# GenAI IN HIGHER EDUCATION:

## FALL 2023 UPDATE
## TIME FOR CLASS STUDY



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**STATEMENT OF INDEPENDENCE:**

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# EXECUTIVE SUMMARY

## GENERATIVE AI (GENAI) IN TEACHING AND LEARNING

In this report we provide the field an early look at longitudinal adoption of GenAI and offer our perspective on how the evolving use cases of this technology will impact teaching and learning in Higher Education in the long run.

Building on the foundation of the *Time for Class*[1] *(T4C) report released in Spring 2023*, Tyton conducted a pulse survey this fall, reaching over 1,000 higher education faculty and 1,600 current postsecondary students.

While T4C 2023 offered a comprehensive overview of digital learning in higher education, our recent research delves specifically into a pivotal emerging technology: GenAI writing tools (e.g., ChatGPT, Google Bard, Microsoft Bing Chat, or Meta Llama 2) and how it is being used by learners and instructors in a course setting.

Students and instructors have gained a new powerful tool in generative AI models. While use of GenAI has expanded significantly across the last 6 months, we would characterize the current use by instructors and student as nascent and unsophisticated. The ultimate impact on teaching and learning in higher education and workforce needs is still unknown. What we observe from March to September of 2023 is the following:

- Use of GenAI continues to grow and will be sticky:

  - Half of students are regular users of GenAI, putting higher education student adoption into the late majority on the adoption curve and yet, their use cases are relatively unsophisticated (apart from 12% of students identifying as daily users) (*Figure 1*)

  - 75% of students indicate that they will continue to use GenAI even if their professors or institutions ban the technology (*Figure 5*)

  - Faculty in higher education have come up the adoption curve by over 20 percentage points from March to September but still are not consistently setting course-level policies and significantly lagging students in their use of GenAI (*Figure 1*)

- GenAI is going to shape learning and the workforce:

  - A near majority of students in the Spring (49%) and Fall (47%) believe that GenAI will have a positive impact on their learning (*Figure 2*). While in the Spring, 50% of faculty believed that GenAI would have a negative impact on student learning, in the Fall, this figure declined to 39% indicating faculty are more open to the potential of GenAI to support learning (*Figure 2*)

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1.  Bharadwaj, P., Shaw, C., NeJame, L., Martin, S., Janson, N., & Fox, K. (2023, June). *Time for Class - 2023.* Tyton Partners.
    *tytonpartners.com/time-for-class-2023*

- Both faculty and students believe that GenAI tools will be needed to succeed in the workforce. An overwhelming 75% of faculty using GenAI believe graduates will need to know how to effectively use GenAI tools to succeed in a professional setting (*Figure 3*)

- Tensions exist between how students would like to use GenAI in their studies and what faculty will permit. These tensions are expected given students seek efficiency in learning and faculty want to ensure students are writing to convey learning without skipping critical pieces of the writing process

  - Faculty cite concern about academic integrity if 30%+ of a writing assignment's content is flagged as written by GenAI (*Figure 7*)

  - Students are about 10 percentage points more likely to find it acceptable to use generative AI tools to write at least some parts of an assignment compared to faculty (*Figure 8*)

# GENERAL TRENDS

From March 2023 to September 2023, we have seen GenAI usage rise dramatically, with faculty using[2] at 22% and nearly half (49%) of students using (*Figure 1*). Faculty, are approaching student adoption rates as of March 2023. Students have continued to leverage generative AI at a much higher rate than faculty.
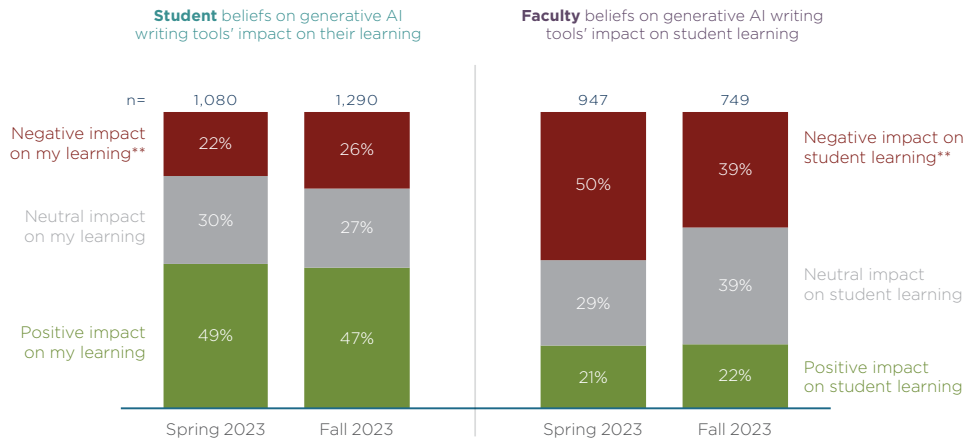
*Figure 1:*

## Adoption* of GenAI writing tools
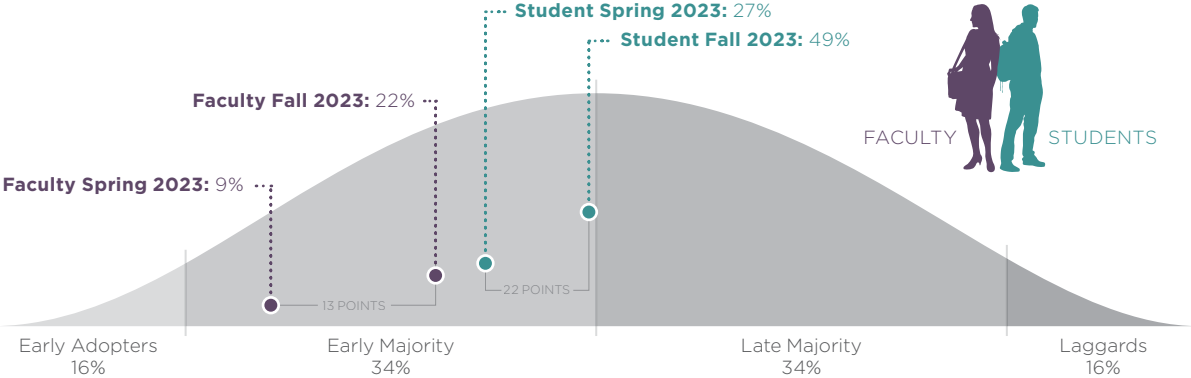


Notes: Survey question: "Which of the following best describes your own use of generative AI writing tools (e.g., ChatGPT)?"
Student n=1,601, Faculty n=1,001; *adoption is defined as monthly, weekly, or daily usage of generative AI writing tools
Sources: Time for Class 2023 (fielded in March 2023), Fall 2023 Student & Faculty Pulse Surveys, Tyton Partners analysis

With half of students using GenAI tools, it begs the question of how these tools will impact student learning. The findings, in *Figure 2* suggest that students have a much more positive view of how GenAI tools will impact their learning when compared to faculty. Half of all students in both the Fall and Spring surveys indicate that this emerging technology will have a positive impact on learning outcomes (*Figure 2*). Faculty tend to be more pessimistic than students in relation to how GenAI impacts student learning, although this negativity has decreased from the Spring (50%) until now (39%). This suggests that faculty are potentially becoming more aware of how positively impactful these tools can be when leveraged with student success in mind (*Figure 2*).

2. We define a respondent as a generative AI user if they state they use the technology at least once a month (inclusive of weekly and daily users).

*Figure 2:*

## Perceived impact of GenAI writing tools on student learning*



**Student** beliefs on generative AI writing tools' impact on their learning

**Faculty** beliefs on generative AI writing tools' impact on student learning

Notes: *Survey question: "For the next few questions, please read each pair of statements and decide to what extent you agree with one more than the other. If you are exactly neutral, please move the slider to center to record your response as 'Neutral.'", Positive = 0-33, Neutral = 34-66, Negative = 67-100 . **The difference between student negative attitudes is significant at p=.02; The difference between faculty negative attitudes is highly significant at p<0.0001

Sources: Time for Class 2023 (fielded in March 2023), Fall 2023 Student & Faculty Pulse Surveys, Tyton Partners analysis

Faculty recognize the practical applications of these tools, with the vast majority of AI-using faculty indicating that students will need to know how to leverage these tools for workplace success (*Figure 3*). Students also see the workplace value of GenAI tools, with 55% of student users indicating that they will need to know how to effectively use the tools for professional success (*Figure 3*). Instructors might not think GenAI is useful for learning, but they do believe students should learn it for their future jobs. To resolve these perspectives, institutional leaders and vendors might need to intervene.

*Figure 3:*

## Beliefs on whether GenAI writing tools will be needed for work



**Student** beliefs on whether they need to know how to effectively use generative AI writing tools to succeed in professional settings

**Faculty** beliefs on whether students need to know how to effectively use generative AI writing tools to succeed in professional settings
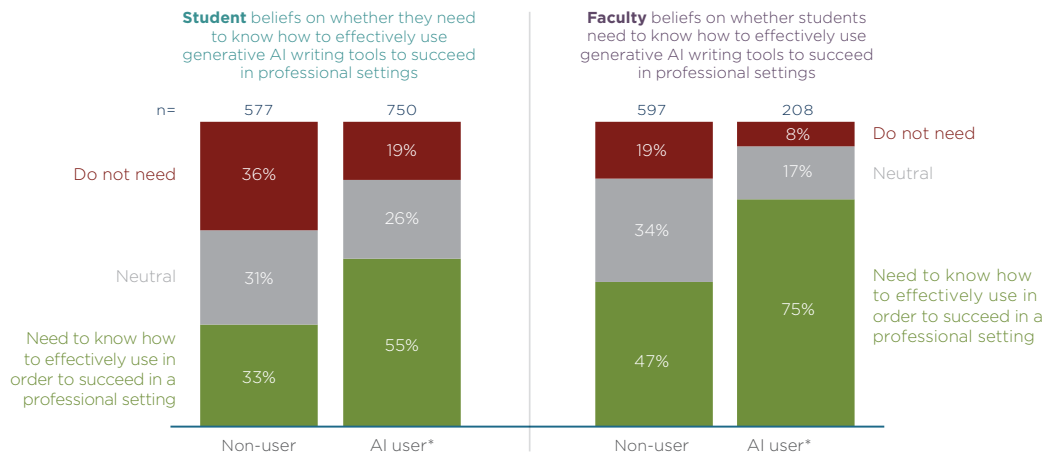
Notes: Survey question: "For the next few questions, please read each pair of statements and decide to what extent you agree with one more than the other. If you are exactly neutral, please move the slider to center to record your response as 'Neutral.'", Positive = 0-33, Neutral = 34-66, Negative = 67-100; *AI users refer to those who use generative AI writing tools monthly, weekly, or daily; non-users may have experimented with GenAI once or twice.
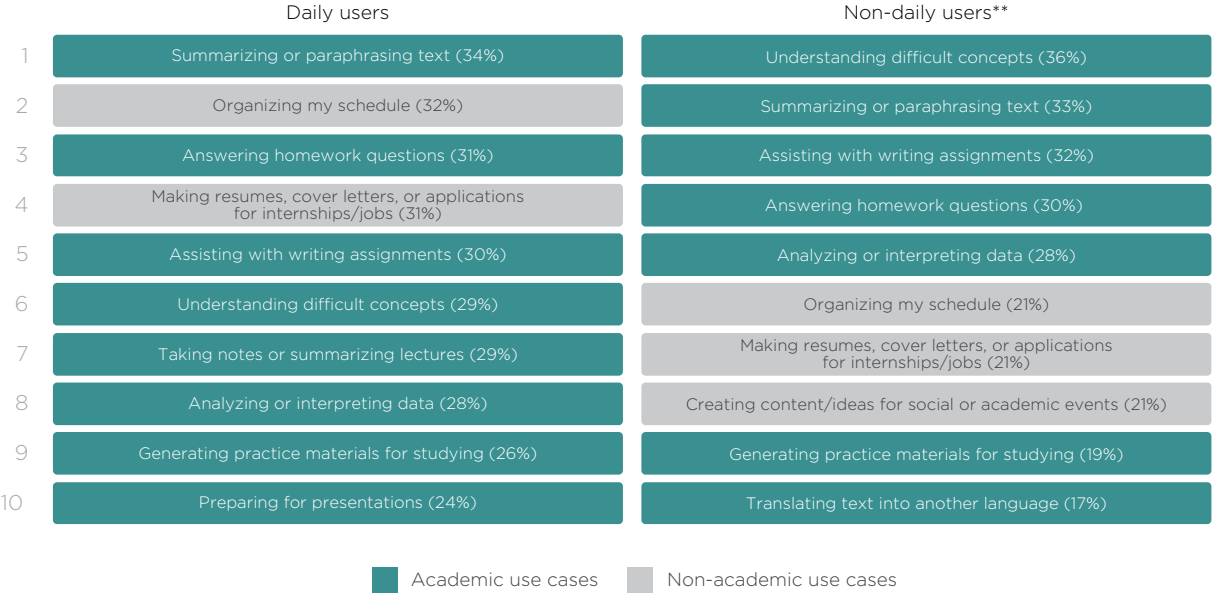
Sources: Fall 2023 Student & Faculty Pulse Surveys, Tyton Partners analysis

# STUDENT USE: STUDENTS LEVERAGE GENAI IN AND OUTSIDE OF STUDIES

Students that use GenAI tools report seeing value in their current learning and future workforce. Moreover, we predict that students will share usage tips amongst peers, leading to quick maturation of some of the common use cases we share below.

*Figure 4:*

## Top 10 student GenAI use cases*

| | Daily users | Non-daily users** |
|---|---|---|
| 1 | Summarizing or paraphrasing text (34%) | Understanding difficult concepts (36%) |
| 2 | Organizing my schedule (32%) | Summarizing or paraphrasing text (33%) |
| 3 | Answering homework questions (31%) | Assisting with writing assignments (32%) |
| 4 | Making resumes, cover letters, or applications for internships/jobs (31%) | Answering homework questions (30%) |
| 5 | Assisting with writing assignments (30%) | Analyzing or interpreting data (28%) |
| 6 | Understanding difficult concepts (29%) | Organizing my schedule (21%) |
| 7 | Taking notes or summarizing lectures (29%) | Making resumes, cover letters, or applications for internships/jobs (21%) |
| 8 | Analyzing or interpreting data (28%) | Creating content/ideas for social or academic events (21%) |
| 9 | Generating practice materials for studying (26%) | Generating practice materials for studying (19%) |
| 10 | Preparing for presentations (24%) | Translating text into another language (17%) |

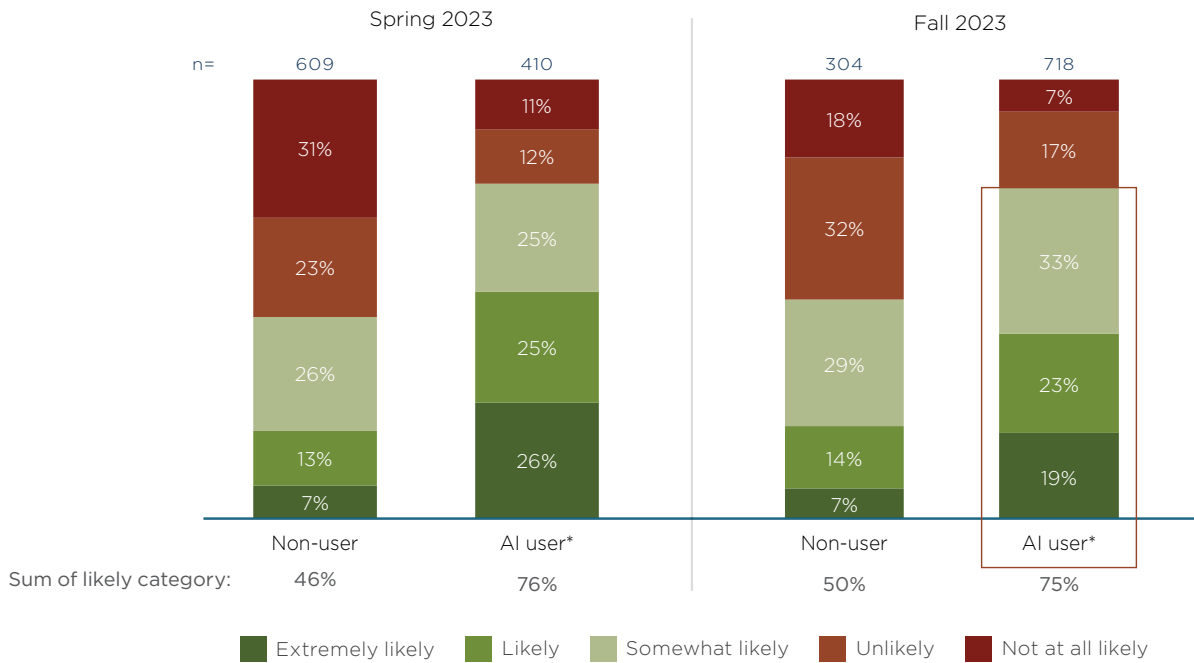■ Academic use cases    ■ Non-academic use cases

Notes: *Survey question: "What do you use generative AI (e.g., ChatGPT) for in your studies? Select all that apply.",
Daily n=197, Non-daily n=594; ** Non-daily AI users refer to those who use generative AI writing tools monthly, weekly
Sources: Fall 2023 Student Pulse Survey, Tyton Partners analysis

Currently, non-daily GenAI users (i.e., monthly or weekly users) leverage GenAI tools for learning-specific use cases (see top five selections in *Figure 4*). Their top three use cases may only come about when a relevant writing assignment does or when there's a difficult concept to unpack using GenAI. Daily users, in contrast, are leveraging GenAI tools for a mix of academic and non-academic activities. Moving beyond specific use cases, this mix of academic and non-academic use cases signals a maturity of usage for daily GenAI users – these students are thinking of these tools as efficiency drivers to turn to in their day-to-day tasks, not just tools for learning.

*Figure 5:*

## Student likelihood to continue to use GenAI writing tools despite restrictions



| | Spring 2023 | | Fall 2023 | |
|---|---|---|---|---|
| n= | 609 | 410 | 304 | 718 |
| | Non-user | AI user* | Non-user | AI user* |
| Sum of likely category: | 46% | 76% | 50% | 75% |

Legend: ■ Extremely likely  ■ Likely  ■ Somewhat likely  ■ Unlikely  ■ Not at all likely

Notes: Survey question: "If your instructor or institution prohibits the use of generative AI writing tools, how likely are you to still use something like ChatGPT?" *AI users refer to those who use generative AI writing tools monthly, weekly, or daily; non-users may have experimented with GenAI once or twice.
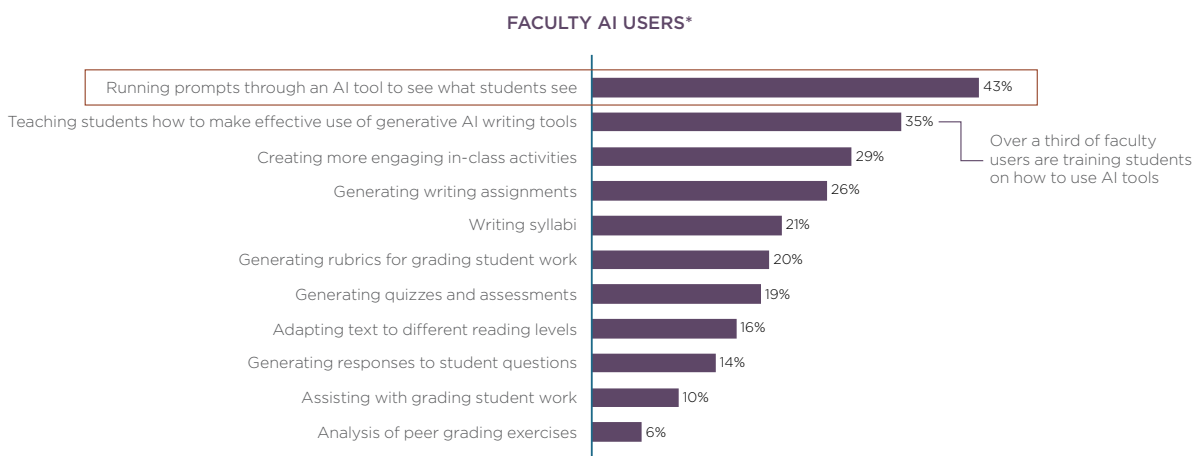
Sources: Time for Class 2023 (fielded in March 2023), Fall 2023 Student Pulse Survey, Tyton Partners analysis

Finally, as seen in *Figure 5*, students indicate they will continue to use GenAI writing tools for their studies even if their instructor or institution were to ban them. This indicates that student use will persist moving forward, further creating a need for faculty to understand GenAI's use cases and at the very least be aware of how students are leveraging GenAI in their daily lives as well as for learning.

# FACULTY USE: FACULTY WANT TO SEE WHAT STUDENTS SEE

While only 22% of faculty are using the tools, faculty are primarily using GenAI to understand what their students see when they use the tools and to help teach students how to use the tools most effectively (*Figure 6*). Given data in *Figure 3* where faculty reveal they strongly believe that GenAI tools will be needed for students' future professional success, it makes sense that faculty are spending time making sure student know how to effectively use GenAI writing tools. Faculty are also using GenAI tools to work more efficiently (bottom half of the list on *Figure 6*), albeit not widely at this stage: creating class activities, writing syllabi, creating rubrics and assessments, adapting text, responding to student questions, and grading student work.

*Figure 6:*

## Current faculty uses of GenAI writing tools

**FACULTY AI USERS***



| | |
|---|---|
| Running prompts through an AI tool to see what students see | 43% |
| Teaching students how to make effective use of generative AI writing tools | 35% |
| Creating more engaging in-class activities | 29% |
| Generating writing assignments | 26% |
| Writing syllabi | 21% |
| Generating rubrics for grading student work | 20% |
| Generating quizzes and assessments | 19% |
| Adapting text to different reading levels | 16% |
| Generating responses to student questions | 14% |
| Assisting with grading student work | 10% |
| Analysis of peer grading exercises | 6% |

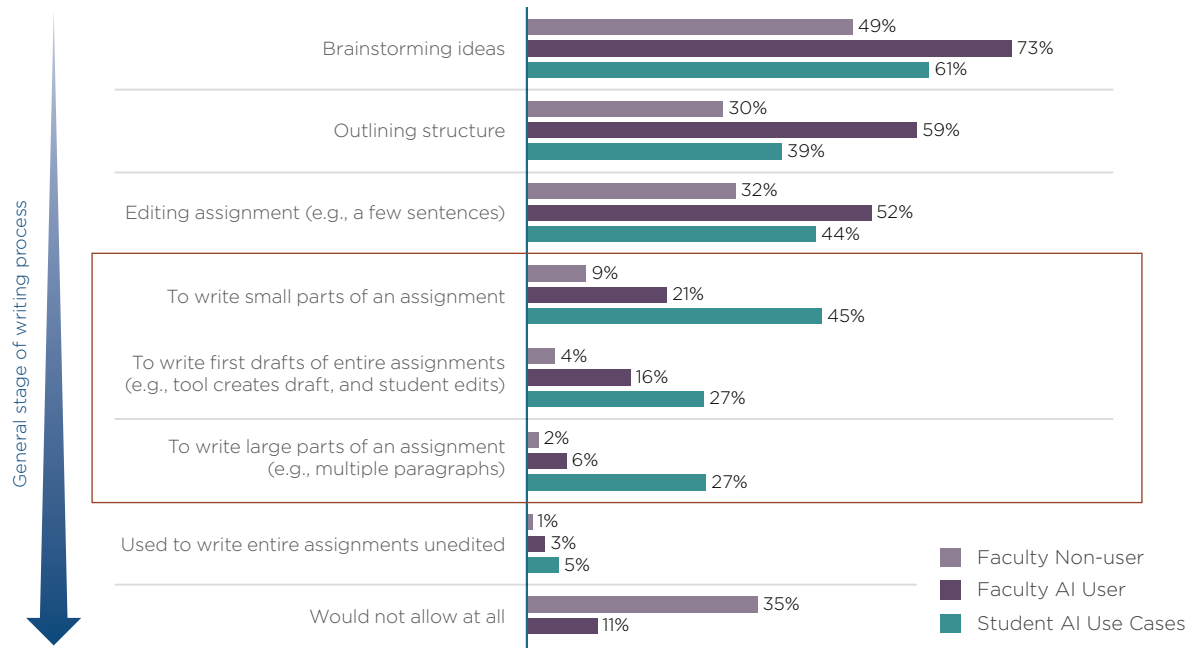Over a third of faculty users are training students on how to use AI tools

*Notes: Survey question: "You indicated that you use generative AI writing tools. Please indicate how you have used these tools as it relates to teaching and learning. Select all that apply.", n=217, answer choices "Other, please specify" and "I do not use generative AI tools for anything related to teaching and learning" excluded from analysis; *AI users refer to those who use generative AI writing tools monthly, weekly, or daily; non-users may have experimented with GenAI once or twice.*
*Sources: Fall 2023 Faculty Pulse Survey, Tyton Partners analysis*

We see in *Figure 7* that most Faculty AI Users allow AI to be used for brainstorming ideas, outlining structure, and editing writing assignments, with near 20% of AI-using faculty allowing even small parts or first drafts of entire assignments to be written by a generative AI tool. However, students are far exceeding the boundaries that faculty are setting. 2% of Faculty Non-users and 6% of Faculty AI users permit GenAI to be used by students for writing large parts of assignments, while 27% of AI-using students report leveraging AI for this writing use case; nearly half of all AI-using students are leveraging tools to write small parts of assignments despite 9% of non-using faculty and 21% of AI-using faculty permitting it (*Figure 7*).

## Faculty permitted use cases for GenAI and what students indicate doing* **



General stage of writing process

| | |
|---|---|
| Brainstorming ideas | 49% / 73% / 61% |
| Outlining structure | 30% / 59% / 39% |
| Editing assignment (e.g., a few sentences) | 32% / 52% / 44% |
| To write small parts of an assignment | 9% / 21% / 45% |
| To write first drafts of entire assignments (e.g., tool creates draft, and student edits) | 4% / 16% / 27% |
| To write large parts of an assignment (e.g., multiple paragraphs) | 2% / 6% / 27% |
| Used to write entire assignments unedited | 1% / 3% / 5% |
| Would not allow at all | 35% / 11% |

Legend:
- Faculty Non-user
- Faculty AI User
- Student AI Use Cases

*Notes: \*Survey question: "Please indicate which of the below you would allow students to use generative AI writing tools for in your courses. Select all that apply.", Non-user n=634, AI user n=217; \*\*AI users refer to those who use generative AI writing tools monthly, weekly, or daily; non-users may have experimented with GenAI once or twice.*
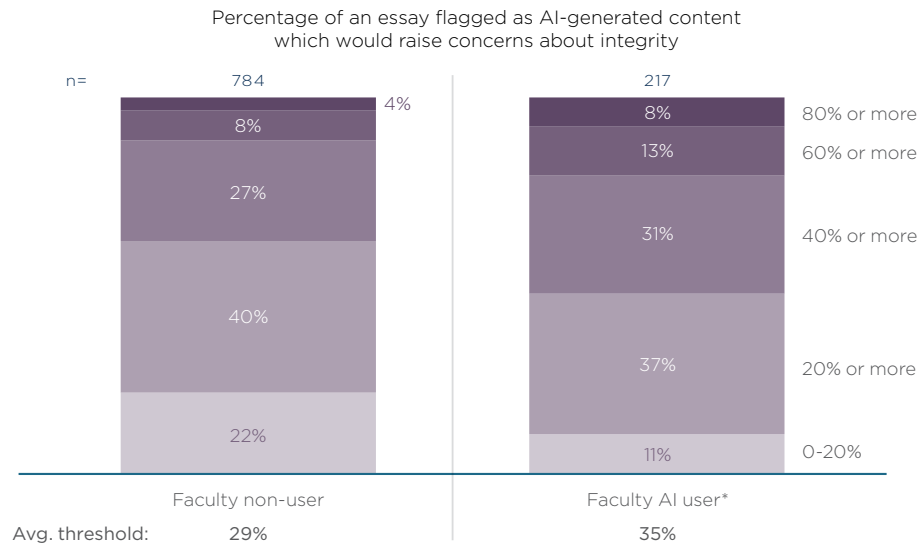*Sources: Fall 2023 Student & Faculty Pulse Surveys, Tyton Partners analysis*

Despite having many relatively permissive use cases for GenAI in teaching, faculty typically have clear boundaries and thresholds for acceptable student generative AI use for coursework – particularly for writing. Writing assessments are still among the most frequently used techniques by faculty; data from our survey reveal that 61% of faculty use short answer questions and 45% use essays as an assessment technique. If using an AI detection tool[3], instructors permit about 30% of content to be flagged as AI-generated before being concerned about integrity, with that threshold slightly larger for AI-using faculty (*Figure 8*).

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3. We define an AI detection tools as a product that analyzes student writing and reports back on flags for AI generated content. Note, not all AI generated writing automatically counts a misconduct.

## Faculty thresholds for AI-generated content

Percentage of an essay flagged as AI-generated content
which would raise concerns about integrity



| | Faculty non-user | Faculty AI user* |
|---|---|---|
| n= | 784 | 217 |
| Avg. threshold: | 29% | 35% |

Faculty non-user bars: 4%, 8%, 27%, 40%, 22%

Faculty AI user bars: 8% (80% or more), 13% (60% or more), 31% (40% or more), 37% (20% or more), 11% (0-20%)

*Notes: Survey question: "At what percentage of an essay being flagged as AI-generated content do you begin to be concerned about the essay's integrity?"; *AI users refer to those who use generative AI writing tools monthly, weekly, or daily*
*Sources: Fall 2023 Faculty Pulse Survey, Tyton Partners analysis*

Clearly articulated GenAI policies, deterrents to back policies up, and AI detection tools to provide data and information to educators are all measures to consider deploying to ensure these tools are being used within the academic integrity boundaries set by faculty and/or institutions.

# GENAI POLICY MAKING

Our survey interrogates the state of institutional policy-making on GenAI tools. Across all sectors of higher education, faculty revealed that generative AI policies are primarily made at the institutional (25%) and individual course (21%) levels.[4] AI-using faculty are more likely to regulate GenAI (57% vs. 45% of non-AI using faculty) and less likely to ban it (7% vs. 23% of non-AI-using faculty) indicating that using generative AI gives faculty a more nuanced perspective on the innovation's potential to positively contribute to learning.

*Figure 9:*

## Primary GenAI policy-making level*
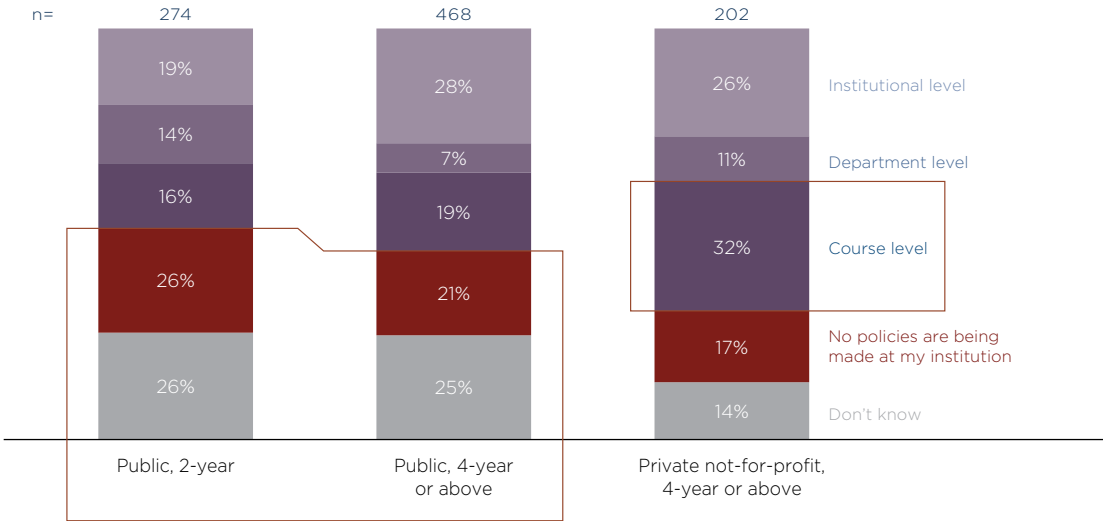


Note: *Survey question: "Where are policies regarding the use of generative AI writing tools like ChatGPT primarily being made at your institution?", no significant differences seen by discipline or institution size*

*Sources: Fall 2023 Faculty Pulse Survey, Tyton Partners analysis*

Private 4-year institutions are the most likely to put GenAI policy decisions in the hands of faculty at the course level (32% vs. 21% overall); at 2-year institutions, fewer policies exist overall.

Not surprisingly, policy-making tends to be slower than student adoption. WICHE Cooperative for Educational Technologies (WCET) has also called out the nascent use of AI to support instruction without systematic action on the policy-front.[5] However, it is concerning that policies about GenAI in teaching and learning mostly focus on academic integrity, without addressing issues like bias in large language models and lack of accessibility support, such as text-to-speech for visually impaired users. This shows that there's a need to enhance initial drafts of GenAI policies and a need for collaboration and knowledge sharing across institutions.

4.  Future policy-making may be done at the assignment-level.
5.  Sebesta, J., and Davis, V. L. (2023, June 30). Supporting Instruction and Learning through Artificial Intelligence: A Survey of Institutional Practices & Policies. WICHE Cooperative for Educational Technologies. *wcet.wiche.edu/resources/wcetreport-supporting-instruction-learning-through-artificial-intelligence-a-survey-ofinstitutional-practices-policies*

# HOW GENAI MIGHT IMPACT TEACHING & LEARNING MOVING FORWARD

While adoption of GenAI in higher education is growing, we predict that the longer-term impact of GenAI writing tools (e.g., ChatGPT, Google Bard, Microsoft Bing Chat, or Meta Llama 2) on learning and student outcomes is yet to be revealed. Here are trends to watch:

1. Students and faculty believe GenAI has the **potential to improve student learning outcomes**. From March to September 2023, student beliefs about GenAI's impact on learning remain steadily positive and faculty sentiment has become less negative (*Figure 2*).

2. GenAI has the potential to become **ubiquitous for all actors in higher education**. GenAI can create content with many applications and change tasks to be done by humans both in entry-level roles as well as in later career stages. As our survey data suggests, GenAI will be an important tool for all students to leverage as they prepare for the workforce and institutional stakeholders believe that they must help students learn to use GenAI for their future jobs (*Figure 3*). While faculty recognize the significance of GenAI on the future of students' careers, they are not personally experimenting and learning how to use GenAI at the same rate as students, suggesting that institutional leaders and/or the vendor community need to play a strategic role(s) in helping students learn to use GenAI in preparation for work. One potential mechanism for this strategic support could be for institutional leaders and solution providers to train educators on GenAI writing tools, propose ways to evolve instructional practices to include GenAI tools, and improve AI-literacy.

3. GenAI can **increase productivity and efficiency for instructors and students**. Faculty in higher education are starting to codify ways to leverage GenAI for efficiencies in grading, assessment, and other time-intensive tasks, thereby freeing up bandwidth for other elements of instruction (*Figure 6*). Students who are daily users (*Figure 4*) evenly use GenAI in and outside the classroom.

4. GenAI **brings ethical considerations and challenges to equity in education**. GenAI raises ethical concerns, including issues related to data privacy, bias in algorithms, and accessibility for all learners. While we are in the early stages of setting institutional policies (*Figure 9*), now is the time to implement policies that address challenges in accessibility and bias that may arise through use on GenAI tools for learning.
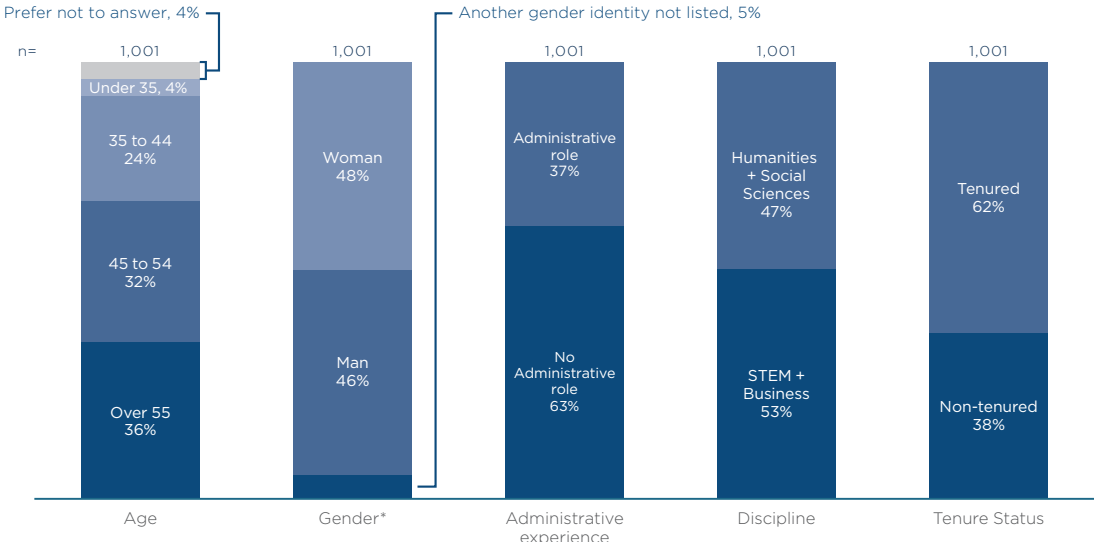
# DEMOGRAPHICS

This specialized research is the result of two separate surveys: one fielded in March 2023 and one fielded in September 2023. For detailed demographics on our Spring 2023 survey, please see *Time for Class 2023*. Our Fall 2023 survey included data from approximately 1,600 students and 1,000 faculty across more than 600 unique higher education institutions.

Our fall survey captured a wide range of voices from faculty and students across the nation. It reflected diversity in critical segmentation variables such as age, type of institution, and primary discipline. It's worth noting that not every question was posed to every participant, leading to varying response counts by segment. Please also note that due to rounding, total percentages in the analyses shown in this report might slightly deviate from 100%. As a final note on methodological logistics, segments with insufficient statistical significance and/or too few responses were excluded from our reported analyses.
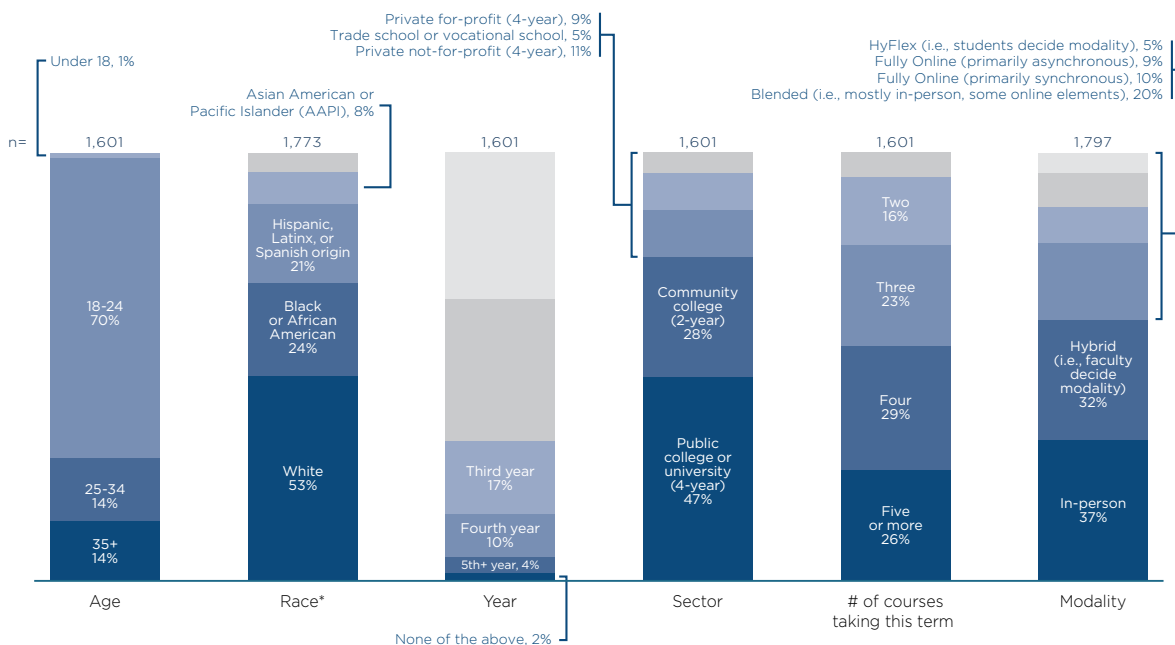
*Figure 10:*

## Overview of instructor survey respondents



Notes: *~1% of respondents indicated that they either (1) identify as non-binary, or (2) prefer not to answer the question

Sources: Fall 2023 Faculty Pulse Survey, Tyton Partners analysis

## Figure 11:

## Overview of student survey respondent demographics



Notes: * "Other" includes respondents who indicate that they (a) prefer not to answer (n=10), (b) identify with another racial identity not listed (n=25), and/or (c) identify as American Indian or an Alaskan Native (n=38)

Sources: Fall 2023 Student Pulse Survey, Tyton Partners analysis

## Figure 12:

## Overview of student survey respondent life experiences
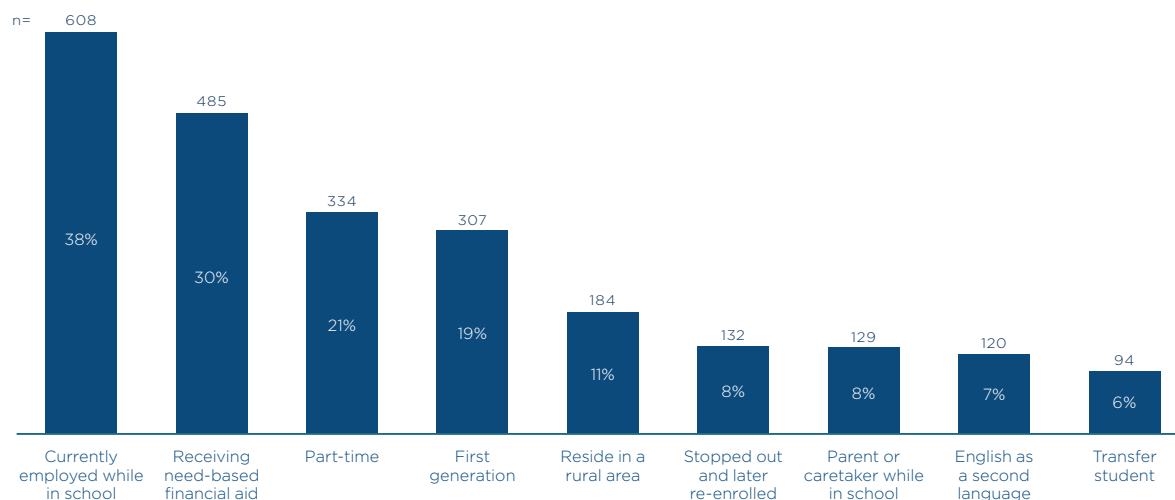


Sources: Fall 2023 Student Pulse Survey, Tyton Partners analysis

Like all surveys, there's potential for bias in this one. Respondents opting for a digital survey might be inclined towards digital technology. Similarly, those discussing their experiences with digital learning tools could have more pronounced views compared to non-participants.

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