investment funds for new technologies, even if the technology never reaches the Plateau of Productivity, as exemplified by failed technology companies like Theranos (Carreyrou, 2018) and We Work (Wiedeman, 2020).

These bold predictions rest on the foundation of techno determinism and technochauvinism. The prevailing logic of techno determinism assumes that technological innovation, narrowly defined as creation and production rather than maintenance, always and inevitably leads to progress (Odell, 2019), without a robust critique of who benefits and at what cost. Technochauvinism, a neologism coined by Meredith Broussard, is defined as "the assumption that computers are superior to people, or that a technological solution is superior to any other," (Broussard, 2019, para. 2) and that technology is always the answer (Broussard, 2018). Business leaders who believe these technologies will inevitably "solve everything" fail to acknowledge the many millions of humans already working toward viable solutions to climate change, cancer, and many other pressing issues. Problems like food insecurity, health care disparities, and education, are not problems of technology, but problems of will that societies and leaders much choose to prioritize and solve. Lastly, these business leaders fail to acknowledge that the tools generally do not live up to functioning as they are described, producing inaccurate and imprecise outputs (Bender et al., 2021; Bhattacharyya et al., 2023; Emsley, 2023; Rawte, et al., 2023a; Rawte, et al., 2023b), further degrading their utility to truly solve problems that impact our world.

Since commercial release of generative AI tools in 2023, US culture has become accustomed to grandiose statements about generative AI that belie the underlying, often disappointing reality of the technology (Narayanan & Kapoor, 2024). Students' responses demonstrated how these statements have seeped into everyday life. Many positive responses used the extravagant language of marketing messages used in the hype cycle, such as the below exemplars:

> [I hope] AI will enable almost everyone to be more knowledgeable, creative, and productive. AI could lay the foundation for a techno-utopia were people work much less.
>
> To expand areas of knowledge faster and more precise in less time.
>
> [I hope] generative AI tools will massively accelerate the growth of every field and

> greatly improve society in the upcoming future.
>
> I have hope that AI can provide some interesting solutions to some of our biggest problems. Generative AI works by taking in and combining all of the information that it can get on the internet. That is millions and millions of different perspectives! All of this combined into one can not only provide interesting solutions, but also might give us a better understanding of the human psyche and human patterns if used correctly.
>
> [I hope] that it can enhance innovation
>
> I think if used correctly it could help and make the world have... leaps in general knowledge and ability.
>
> [I hope] AI allows everyone to do more. Accessing a person's capabilities is fairer when AI is factored into a conversation since AI allows everyone access to the same information. 2 people can still see vastly different results in the usage of AI. In the past, the people who knew the most information regarding a specific topic would stand out, but now, it is about who can do the most with the AI.

These comments use extravagant language, speaking of "millions and millions of different perspectives," solving our "biggest problems," enabling "almost everyone to be more knowledgeable, creative, and productive," and laying "the foundation for a techno-utopia." The training data for these technologies certainly contains "millions and millions" of data points, but the statement implies a heterogeneity not found in these data sets which have instead been found to contain gender bias (Buolamwini, 2023; Buslón et al., 2023; Hall & Ellis, 2023), racial bias (Buolamwini, 2023; Buolamwini & Gebru, 2018), and socioeconomic bias (Buschek & Thorp, n.d.). Students also mentioned their hopes that these technologies would democratize informational access and level the playing field in education and professions without acknowledging well-established inequities of technology (Ragnedda & Muschert, 2013), academic achievement (National Assessment of Educational Progress, n.d.), and employment outcomes (U.S. Department of Labor, Women's Bureau, n.d.), inequities that will only persist as paid versions of these models proliferate. The notion, shared multiple times in student responses, that a new technology would solve our "biggest problems" certainly aligns with the stance of techno-optimists who hope for a techno-utopia; it also illustrates prevailing logic of technochauvinism and techno determinism by reinforcing the notions that technology provides superior solutions to the world's problems and that technology will only ever usher in positive progress (Broussard, 2018; Odell, 2019).

Hopes: Information Access and Generation

Students wrote about how they hoped Generative AI technologies would improve access to information and accelerate the generation of further information. Comments generally

assumed that individuals, organizations, and society required more information, regardless of the current information landscape.

Access to Information

Many students mentioned they hoped generative AI tools would **improve access to "various sources of information"** by providing "accurate detailed summaries" of "large sums of information." They wondered if this technology might prompt a "new revolution" in access to information and wrote of the "ease" and "convenience" of these tools. The following quotes illustrate these sentiments:

> I am hopeful that generative AI tools can prove useful in directing people to various sources for information.
>
> [I hope] That it can improve so that people could receive accurate detailed summaries of the vast scientific research on a specific topic, with accurate sources provided. Written in a way that people of any reading level, in any language could comprehend.
>
> AI makes putting information together very quick and efficient
>
> Improving access to knowledge.
>
> - AI can make access to data more convenient...
>
> They can make [accessibility] to large sums of information more manageable, in other words parse large amounts of information and provide links/sources to [actually] view source content when it is found to be of interest.
>
> [I hope] That they will provide a new sort of revolution around accessing information, akin to the Web itself
>
> I hope that it provides access of information to everyone who has access to the internet.
>
> ... Ease of access to knowledge for a greater body of people.
>
> If it could be used for organizing data in meaningful ways
>
> [I hope] It will give more people access to information and can connect information from around the world.

One response provided helpful details, stating they hoped the technology might improve summaries of scholarly research to provide accurate sources, deployed so any reader might understand the summary. However, most responses provided vague statements about increased access to information. Comments did not draw a contrast to older means of accessing information on the web, such as search engines and the accuracy of information for

users. Further, most students did not acknowledge the underlying assumption of the access they addressed: internet access. One exemplar acknowledged they hoped it might provide "access of information to everyone who has access to the internet," but most other students wrote of generalized access, assuming generative AI tools would somehow give users greater or other access to information not yet provided by the current web infrastructure.

Additionally, most responses failed to address a major concern noted in the first research paper in this series: how inaccurate these technologies are (Underhill et al., 2025). The propensity of these tools to fabricate data has been well documented by scientific literature (Bender et al., 2021; Bhattacharyya et al., 2023; Emsley, 2023; Rawte, et al., 2023a; Rawte, et al., 2023b). However, student responses to the current question might indicate their hopes that these technologies will improve in the *future* to the point of providing accurate information more accessibly.

Information Creation

Students wrote that they hoped these technologies might help them to "think more and create new ideas" or to "promote the expansion of ideas and creativity." These responses centered on **knowledge production**, hinting at how automation might play a role in such production. The following quotes illustrate these sentiments:

> [I am hopeful for] Idea generation
>
> [I hope] It can help you think of more ideas on a subject matter.
>
> I believe AI will allow me to think more and create new ideas without having to spend as much time trying to find reliable sources online, as well as eventually being able to derive and compute complex formulas. I value my time and if it allows me to spend most of my time generating and refining my ideas, rather than doing the "grunt work" I feel that is a good thing.
>
> [I hope] It will be used for non-critical activities and promote expansion of ideas and creativity.
>
> [I hope] Someday they might be sophisticated enough to... brainstorm ideas.
>
> [I hope] People [use] it for inspiration on ideas.
>
> [I hope] They make great tools to help generate ideas.
>
> [I hope] It can be used for creative reasons [especially] with image generation as it can help those who aren't artistically inclined create their ideas.

Some responses identified they would like generative AI to do the "grunt work" or "non-critical activities" to allow them to focus on "generating and refining [their] ideas." Interestingly,

students mentioned the potential opportunity for automation in situations where they hoped to free themselves of unimportant work to focus on inspiration and creativity. These sentiments could be tied to the previous series paper on student concerns in which students expressed their deep desire to develop content knowledge rather than outsource their learning to generative AI tools (Underhill et al., 2025). In this question, students are again identifying they want to engage more deeply with ideas of interest to them, this time outsourcing potentially low-level tasks to generative AI so they can address high-level cognitive tasks.

Hopes: Harder, Better, Faster, Stronger

In addition to linking automation with more creative freedom, many students wrote of automation as supporting their **general productivity**, making them "more efficient," altering their workload, and cutting down on "nominal tasks." Students used terms like advancement, convenience, ease, enhancement, accelerate, and expand to describe these sentiments. Students described wanting to work harder, better, faster, stronger, like the Daft Punk song (Daft Punk, 2001). Students identified efficiency as an important consideration for them, as indicated in the following exemplars (emphasis by the authors):

> Cut back on busywork and make me more *efficient*
>
> Utilize such things to improve [workload] *efficiently* and help come up with new ideas
>
> I am hopeful AI will... make learning/work more *efficient*.
>
> [I hope generative AI will] Increase *efficiency*, consistency, and accuracy of information that is being shared out.
>
> AI makes putting information together very quick and *efficient*
>
> We will be more *efficient* and reduce the amount of nominal tasks
>
> I think it has great potential to make people more *efficient*.

The positive comments in this theme, while more tempered, still aligned with the overarching, sweepingly positive, technochauvinist/determinist hype cycle in that many AI companies assume that technology will automatically make learning, work, information-gathering, and people more efficient. Similarly, many comments communicated ideas such as convenience, ease, productivity, and competition, exemplified below:

> We will be able to utilize these tools to make our jobs much easier and reduce the amount of manpower required. I think this will help society a lot as we will be able to allocate people elsewhere...

> [I hope] They can genuinely be used as a copilot to get work done faster and better and learn more quickly.
>
> [I hope] that they will ease up workloads, help people brainstorm, and help people become more accomplished
>
> [I hope] That it will open up job opportunities for people, and make our jobs and lives easier.
>
> [I hope] That they'll be able to help people work more efficiently and get rid of some monotonous tasks.
>
> I am optimistic that Generative AI tools will be just that, tools to be used to make our work easier and more productive, to generate ideas, and not as a replacement for human creativity.
>
> I think AI can streamline processes, with human supervision...
>
> [I hope] They become very helpful personal assistants that empower creators to be more productive
>
> [I hope generative AI] Makes my life easier and more efficient.
>
> I hope this technology allows more people to do better and live better lives, to learn more and ask more questions, but to also learn proper discernment.

These comments allude to the goals of being optimized, more efficient, more creative, and more productive against a backdrop of real or perceived scarcity of time and resources. Our OSU students, like most online students, are busy, many of them taking classes while working (Aslanian & Fischer, 2024) and caring for their families (Venable, 2024). Further, students are operating within a capitalistic society which deems production the key determinant of human value in a zero-sum game where the stakes are high and rewards are meager (Odell, 2019). Taken together, the impulse to optimize their time and resources to be more productive makes sense. However, these comments do not critique implied goals or the capitalistic structures of competition that make these goals necessary, mainly, the societal expectations of overwork (Petersen, 2020) and spotless grades (Flaherty, 2024) to secure employment in an increasingly competitive job market (Weissman, 2024) while also being a perfect parent (Schulte, 2014).

Additionally, student responses did not question the utility of this technology to ameliorate the pressure of these societal narratives; it is assumed that generative AI would truly help them to become better students, employees, and parents. However, Ruha Benjamin (2020) argues that “the desire for objectivity, efficiency, profitability, and progress fuels the pursuit of technical fixes across many different social arenas,” further calcifying biases within these new

technologies and systems (p. 7). Further, Benjamin (2020) argues that seemingly "objective" systems not only hide, but "speed up, and even deepen discrimination" (p. 8), making it harder for students to repel overarching societal narratives about overwork and productivity inculcated within generative AI models. With these looming narratives of idealized education, work, and parenting, reified and amplified in generative AI tools, it is little wonder that online students look to new technologies to ease the pressure. However, as the Daft Punk (2001) song reminds us, "work is never over," calling into question the utility of these tools, especially in contrast to lasting societal shifts that would meaningfully decrease the pressure students experience.

Harder, Better, Faster, Stronger
Song by Daft Punk

Work it harder, make it better
Do it faster, makes us stronger
More than ever, hour after hour
Work is never over

Hopes: Learning & Education

Many students connected this technology to their coursework at OSU. Some referenced the **process of learning** and hoped instructors would replace busywork with meaningful assignments that would prompt students to think beyond a question that can be easily answered with an AI tool. The following quotes illustrate these sentiments:

> I really think AI can cut out so much [time-wasting] college [bureaucracy] for many students... can save professors time so they can actually enjoy their jobs without reading 6 pages of nonsense someone threw together an hour before the due date. It takes the stress off low stakes deadlines. As long as students know how to fact check, I see no issues with AI for low-weighted assignments.
>
> Using generative AI tools will save time during studying and understanding concepts in a way I cannot access from being an online student and not having direct contact with the professor.
>
> My biggest hope for the technology is that it will be developed in such a way that it can become more reliable, allowing for it to be used as an instructional tool (rather than a replacement of the instruction), and that it can aid students who struggle in the traditional lecture model (such as myself).
>
> I hope that universities can adapt and teach their students to use generative AI as a tool but not as a crutch. You still need to understand what you're looking at.
>
> [I hope for an] opportunity to integrate new technology in coursework, reframe the education system. The education system has been far too traditional and does not foster learning because the changes that have been made are minimal... School should

> be about experience, gaining skills, and feeling prepared to enter the workforce- not just all background and significance on your major. AI will force a restructuring that has been needed for a long time.

These students envision that generative AI would provide a learning experience focused on learning content, gaining skills, and being prepared for the workforce. Students assumed generative AI tools would be integrated into all levels of the academy, citing their own learning, instructor workloads, and university-wide bureaucracy. However, many more responses indicated concerns about how generative AI tools would impact the education and the learning process, addressed in the next section.

Concerns

In the first paper in this series, we summarized students concerns about generative AI (Underhill et al., 2025). In this paper, students were asked about their hopes for generative AI, but many voiced their concerns. Linguistically, many student responses used the question stem to frame their concerns e.g. “I hope that my concern does not occur.” The vague and shallow positive comments examined previously in this paper contrast sharply to the comments voicing concerns, which were rich, detailed, nuanced, contextual, and value laden.

Concerns: Learning & Education

In their responses to the question about hopes, many students expressed negative sentiments when it came to generative AI and their **educational experiences**. These responses were similar to those explored in detail in the previous paper in this series (Underhill et al., 2025). Students mentioned the inaccuracies of the technology and voiced policies they hoped would be implemented. The following exemplars illustrate these sentiments:

> Generative AI itself is not some bogeyman, but I am deeply concerned with its use in academics due to how it scrapes data from unwilling participants and mashes them together in ways that are often inaccurate. If an instructor ever gave me an assignment wherein the use of generative AI was required, I could see myself contacting the instructor to complain to them directly.

> [I hope] That it will be banned for all educational uses.

> I also hope that universities and other higher education institutions do not allow for their use or implement them into courses.

> [I hope] That I will graduate before AI is a requirement in classes.

> I hope that one day it's a reliable resource, but other than that I have zero interest in it being integrated into school.

These students strongly expressed their lack of enthusiasm for these technologies, saying they have “zero interest” in using AI for their course work or hoping to have concluded their work before generative AI integration. Similarly, students described a **disconnect** between using these technologies and learning, saying:

> I hope that students will be academically supported in the development of their OWN knowledge and skills instead of defaulting to using generative AI.
>
> [I hope] We develop policies to ensure students actually do their work and not just buy a degree without actually putting the work in; we aren't the [name of for-profit institution]
>
> Throw the whole thing out! If people can’t write an essay using their critical thinking skills and a little creativity then the education system has ultimately failed.

Students addressed the value of an education in relation to others that simply “buy a degree without actually putting in the work”; this student implied that peers who don’t “[put] in the work” cheapen the value of their peers’ degrees. Students also alluded to education as the antidote for skill degradation, implying that educational will have “ultimately failed” if students cannot use skills to complete their schoolwork. These concerns align with those addressed in the first paper in the series, mainly that generative AI tools would ultimately hamper the learning processes (Underhill et al., 2025), a sentiment confirmed in other work (Shaw et al., 2023).

Concerns: Technology Companies & Tools

Responses voicing concerns also centered on the **companies and generative AI tools** themselves. Many students wanted generative AI tools to go away: “I hope that it goes away”; “I hope it goes away for good.”; “I hope AI goes away.”; “That it will go away quietly and we will stop this nonsense.” Other students used stronger language to communicate their thoughts, demonstrated in the following quotes:

> I hope AI tools die.
>
> [I hope for] 1. The financial ruination of some arrogant dipsticks who bought into the technology too much. 2. Instilling a mounting sense of hopelessness among the general public which deters them from trying their hand at creation so my status as creator becomes more valuable.
>
> I hope it implodes and dies.
>
> [I hope] People will realize that the output of AI tools is untrustworthy and stop paying the companies that produce them.

> I hope this bubble will burst quickly so the companies and organizations that are orienting themselves around this technology are left holding the bag.
>
> [I hope] That the population will learn to accept that it does not "know" anything and is simply saying the most [probable] sentences, and that all generative ai companies will wipe their current models and rebuild them based on consensually obtained content
>
> [I hope] That they are banned and their companies sued into the ground for copyright infringement.
>
> [I hope] Companies will understand their limitations and quit laying off people to let Chatbots do jobs they really shouldn't be doing
>
> [I hope] That they always have an off switch.
>
> I hope every single AI tool gets blown to smithereens or something to that effect...

The forceful language of these comments is notable. Students not only said they wanted these tools to "die" or be "blown to smithereens," but they described other specific outcomes: they hoped for "a mounting sense of hopelessness among the general public" which dissuades them from using these tools, for the public to refrain from paying for these tools, for the generative AI bubble to burst, for the "financial ruination" of business leaders, for layoffs due to generative AI to cease. Students' language references specific outcomes linked to specific changes they identified in society: mass usage of these tools, large financial gains for leaders in the industry, and layoffs of frontline workers. And although students phrased these statements in the parlance of "hopes," their fears are strikingly clear. Further, these strong sentiments align with quantitative data included in our full report (pgs. 21-23) which asked students to identify emotions they felt regarding generative AI tools (Dello Stritto et al., 2024). Although students identified positively valanced emotions like curiosity and optimism, more than half (55.1%) chose "concerned" and over a quarter (28.3%) chose "anxious." Over 20% of students said they were "fearful" and 10% said they were "confused." Students also wrote in many emotions including angry, disappointed, annoyed, cautious, disgusted, frustrated and more. Taken together, quantitative and qualitative data indicate that students feel strongly about these tools.

Concerns: Ethics

Similar to concerns identified in the previous research paper in the series, students voiced **deep ethical concerns** about the development and deployment of generative AI technologies (Underhill et al., 2025). Students wrote they hoped for different tools trained "only on consented work" to produce "ethical" and "morally acceptable AI" that would "not steal personal work for its data." The following exemplars illustrate these thoughts:

> [I hope generative AI] become[s] ethical
>
> I hope it can be made to be more accurate in its generation and that it will not steal personal work for its data.
>
> [I hope] ...we could instead have tools which were able to be trained only on consented work, we could have morally acceptable AI...
>
> I hope that we are able to find a more ethical way to collect data to train these programs...
>
> [I hope] That it will be used ethically.
>
> I would like an increase in accuracy as well as notations/disclaimers where it was used in part or in whole.
>
> I hope it improves in some ways, including how to tell if something was ChatGPT created. Or [a] way to tell if images are AI created.
>
> [I hope] That they can be managed properly, and in a way where people can still retain ownership over their intellectual property.

These and other students identified the collection of training data as problematic, calling for regulations on what content is included in the datasets. Legal action might prompt technology companies to change the collection processes for training these tools in the future (Grynbaum & Mac, 2023; Robertson, 2024). However, student responses indicate latent and unbalanced power structures in which individual creators are unable to protect their intellectual property when in opposition to multi-billion-dollar technology companies.

Concerns: Regulation

A small number of students expressed more temperate views on generative AI, acknowledging the technology's usefulness while communicating broad **regulations** they wished would be implemented in workplaces and society. They hoped for "hard limits" and "regulations and clear legislation" to manage these evolving tools. The following quotes illustrate these thoughts:

> Honestly, I hope that we'll find that it has hard limits on its usefulness. However, I also hope that we culturally get a clear picture of what it's useful for and how to use it productively and adapt to that reality so that there isn't a stigma around using it where it makes sense.
>
> ...I hope it becomes strictly federally regulated sooner rather than later. Y'all ever seen "Terminator"?

> [I hope] That students and faculty will recognize the value and place of Generative AI tools in education, the workplace, and their personal lives. [I hope] That everyone will recognize the limitations of Generative AI and consider the ethical implications of generating text from a Large Language Model that may in fact be copied from elsewhere.
>
> I hope that legislation will force AI tool developers to train their algorithms only on content they have permission to use.
>
> I hope that more regulations and clear legislation is put in place with regards to the way that AI models are trained and used in both professional/commercial and personal contexts.

These students' language pointed to a recognition of the utility of this technology, but mentioned ethical, societal, and instructional limitations of these tools. Importantly, the last two exemplars alluded to the learning process, indicating students are active engineers of their educational experiences and deeply interested in true learning. These same concerns were identified by The Center for Humane Technology's framework to incentivize the responsible construction and use of artificial intelligence in the absence of federal regulation (Center for Humane Technology, 2024). In all, student responses regarding generative AI in the classroom were varied, expressing hopes and concerns, which is not surprising as they expressed similar diversity of opinions in the full report (Dello Stritto et al., 2024, p. 17).

Conclusion

In contrast to the previous question about concerns, the codes related to this hopes question did not solidify as readily into themes, as some students expressed positive sentiments about these tools while others expressed deep concerns. Some students voiced genuinely positive hopes for generative AI, envisioning increased access to and creation of information in the future. Imbued throughout many responses was the notion that generative AI would allow students to work harder, better, faster, stronger, giving them an advantage in the online classroom and on the competitive job market. However, students' positive responses used language that was vague and shallow, aligning with the Gartner Tech Hype Cycle's Peak of Inflated Expectations which consists of intentionally grandiose language to garner support for new technological innovations (Gartner, n.d.). The extravagant marketing language of these large technology companies is ingrained throughout students' positive statements about these tools, aligning with a technochauvinist vision of the world in which technology, specifically generative AI, will "help solve everything from climate change to cancer" (Naina and Perrigo, 2023). However, as Benjamin (2020, p. 8) reminds us, "the language of 'progress' is too easily weaponized against those who suffer most under oppressive systems" like biased algorithms. Further, techno determinist sentiments diminish the role of freewill, ignoring the fact that

technologies, systems, organizations, and nations always begin with and are guided by intelligent groups of humans who, although prone to their own biases, can also impact biased systems for the good of all, such as The Algorithmic Justice League (*Algorithmic Justice League - Unmasking AI Harms and Biases*, n.d.).

Student responses that expressed negative sentiment were considered "rich" qualitative data, meaning data that are deep, nuanced, complex, detailed, and contextual. Similarly deep responses were observed in the first paper in the series on student concerns, which contained many more themes compared to this paper on student responses to the question about their hopes. Students wrote of specific harms, negative outcomes, and concerns that they anticipated these generative AI tools would produce, demonstrating acute awareness of and knowledge about this emerging technology, as demonstrated in the first series paper (Underhill et al., 2025) and in our full report (Dello Stritto et al., 2024 pgs. 9-10). Their deep knowledge of these tools and the technology companies that create them, coupled with the fact that they expressed these concerns in a question specifically about hopes, only makes their concerns more striking. Indeed, previous research has found that even students with a good understanding of generative AI technologies may have meaningful reservations about them (Chan & Hu, 2023), aligning with our students' responses.

The positive comments expressed by students demonstrate the prevailing reductive techno-determinist sentiments in US culture that assume technological advancement is inevitable and always leads to social progress (Wyatt, 2008). Technological determinism reduces the role of freewill, effectively neutering dissent about the role and impact of technology on our societies and world. However, negative comments were buoyed by a self-determination that contrasts the techno determinism of the positive sentiments: students expressed deep concerns about the technology but outlined ways in which they and others might stem the tide of the supposedly inevitable technological progress through renewed ethical commitments, societal shifts, regulations, and restructuring/rebuilding tech companies by using consented data. Students expressed their hopes that humans would intervene on many seemingly intractable issues produced by these AI tools. They wrote of tech companies including disclaimers when generative AI tools were used, ethically sourcing training data, allowing creatives to retain their intellectual property, and deploying tools with "human supervision." They also expressed hopes that the general population would educate themselves about the true capabilities of these AI tools, realizing how "untrustworthy" the tools are, and refusing to pay for continued access to such programs. In all these instances, students rejected techno deterministic logics that insist technological "progress" is inevitable, instead envisioning the ethical and equitable world they would like to inhabit.

Recommendations

Instructors in online education can capitalize on student's self-determination to encourage academic success in several ways. First, instructors can invite students into discussions to question or critique the marketing language surrounding these tools. Students can identify inflated promises or unsubstantiated claims, improving media literacy, critical thinking, and research literacy skills. Second, instructors can invite students to test hype cycle claims through hands-on experience with these tools, putting marketing language to the test in real-time. For example, Ana-Maria M'Enesti from the College of Liberal Arts at OSU has her students analyze a given text, then prompt an AI system to analyze the same text before students compare and reflect upon the two analyses (M'Enesti, 2025). Our students are unafraid to engage with hard topics, identify risks, and consider how their values compel action or restraint. They are open to guidance from their instructors, providing an excellent opportunity for educators to engage with learners in ways that impact not just their educational experience but their lives.

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About the Ecampus Research Unit at Oregon State University

Vision

The Ecampus Research Unit strives to be leaders in the field of online higher education research through contributing new knowledge to the field, advancing research literacy, building researcher communities and guiding national conversations around actionable research in online teaching and learning.

Mission

The Ecampus Research Unit responds to and forecasts the needs and challenges of the online education field through conducting original research; fostering strategic collaborations; and creating evidence-based resources and tools that contribute to effective online teaching, learning and program administration.

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